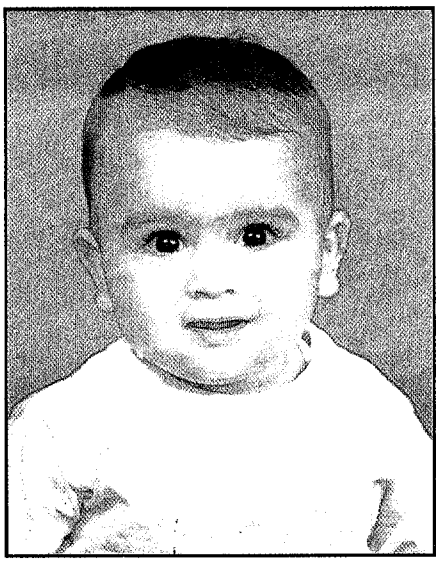
PD-ABN-710

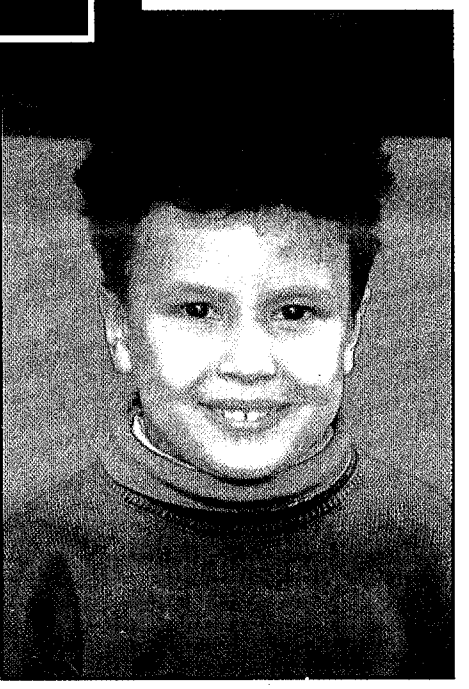
The Child Survival Project Egypt 1985–96

Child Survival Project

Funded by the Ministry of Health and Population and USAID

Project No. 263-0203





Vital Statistics		Year	Source
Birth Rate/1000 population	28.6	1994	CAPMAS
Crude Death Rate/1000 population	6.8	1994	CAPMAS
Growth Rate/1000 population	21.8	1994	CAPMAS
Maternal Mortality/100,000 births	174.0	1992–93	*
Infant Mortality Rate/1000 live births	62.6	1991–95	DHS
Neonatal Mortality/1000 live births	30.4	1991–95	DHS
Post-Neonatal Mortality/1000 live births	32.3	1991–95	DHS
Ratio of NNM to IMR	0.49	1991–95	DHS
Child Mortality Rate (aged 1 through 4 years)/1000 live births	19.2	1991–95	DHS
Child Mortality Rate (aged under 5 years)/1000 live births	80.6	1991–95	DHS
Life Expectancy at Birth—Females	66.4 years	1991	CAPMAS
Life Expectancy at Birth—Males	62.9 years	1991	CAPMAS

CAPMAS data from Annual Statistics Book: 1952–94, pp 40–55. This 1994 publication refers to 1990 data. Cairo, 1994.

DHS data from an unpublished 1995 report.

**National Maternal Mortality Study: Findings and Conclusions*, MOH Child Survival Project, Cairo, 1994.

Geography and Demography

The Arab Republic of Egypt covers an area of about one million square kilometers. The majority of the Egyptian population lives along the narrow strip of irrigated land bordering the river Nile and in the Nile Delta region, an area that represents only 4 percent of Egypt.

In 1995, the population was estimated to be 58.98 million, the estimated mid-year population for 1996 was 60.60 million, with a population density of approximately 1152 persons per square kilometer of inhabitable land. The urban population is estimated at about 44 percent of the total. The number of live births in 1994 was reported by CAPMAS to be 1.746 million; the number of children under 5 years of age as of July 1994, 9.319 million.

Literacy (1993) was estimated as 64 percent for males, 41 percent for females.

Health Services

Governorate-level Health Services

At the governorate level, an undersecretary or director general is responsible for implementation of health programs. S/he manages the governorate health directorate and administers the district health offices in the governorate. There are 27 health directorates, one in each of the 27 governorates.

District-level Health Services

Health services in each district are headed by a district health officer, assisted by a technical team. The district health office is responsible for supervising the first and secondary health levels, which include general, district, and fever hospitals; urban maternal child health care centers; urban health clinics; rural hospitals; rural health centers; and rural health units.

In theory, most of the population has access to a public health facility within five kilometers. About 40 percent of patients go directly to large hospitals and polyclinics. Private practitioners and clinics serve a large proportion of patients, accounting for more than 40 percent of health services provided.

About 20 percent of the population utilizes the peripheral centers and units. On average, a rural health unit serves a population of 5000, while a rural health center serves a population of 10,000–25,000.

There are a total of about 85,000 physicians in practice, of whom about 30,000 work full- or part-time with the Ministry of Health and Population. All newly-registered physicians are assigned for one year (out of four in MOHP service) to a rural health facility.

First- and Second-Level Health Facilities	
Category	*Number*
Hospitals	
General	52
District	168
Fever	86
Chest Hospitals	32
Child Hospitals	3
Primary Health Care Units	
MCH Centers	214
Urban Health Centers	201
Rural Health Centers	419
Rural Hospitals	171
Rural Health Units	2255

Government Administrative Levels in Egypt

Central Level: The President, The People's Assembly, the *Shura* Council (Consultative Upper House), the Judiciary, and the Cabinet are the key constitutional agencies of the government, within a parliamentary multi-party system.

Governorate Level: There are 27 regional administrative units, or governorates, responsible for carrying out various programs based on national policy and advice from elected regional councils. The administration of education, health, social affairs, and other functions is under the governor. Each governorate has a health directorate.

District Level: The district is an administrative unit under the governorate. There are 231 districts (urban and rural). Each district includes a health office working under the supervision of the governorate health directorate. District subdivisions are termed *kisms* in urban areas and *markas* if they include urban and rural populations.

***Sheyakha*/Villages:** The *sheyakha* is the urban subdivision of the *markas*, and is the basic and smallest administrative unit in Egypt. The rural subdivision of the *markas* is the village. There are some 4500 villages in the country, with average population ranging between 5000 and 9000 inhabitants.

PD-ABN-710

The Child Survival Project—Egypt, 1985-96

Final Report

Ministry of Health and Population
Child Survival Project
Funded by USAID and MOHP
Project No. 263-0203

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Arab Republic of Egypt

Ministry of Health and Population

Child Survival Project

1, Abd El-Megeed El-Remaly Street
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Funded by USAID (Project No. 263-0203) and MOHP

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Acknowledgments

On behalf of the Child Survival Project, we acknowledge the strong support of His Excellency, the Minister of Health and Population, and the tremendous efforts of our senior supervisors, colleagues, and Project staff in the implementation of the Child Survival Project.

Special recognition is given to the governorate and district health personnel who have made important contributions to the health and welfare of children and women through the management and provision of maternal and child health services.

Sincere appreciation is expressed to the United States Agency for International Development for its major support and also to UNICEF and the World Health Organization, and to Clark Atlanta University and the US Centers for Disease Control and Prevention for their technical assistance.

All of those who are acknowledged above have, through their commitment and continual efforts, helped the MOHP Child Survival Program achieve its significantly high level of success in improving and saving the lives of Egyptian women and children.

There is no higher action in life than to help save a life. For this, we respectfully and humbly extend our gratitude and appreciation.

Esmat

Dr. Esmat Mansour
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June 1996

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Acronyms and Abbreviations

AFP	Acute Flaccid Paralysis
ARI	Acute Respiratory Infection, ARI Control Program
BCG	Bacillus Calmette-Guérin
CAPMAS	Central Agency for Public Mobilization and Statistics
CAU	Clark Atlanta University
CDC	(US) Centers for Disease Control and Prevention
CMR	Child Mortality Rate
COP	Chief of Party
CS	Child Spacing
CSP	Child Survival Project
DecHIS	Decentralized Health Information System
DHS	(Egyptian) Demographic and Health Survey
DPT	Diphtheria, Pertussis, Tetanus Vaccine
EMRO	Eastern Mediterranean Regional Office of the WHO
EPI	Expanded Program on Immunization
FETP	Field Epidemiology Training Program
FETU	Field Epidemiology Training Unit
GOE	Government of Egypt
HB	Hepatitis B, Hepatitis B Vaccine
HIS	Health Information System
ICM	Infant and Child Mortality
IEC	Information, Education, and Communication
IMR	Infant Mortality Rate
KAP	Knowledge, Attitude, and Practice Survey
LBW	Low Birth Weight
MCH	Maternal and Child Health
MOHP	Ministry of Health and Population
NID	National Immunization Day
NNT	Neonatal Tetanus
OPV	Oral Polio Vaccine
PHC	Primary Health Care
PIL	USAID Project Implementation Letter
SCM	Standard Case Management

TOPV	Trivalent Oral Polio Vaccine
TT	Tetanus Toxoid
TV	Television
UNICEF	United Nations Children's Fund
US	United States of America
USAID	US Agency for International Development
VACSERA	Egyptian Organization for Biological Products and Vaccines
WHO	World Health Organization

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The Child Survival Project—Egypt, 1985–96

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Message from His Excellency, the Minister of Health and Population

I would like to extend my appreciation to the Ministry of Health and Population staff for their excellent achievements through the Child Survival Project, which have had a significant impact on improving the health of women and children.

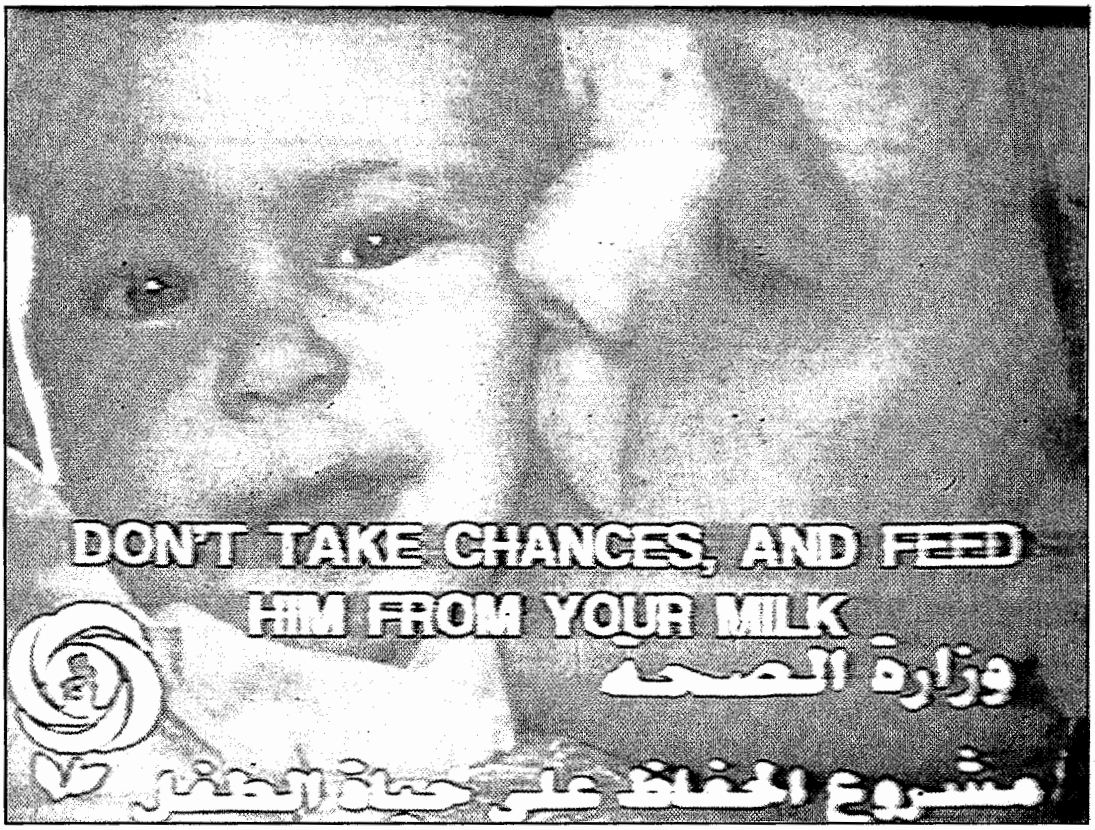
The Child Survival Project has been very successful and fulfilled many of the objectives set by President Hosni Mubarak in his Declaration for the Egyptian Child Care Decade (1989–99) and the President's Health Objectives for the Year 2000 (World Summit on the Child Decade Goals).

In 1995, the Child Survival Project received an award from the World Health Organization in recognition of its outstanding contribution to health development in Egypt. It was cited as one of the best child health projects in the Eastern Mediterranean region.

This Project has truly served as a model for achieving success in the delivery of health care services that have saved the lives of women and children and improved their health status.

Prof. Ismail Sallam
The Minister for Health and Population
Arab Republic of Egypt

August 1996



Executive Summary

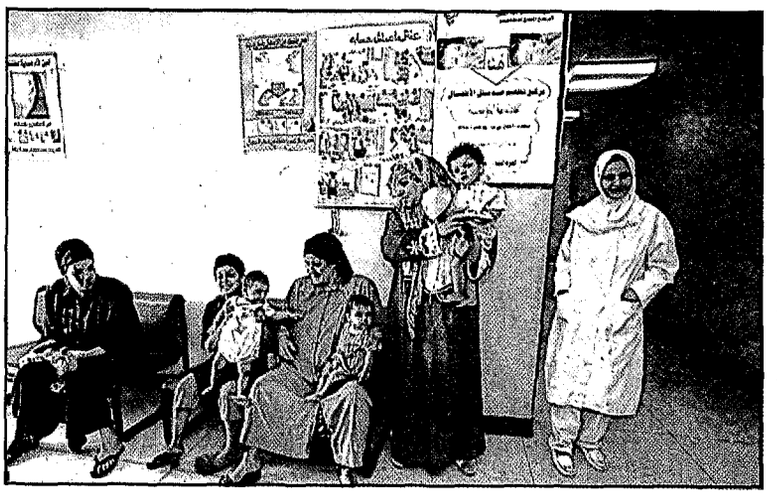
THIS REPORT DOCUMENTS THE ACCOMPLISHMENTS, ACTIVITIES AND LESSONS LEARNED during the Child Survival Project (CSP) between 1985-96. This Project was supported by the Government of Egypt (GOE), Ministry of Health and Population (MOHP), and United States Agency for International Development (USAID), and implemented with technical assistance from Clark Atlanta University (CAU).

The final assessment of the CSP was conducted in April 1996 by a team of external evaluators. The Final Assessment Report, which was produced as a result of the evaluation, states the following conclusions in reference to the achievements of the CSP:

"The CSP has been a very successful project and has achieved most of the objectives established in the Project Paper.

"The EPI component is acknowledged to be the most successful of the three components: it has either attained, or almost attained, all of its objectives.

- 79 percent of health districts are polio free, with only 71 reported confirmed cases found in 1995 (down from 550 in 1988). If current strategies, including National Immunization Days and Polio Mop-up campaigns are sustained and a sensitive surveillance system, capable of detecting all acute flaccid paralysis cases continues to improve, Egypt should attain its "zero confirmed cases of polio" objective by 1997.



- Vaccination coverage has been maintained at more than 80 percent since 1988. At least 83 percent of 231 health districts have achieved 80 percent coverage. The 1995 Egypt Demographic and Health Survey (DHS) noted 79 percent fully immunized coverage [excluding Hepatitis B3 (HB3)].
- An 89 percent reduction has been achieved in neonatal tetanus since 1986. Seventy-six percent of districts have <1 reported case per 1000 live births.

"A highlight of the EPI program, and of the development of Egypt's support for it, is the Government of Egypt's (GOE) assumption of financial support for the program. In 1992 the GOE had zero funding for the imported EPI vaccines (polio, DPT, measles and part of BCG). However, as the CSP ends, the GOE is picking up total support: vaccine costs alone in 1996/1997 are $28 million, to be borne by the GOE.

"A national ARI control program based on standard case management (SCM) has been impressively established in all the 27 governorates: it is one of the first such programs in the world. CSP estimates access to SCM for ARI to be 87 percent. CSP achieved this success through skillfully handling all the complexities of creating the required support components—planning, manpower development, equipment, supply line, information system, research and Information, Education and Communication (IEC).

"The CS/MCH component conducted varied and often innovative activities and programs, in association with different MOHP (Ministry of Health & Population) departments, and with varying levels of success. These included an important Maternal Mortality Study in 1992, the development of 100 neonatal care centers, daya (traditional birth attendant) training and linkage with MOHP health centers, and upgrading of delivery rooms and laboratories."[1]

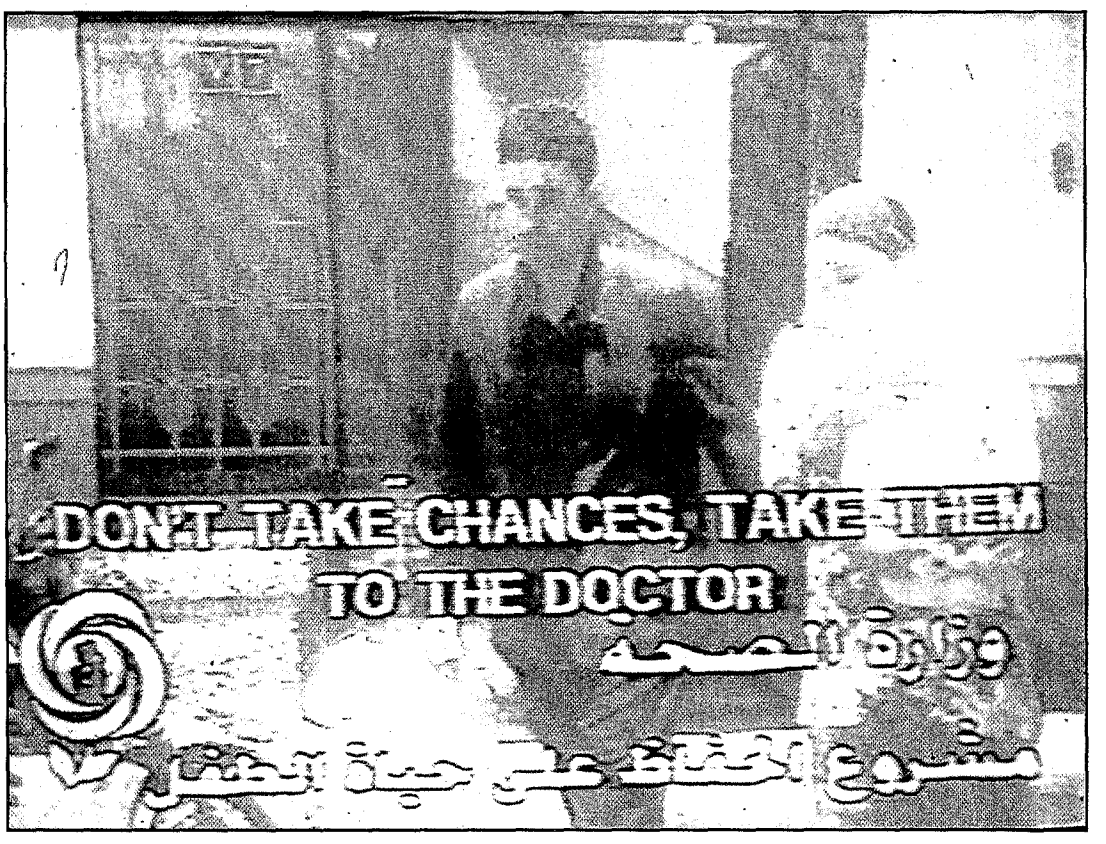
This report also concludes that the CSP has:

- Laid the framework for a national decentralized computerized health information system (HIS), supplied hardware, developed software, and provided some training in its use.
- Developed training curriculum for decentralized health planning and management.
- Developed a clinic improvement program, known as Model Clinics, which was pilot tested in 15 clinics to provide service, operational, and supervisory standards.
- Developed a mass media program that

[1]Final Assessment of the Egypt Child Survival Project, June 4, 1996, Population Technical Assistance Project. This was an external, third-party evaluation, funded by USAID.

included more than 24 spots on priority MCH topics, which were aired on TV.

- Initiated the revision of sections of the physicians and nurses curricula that deal with child and maternal health.
- Established a Field Epidemiology Training Program and Unit to supply trained epidemiologists to the MOHP. Program trainees have already conducted a number of studies, and significant progress has been made in institutionalizing the program.
- Focused efforts during the final two years of the Project on strengthening training and mass media/health education—the results of these efforts were well-done, and will be very useful in the years to come.
- Succeeded in the institutionalization of the three Project components (EPI, ARI, and CS/MCH) and initiated efforts to achieve sustainability of other aspects of the Project through decentralization and integration.



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Background

IN 1985, APPROXIMATELY SEVEN MILLION EGYPTIAN CHILDREN WERE UNDER FIVE YEARS of age, and were 15 percent of the total population. The infant mortality rate was 97 per 1000 live births and the child mortality rate was 36 per 1000 live births.[2]

During the period before 1985, about 1.8 million births occurred per year and approximately 174,000 infants died before their first birthday. An additional 65,000 died before the age of five years. This was an unacceptably high number of infant and child deaths.

[2] DHS, 1992, p. 122.

The main causes of morbidity and mortality in children under five years of age were: a high incidence of communicable childhood diseases, diarrheal diseases, and acute respiratory infections. These primary causes were compounded by high birth rates with short birth intervals, poor maternal care during pregnancy and delivery, poor health care during the perinatal period, and malnutrition due to poor weaning practices.

It was determined by a health situation analysis that a large proportion of the childhood morbidity and deaths could be prevented through improving the immunization program; techniques for diagnosis and treatment of acute respiratory infections; child spacing/family planning methods; pre-natal, natal and perinatal health care; weaning and supplemental feeding practices; and introducing rehydration therapy.

The Government of Egypt is dedicated to improving the health of infants, children, and women of childbearing age through the implementation of a wide range of programs. The CSP was established to address the preventable deaths of young children in Egypt, under a bilateral agreement between the GOE and USAID. Planning began for the development of the CSP before 1985. In 1985, the Ministry of Health (now the Ministry of Health and Population, or MOHP) and USAID signed the agreement for the CSP.

Implementation of Project activities began in 1988 and became fully operational in 1990. The GOE committed $34 million and USAID $68 million to the Project, which has supported a range of vertical and cross-cutting programs. Primary among these have been the Expanded Program on Immunization (EPI), Acute Respiratory Infections (ARI) Program, and the Child Spacing/Maternal and Child Health (CS/MCH) Program, implemented by the MOHP as key components of the CSP.

In addition, the CSP has developed six cross-cutting programs to ensure the sustainability of Project achievements: Decentralized Health Planning and Management; Health Information System; Clinic Management Improvement (Model Clinics); Revision of Child Survival Curricula for Medical and Nursing Students; Field Epidemiology Training, with the assistance of the US Centers for Disease Control and Prevention; and Mass Media and Health Education.

Technical assistance to the Project has been provided by Clark Atlanta University (CAU), which was selected as the prime contractor by the MOHP. Assistance has been provided in five key areas: technical consultants and advisors, management and skills development, support for conferences and seminars, provision of technical materials, and commodity procurement. In addition to USAID/CAU, substantial support in the form of technical assistance and vaccine supply has been received through partnerships with the WHO, UNICEF, and CDC.

Goals and Objectives

The Project incorporated into its goals and objectives those of President Hosni Mubarak in the Declaration for the Egyptian Child Care and Protection Decade (1989–1999), the President's Health Objectives for the Year 2000, the Government of Egypt's Five Year Plan (1992–1997) and the USAID Health Strategy.

The goal of the Project was to improve the health and well being of infants, children under five, and women of childbearing age. The Project purpose was to promote child survival and safe motherhood and to reduce morbidity and mortality in infants and children under five years old, and women of childbearing age.

The primary objectives of the CSP were to:

- Reduce infant mortality by 50 percent by 1995 (from the 1983–87 baseline of 97/1000).[3]
- Reduce child mortality by 45 percent by 1995 (from the 1988 baseline of 36/1000).[4]

[3]DHS, 1992.
[4]DHS, 1992.

And, more specifically, to:

- Eliminate internal transmission of the wild polio virus by 1995 (baseline 550 cases in 1988).[5]
- Reduce infant mortality due to neonatal tetanus by 80 percent by 1995 (baseline 7256 cases in 1988).[6]
- Reduce infant mortality due to acute respiratory infections by 25 percent by 1995 (baseline 13/1000 in 1987).[7]
- Reduce maternal mortality ratio by 15 percent by 1995 (baseline 220/100,000 in 1988).[8]

Data Sources

The statistical data used in this report are from three main sources, Central Agency for Public Mobilization and Statistics (CAPMAS), MOHP/CSP, and The Egyptian Demographic and Health Survey (DHS).

CAPMAS statistics are calculated by an analysis of vital registration data that are reported by each health office. It has been noted that under-reporting and miscalculation does occur and accounts for some of the discrepancy between CAPMAS data and data obtained from surveys.

DHS statistics are national representative household surveys of approximately 10,000 households, and have been carried out approximately every four years.

MOHP/CSP data on immunization coverage and disease incidence rates are from the Department of Communicable Diseases and the EPI.

Differences may occur in the data from CAPMAS and DHS because of the level of under-reporting and misclassification of cause of death to CAPMAS, but both data sets show a consistent decline in trends for infant and child mortality. CAPMAS data provides official figures; however, data is released four years after it is collected. Therefore, DHS data is used when CAPMAS data is unavailable.

Project Impact

As one of the largest and most comprehensive programs in the world, the CSP has made a major contribution to the child survival revolution and leaves a legacy of sustainable improvements in the Egyptian health care system.

In its 11 years of official operation (1985–96), the CSP has made a significant impact on maternal and child health in Egypt and affected nearly every family with young children. Project activities have extended the reach of medical services to 8 million children under five, 5 million mothers of under-fives, and 1.7 million newborns each year. Within the MOHP, the Project has worked directly with the health directorates of the 27 governorates, with 231 district health offices of these directorates, with more than 300 hospitals, and with approximately 3500 primary health care (PHC) facilities.

Overall, infant mortality in Egypt decreased by 35 percent between 1983–87 and 1991–95 (from 97 to 62.6 per 1000 live births), and child mortality by 47 percent in the same period (from 36 to 19.2 per 1000).[9] The activities of the CSP and its EPI, ARI, and CS/MCH program components have made a major contribution to this significant reduction in childhood death in Egypt—in 1994 it was estimated that Project activities were saving the lives of over 20,000 young children a year.

Much of this impact has been achieved through improvements in vaccination against common communicable childhood diseases, especially neonatal tetanus. In particular, the CSP EPI program has contributed to the:

- Near total eradication of poliomyelitis—confirmed cases had declined to 71 by the end of 1995.
- Elimination of neonatal tetanus—with NNT reduced to less than one reported case per 1000 live births in 76 percent of districts by 1995, saving an estimated 9000 young lives each year.
- Significant improvement in the control of hepatitis B—since the introduction of universal childhood HB vaccination in 1992

[5]MOHP Reporting System.

[6]MOHP Reporting System.

[7]CAPMAS Studies.

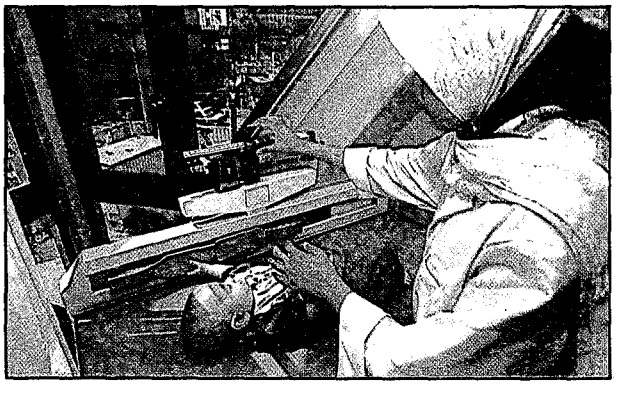
[8]Expert estimate based on a number of governorate-level maternal mortality studies.

[9]DHS, unpublished 1995 report.

—and of measles, with a reduction in reported cases of 50 percent, and of mortality due to measles in under-fives of more than 50 percent.
- Low incidence of diphtheria, pertussis, and TB meningitis, which are now rare.

The other programs' components have also made a major contribution—reducing deaths from acute respiratory infections and through major improvements in maternal and neonatal care. Of special significance has been:

- Reduction in ARI mortality in infants from 13/1000 in 1987 to 8.4/1000 by 1994.[10]
- Decrease in maternal mortality from the estimated 220/100,000 in 1988 to 174/100,000 by 1992–93.[11]



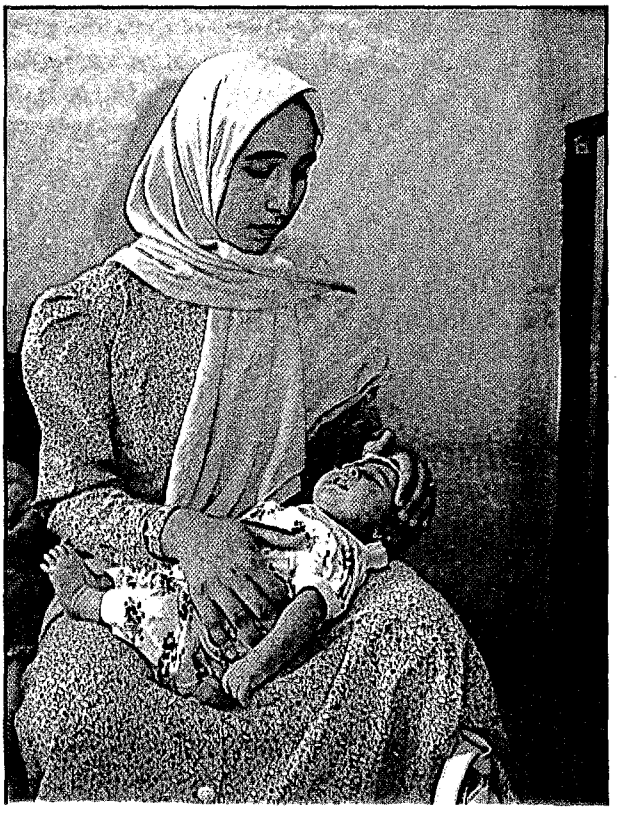
In 1995, in recognition of its significant achievements, the Child Survival Project received an award from the WHO for being one of the best child health projects in the Eastern Mediterranean region. UNICEF's Regional Director for the Middle East and North Africa also highlighted the "major strides" made by the Project towards achieving the mid-decade goals of the World Summit on the Child, citing in particular progress achieved in neonatal tetanus elimination and polio eradication.

Project Activities

CSP activities that have played a key role in Project achievements include:

- Implementation of a greatly expanded and improved **disease surveillance system**.
- Strengthened MOHP capacity for **effective field epidemiology**.
- Development of **a national system for ARI detection and treatment** with 87 percent of the population now having access to standard case management.
- Establishment of a **national neonatal care system**, with neonatal care centers in all governorates and improved care for tens of thousands of newborns.
- Improved performance of the PHC system in the areas of EPI, ARI, and CS/MCH through **in-service training to upgrade skills** of more than 130,000 health providers leading to improvements in service delivery.
- Introduction of **service standards** for improved clinic management.
- Initiation of the development of **improved health information systems** and capability to use health and management data for decision making.
- Implementation of systems for **improved and decentralized planning, management, and supervision**.
- A **daya training program** that has reached more than 70 percent of dayas in lower Egypt, strengthening their links with the PHC system and leading to improved management of delivery for 300,000 women a year.
- **Curriculum revision and preservice training** in nursing and medical schools.
- **Provision of equipment** to strengthen health and laboratory facilities.

The specific activities and achievements of each program component of the CSP are summarized in the following sections and described in detail in Chapters 2 through 5.



[10]CAPMAS.

[11]MOH/CSP, *National Maternal Mortality Study: Findings and Conclusions*. Child Survival Project, Cairo, 1994.

2

Expanded Program on Immunization (EPI)

THE EGYPTIAN MOHP'S EFFORTS THROUGH THE ACCELERATED EPI DURING A CRITICAL period from 1984 to 1996 achieved dramatic reductions in childhood disease incidence and deaths. Through the activities of the EPI, Egypt has achieved almost universal vaccine coverage and public acceptance of the advantages of immunization.

More than five million children benefit directly each year from the immunization program, and a million pregnant women receive tetanus toxoid immunizations each year, protecting them and their babies against tetanus. Within the MOHP, the accelerated EPI has been a joint effort of the Department of Communicable Diseases Control and, since 1989, the EPI Program of the Child Survival Project, implemented through governorate health directorates, district health offices, and primary health care immunization centers. Significant support has been given to EPI in Egypt by WHO, UNICEF, Rotary International, and by USAID through the CSP.

The objectives of the EPI component were to:

- Eliminate the internal transmission of the wild poliomyelitis virus in Egypt.
- Reduce neonatal tetanus cases by 80 percent.
- Achieve 90 percent vaccination coverage nationwide against the six major childhood immunizable diseases and hepatitis B.
- Reach 70 percent coverage of women of childbearing age with tetanus toxoid immunization.

Strategies employed have included:

- Decentralizing and improving the management capability and practices of EPI teams, particularly at the governorate and district levels.
- Increasing vaccine coverage and adding appropriate new vaccines to the standard program as they become available.
- Maintaining vaccine efficacy through strengthening the cold chain.
- Improving the skills of health workers providing immunization services at all levels.
- Strengthening the routine health information system for the EPI program.
- Building a nationwide disease surveillance system and a program to respond to reports of suspected cases of polio and neonatal tetanus and to outbreaks of measles.
- Improving local vaccine production capabilities.

By the last year of the CSP, the EPI had achieved the following:

- National plans to combat polio, neonatal tetanus, and measles had been developed and adopted.
- The national EPI had been extended to provide vaccinations in nearly 3500 vaccination units or centers.
- Coverage rates for all vaccine antigens for approximately 1.6 million infants were close to 90 percent, including hepatitis B, which was only introduced in 1992 (Table 1).
- An effective vaccine cold chain system had been developed—the EPI manages one of the most effective vaccine supply, storage, and distribution systems in the world.
- A nationwide system of surveillance and disease control was in place for polio and neonatal tetanus.
- Significant research and studies had been conducted and the results used to improve the EPI.
- More than 50,000 physicians, nurses, sanitarians, health managers, and clerks were trained in EPI.
- Seventy percent of pregnant women had received two doses of tetanus toxoid, an increase from 12 percent in 1987.

Table 1 Vaccine Coverage Rate in Infants and Tetanus Toxoid Coverage in Pregnant Women, Egypt, 1984 and 1995

Vaccine	Percent Coverage		Percent Increase in Coverage
	1984	*1995*	
OPV3	67	91	36
Measles	41	90	120
DPT3	57	89	56
BCG	53	94	77
Hepatitis B	—	90	—
TT2+	19	70	268

Note: To compare data, DHS coverage figures for 1995 are: OPV3, 84%; Measles, 89%; DPT3, 83%; and BCG, 95%.

Source: 1984 and 1995, EPI; DHS, 1995, from an unpublished report.

Figure 1 shows the significant increase in vaccination coverage for the six main antigens. In 1984, national vaccine coverage was 67 percent for polio (lower for other antigens), and the proportion of children fully immunized was only 30 percent. By the end of 1995 rates for vaccination coverage had increased to 90 percent nationally, and the percentage of fully immunized infants had increased to more than 75 percent.[12]

As a result of these achievements, the EPI has been the main factor in controlling childhood communicable diseases (Table 2) and the impact has been substantial:

- Progress in the elimination of neonatal tetanus—NNT incidence declined by 87.5 percent. Approximately 76 percent of districts reported less than one case per 1000 live births in 1994, and NNT has been eliminated in 23 of the 27 governorates.
- Success in polio eradication—polio incidence declined by almost 90 percent and 79 percent of districts reported zero cases of polio in 1994. Nationally, the number of confirmed polio cases fell to 71 in 1995, with a greatly expanded and improved surveillance system.
- Significant reductions in measles—of 50 percent in reported cases and more than 50 percent in mortality—and significantly lower incidence of diphtheria, pertussis, and TB meningitis.
- Viral hepatitis B infection is being controlled in infants.

Poliomyelitis

Poliomyelitis has declined markedly, only 71 cases were reported in 1995 compared with 550 in 1988. The incidence rate dropped to 0.3/100,000 children under 15 years of age by 1995, compared with 4 in 1984 for the same age group.

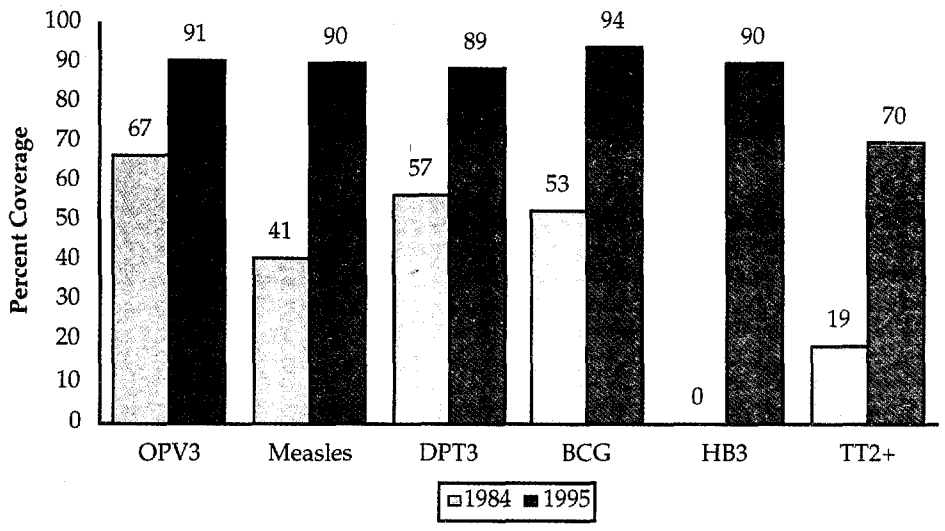
The crucial factors behind this were:

- A combination of high levels of vaccination coverage, National Immunization Days (NIDs), and Mop-up Campaigns.
- An effective cold chain.
- Intensive training efforts beginning in 1987.
- Strengthened program management and surveillance systems.

Intensified nationwide surveillance for acute flaccid paralysis (AFP), which began in August 1990, led to increased reporting of cases in 1991

[12]DHS, unpublished 1995 report.

Figure 1 National Vaccination Coverage Rates for Infants and Tetanus Toxoid Coverage Rate for Pregnant Women, Egypt, 1984 and 1995



Source: EPI

Table 2 Number of Cases and Incidence Rate of Childhood Infectious Disease and AFP Cases, Egypt, 1984 and 1995

Disease	Number of Cases		Percent Decrease in Cases	Incidence Rate/100,000 Population		Percent Decrease in Incidence
	1984	*1995*		*1984*	*1995*	
Poliomyelitis	720	71	90	4.00*	0.30*	92.5
AFP		210			0.80*	
NNT	5967	790	87	4.00**	0.50**	87.5
Diphtheria	727	14	98	1.60	0.02	98.8
Pertussis	41	1	98	0.09	0.001	98.8
TB Meningitis	125†	33	74	0.70*	0.14*	80

*Incidence rate/100,000 population <15 years; **Incidence rate/1000 live births; †1985 figures.

Source: EPI

and 1992, reaching 0.8 cases/100,000 of the population under the age of 15 by 1993. This level of 0.8/100,000 has been maintained since 1993. For all countries, the key indicator for adequate surveillance is the detection of not less than one case of non-polio AFP annually per 100,000 children under 15 years of age. The containment mop-up measures applied around each case of suspected polio, the high-risk approach applied to districts with low coverage and districts with confirmed cases, and the continuation of NIDs led to a marked decline in cases of confirmed polio in 1993 and 1995 (Figure 2).

Neonatal Tetanus

Neonatal tetanus has declined significantly (Figure 3) and the target of eliminating NNT by 1995 has virtually been achieved. The NNT incidence rate was 0.6/1000 live births in 1994 and 0.5/1000 in 1995 compared to 4.0 in 1984, a decrease of 87.5 percent. This is due to the following interventions:

- Improving routine TT2 vaccination coverage for pregnant women from 12 percent in 1987 to 70 percent by 1995.
- Annual national campaigns to vaccinate pregnant women with TT from 1988 to 1993.
- Application of the high-risk approach in 1993 and 1995 by identifying high-risk districts and vaccinating all women of reproductive age in these districts with two doses of TT one month apart. In 1994, about 80 percent of health districts achieved a reported incidence rate of less than one per 1000 live births.

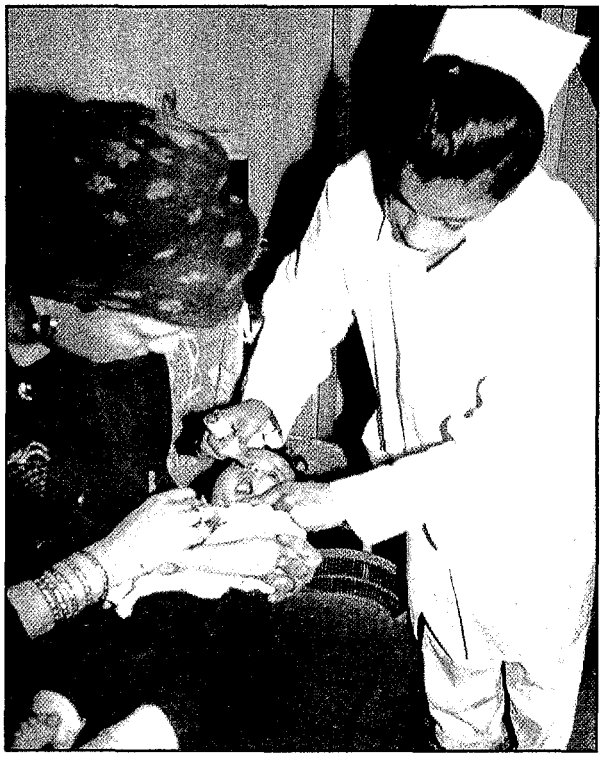
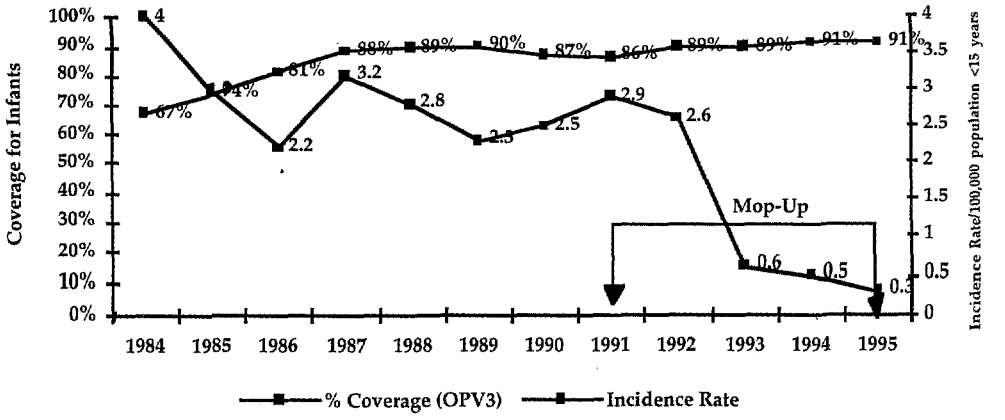


Figure 2 Polio Incidence Rate in Children Less than 15 Years Old and National OPV3 Immunization Coverage for Infants, Egypt, 1984–95



Source: EPI

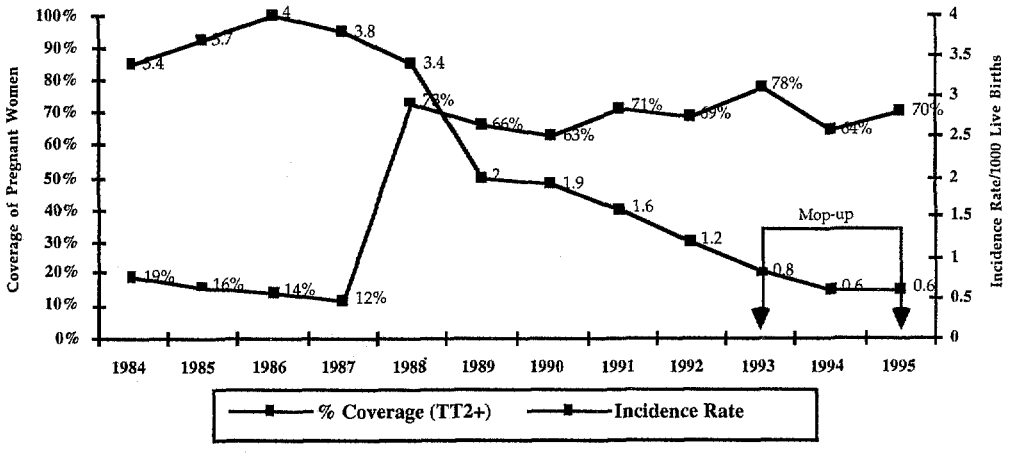
- Programs to ensure hygienic conditions during delivery, in particular the daya training program.

MOHP comparison of current figures with those for 1985–87 estimate that NNT vaccination has ensured the survival of up to 9000 infants annually who would otherwise have died.

Measles

Measles usually occurs in epidemic waves every two or three years. The improvement in measles vaccination coverage, from around 50 percent in 1985 to 90 percent by 1995, led to a decline in the number of reported cases of 61.5 percent between the epidemic years 1982 and 1995, especially among children under five, the age group at greatest risk (Table 3). In 1995, the most recent epidemic year, reported cases—2832—were lower than in any epidemic year since 1982.

Figure 3 NNT Incidence Rate and Immunization Coverage of Pregnant Women with TT2+, Egypt, 1984–95



Source: EPI

Table 3 Number of Cases and Incidence Rate of Measles/100,000 Population, Egypt, 1982 and 1995

	Number of Cases		Percent Decrease in Cases	Incidence Rate/100,000 Population		Percent Decrease in Incidence
	1982	*1995*		*1982*	*1995*	
All cases, all ages	7365	2832	61.5	16.50	4.80	70.9

Source: EPI

Figure 4 shows the declining incidence of measles 1982–95 and increasing coverage over the 1984–95 period. The data on incidence are based on reported cases of measles for all ages. Analysis of 1995 data obtained from sentinel sites confirms a shift of measles towards an older age group and a decrease of cases in children under five years of age.

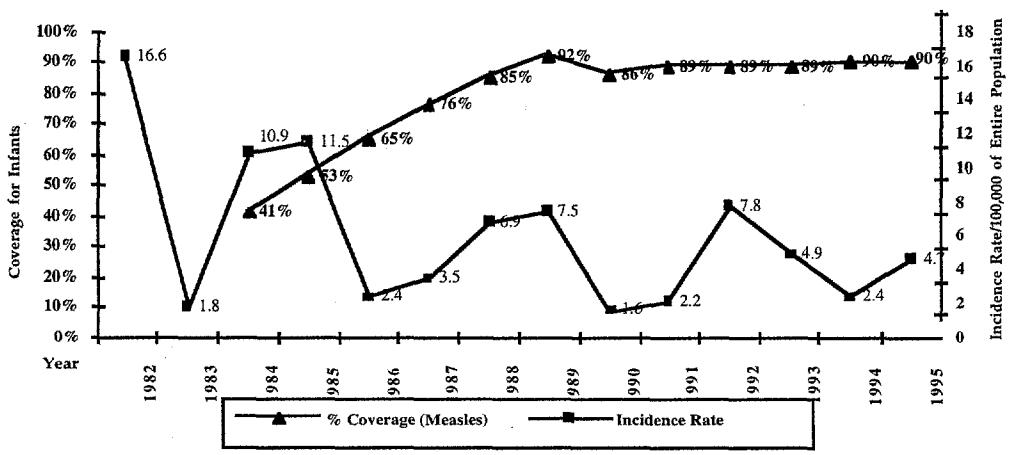
Diphtheria

As shown in Figure 5, diphtheria incidence decreased by 98.8 percent in 1995 compared to 1984. Improvement in DPT coverage, in medical training, and in cold chain supervision, which promoted vaccine efficacy, contributed to this decrease.

Pertussis

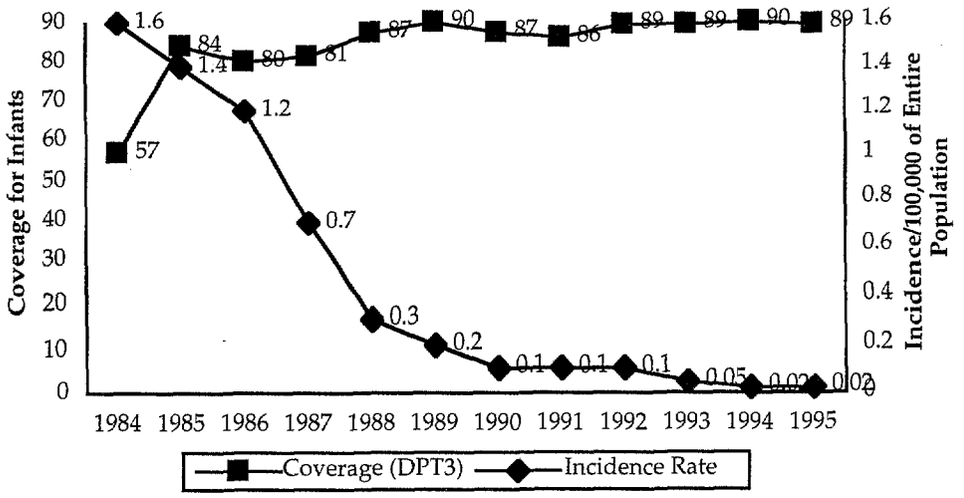
Improving DPT coverage contributed to a decline in pertussis cases, as shown in Figure 6.

Figure 4 Measles Incidence Rate/100,000 Population and Infant Vaccination Coverage, Egypt, 1982–95



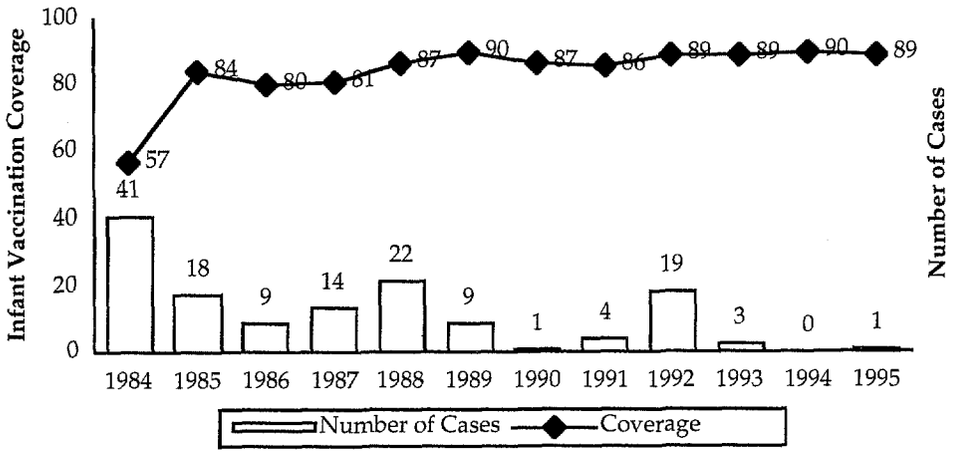
Source: EPI

Figure 5 Diphtheria Incidence Rate/100,000 Population and Infant DPT3 Vaccination Coverage, Egypt, 1984–95

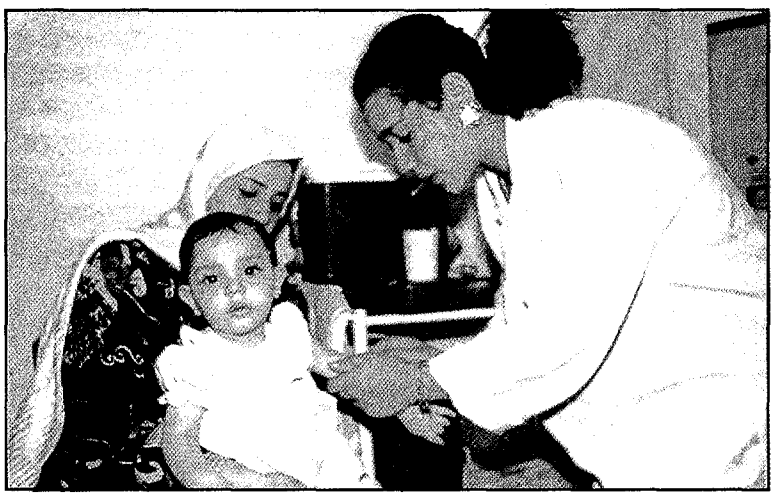


Source: EPI

Figure 6 Number of Pertussis Cases in the Entire Population and DPT3 Coverage for Infants, Egypt, 1984–95



Source: EPI



conducting routine immunization properly and according to schedules, and that standard procedures for vaccination and for the operation of the cold chain are followed. The smooth and successful introduction of a new antigen, hepatitis B, into the EPI schedule in 1992 is further evidence of the strength of the program.

While the 1984 review of the immunization program by the WHO noted considerable under-reporting of diseases and over-reporting of vaccination coverage, actions taken to improve surveillance have significantly enhanced the accuracy and efficiency of data collection. Compliance in reporting service statistics has been high, providing crucial information for future planning and needs assessment. For example, there was 97.5 percent compliance with the requirement for case investigation and control of poliomyelitis in 1994, and in the same year 100 percent follow-up was reported.

Key lessons learned from the experience of the EPI during the CSP include:

Personnel and Training

- To meet the challenge of frequent transfer of trained physicians out of the PHC system, it is necessary to work with medical schools to provide EPI training at the undergraduate level and to train secondary nursing staff.

TB Meningitis

Figure 7 shows that TB meningitis incidence declined by 80 percent in the period 1985–1995, as a result of the improvement in BCG vaccination coverage from an estimated 60 percent in 1985 to 94 percent in 1995.

Hepatitis B

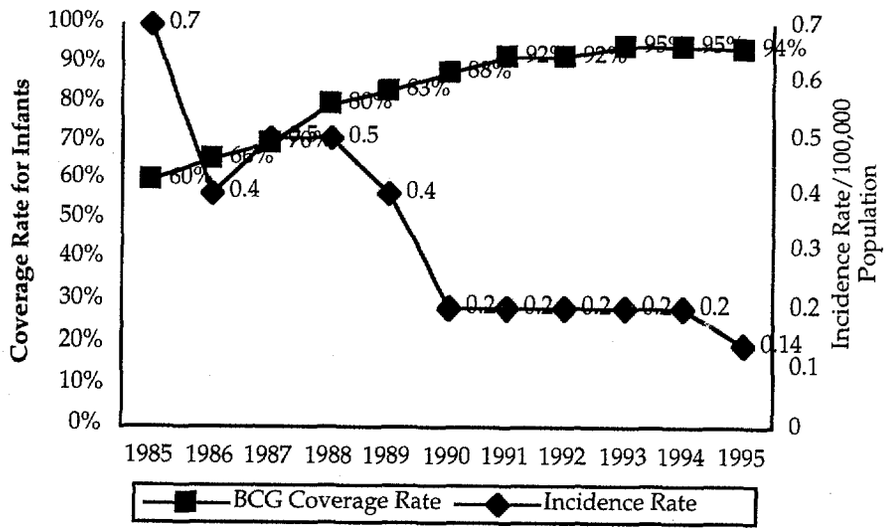
Universal infant vaccination against hepatitis B was introduced nationwide in October 1992. Vaccinations are provided on the same schedule as for DPT. By 1994 the vaccination program was in full operation, achieving an HB3 coverage rate of 89 percent (Figure 8). It is estimated that as a result hepatitis B will be gradually eliminated and tens of thousands of adult lives will be saved.

Conclusions and Lessons Learned

These major gains have been achieved by the EPI through improving the effectiveness of the program at the clinic level, massive training efforts, upgrading the cold chain, and intensive attention to program monitoring and supervision.

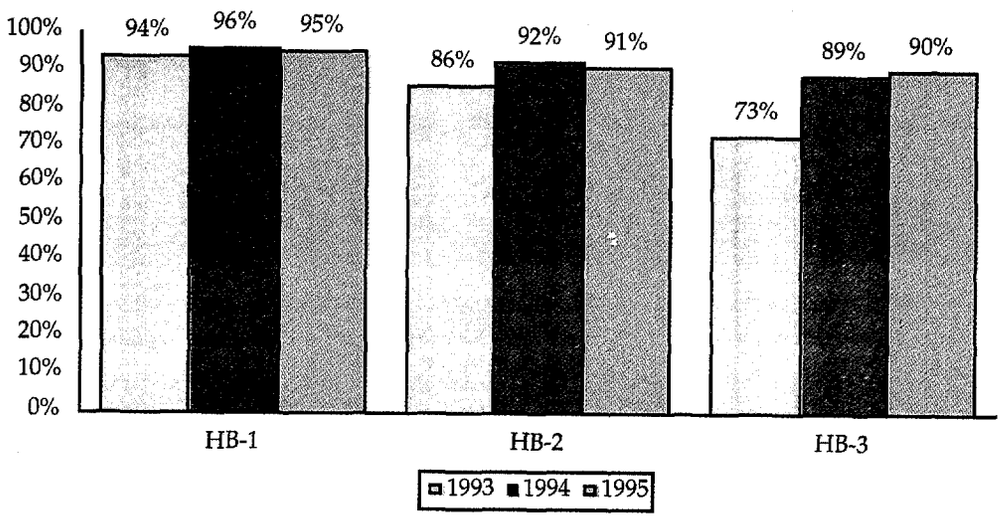
EPI systems of monitoring and supervision provide assurance that clinics are

Figure 7 TB Meningitis Incidence Rate in Children Younger than 15 Years and Infant BCG Coverage, Egypt, 1985–95



Source: EPI

Figure 8 Hepatitis B Coverage Rate for Infants, Egypt, 1993–95

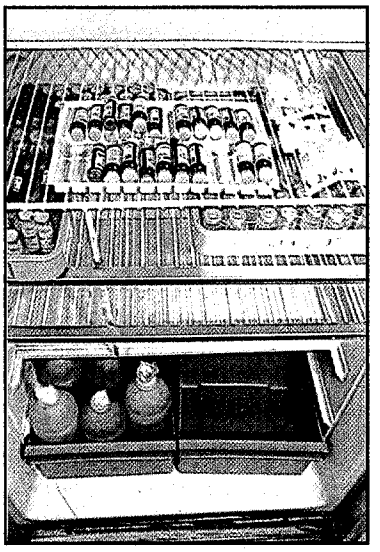


Source: EPI

- Training in practical, as well as theoretical, field epidemiology is necessary.
- There is a need for decentralized, in-service refresher training, and training for new staff unfamiliar with EPI, especially for physicians assigned to manage rural health units.

Cold Chain and Equipment

- The establishment of an effective cold chain required years of effort and considerable investment to install decentralized management systems, recruit staff, conduct training, and procure equipment.
- While use of disposable syringes has been effective, safe disposal of used syringes is a problem.
- Improved packing and storage of vaccines contributed to elimination of waste and duplication.



Program Management and Monitoring

- Decentralized management, based on appropriate training and technology transfer, has been crucial to the success of the Egyptian EPI program.
- Mass campaigns and mop-up operations proved to be an effective and necessary complement to routine immunization, increasing coverage and controlling the spread of infections, especially poliomyelitis and tetanus.
- It is important to plan carefully for OPV supply—vaccine supply requirements for polio eradication far exceed that for a disease control program based on routine immunization.
- Surveillance is essential—the Egyptian experience clearly demonstrates that successful polio eradication efforts require the development and management of a comprehensive surveillance system covering AFP. The development of such a system builds skills for surveillance of other public health concerns.
- The surveillance system proved to be a useful tool in identifying those districts not achieving and sustaining vaccination coverage of at least 80 percent.
- Non-polio AFP surveillance needs to be emphasized in training—a tendency has been noted for physicians reporting AFP cases to neglect reporting non-polio AFP, especially Guillain-Barré syndrome.
- Service statistics, if properly developed at the district level, provide effective indicators to monitor EPI performance; household surveys are valuable to verify coverage levels shown by service statistics.
- Decreased NNT incidence was achieved through a combination of immunization and programs to ensure hygienic conditions during delivery.
- An effective approach to the introduction of universal infant immunization against hepatitis B is to schedule immunizations at two, four, and six months along with DPT immunizations. EPI was able to achieve high coverage rates of HB vaccine within three years using this approach.
- High BCG coverage has not led to declines in tuberculosis but has reduced TB meningitis in children.
- To increase levels of TT immunization of pregnant women, the reasons for missed opportunities for vaccination need to be identified and addressed.

Health Promotion and Education

- Sustained efforts in public education are required to achieve widespread understanding and acceptance of childhood immunization and to increase acceptance of TT vaccination by pregnant women.
- Mothers must be educated and counseled about the importance of following the full schedule of vaccinations, even if the infant is ill.

Research

Matrix 1 summarizes important EPI studies and shows how the program made use of findings and recommendations.

Matrix 1 Major EPI Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
Seroprevalence of Antibody Following TOPV3 (1990–1993). Carried out 1990–93, the study evaluated the role of immunogenicity of TOPV in children under one year of age.	The highest percentage of detected antibodies was for Type 2 at 93.3 percent and the lowest was for Type 3 at 58.5 percent.	The concentration of Type 3 polio virus in TOPV was increased to improve vaccine efficacy. Information on polio immunization was integrated into the curriculum of the faculties of medicine.
BCG Adverse Events (1992–1993). Carried out 1992–93, the study investigated the magnitude of adverse events following BCG vaccination.	Adverse events following BCG vaccination occurred in 12.5 percent of the sample and were closely connected with improper technique in administering the vaccine.	Training was modified to correct and emphasize the proper technique in giving BCG immunization to reduce the occurrences of adverse events.
Polio Reverse Cold Chain (1992–1993). Initiated in 1992, this study investigated compliance in procedures with WHO specifications.	Measures need to be taken to speed up and ensure feedback reporting to the field of the results of lab analysis of suspected polio cases.	Routine collection of stool specimens under optimum conditions (use of reverse cold chain) was introduced within the surveillance activities.
House-to-House Versus Fixed-Site Polio Delivery (1992–1993). Carried out 1992–93, the study compared vaccine coverage by two methods.	The strategy of house-to-house immunization is more effective than immunization at fixed sites.	House-to-house strategy was adopted as the policy for mop-up activities.
Missed Opportunities for Immunization of Infants and Mothers (1993). This study, carried out in 1993, was designed to analyze the magnitude of the problem of missed opportunities for vaccination.	10.7 percent of children studied experienced missed opportunities for immunization; 20.6 percent of women of childbearing age in the study missed the opportunity for TT immunization.	Health personnel were trained to screen all eligible females and infants visiting a health facility and immunize them if required. Mass media health awareness campaigns were initiated to educate parents about the importance of their children receiving all vaccinations on schedule.
Efficacy of Surveillance of Poliomyelitis Cases (1993–1994). Carried out in 1993–94 by FETP, investigated non-reporting of suspected polio.	In several governorates with zero reported cases, unreported cases of suspected polio were identified.	Governorate-level training for physicians was conducted on procedures for reporting all suspected cases of polio immediately.

3

Acute Respiratory Infections (ARI) Control Program

ACUTE RESPIRATORY INFECTIONS (ARI) RANK AS EITHER THE FIRST OR SECOND MOST common cause of mortality and morbidity among children under five years of age in developing countries. Most deaths result from pneumonia with bacterial etiology.

Egypt is no exception. In 1989, ARI was the leading cause of infant mortality in Egypt, and in 1990, pneumonia was the leading cause of infant and child mortality, killing almost 11 infants per 1000 live births and 1.6/1000 children aged 1–4.[13] *Statistics for this time showed that 30 percent of infant deaths were ARI-related. Rates of rheumatic heart disease due to untreated streptococcal throat infections were also high, while at the same time simple colds and coughs were frequently over-treated with antibiotics.*

[13]MOH/CSP and CAPMAS, Infant and Child Mortality Rates in Egypt, 1980–92. Cairo, 1996.

ARIs are also a major cause of illness in young children in Egypt. Longitudinal studies in urban areas indicate that the average child has between five and eight respiratory illnesses a year. A 1991 survey carried out by the Central Agency for Mobilization and Statistics (CAPMAS), in collaboration with the PanArab Project for Child Development, showed that ARI was the cause of 31.5 percent of morbidity in preschool children. ARIs also accounted for more than 50 percent of visits to pediatric outpatient clinics.

Realizing the importance of ARI, the MOHP, through the CSP, concentrated efforts on reducing ARI-specific infant and child mortality rates by providing standard case management (SCM) in PHC facilities and hospitals and through public education efforts.

The National ARI Program was initiated as part of the CSP in 1990 with the goal of reducing infant mortality from ARI by 25 percent by 1995, and specifically to reduce infant and child mortality and morbidity from pneumonia, the severity and complications of upper respiratory infections, and inappropriate use of antibiotics for ARI.

In the six years since the program began, SCM for ARI has been introduced nationwide, and 87 percent of young children have access to a health facility with trained staff and appropriate drugs for proper ARI management. This means that almost seven million children under five now benefit from the improved system of ARI diagnosis and treatment established by CSP.

ARI's key objectives were:

- Seventy percent of mothers to be aware of the risks of ARI.
- Fifty percent of mothers to seek timely care for severe ARI and comply with recommended treatment.
- Fifty percent of mothers to seek timely care for mild ARI and practice proper home care.
- Sixty percent of PHC physicians to prescribe appropriately for ARI.

In 1990 the National ARI Plan was developed by the CSP and ARI program in collaboration with the WHO and USAID, following WHO guidelines, but modified to suit the national situation.

The program adopted the following key strategies to achieve its objectives:

- Standard case management.
- Immunization—particularly for measles and pertussis, childhood diseases that frequently lead to ARI—through the EPI program.
- Support for preventive measures to avoid risk factors.

Starting as a pilot covering six governorates (40 percent of the population) in 1990-91, the program has since expanded to cover the entire country. Since 1990, the ARI program has achieved the following:

- A sustainable national ARI control program was established that covers 85 percent of PHC clinics, hospital pediatric outpatient clinics, and inpatient departments. An effective management information system has been developed.
- The ARI Health Facility Survey of 1992 showed that most MOHP facilities have accepted the SCM approach. Physicians and

nurses trained in detection and proper management of ARI now staff most PHC facilities and hospital pediatric outpatient and inpatient departments.

- By 1995, more than 80 percent of PHC physicians, a third of nurses, and 1100 pediatricians had been trained.
- Pediatricians and general practitioners, who provide about two-thirds of the outpatient care for ARI cases, are increasingly applying SCM in their private practice as a result of widespread training and promotion of ARI control.
- The case registration system that was developed has been adopted by more than 2000 PHC clinics. A referral system for serious cases of ARI has been established within the PHC system.
- Most general, district, and fever hospital pediatricians have been trained as specialists in hospitalized treatment of severe ARI.
- A program to upgrade referral hospital laboratories was undertaken.
- Equipment was provided to PHC units to support appropriate diagnosis and management: 5582 otoscopes, 18,000 respiratory rate timers, 376 oxygen concentrators, 65 oximeters, 622 nebulizers, 250 oxygen cylinder sets, 25,000 medical thermometers, and additional equipment had been procured and distributed.
- Applied research related to ARI policy, community behavior, and case management has been conducted and the results incorporated into program activities.
- Medical and nursing school curricula have been revised to include the SCM approach.
- A health education and communication strategy was developed and appropriate materials disseminated.

The program has had a significant impact and has largely achieved its initial goal and objectives. In particular:

- The majority of health facilities apply SCM correctly.
- Seventy-two percent of mothers recognize ARI danger signs and act appropriately.
- Eighty-seven percent of the population has access to program services.
- Reduction of the ARI-specific infant mortality rate (IMR) from 13/1000 in 1987 to 8.4/1000 in 1994. The ARI-specific child mortality rate (CMR) was reduced from 2.7/1000 in 1987 to 0.7/1000 in 1994.[14]

ARI Mortality

A substantial proportion of the decline in infant and child mortality comes as a result of the decrease in deaths from ARI.

The official infant mortality rate due to ARI declined from 12.8 per 1000 in 1987 to 8.4/1000 in 1994 (Figure 9), a reduction of more than 35 percent. ARI deaths in children aged 1 to 4 years fell by 74 percent in the same period, from 2.7 to 0.7/1000 children aged 1 to 4 years (Figure 10).[15] Further significant reductions in ARI mortality are expected during the remainder of the 1990s as ARI control activities continue to make an impact.

Mothers' Understanding and Behavior

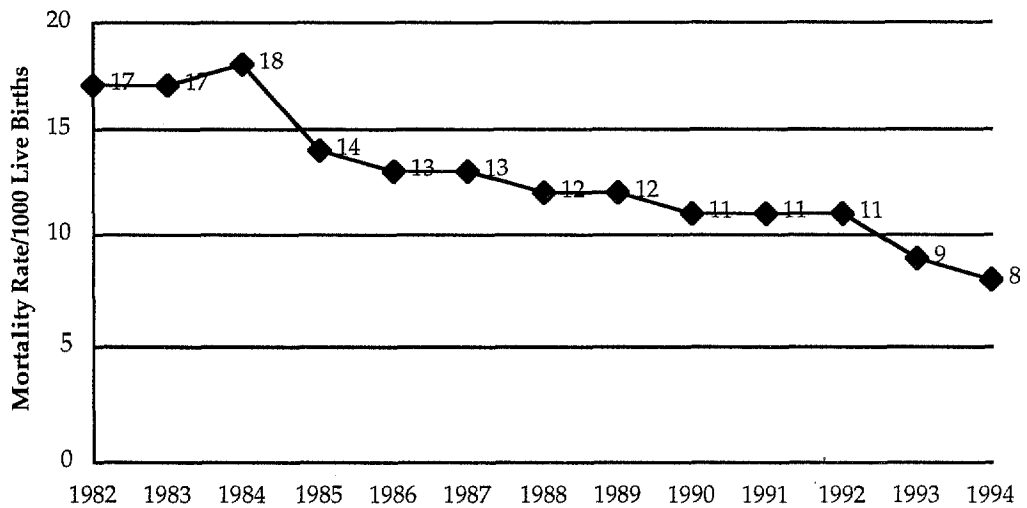
Another important achievement has been the change in health-seeking behavior. Education and counseling of mothers to ensure that they recognize the signs of severe ARI, in particular pneumonia, appears to have been successful—mothers are bringing children sick with severe ARI to clinics earlier for assessment and treatment.

Knowledge on the part of mothers and other caretakers of the dangers of ARI and sound practices for the care of ARI has improved dramatically. Knowledge, attitude, and practice (KAP) studies in 1992 and 1995 showed that the proportion of mothers recognizing rapid or difficult breathing (or both) as a danger sign requiring immediate medical attention increased from less than 30 percent to 72 percent. It is thought that this has mostly been achieved through counseling by nurses and physicians.

An increased proportion of mothers are also seeking timely care and complying with prescribed treatment for children with severe ARI—about 70 percent of women appear to

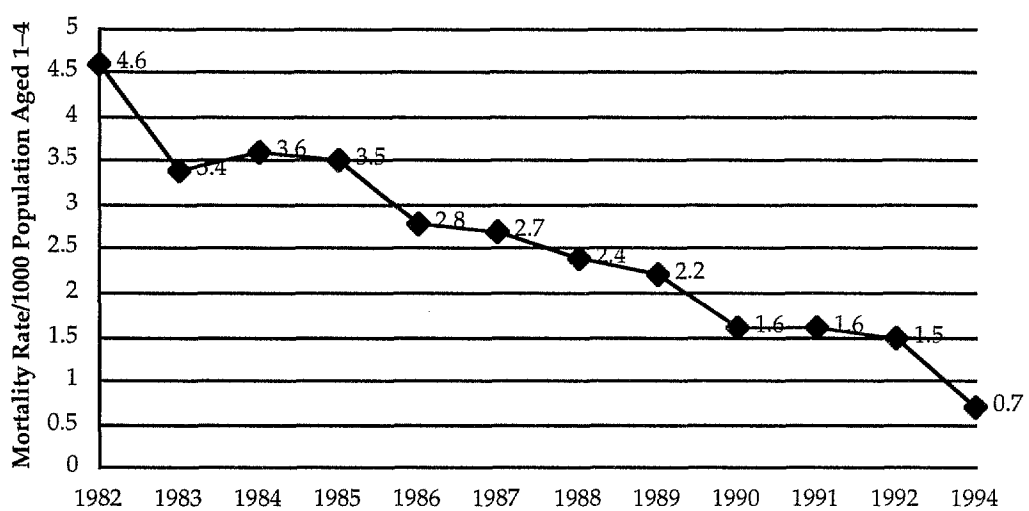
[14]MOH/CSP and CAPMAS, Infant and Child Mortality Rates in Egypt, 1980–92. Cairo, 1996.
[15]MOH/CSP and CAPMAS, Infant and Child Mortality Rates in Egypt, 1980–92. Cairo, 1996.

Figure 9 Mortality Rate Due to ARI for Infants in Egypt, 1982–94



Source: CAPMAS, Vital Statistics (1993-94 from unpublished CAPMAS data)

Figure 10 Mortality Rate/1000 Children Aged 1–4 Years Due to ARI in Egypt, 1982–94



Source: CAPMAS Vital Statistics

comply with home treatment prescribed for pneumonia. In the 1995 KAP study nearly all mothers said they would consult a physician if their child had difficult or rapid breathing.[16]

The 1995 KAP study also found that 90 percent of mothers knew that antibiotics should only be given on a doctor's orders and not retained for future use. Finally, surveys suggest that more than 50 percent of women comply with proper home treatment of mild ARI.

Improved Access to SCM and Physician Practice

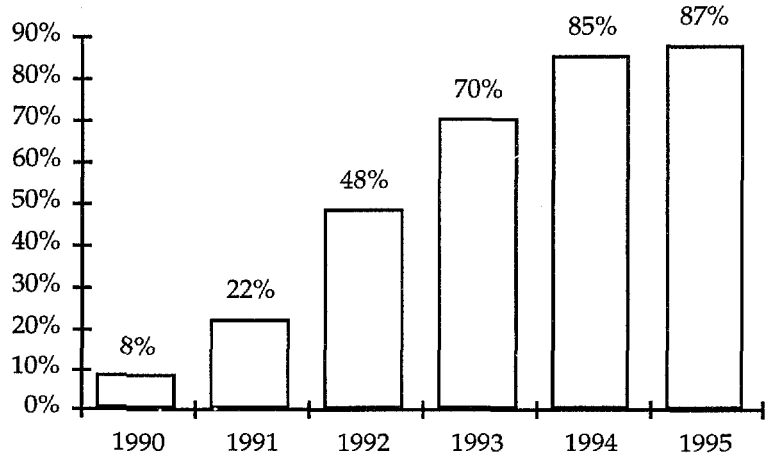
Access to ARI standard case management is estimated to be available to 87 percent of the population, an increase from less than 10 percent in 1990 (Figure 11). Over 90 percent of pneumonia cases observed in an ARI facility survey were judged to be properly managed and, in addition, health facility surveys have shown that more than 60 percent of physicians are prescribing antibiotics according to SCM.

Conclusions and Lessons Learned

Personnel and Training

- Training needs to take account of high staff turnover.
- Clinical practice is an essential component of effective training.
- Follow-up and quality control of training is necessary to ensure the delivery of appropriate case management.

Figure 11 Access of Egyptian Population Under Five to ARI SCM, 1990–95



[16]Social Planning, Analysis, and Administration Consultants, *Study Done by SPAAC for CSP*. Cairo, 1996. It is noted that a 1995 DHS survey reported that 61.7 percent of mothers would consult a physician in these circumstances.

Program Management and Monitoring

- The involvement and support of leading health professionals facilitated the introduction of SCM.
- SCM can be applied throughout a national health system.
- Supervision and a system for maintenance and repair are required to ensure proper functioning of ARI equipment.
- Given sufficient support and careful phasing, decentralized management is feasible and effective.
- Selective research and surveillance are required in addition to regular data collection to monitor the effectiveness of service delivery of SCM.

Health Promotion and Education

- Sufficient attention must be paid to health education to increase family knowledge of ARI danger signs and to encourage community action to address environmental risk factors.
- Counseling of mothers should complement mass media messages to maximize care-seeking.
- Services with trained staff and appropriate drugs available must be established before educating mothers about ARI danger signs and encouraging care-seeking.

Research

Matrix 2 summarizes important ARI studies and indicates how findings and recommendations were used in the program:

Matrix 2 Major ARI Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
Respiratory Rate and Chest Indrawing Assessment by PHC Physicians. Study carried out in 1990–91 and published in the *WHO Bulletin* in 1993.	The study confirmed the feasibility and usefulness of respiratory rate counting and appraisal of chest indrawing as diagnostic tools for PHC physicians.	The study led to the decision to give preference to timers rather than personally owned watches and to establish a standard of counting for one full minute.
Clinical Signs and Symptoms Associated with Pneumonia and Hypoxia in Children in Egypt. This study, carried out in 1991–92, was published in 1993 in the *International Journal of Epidemiology.*	The study confirmed the entry criteria of coughing and difficult breathing in the clinical protocol for pneumonia. It also confirmed that fast breathing is a sensitive sign of pneumonia, and that other signs were not sensitive enough and occurred too late in the course of the disease. The study suggests the need for oxygen therapy.	The study contributed to program decisions about training of health providers, design of health education programs for the public, and procurement of oxygen therapy equipment for clinical use.
Acceptability and Compliance of Different Antibiotic Formulations. This study was carried out in 1991–92. Published 1995 in Journal of Tropical Pediatrics	The study determined compliance levels of families that received prescriptions for antibiotics in different formulations (tablets, syrups, single-dose packets of powder). It found that compliance varies but was optimum with syrups.	The study was the basis for developing specifications for local procurement of antibiotic in a syrup.
Management of Children with Pharyngitis. This study, carried out in 1993–94, examined clinical characteristics of throat infections in children.	The study found that revisions in the criteria for the prescription of antibiotics to children with sore throats were needed as a preventive measure against rheumatic fever complications.	The study was the basis for changes made in the criteria for diagnosis and treatment of children with sore throats.
Surveillance of Bacteria Drug Resistance. This study was carried out in 1993–94. Published in the Egyptian Association Magazine	The research demonstrated that most *S. pneumoniae* and *H. influenzae* isolates associated with childhood pneumonia in Cairo remain susceptible to amoxicillin, penicillins, and cotrimoxazole, but that antimicrobial resistance is present in vitro.	The research led to the establishment of a bacteria drug resistance surveillance network in governorate hospitals starting in 1995.
Use and Effectiveness of Oxygen Concentrators in ARI Clinical Therapy. An ongoing study carried out jointly with WHO. An interim report became available in 1995. Submitted to BMJ	(1) Training of the health providers using oxygen concentrators is important for proper maintenance and use. (2) Properly maintained oxygen concentrators are a cost-effective way to provide oxygen for clinical therapy. (3) Concentrators are a valuable supplement to oxygen cylinder sets in small hospitals where cylinder replacement is often a logistical problem.	The research has supported project management decisions to invest significantly in the procurement of oxygen concentrators for use in the ARI Control Program.

4

Child Spacing and Maternal and Child Health

IN EGYPT IT HAS BEEN ESTIMATED THAT 70 PERCENT OF WOMEN GIVE BIRTH AT HOME, attended by traditional birth attendants, or dayas, and by family members.[17] *Reported levels of maternal mortality and morbidity are relatively high in Egypt, and it is estimated that only a third of pregnant women receive routine antenatal care, though over two-thirds seek care in case of health problems.*

[17]DHS, 1988.

Although most Egyptian women breastfeed their babies, breastfeeding exclusively for the first four to six months is less common. It was estimated in 1991 that 40 percent of infant deaths occurred in the first month of life.

The CS/MCH program has, therefore, emphasized:

- Promoting and improving routine care and MCH services for women before, during, and after childbirth to support safe motherhood.
- Supporting child spacing methods to protect the health of mothers and infants.
- Encouraging correct breastfeeding and infant feeding practices.
- Improving delivery and newborn care by having deliveries managed by trained attendants.
- Reducing neonatal tetanus in conjunction with the EPI, and infant and child mortality in conjunction with both the EPI and ARI programs.

Working through the MCH programs of the MOHP and utilizing the extensive outreach capabilities of dayas, the program focused on nationwide initiatives to achieve the overall goal of reducing maternal and child mortality. The CS/MCH component of the CSP was enlarged in 1992 to include infant nutrition.

Specific objectives to achieve the CS/MCH goal of reduced maternal and child mortality included:

- Reducing the maternal mortality ratio by 15 percent.
- Increasing the proportion of women receiving antenatal care to 60 percent.
- Increasing the proportion of mothers who breastfeed their babies for at least four to six months and who utilize appropriate weaning foods to 70 percent.

Strategies employed have included:

- Establishing equipped neonatal care units throughout Egypt.
- Training staff to improve MCH and delivery services, including training dayas and enhancing their integration into the PHC system, and training for nurse-midwives and physicians.
- Strengthening first referral delivery room services, including upgraded MCH laboratories and improved supervision.
- Developing a mass media campaign and more effective health education and counseling for mothers at the PHC level that included promoting good breastfeeding and weaning practices.

During the CSP period the CS/MCH achieved the following:

- More than 12,610 physicians trained in prenatal, delivery, and antenatal care, as well as counseling skills to promote child spacing and good infant feeding practices.
- More than 654 obstetricians trained by the end of 1995.
- Most PHC facilities have at least one physician trained in MCH service delivery.
- More than 9535 dayas trained, including instruction about referral for antenatal care, TT immunizations, emergency obstetric services, and neonatal care. Trained dayas have all received kits to promote clean and hygienic birth conditions.
- Almost 3000 daya trainers and supervisors trained.
- More than 190 MCH laboratories upgraded and supplied with equipment.
- Another 190 hospital delivery rooms upgraded to provide improved obstetric care.
- Nearly 100 first referral Neonatal Care Centers established.
- Almost 150 nurse-midwives trained and material for midwifery training developed.
- More than 1150 lab technicians trained in the proper use of upgraded MCH labs.
- More than 2000 neonatology pediatricians and 1023 nurses received instruction about care of newborns.
- Almost 800 physicians and 474 nurses trained in neonatal resuscitation.
- A maternal mortality study conducted to establish baseline national and regional maternal mortality rates and identify avoidable causes. The study identified two important issues to be addressed: delay in seeking attention, and substandard care provided by health professionals. The study received international recognition and is presently guiding national efforts for maternal mortality reduction.

The CS/MCH program has made significant strides towards achieving its goal and objectives, with major benefits for women and children in Egypt.

Antenatal Care

A 1995 household survey conducted by the CSP found that 67.5 percent of mothers of under-fives received antenatal care services in case of a health problem, compared with about 63 percent in 1991–92. A 1995 KAP study also found that more women were routinely seeking antenatal care rather than only because of specific health problems.[18] In 1992, 16.4 percent sought antenatal care in the absence of a problem, compared with 29.4 percent three years later.[19]

Dayas also have played an important role in referrals of high-risk pregnancies, and focus group discussions with women have highlighted the influence of trained dayas on behavior change.

Deliveries by a Trained Attendant

It was estimated in 1995 that trained dayas accounted for 70 percent of daya-assisted deliveries in 18 governorates. The cumulative impact of the daya training program has been to increase the proportion of daya-assisted births managed by trained dayas. The number of deliveries attended by trained dayas was estimated at 300,000 in 1995.

The proportion of women being attended by a trained birth attendant has increased from 40 percent in the five years preceding the CSP to an estimated 80 percent in 1995. This is partly due to the increase in births managed by trained dayas, as noted above, and partly to an increase in both hospital and home deliveries, attended by trained physicians.[20]

Child Spacing

Good progress has been made with child spacing. Child spacing is now recognized as important by most women, and comparison of the findings of two KAP studies conducted by the CSP shows that the proportion of women giving birth less than two years after the birth of a previous child declined from 32 percent to 23 percent between 1992 and 1995.[21]

The two KAP surveys also noted a small increase in the proportion of women using contraceptives, from 51 percent to 54.7 percent, in the three year period 1992–1995.

Maternal Mortality

USAID and CSP introduced the maternal mortality ratio as an indicator of goal achievement in 1991, and then in 1994 set as a target a 15 percent reduction in maternal mortality between 1988 and 1995. The 1988 baseline, established as an expert estimate based on several local studies, was 220 maternal deaths per 100,000 live births. The National Maternal Mortality Survey (NMMS) conducted by the CSP in 1992-93 provided the first reliable annual measure of the national maternal mortality ratio in Egypt. It estimated maternal mortality ratio at 174 maternal deaths per 100,000 live births. These two measures indicate a 21 percent reduction in the maternal mortality ratio between 1988 and 1995. Although comparison of these two measures indicates a 21 percent reduction in the maternal mortality ratio between 1988 and 1995, it cannot be concluded that this is

[18]Social Planning, Analysis, and Administration Consultants, *Study Done by SPACC for CSP*. Cairo, 1996.

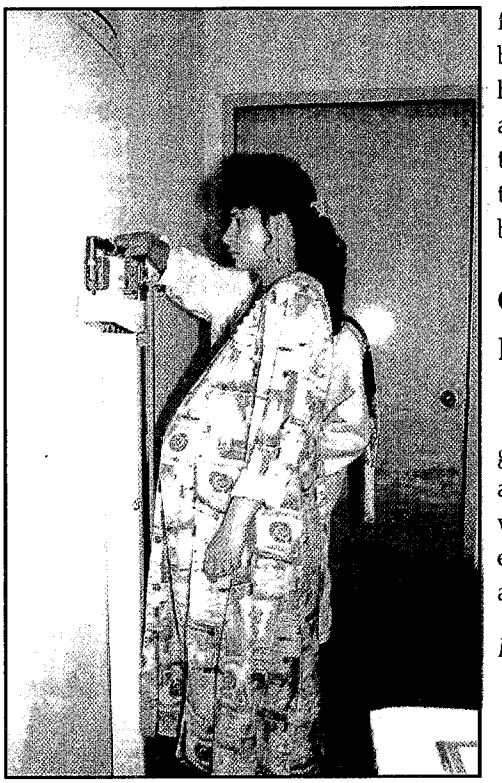
[19]In 1988, DHS reportedthat 14.1 percent of women sought routine antenatal care. In 1995, DHS reported that figure had increased to 27.6 percent.

[20]Richter, Anne M., *Final Evaluation Report of the CSP's Daya Training Program in Lower Egypt*. CSP, Cairo, 1995.

[21]Social Planning, Analysis, and Administration Consultants, *Study Done by SPACC for CSP*. Cairo, 1996.

representative of a decline on a national level.

The results of the maternal mortality study are very important. The main causes of maternal mortality and avoidable factors contributing to those maternal deaths were determined. This information is essential for the development of programs to reduce maternal deaths.



Neonatal Care

The Program has established a first referral National Neonatal Care System, and is working towards an integrated perinatal care system with the collaboration of pediatricians and obstetricians throughout the country.

Ninety centers have been established or strengthened in hospital nursery units covering all 27 governorates. Centers are operating in 72 of 231 districts. This has been a major accomplishment in a country where, traditionally, neonatal facilities have been limited. The centers are now providing neonatal care for more than 12,000 neonates a year, improving the chances of survival of thousands of newborns who would otherwise have faced a high risk of death.

Infant Nutrition

Nearly 13,000 PHC staff have been trained by the CS/MCH program in MCH issues, and more than15,000 nurses and physicians have had specific training in infant nutrition, lactation management, and improved weaning practices. This extensive training program, along with provision of equipment, health learning materials, and public education efforts including 300 kitchen clinic facilities to demonstrate to mothers about infant feeding, has resulted in improvements in infant feeding practices.

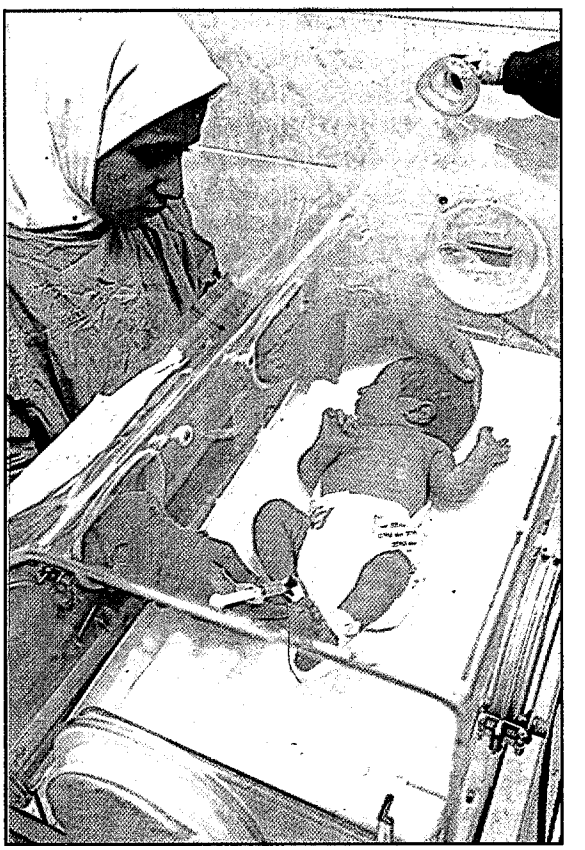
The KAP study in 1995 found that almost 80 percent of women with children under five reported breastfeeding their babies for at least four to six months before initiating supplementary feeding, 60 percent initiated breastfeeding within three hours of birth (and an additional 16 percent during the first day), and 97 percent of them were aware of the benefits of colostrum.

Conclusions and Lessons Learned

The CS/MCH program gained valuable experience and learned important lessons which will strengthen ongoing efforts to improve maternal and child health in Egypt.

Personnel and Training

- Relevant and practical training is essential to ensure high quality care and to strengthen links between midwives in the PHC system and dayas.



- Training dayas was an effective approach to improving management of births, expanding PHC outreach and increasing MCH referrals.
- Training physicians and obstetricians to identify high risk cases to reduce maternal mortality is important.
- Training neonatologists and nurses about the care of newborns and resuscitation is essential to reduce neonatal mortality.

Program Management and Monitoring

- National commitment and constituency building is essential for improving maternal care and for establishing programs to ensure safe motherhood.
- Effective neonatal care requires collaboration between obstetricians and pediatricians and a focus on cost-effective, standardized interventions for the most common problems in newborns.
- Priority should be given to improving hospital care because emergency obstetrical functions can only be performed at that level and because substandard care by physicians contributed to 47 percent of maternal deaths.
- Improved health care for safe motherhood requires upgrading delivery rooms and emergency obstetrical services and introducing systems to ensure high quality services.
- Confidential inquiries into causes of maternal death are feasible.
- There is a need to develop methods to improve the quality of maternal care provided through the private sector.
- Antenatal, delivery, and perinatal services should be integrated with family planning programs and closely associated with other MCH services.
- Clinical and operational standards need to be established and constant monitoring and supervision are required to maintain quality control.
- Services need to pay more attention to patients' needs, especially with respect to privacy during examinations and consultations.

Health Promotion and Education

- Continued health education is required to increase the proportion of women practicing child spacing.
- Public education is needed to encourage care-seeking for high-risk pregnancies and emergencies, as well as to encourage a higher proportion of women—especially in rural areas—to seek routine antenatal care and to improve maternal nutrition.

Research

Matrix 3 summarizes important CS/MCH studies and indicates how findings and recommendations were used in the program:

Matrix 3 Major CS/MCH Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
National Maternal Mortality Study. Population-based survey in 21 governorates, carried out in 1992–93.	The study found a national maternal mortality ratio of 174 maternal deaths per 100,000 live births, ranging by region from 132 to 233. Ninety-two percent of the deaths had one or more avoidable cause.	Detailed recommendations in the report are being used to guide MOHP planning for safe motherhood and reproductive health. The baseline provides a basis for a follow-on survey to establish trends in maternal mortality proposed for 1996–97.
Pilot Low Birthweight (LBW) Study. A pilot study in Qalyoubia Governorate of LBWs in 1000 consecutive births in 1994.	The study found a LBW incidence of 15.7 percent; weight below 2000 grams accounted for 3.8 percent. It concluded that neonatal mortality is six times greater among LBW babies, that birth interval from the last pregnancy of less than two years is the greatest risk factor, and that dayas could be used for field work.	The pilot study became the basis for a national study now underway in representative districts in six governorates.
Anemia in Pregnancy and During Lactation. This study was carried out among 300 women using PHC facilities in Menoufia Governorate in 1994–95.	Preliminary findings indicate that iron deficiency anemia remains a serious concern for maternal health. A report of findings will be published in 1996.	The study was designed to provide baseline data and information for programming improved MCH service delivery for safe motherhood/perinatal care.
Survey of MCH Facilities. This study, carried out in six governorates in 1995, looked at the status and MCH operations of a large sample of PHC facilities.	The survey details characteristics of MCH Centers, Urban Health Centers, Rural Health Centers and Units, and Rural Hospitals in their organization and delivery of MCH services.	The study provides a baseline to evaluate efforts to strengthen PHC facilities, and information on which to base programs to improve MCH services during 1996–2000.
Survey of Neonatal Care Centers. This survey of 75 first referral neonatal care facilities was carried out in the first quarter of 1996.	Preliminary findings: (1) Many centers have developed well in the past five years and are providing effective first referral neonatal care. (2) Referral systems need development. (3) Recently introduced service standards need to be followed closely. (4) Steps need to be taken by collaborating hospitals and governorates to ensure adequate funding for center operations.	The survey provides information on which to develop a five-year effort to expand neonatal care facilities to all districts and improve the capability and functioning of existing centers. Baseline data provides a base for future evaluation of neonatal care programs.

5

Cross-Cutting Programs

THE SIX CROSS-CUTTING PROGRAMS OF THE CSP AND THEIR INTEGRATED ACTIVITIES HAVE contributed to strengthening the effectiveness of the three key programs—EPI, ARI, and CS/MCH. They have also played a significant role in creating sustainable systems by:

- Decentralizing and institutionalizing CSP activities at all levels of the health care system.
- Increasing governorate and district level capacity to plan and manage for EPI and ARI services.
- Strengthening the MOHP health information systems through the introduction of a decentralized HIS.
- Initiating a comprehensive system of child survival into the formal framework of the MOHP and Egypt's medical and nursing education system, as well as reaching out to private health providers.
- Improving the quality of MOHP services and achieving better integration of services at the point of delivery through Model Clinics, the development of Service Standards, and integrated, competency-based learning approaches to training, which were piloted in selected governorates.
- Creating knowledgeable public demand for services through health education and mass media activities.
- Training epidemiologists to investigate disease outbreaks and emerging infections, respond to disasters, and support the public health system.

Specific accomplishments are highlighted below.

Decentralized Health Planning and Management

Decentralization has been a key element in program effectiveness and will be crucial for future sustainability. Accomplishments during the CSP include:

- Greatly increased ability of governorate health directorates to manage EPI.
- The ARI Control Program is now being managed on a continuing basis by all health directorates.
- Seventeen governorates and more than 100 districts have developed systems for supervision of traditional birth attendants.
- Governorates have been involved in management of programs to strengthen neonatal care services.

Health Information System

Effective collection and use of information has been crucial to the success of the CSP and particular achievements include:

- A comprehensive, computerized HIS was installed in 25 governorates.
- EPI disease surveillance was greatly strengthened.
- A national system for ARI surveillance was installed and is operative in more than 2000 hospitals and PHC facilities.
- A system for monitoring neonatal centers has been established.

Clinic Management Improvement

In order to improve the quality of service delivery the CSP:

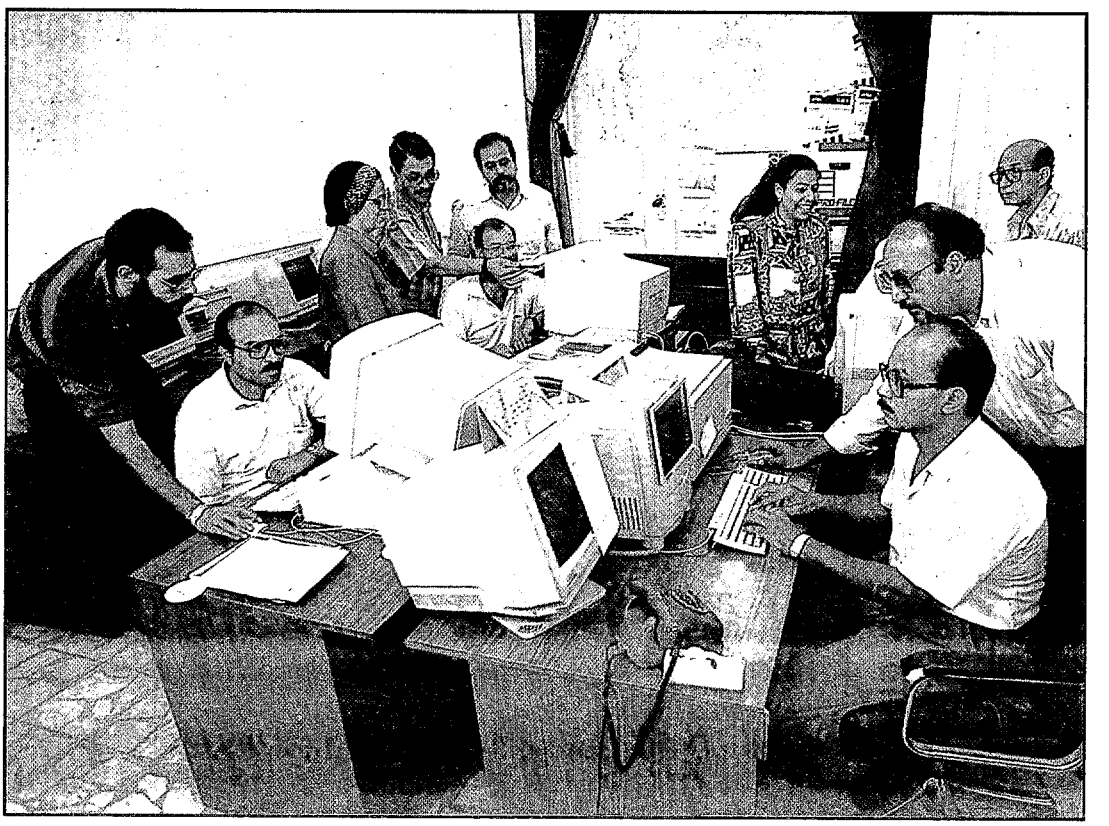
- Developed service standards for clinic operation of ARI, EPI, and CS/MCH programs and piloted these in Model Clinics in 13 governorates.
- Utilized the Model Clinics for in-service training of PHC staff.

Field Epidemiology Training

A Field Epidemiology Training Program (FETP) was established in 1993 through agreement among the CSP, the MOHP, USAID, and CDC. A two-year, in-country training program, its goal is to provide a continuous supply of epidemiologists who are knowledgeable about the principles of biostatistics and epidemiology, and who have extensive experience applying those principles to important public health issues.

Training includes four months of classroom study, lectures, and laboratory work, followed by 20 months of field work under the supervision of senior MOHP officials. The first class of six trained epidemiologists graduated in 1995, and now staff a new Epidemiology Unit within the MOHP. FETP trainees have:

- Investigated the health status of families in the community.
- Investigated outbreaks of Rift Valley Fever, typhoid, suspected rabies, and accidental poisoning.
- Responded to disasters, including flash floods in Upper Egypt.
- Carried out EPI-related activities.
- Performed disease and injury surveillance.
- Supported the health information system.
- Investigated emerging infections.
- Analyzed environmental epidemiological factors.
- Provided support for public health laboratories.



Through the FETP, the CSP strengthened the field epidemiology activities of the MOHP, and in particular:

- Developed a practice-oriented training program.
- Developed skills for surveillance of communicable and noncommunicable diseases, for detection of other diseases, and for investigation and planning of an adequate response.

Revision of Curricula for Medical and Nursing Students

To ensure that future needs for appropriately trained staff can be met, the CSP has:

- Supported ARI and EPI training for staff in more than 150 nursing schools.
- Initiated revision of undergraduate medical curricula for Child Survival.

Mass Media and Health Education

The health education and mass media activities of the CSP, covering all components, ranged from training for physicians and nurses in communication skills to TV and radio spots. These activities have been crucial in achieving:

- Wide acceptance of immunization and high vaccination coverage rates.
- Increased proportion of mothers recognizing the danger signs of ARI.
- Increasing proportion of women complying with home treatment for pneumonia and mild ARI care at home.
- Child spacing widely recognized by most women as important.

The following activities require more emphasis:

- Women seeking antenatal care as a matter of routine.
- Women using trained birth attendants for deliveries.
- Women seeking proper care for high risk pregnancies and care for obstetrical emergencies.
- More women practicing immediate and exclusive breastfeeding for the first four to six months.

6

Organization and Administrative, Technical, and Financial Support

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THE CHILD SURVIVAL PROJECT (CSP) CONTINUED A SUCCESSION OF USAID BILATERAL public health projects with the Egypt Ministry of Health, and three key factors contributed to CSP structure and operation:

- Project design reflected the emphasis of Child Survival programs during the mid-1980s, focusing on specific technical interventions and support mechanisms.
- CSP benefited from the presence of a cadre of experienced managers within the MOHP with well-developed ideas about the organization and management of the Project.
- The Project was designed not to deliver services, but to strengthen MOHP capability to do so, through provision of technical assistance for planning and management, training, and procurement of commodities.

Phases of the CSP are shown in Figure 12.

Administrative Organization

After the reorganization in late 1989, the CSP administrative structure remained largely unchanged. The relationship with the various levels of the MOHP reflected the reorganized Project structure and is shown in Figure 13.

Relationship of CSP to MOHP Governorate and District Offices

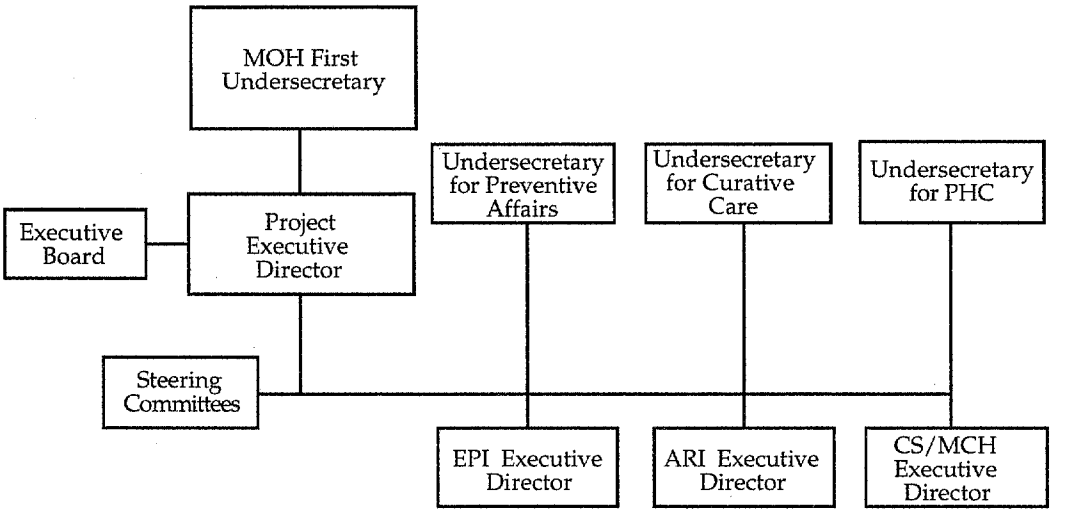
Implementation of the Child Survival Project nationally required close collaboration with governorate, district, and service delivery unit levels. The CSP worked closely with the Undersecretary or Director General of Health and his or her staff in each Governorate Health Directorate, and the degree and quality of Project implementation within a governorate was dependent on their level of commitment, initiative, and drive. Cross-cutting activities were targeted at various governorate-level offices, in particular the Health Information Centers which were established and computerized by the DecHIS program, and the training both of Health Education Officers and of governorate staff responsible for planning and budgeting.

The CSP followed earlier projects in having counterpart coordinators for ARI, EPI, and

Figure 12 CSP Organizational Chronology

1985–88	Prime contractor selection. CSP starts in 1986 as a separate secretariat established within the (then) MOH. Project is headed by a single Executive Director over 14 components. Project planned to start in five governorates.
1989–90	Prime Contractor, CAU, starts January 1989 and fields initial two of six planned staff in the first quarter of 1989. Slow progress leads to reorganization of overall CSP structure into four largely vertical technical programs, each headed by an Executive Director reporting technically to an undersecretary within the MOH, with an overall Project Executive Director responsible for administrative matters and reporting to a First Undersecretary within the MOH. The Prime Contract is revised to cut long-term advisor positions from six to two. Significant Project implementation starts by mid-1990.
1991–92	Technical programs consolidate their organizational structures and staff, as stable growth of activities develops. Support activities develop but are not project-wide. CAU and MOH agree to a unified administrative structure within the secretariat. As of mid-1992, CAU has a permanent two-person long-term advisor team. Mid-term evaluation finds sound technical programs, and recommends more attention to greater decentralization and closer integration with MOH support departments. Minister of Health ends Nutrition component as a separate technical area, integrating breastfeeding and weaning into the Child Spacing component. In recognition of its neonatal and maternal care activities, the CS component is officially broadened to include MCH.
1993–96	Along with rapid growth in each technical area, cross-cutting support activities are developed as the multiple elements of a coordinated sustainability strategy. Programs show increasing impact.

Figure 13 MOHP–CSP Organizational Relationship



CS/MCH within each governorate Health Directorate. The EPI coordinator was usually the director of the Preventive Health Care service; the CS/MCH coordinator was the director of MCH services; and the ARI coordinator was the MCH or Curative Health director. The coordinators played a key role in assisting with the organization of training, research, monitoring and supervision, planning, distribution of supplies and equipment, and reporting.

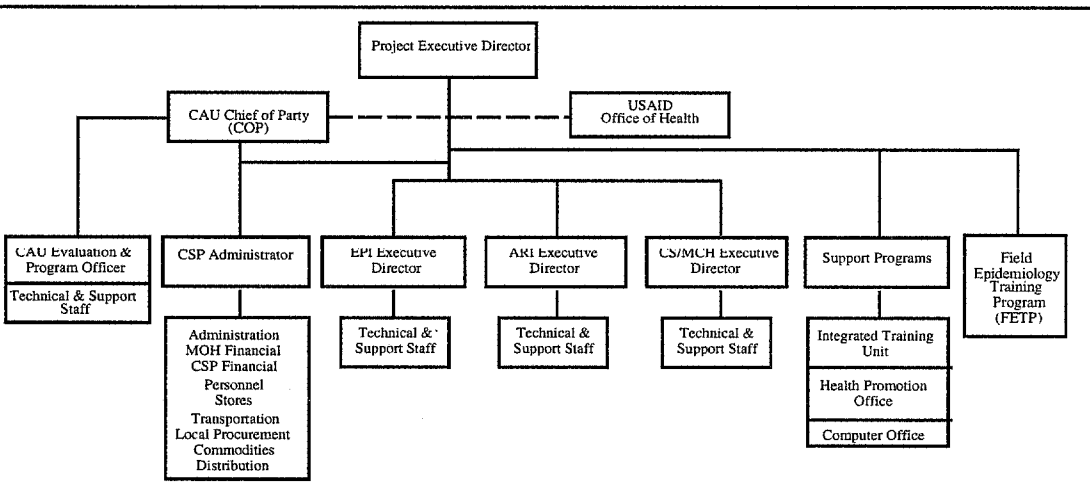
At the district level the CSP conducted considerable training in Project activities for District Health Officers and members of the DHO staff, such as sanitarians. In some activities—such as the neonatal care system and the clinic management improvement program—there was a more direct link with individual health delivery units for program implementation.

Internal CSP Organization

The CSP's structure is shown in Figure 14 and consists of the Office of the Project Executive Director and the various associated administrative and support offices under her, the technical programs, and the Cairo Office of CAU as the prime technical assistance contractor.

The Project had been staffed by personnel on secondment from the MOHP, staff employed under the MOHP-USAID PILs, and staff

Figure 14 CSP Organizational Chart



employed through the CAU contract, some of whom report to the Executive Directors. Initial tensions inherent in this structure because of the three different salary scales involved have largely been resolved.

The program Executive Directors had responsibility for developing their programs nationally, liaison with the MOHP and other parties, identifying technical assistance needs within their areas, and overall management of their units.

Role of the Technical Assistance Contractor

Clark Atlanta University, a historically Black University established in 1988 out of the consolidation of Atlanta University and Clark college (both founded in 1860s), was selected by the MOHP in 1989 to provide technical assistance as the prime contractor under a host country contract agreement. CAU provided technical assistance in the areas of human resources, management and technical consultants, conferences and seminars, provision of technical materials, and offshore procurement. The Cairo Office was assisted by a Home Office in Atlanta, Georgia. CAU's technical assistance focused on six areas:

- **Human Resources:** Two long-term advisors and several short-term project management advisors provided assistance in the overall management of the project and liaison with the various sectors in Egypt. They provided expertise in project planning, implementation, and monitoring and evaluation. CAU also provided short-term technical expertise in office systems development, accounting, information systems development, publications, and revision of training methods and materials. CAU supplied consultants with technical-medical expertise to support the field epidemiology training program, to set up the cold chain monitoring and development unit, to study how to strengthen the management and organization of Egypt's vaccine and sera-producing institute, VACSERA, to develop a detailed work plan for the integration of hepatitis B vaccination into the EPI program, and to establish a mass media unit within the CSP to design a mass media strategy and oversee a social marketing program.
- **Subcontracts and Letters of Agreement:** CAU provided technical assistance through subcontractsand letter agreements in a number of areas, including:
  Health Information Systems—Arab Software Company
  Mass Media Communications—PubliGraphics
  Research—Johns Hopkins University and the American University in Cairo
  KAP Study—Social Planning, Analysis, and Administration Consultants
  Model Clinics—Ernie Petrich and Associates
  Focus Group Studies—Support Center International
  Neonatal Care Centers—Dartmouth-Hitchcock Medical Center
- **Management and Technical Skills Development:** CAU arranged study tours and overseas training programs for senior MOHP officials and medical experts in key skill areas, and arranged tailored courses for senior CSP staff. In order to foster links between senior MOHP officials and international organizations active in child survival, CAU organized the attendance of CSP Executive Directors at a number of international conferences.
- **Coordinating Conferences and Seminars:** CAU assisted the CSP to organize conferences and seminars to encourage the exchange of research and experience among health practitioners and trainers in Egypt.
- **Provision of Technical Materials:** CAU provided CSP with relevant technical reports, journals, articles, manuals, and other publications produced internationally by organizations involved in child survival, medicine, and development. Consultants assisted in developing a library, leaving the MOHP with a permanent collection of resource and reference materials organized in a resource center.
- **Commodity Procurement:** CAU undertook procurement of vaccines, antibiotics, and equipment for laboratories, the cold chain, and health clinics through a subcontract with TransCentury Associates, a procurement services agent.

The Project also received technical assistance from WHO, UNICEF, CDC, and other international institutions and agencies. WHO

provided major support for the ARI and EPI programs through its Eastern Mediterranean Regional Office (EMRO) and headquarters in Geneva. UNICEF assisted by providing commodities for EPI and ARI, conducting daya training in Upper Egypt, producing publications and health education materials, and through other technical support. The CDC provided some technical assistance during the early years of the Project, and this was expanded when a Field Epidemiology Training Unit was established within the MOHP in 1995.

Involvement of VACSERA in EPI Activities

The Egyptian Organization for Biological Products and Vaccines (VACSERA) was formally established in its present status as a public authority in 1972, and remains affiliated to the MOHP. It was created in order to manage the Ministry's laboratories, farms, and other units for the production of vaccines and sera. VACSERA is the sole authorized entity in Egypt responsible for the production, marketing, importing, and exporting of vaccines and biological products. It currently produces a number of human and animal vaccines, antisera, blood products, and parenterals, and performs quality control testing of all biological products. Additionally, it serves as a WHO collaborating regional laboratory for isolation and typing of polio virus for the region.

While VACSERA is responsible for meeting all of Egypt's biological requirements, in recent years it has satisfied Egypt's demand for the six EPI vaccines largely from donations received in kind from UNICEF. Hepatitis B vaccines for 1993–94 were supplied by USAID.

In recognition of Egypt's commitment to EPI, and withdrawal of ongoing donor support, the MOHP allocated £E35 million for vaccine procurement for FY1994–95. In 1994, VACSERA initiated the procurement process for all of Egypt's vaccine requirements. VACSERA's current production of EPI vaccines is limited to OPV bulk filling, production of a part of the requirement for BCG, and production of TT. Other vaccines are purchased from abroad. Aside from EPI vaccines, VACSERA produces animal vaccines, sera, and biological blood products.

During the 11 years of the Project, CSP sponsored five consultations and technical studies concerning VACSERA, including:

- Assessment of Compliance with International Standards of Good Manufacturing Practices, Quality Control, and Quality Assurance.
- Financial Management Review.
- Legal Review.
- Strategies for Joint Ventures.
- Technical advisor on Pertussis Production.

Organizational Inputs

Staffing and Technical Assistance

Staffing under the three sources of Project funding is shown by year in Table 4.

Technical assistance provided to the Project by CAU, CDC, and others such as WHO and UNICEF is summarized in Table 5 by year and area.

Table 4 CSP Staffing Levels, 1989–95

	Number of Personnel						
Funding Source	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
MOH	32	32	39	50	57	55	51
PIL/USAID	10	14	26	43	46	50	50
CAU/Cairo Office							
Long-Term Staff	16	26	34	34	34	42	37
Consultants and Part-Time	3	8	27	11	10	35	34
Total	61	80	98	131	167	151	172

Table 5 Technical Assistance, 1989–96, in Person Days

Area / Source	CAU	CAU/JHU	CDC/FETP	Other*	Total
ARI	865	580	168	462	2075
CS/MCH	965	0	10	49	1024
EPI	641	0	163	110	914
EPI/VACSERA	457	0	46	39	542
Training/General	982	0	166	0	1148
HIS/HMS	509	0	3	30	542
Health Education/ Communication	857	0	21	0	878
Evaluation	308	0	0	443	751
Program Management	2166	0	175	0	2341
Long-Term Advisors	3250	431	899	0	4580
Total	11,000	1011	1651	1133	14,795

*UNICEF, WHO, USAID Buy-ins

Procurement

More than 54 percent of CSP/USAID funding was dedicated to local and overseas procurement of commodities to strengthen MOHP services. Expenditures are summarized in Table 6. Significant resources were provided to EPI to upgrade the cold chain, improve vaccine production and lab services at VACSERA, and purchase syringes and 12 million pediatric doses of hepatitis B vaccine to cover the first two years of vaccinations. ARI, as a new activity, received significant inputs of basic equipment and laboratory materials and supplies. ARI also received a basic supply of the antibiotic amoxicillin. CS/MCH benefited from the purchase of over 400 incubators and other neonatal care equipment, MCH lab sets, and obstetrical unit equipment for first referral hospitals.

Finances

Overall funding reached $81.6 million, including that provided by the GOE direct commitment to the Project and all USAID obligations. In addition the GOE provided vaccines/sera costing about $40 million. Expenditures are summarized in Table 7.

Publications, Reports, and Conferences

The CSP produced numerous reports, publications, studies, newsletters, plans, training manuals, software, posters, and other health communication materials, videos, and mass media spots. Major studies, such as the National Maternal Mortality Study, and reports, such as Ten Years of EPI, were distributed to an international audience. ARI and EPI newsletters were to help provide continuing education for physicians. TV spots produced as part of the

Table 6 Commodities Procurement in US$

Program	USAID-Funded		GOE-Funded	Total in US$
	Offshore	*Local*		
ARI	4,252,415	332,477	2,805,132	7,390,024
ARI/Bilbeis Study	506,745	—	—	506,745
ARI/VACSERA	594,057	—	—	594,057
EPI	1,964,501	5,506,214	7,025,438	14,496,153
EPI/VACSERA	590,717	—	—	590,717
EPI/Vaccines	12,000,000	—	40,059,000*	52,059,000
CS/MCH	4,138,432	3,459,677	773,667	8,371,776
Administration/ Project-Wide	1,733,423	568,400	131,791	2,433,614
GDDDC	11,331	59,102	39,750	110,184
Total	25,791,621	9,925,870	50,834,778	86,552,270

*In addition to the GOE cash contribution to the Project.

integrated Child Survival mass media campaign reached an audience during prime-time of most television viewers in Egypt. More than 25 articles on applied research studies and program accomplishments were published in international journals, and more await publication. A series of integrated training manuals and modules using competency-based training methodology were developed for model clinics, IEC training for health information officers, training for decentralized planning and budgeting, and revision of the medical school curriculum.

Table 7 CSP/USAID and GOE Funded Expenditures in US$, 1989–96

	Obligated	Cum. Exp. till Dec. 1995	Projected Exp. in 1996
USAID FUNDS	67,940,999	59,251,227	8,689,772
Technical Assistance	19,650,000	15,713,915	3,936,085
Training	8,076,000	6,785,878	1,290,122
Commodities	36,650,000	33,859,152	2,790,848
Other Support*	3,149,999	2,674,366	475,633
Audit & Evaluation	415,000	217,916	197,084
GOE Cash Contribution**	13,689,373	10,220,419	3,468,954
Total (USAID + GOE)	81,630,372	69,471,646	12,158,726

* Secretariat Support, Studies, & Health Promotion (PILs 4/11/12/21).

**Excludes vaccine purchases.

Planning and Monitoring

Annual work plans provided projections of activities, technical assistance needs, staffing increases or changes, and procurement needs which were then used in monitoring. Annual reports were produced at the end of each calendar year, and were used for assessing progress and planning the next year's activities. The CAU Chief of Party (COP) maintained a quarterly matrix for CSP activities to identify implementation activities, responsible parties, deadlines, and status. This was tied to a quarterly report to track the status of each major activity. Each Executive Director maintained his or her own monitoring system for program activities such as training schedules and research studies.

Effort was devoted to trying to develop computerized management systems and on project-wide coordination, through monthly review meetings between the Executive Directors and the COP. Networking by the Project Executive Director and the COP, and meetings of the Executive Board on an "as needed" basis, became the accepted cross-project management mode.

Evaluation

Systematic in-house evaluation has been carried out in the CSP as a management tool to ensure proper implementation, and to provide data to appraise accomplishments, measure impact, and serve as a baseline for future efforts. Executive Directors were responsible for monitoring and evaluation of their programs in accordance with the annual work plans. An evaluation office with a long-term advisor, was established to assist the Executive Directors and coordinate monitoring and evaluation of project-wide and cross-cutting activities.

Regular external evaluations and program reviews were also carried out. The mid-term evaluation, by an external team of expatriate and local consultants from Datex, in November 1992 produced recommendations that were instrumental in setting project-wide priorities for the remaining years of the CSP. WHO and UNICEF assisted in the program review and evaluation process. A final assessment of the CSP carried out by a separate contractor, POPTECH, in April–May 1996 examined lessons learned and actions needed to ensure sustainability of the interventions introduced during the life of the Project. CSP Performance Indicators from the Project Paper and its amendments were reported on semi-annually by the evaluation office.

Baseline and impact data came from broader studies including the 1988, 1992, and 1996 DHS and the 1991 PapChild study and from Project-generated studies, including:

- 1992 and 1994 KAP studies as a baseline for the mass media campaign, and the 1996 KAP for evaluation of the mass media campaign.
- The 1991–1992 Menoufia study to measure the impact of the National Control of Diarrheal Diseases Project and as a baseline for the ARI Control Program.
- The National Maternal Mortality Study of 1992–1993, to serve as a baseline for safe motherhood efforts.
- The Final Evaluation Report of the CSP Daya Training Program in Lower Egypt, October 1995.
- The Final Evaluation Report of the CSP Midwifery Training Program for Nurses, March 1995.

Matrix 4 shows main Project research efforts and how their findings and conclusions were incorporated into CSP efforts.

Demographic and social trends including education of girls to secondary level, greater use of contraceptives and child spacing, later marriages and increased age of mother at first birth, and medicalization of delivery are all taking place fairly rapidly in Egypt and contribute to the overall reduction in neonatal, infant, and child mortality; these need to be kept in mind when measuring Project impact.

Final impact evaluations have included a two-governorate study, the 1996 Egypt Demographic Health Survey, and a synthesis of mortality data from all major studies of the last decade. The impact of the EPI is most easily documented and attributable to specific interventions. The specific impact of the ARI Control Program is more difficult to measure because cause of death cannot be clearly deduced from the vital statistics, and because the full impact of the program would only have been apparent after about 1993. While the CS/MCH training efforts have improved delivery practices, actual measurement of impact has been difficult. The neonatal care system has established outreach

Matrix 4 Major Project-Wide Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
Child Survival in Rural Menoufia. This study, carried out in three rounds over an 18-month period in 1990–91, provided data on the impact of the diarrheal disease control and EPI programs, and early impact of the ARI program.	(1) Infant and child mortality declined during the 1980s, with EPI and diarrheal disease control important in the process. (2) Diarrhea mortality declined more than other disease mortality, although the difference is less than implied in other reports, and diarrhea remains the leading cause of death. (3) Children treated at MOHP clinics are more likely to receive correct standard case management than those treated by a private physician. (4) Vaccination card plus vaccination history by mother's recall is an accurate indicator of coverage. (5) Over-prescription of drugs by physicians remains a problem.	The research helped lead donors to provide continuing support for the Diarrheal Disease Control Program, including support by the Child Survival Project.
Child Survival KAP Studies. Three national surveys of women with children under five were carried out (Winter 1991–92, January 1995, and May 1996).	The studies provide baseline data and information on trends concerning the knowledge, attitudes, and practices of families with children under five for the EPI, CS/MCH, and ARI Control programs.	Data collected has been used to develop training programs, the health education program, and the CSP social marketing campaign. The information has also been used to evaluate program performance, measure CSP performance indicators, and gauge changes in public health behavior for child survival/safe motherhood.
Validation of Completeness and Accuracy of Under-Five Death Registrations	(1) More than half of infant death registrations are incorrect for cause of death, leading to the need to improve cause of death reporting, or use data from household surveys, where cause of death is verified by verbal autopsy. (2) ARI infant and child mortality declined 16 percent between 1988 and 1991.	The study is being used to evaluate the impact of the CSP on infant and child mortality since 1988. It is also being used as a basis for a proposal to use infant/child deaths identified by the 1995 DHS and KAP surveys to measure trends in ARI ICM.
CAPMAS Study of Infant and Child Mortality Rates in Egypt, 1980–92. Carried out in 1995–96, this updates the previous CAPMAS study on ICM Rates, 1980–87.	The study found significant declines in infant and child mortality in all regions of the country between 1987 and 1992.	The vital statistics are being used by the MOHP and donors to help assess the impact of health programs.
CSP Linkage (Impact) Study. The study is being carried out in Minya and Qalyoubia to assess how changes in MOHP service delivery may have affected infant, child, and maternal mortality and morbidity.	Preliminary findings indicate reductions in infant and child mortality in the two governorates.	The findings will be useful in evaluating the results of the CSP, suggesting program directions for the MOHP during 1996–2000, and providing baseline data for health programs carried out in 1997 and after.

to about 15–20 percent of the low birthweight neonates at risk in districts where it is installed, but the program is too young for impact in terms of the reduction in neonatal death rates to be measured.

Lessons Learned and Observations

The Child Survival Project was large and its complexity reflected the original design and the revisions and structural decisions made by USAID, the Minister of Health and Population, and the senior Project leadership. Nonetheless, by 1992 it was functioning productively and the following lessons can be drawn from the CSP experience.

Administration

- The Project benefited from a unitary administrative structure for the Contractor and MOHP administrative operations. This minimized personnel problems and reduced administrative decisions likely to be at cross purposes with one another.
- A practical management information system that strikes a balance between time required to maintain the system and the actual level of detail needed to move activities forward—and which is acceptable to key managers—is necessary.
- Salary issues in a multi-tiered personnel system inevitably cause tensions. Early general agreement among key Project leaders and their commitment to applying the agreements can save much time and energy.
- Personnel handbooks, standard operating procedures and contracts, and a good financial accounting system eliminate a great many problems.
- Paying close attention to the fiscal cycle of the banker can help prevent cash flow problems which slow Project operations.
- Early establishment of editorial guidelines and standards, as well as mechanisms for document cataloging and control, saves a great deal of time and energy in report production.
- Different organizational styles of work should be recognized as reasonable based on their effectiveness.

Implementation within a Complex Milieu

- When faced with exogenous structural problems such as the misfit between particular Project programs and the existing structures within the MOHP, flexibility, planning, and well-based arguments for change may prove effective.
- Building effective ties to the MOHP is essential to avoid obstacles in program implementation but involves developing constituencies and capabilities to interact effectively.
- A continual problem-solving approach toward any given goal is critical to effectively overcome obstacles to program development and implementation within an organization as complex and many-layered as the CSP and MOHP. A "one- or two-time effort" is not enough.
- Stability in Project leadership and staff with institutional memory enhance the chances for effective operations, especially when key external stakeholders change relatively often.
- Attempting cross-cutting activities among vertical programs is difficult but this approach can be more efficient and provide better results than carrying out the same activities separately within each program.

Data and Information

- Sufficient attention should be devoted to a system to collect and process data effectively to maximize program impact.
- While more data was collected than was effectively utilized by the CSP, during the life of the Project the ability to use and acceptance of the use of data as information for action increased. The well-developed use of data in the global EPI effort proved effective when replicated by the ARI program, and provided a basis for supervisory management tools essential to decentralization and planning.

Consultants

- Repeat consultancies increase efficiency considerably and motivate Project staff to take action on trip recommendations between consultant visits.

- Management of consultancies within the field is often essential to maintain focus, especially in less well-defined consultancies.
- High-level consultancies by leading authorities can sometimes get issues or decisions out of a dead-end or break log-jams.
- Study consultants who combine research or epidemiological orientations with solid understanding of program issues and implementation requirements or priorities are very valuable but also scarce.

7

Conclusion

IN CONCLUSION, THE FACTS SHOW THAT THE CHILD SURVIVAL PROJECT ACTIVITIES HAVE contributed to the reduction in infant, child and maternal mortality and morbidity during the period of its operation. These declines occurred during the implementation of several child survival interventions, such as the increase in immunization coverage and establishing correct treatment of ARI.

The CSP successfully achieved most of it's major objectives, institutionalized the three main Project components, laid the infrastructure for a national decentralized computerized HIS, established a model clinics program, implemented a mass media and IEC campaign, and initiated efforts to achieve sustainability through decentralization and integration of activities.

The CSP laid a solid foundation for a new project, Healthy Mother/Healthy Child, to assume leadership in further development and implementation of programs for the reduction of infant, child, and maternal mortality.

The Child Survival Project—Egypt, 1985–96

FINAL REPORT

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Ministry of Health and Population
Child Survival Project
Funded by USAID and MOHP (Project No. 263-0203)
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Bab El-Louk, Cairo, Egypt

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Acronyms and Abbreviations

AFP	Acute Flaccid Paralysis
ARI	Acute Respiratory Infection, ARI Control Program
BCG	Bacillus Calmette-Guérin
CAPMAS	Central Agency for Public Mobilization and Statistics
CAU	Clark Atlanta University
CDC	(US) Centers for Disease Control and Prevention
CMR	Child Mortality Rate
COP	Chief of Party
CS	Child Spacing
CSP	Child Survival Project
DecHIS	Decentralized Health Information System
DHS	(Egyptian) Demographic and Health Survey
DPT	Diphtheria, Pertussis, Tetanus Vaccine
EMRO	Eastern Mediterranean Regional Office of the WHO
EPI	Expanded Program on Immunization
FETP	Field Epidemiology Training Program
FETU	Field Epidemiology Training Unit
GOE	Government of Egypt
HB	Hepatitis B, Hepatitis B Vaccine
HIS	Health Information System
ICM	Infant and Child Mortality
IEC	Information, Education, and Communication
IMR	Infant Mortality Rate
KAP	Knowledge, Attitude, and Practice Survey
LBW	Low Birth Weight
MCH	Maternal and Child Health
MOHP	Ministry of Health and Population
NID	National Immunization Day
NNT	Neonatal Tetanus
OPV	Oral Polio Vaccine
PHC	Primary Health Care
PIL	USAID Project Implementation Letter
SCM	Standard Case Management
TOPV	Trivalent Oral Polio Vaccine
TT	Tetanus Toxoid
TV	Television
UNICEF	United Nations Children's Fund
US	United States of America
USAID	US Agency for International Development
VACSERA	Egyptian Organization for Biological Products and Vaccines
WHO	World Health Organization

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The Child Survival Project—Egypt, 1985–96

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1

OVERVIEW

Children are the most important part of a nation's life and the promise for a better future. Their good health is critical.

The Government of Egypt is committed to improving the lives of women and children through promoting a wide range of programs. One of the most significant interventions in this regard has been the Child Survival Project (CSP). This 11-year project was implemented between 1985 and 1996, with the overall goal of improving the health of the Egyptian people, in particular that of children and of women. More specifically, the purpose of the CSP was to promote child survival and safe motherhood, and to reduce mortality and morbidity in children under the age of five and women of childbearing age.

FACTS ABOUT EGYPT

GEOGRAPHY AND DEMOGRAPHY

The Arab Republic of Egypt covers an area of about one million square kilometers. The majority of the Egyptian population lives along the narrow strip of irrigated land bordering the River Nile and in the Nile Delta region, an area which represents only four percent of Egypt.

In mid-1996, the population was estimated to be 60.6 million, with a population density of approximately 1152 persons per square kilometer of inhabitable land. The urban population is estimated at about 44 percent of the total. The number of live births in 1994 was reported by the Central Agency for Public Mobilization and Statistics (CAPMAS) to be 1.746 million; the number of children under five years of age as of July 1994, 9.319 million.

GOVERNMENT ADMINISTRATIVE STRUCTURE

The administration of Egypt is comprised of four levels, as shown in Figure 1.1.

VITAL STATISTICS

Vital statistics are summarized in Table 1.1.

COMMUNICATIONS AND LITERACY

Publicly operated television (eight channels) reaches all regions of Egypt. According to the 1992 Egypt Demographic and Health Survey, 82.3 percent of women surveyed (ever-married women, aged 15–49) watched TV daily, and two-thirds listened to the radio every day. There are many national magazines, and a large number of newspapers with a combined circulation of about 8–10 million. The percentage of the population able to read and write has increased from 26 percent in 1960 to 53 percent in 1993, although there is a male-female imbalance: 64 percent of males were reported literate in 1991, compared to 41 percent of females.

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Figure 1.1 Government Administrative Levels in Egypt

Central Level: The President, The People's Assembly, the *Shura* Council (Consultative Upper House), the Judiciary, and the Cabinet are the key constitutional agencies of the government, within a parliamentary multi-party system.

Governorate Level: There are 27 regional administrative units called "governorates" responsible for carrying out various programs based on national policy and advice from elected regional councils. The administration of education, health, social affairs, and other functions is under the governor. Each governorate has a health directorate.

District Level: The district is an administrative unit under the governorate. There are 231 districts (urban and rural). Urban districts are also termed "zones". Each district includes a health office working under the supervision of the governorate health directorate. District subdivisions are termed *kisms* in urban areas and *markas* if they include urban and rural populations.

***Sheyakha*/Villages:** The *sheyakha* is the urban subdivision of the *markas*, and is the basic and smallest administrative unit in Egypt. The rural subdivision of the *markas* is the village. There are some 4500 villages in the country, with average population ranging between 5000 and 9000 inhabitants.

Table 1.1 Vital Statistics

		Year	Source
Birth Rate/1000 population	28.6	1994	CAPMAS
Crude Death Rate/ 1000 population	6.8	1994	CAPMAS
Growth Rate/1000 population	21.8	1994	CAPMAS
Maternal Mortality/100,000 births	174.0	1992–93	*
Infant Mortality Rate/1000 live births	62.6	1991–95	DHS
Neonatal Mortality/1000 live births	30.4	1991–95	DHS
Post-Neonatal Mortality /1000 live births	32.3	1991–95	DHS
Ratio of NNM to IMR	0.49	1991–95	DHS
Child Mortality Rate (aged 12 through 59 months)/1000 live births	19.2	1991–95	DHS
Under Five Mortality Rate/1000 live births	80.6	1991–95	DHS
Life Expectancy at Birth—Females	66.4 years	1991	CAPMAS
Life Expectancy at Birth—Males	62.9 years	1991	CAPMAS

CAPMAS data from Annual Statistics Book: 1952–94, pp. 40–55. This 1994 publication refers to 1990 data. Cairo, 1994.
DHS data from an unpublished 1995 report.
**National Maternal Mortality Study: Findings and Conclusions*, MOH Child Survival Project, Cairo, 1994.

HEALTH INFRASTRUCTURE AND HEALTH SECTOR PROFILE

Health for all by the year 2000 is the main health objective of the Egyptian government. The Ministry of Health and Population gives high priority to increasing coverage of the health care system, particularly in rural areas and for preventive care. A health plan is part of the national six-year development plan (1992–97). One-year implementation work plans are drawn up by governorates and incorporated into six regional health plans, each covering several governorates.

The health service sector in Egypt includes both public and private organizations but all health institutions in the country are under the Health Sector Council, chaired by the Minister of Health and Population, which is responsible for setting health policy, defining health plans, and coordinating the efforts of various agencies working in the health field.

Egyptian national health policies emphasize:

- Provision of health services for all, with social justice and attention to upgrading medical care suitable to the individual's income level
- Reduction of mortality and morbidity
- Improved health care quality
- Increased coverage of child immunization programs
- Expansion of the national health care financial system and introduction and/or development of other types of health insurance
- Development of the cost-recovery system and a greater role for the private sector
- Provision of health education and health messages and studies relating to health economics
- Continual upgrading of the health information system
- Review and modification of health legislation on a periodic basis to cope with social changes
- Improved management of the health services system.

The Ministry of Health and the Ministry of Population were combined in early 1996 to form the Ministry of Health and Population. This report references the Ministry of Health (MOH) throughout as the implementing Ministry during most of the lifetime of the Project.

At the central level, the MOH is organized as shown in Figure 1.2.

There is a well-established system of monthly distribution of essential drugs from the central level to the governorates and then to health facilities, passing through the district health offices.

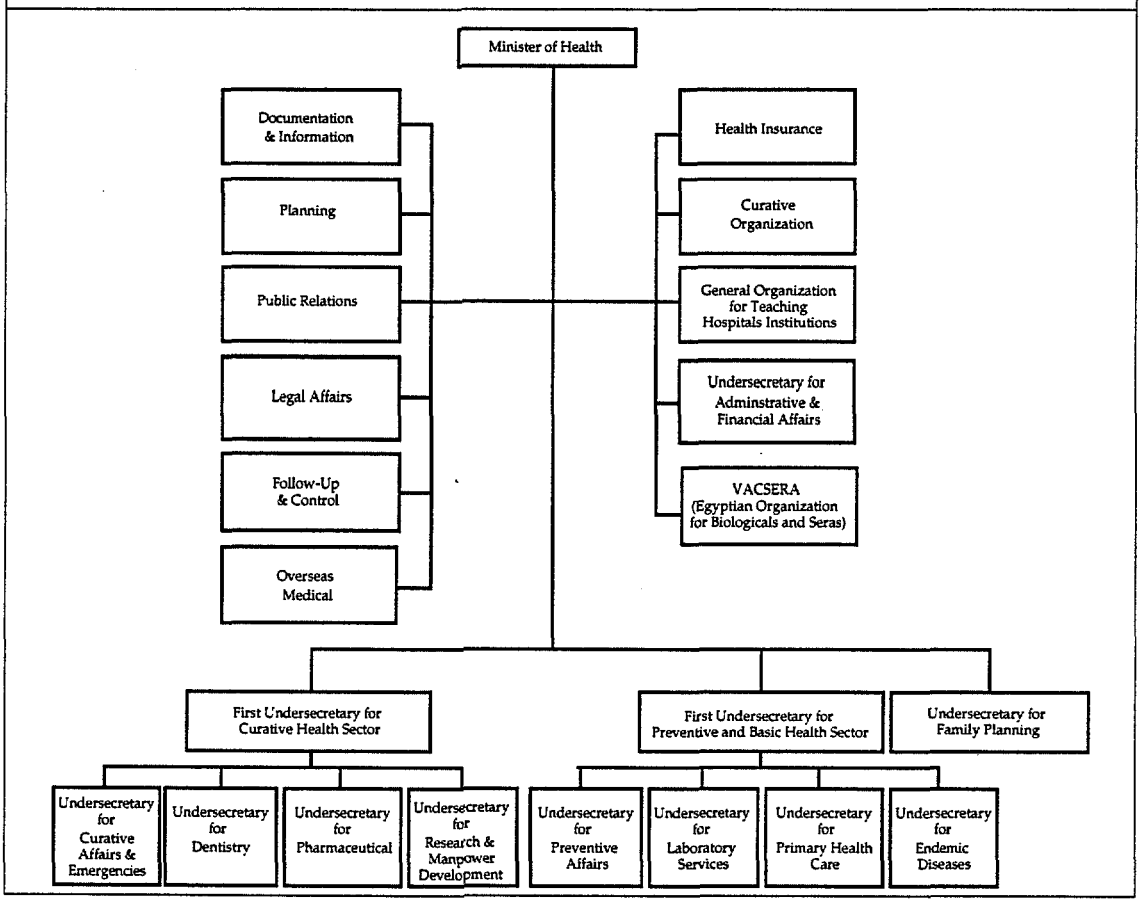
Governorate-Level Health Services

At the governorate level, an undersecretary or director general is responsible for implementation of health programs. S/he manages the governorate health directorate and administers the district health offices in the governorate. There are 27 health directorates covering the 27 governorates.

District-Level Health Services

Health services in each district are headed by a district health officer, assisted by a technical team. The district health office is responsible for supervising first and secondary health levels, which include general, district, and fever hospitals; maternal child health

Figure 1.2 Ministry of Health, 1995



centers; urban health centers; rural hospitals; rural health centers; and rural health units, as shown in Table 1.2.

In theory, most of the population has access to a public health facility within five kilometers. About 40 percent of patients go directly to large hospitals and polyclinics. Private practitioners and clinics serve a large proportion of patients, accounting for more than 40 percent of health services provided.

About 20 percent of the population utilizes the peripheral centers and units. On average, a rural health unit serves a population of 5000 inhabitants, while a rural health center serves a population of 10,000–25,000. Typical staffing at the peripheral level is shown in Table 1.3.

There are a total of about 85,000 physicians in practice, of whom about 30,000 work full- or part-time with the Ministry of Health. Physicians complete seven years of medical school, which includes a one-year internship, after finishing 11/12 years of basic education. All newly registered physicians are assigned for one year (out of four in MOH service) to a rural health facility.

Nurses have three years of high school and nursing training at Secondary Technical Nursing (STN) Schools, following nine years of general education. Assistant nurses have one-and-one-half years of nursing training after general education. Midwives are either nurses or assistant nurses who received additional midwifery training. Graduate nurses matriculating

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Table 1.2 First- and Second-Level Health Facilities

Category	Number
Hospitals	
General	52
District	168
Fever	86
Chest Hospitals	32
Child Hospitals	3
Primary Health Care Units	
MCH Centers	214
Urban Health Centers	201
Rural Health Centers	419
Rural Hospitals	171
Rural Health Units	2255

Source: ARI Control Program Database, 1995

from the university-level Higher Institutes of Nursing have four years of university and nursing training.

Although Egypt has a wide and extensive network of health facilities, health personnel and facilities are unevenly distributed, located to a large extent in the urban areas of Cairo and Alexandria. As a result, many peripheral communities remain largely unserved. The problem is compounded by low salaries and frequent changes of personnel, resulting in under utilization and/or poor functioning of health facilities.

Table 1.3 Typical Staffing at Peripheral Health Facilities

Staff	Rural Hospital	Rural Health Center	Rural Health Unit
Physicians	4–5	2–4	1–2
Dentists	1	1	0
Pharmacists	1	0–1	0
Nurses	2–4	2–4	0-1
Assistant Nurses	2–5	2–5	2
Sanitarians/Assistant Sanitarians	2–3	1–3	1
Lab Technicians/Assistant Lab Tech	1	1	0-1
Radiology Technicians	1	0	0

SITUATION OF CHILDREN AND WOMEN IN EGYPT

In order to review the impact of the Child Survival Project on the health of women and children it is important to consider health status at the time the Project was started.

In 1986, Egypt had a population of 49.9 million, with an annual growth rate of 2.94 percent.[1] Life expectancy at birth was 60.5 years for males and 63.5 years for females. A high proportion of women (almost 22 percent) were in their childbearing years, and 34 percent of the population was below 12 years of age.

A prerequisite for improving a nation's health status is establishing which groups among its population are the most vulnerable and at greatest risk. In Egypt women and children are especially vulnerable, in particular those in families that live in marginal urban areas and those in rural communities without access to services and adequate sanitation, and with low levels of education and poor housing.

The rapid pace of urbanization in Egypt also has an impact on child health. Many recent migrants to the cities are in their reproductive years and a large proportion are poor and illiterate, compounding the problems of rearing children in already unfavorable circumstances. Living conditions in city slums are often worse than those in rural areas.

According to DHS statistics, the infant mortality rate (IMR) was 97 per 1000 live births in 1983–87.[2] However, this national rate disguises regional variations. The IMR for Upper Egypt was almost three times higher than that for governorates with the lowest rates (Port Said, Ismailia, Alexandria, and Dakahlia). Data indicate that rural infant mortality rates are about 50 percent higher than urban rates.[3]

As with the IMR, patterns of death also differed by region. For example, neonatal tetanus was almost five times more common in rural than in urban areas, and it was 4.7 times higher in Upper Egypt than in the rest of the country.

Malnutrition was, and continues to be, a serious and complex problem in Egypt, influenced by poor dietary practices, lack of knowledge, lack of proper food supplements during the weaning stage, poverty, infections, and family health history. Malnourished mothers tend to have malnourished infants. Severe early malnutrition causes stunted growth in children and affects their future development. Parasitic infestation and lack of community hygiene favor the development of anemia, diarrheal diseases, and other problems that hinder uptake of nutrients.

There is also a close relationship between child health and the number of siblings and birth intervals.

Several factors contribute to the unnecessary loss of children's lives:

- High incidence of diseases that are preventable using current technology.
- High frequency of newborn infants with low birth weight (2500g or less).
- Rapid population growth.
- Excessively brief periods between births.
- Inadequate supply and use of health services.
- Unfavorable social, cultural, and environmental factors.

1CAPMAS, 1985, p. 40, 55.
2DHS, 1992, p. 122.
3DHS, 1992, p. 124.

Analysis of mortality and morbidity in women and children suggests that the great majority of deaths could have been prevented by the use of appropriate methods for the control or eradication of causal factors. While some groups have benefited from modern technological advances, those benefits have not reached uniformly to all segments of the population.

Maternal health is critical for women and for their children's health. One has to take into consideration that during her reproductive years a woman is susceptible to ailments that affect both women and men of any age, as well as illnesses and disorders specifically related to pregnancy, childbirth, and the postnatal period.

PROJECT BACKGROUND

The Child Survival Project was established as a project directed and managed by the Ministry of Health (MOH), with all Project programs and activities provided through the MOH delivery system. The partnership approach was reinforced by a shared commitment to Project financing: US$34 million (£E113 million) was committed by the Government of Egypt, and USAID obligated US$68 million. Commitment, agreement, and ongoing support of the objectives, design, and implementation of this 11-year Project (1985–96) were supported through cooperative bilateral negotiations between the MOH and the USAID.

The goals and objectives of the President's Declaration for the Egyptian Child Care and Protection Decade, the President's Health Objectives for the Year 2000, the National Council for Childhood and Motherhood, the Government of Egypt's Five-Year Plan (1992–1997), as well as the USAID Health Strategy, were incorporated into the CSP.

The CSP has placed special emphasis on addressing the most common causes of death and illness in infants and young children, and on actions to improve the health of mothers. The Child Survival Project has implemented three key components:

- The Acute Respiratory Infections Control Program (ARI)
- The Expanded Program on Immunization (EPI)
- The Child Spacing/Maternal and Child Health Program (CS/MCH).

In addition, six cross-cutting programs—Health Education and Mass Media; Health Information System; Training in Decentralized Health Planning and Management; Clinic Management Improvement; Field Epidemiology Training (through the US Centers for Disease Control and Prevention); and Initiation of Revisions to the Undergraduate Curricula for Medical and Nursing Students—have been included in the Project, to strengthen both the MOH and the three key components. In 1993, the Project also initiated limited support for the General Directorate for Diarrheal Disease Control.

Within the Ministry of Health, the CSP has worked directly with the health directorates of the 27 governorates, and the 231 district health offices of these directorates. This USAID-supported Project has also worked in partnership with WHO and UNICEF, and has pursued a policy of open coordination and communication with these key donors and other organizations. The CSP has received substantial support in the form of technical assistance, equipment and commodities, drugs, and vaccine supply from USAID, as well as from UNICEF and WHO. Technical assistance financed by USAID has included that provided by the main technical assistance contractor, Clark Atlanta University (CAU), under a Host Country Contract, and by the US Centers for Disease Control and Prevention (CDC).

Due to administrative and staffing difficulties, there were extensive delays in starting the Project after the bilateral agreement was signed in 1985. Project implementation started in 1989, and the Project became fully operational in 1990.

As a result of program monitoring and audits, and increased recognition of the importance of child survival activities, several amendments to the original project paper were enacted. The major changes took place in 1991–92 with the Project Paper Amendment (PPA) and Project Grant Agreement Amendment No. 4. Following these amendments, funds were provided for hepatitis B vaccines and ARI antibiotics. Nutrition activities, which were originally carried out independently, were incorporated into the CS/MCH program, and limited funding was provided for selected activities of the MOH's Diarrheal Disease Control Program.

In November 1992, an interim evaluation was completed. Among its conclusions were that although technical sustainability of the project was ensured, financial and institutional sustainability remained major concerns. After the evaluation, a series of recommendations were made to address issues of sustainability.

The main recommendations were to:

- Develop a plan for sustainability.
- Decentralize some aspects of administrative and financial management.
- Strengthen management, planning, and monitoring capacity at the governorate and district levels.
- Focus training on practical problem-solving, management, team building, and leadership skills in addition to technical knowledge and skills.

Actions taken to implement these recommendations include:

- An analysis of recurrent costs of the entire Child Survival Project, commissioned by USAID to determine and plan for the **financial and institutional sustainability** of CSP activities beyond 1995. Completed in 1993, this analysis was submitted to the MOH as a foundation for incorporating CSP activities into the Government of Egypt's five-year financial planning process.

  Also in 1993, a strategy and a plan for institutional sustainability of CSP activities were developed in consultation with the MOH and USAID, and were incorporated into the CSP's 1994–95 Final Work Plan. An important issue was vaccine costs, which have been covered by the Government of Egypt since 1994.

- To **strengthen management, planning, and monitoring capacity at the governorate and district levels**, and to improve health management information systems, monitoring, and evaluation performance indicators, five new cross-cutting programs of activities were initiated in addition to the FETP.

- To ensure that CSP training focused on competency based training methodology to **strengthen practical problem-solving, management, team building, and leadership skills** in addition to technical knowledge and skills, all programs were reviewed and modified as necessary. In addition, the Project has requested and obtained the collaboration of Egyptian universities and medical and nursing schools to integrate child survival training into university curricula for health service professionals, and to assist with the development of training materials and training delivery.

In November 1994, the MOH and USAID agreed to an extension of the project assistance completion date from 15 August 1995 to 15 August 1996, to enable the MOH to complete activities under the current Project to meet its original objectives.

2

Expanded Program on Immunization (EPI)

It is widely accepted that immunization is one of the most cost-effective weapons for disease prevention. Incidence of vaccine-preventable diseases falls markedly when immunization is adequately administered to target populations.

In Egypt, immunization is carried out through the Expanded Program on Immunization (EPI), run by the Ministry of Health Communicable Diseases Department and supported by the CSP (funded by USAID), the WHO, UNICEF, and other bilateral development agencies and nongovernmental organizations.

By the early 1980s, Egyptian efforts to protect the health of children through vaccination had achieved limited success, measured by immunization coverage and incidence of childhood infectious diseases. Some governorates had achieved high infant vaccination coverage rates. In spite of these efforts, however, high incidence rates of vaccine-preventable diseases persisted, particularly polio, measles, and neonatal tetanus. By 1984, the proportion of children fully immunized was only 30 percent. Polio coverage was 67 percent nationally, and coverage by other antigens was lower, as shown in Table 2.1.

A survey of the EPI/PHC program conducted in 1984 identified the following problems: deficient vaccination practice; poor status of the cold chain; and the need for training, monitoring, supervision, and strengthened management. As a result of these findings, the Ministry of Health decided to undertake an accelerated Expanded Program on Immunization to help achieve the UCI targets through strengthening the vaccination system and the cold chain, and through delivery of immunization in conjunction with other health services.

In following years the targets of the accelerated EPI in Egypt were extended in accordance with international agreements of the WHO World Health Assemblies, reinforced by President Hosni Mubarak's decision to declare 1989 to 1999 as the "Decade for the Protection

Table 2.1 Vaccine Coverage Rate in Infants and Tetanus Toxoid Coverage in Pregnant Women, Egypt, 1984

Antigen	Percent Coverage
Polio	67
DPT3	57
BCG	53
Measles	41
TT2+	19

Source: EPI

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and Development of the Child in Egypt" and by the resolutions of the United Nations' Summit on Children in 1990. Consequently, targets were extended to seek the elimination of neonatal tetanus, the eradication of polio, and the control of measles. A further extension of the program took place in 1991 when the MOH and USAID agreed, within the framework of the CSP, to integrate vaccination of infants against hepatitis B—a major problem in Egypt—into the EPI.

In 1989, a comprehensive cold chain program review was carried out by UNICEF. This led to the design of a cold chain development plan that was adopted by EPI, and to the organization within EPI of a cold chain monitoring and development unit which included assignment, through CAU, of a technical consultant for one year. The same year a comprehensive training program for health providers in immunization practice and cold chain operations was initiated.

Among the constraints identified by the EPI were:

- **Drop-out rates**—women and children who did not return for subsequent immunizations. Health education within the community played an important role in controlling this factor and increasing social support for immunization.
- **Missed opportunities** for vaccination of women and children.
- **"Difficult to reach persons"**—those who never used the immunization services available at the health center.

EPI AND THE CSP

HISTORY

In 1990, a national plan for the eradication of poliomyelitis, developed with the assistance of WHO, was approved by a national committee. Steps were taken to implement EPI surveillance activities for polio and NNT through daily reporting by all health facilities in the country. The polio eradication program was launched in August 1990, with case investigation and follow-up within 48 hours.

In 1991, the national plan for elimination of NNT, developed with help from WHO, was adopted by the National EPI Steering Committee, and the MOH also reached an agreement with USAID for the implementation of an infant hepatitis B vaccination program.

In 1992, the MOH, in consultation with WHO, revised the polio eradication program. The new plan provided for continued annual immunization campaigns, strengthened district level mop-ups in high-risk areas, and continuation of immediate investigations and containment measures for each case of suspected polio. The plan also included the operation of a reverse cold chain to ensure proper handling and delivery to laboratories of stool specimens for analysis. As a result of a seroconversion study, the OPV formula was changed to provide increased protection against type III polio virus.

The first indications of success in achieving polio eradication came in 1992: the number of confirmed polio cases declined that year, despite much more stringent surveillance. Hepatitis B immunization also started in October of that year and, with assistance from WHO, a measles control and reduction program was developed.

In 1993, EPI worked with governorate health directorates to decentralize monitoring and supervision of the program. Also in the same year, the MOH budget assumed the cost of providing syringes for the program, which had been funded under USAID grants for the CSP during 1990–92.

In November of 1993, an international evaluation team led by WHO, with the participation of Egyptian universities and the MOH, reviewed measures taken by the MOH and EPI for disease surveillance. The evaluation noted progress achieved in shifting the epidemiological characteristic of polio from a more generalized to a more limited focal distribution, as well as success in reducing NNT incidence. It confirmed the correctness of policies for disease surveillance and control, and noted also that the increased capability for surveillance of polio and NNT contributed to better surveillance of other communicable diseases by the MOH.

In 1994, the EPI continued ongoing programs for routine immunization and disease control. A significant step was taken by the GOE to ensure sustainability of the program when it decided to assume financial responsibility for vaccine procurement covering BCG (tuberculosis), measles, diphtheria, pertussis, tetanus, polio, and hepatitis B. That year, national routine vaccination rates approximated 90 percent for all vaccinations required during the infant's first year. More than 75 percent of EPI health districts achieved coverage rates of 80 percent or more. Hepatitis B was successfully integrated into EPI's routine program of infant vaccinations. Only about 50 lagging districts still needed to improve their vaccination coverage for one or more vaccines (especially measles and hepatitis B).

STRATEGY

Strategies employed by EPI included:

- Working with the Department of Communicable Disease Control and governorate health directorates to implement, manage, and monitor the EPI, to strengthen EPI disease surveillance and control, and developing health management and information systems at all levels.
- Collaborating with VACSERA (the organization responsible for vaccine production, filling, and importation) to ensure supplies of vaccine to the governorates for the routine vaccination program and for special disease reduction and control campaigns.
- Monitoring disease control and reduction.
- Adding new vaccines as they become available, feasible, and cost-effective.
- Conducting research studies and evaluations to support program management.
- Procuring and supplying disposable syringes to governorates for routine vaccination and for special vaccination programs.
- Supporting a systematic program of field epidemiology training.
- Improving management capability of the EPI team, particularly at governorate, health district, and clinic levels.
- Continuing implementation of the proven policies and programs for polio eradication, NNT elimination, and measles control and reduction, including National Immunization Days (NIDs), mop-up campaigns, and surveillance, case investigation, and containment measures for acute flaccid paralysis (AFP).
- Supporting development of preservice training in EPI for medical students and nurses.
- Supporting governorate training and supervision to maintain and improve the capabilities and skills of health workers providing immunization services.

MANAGEMENT AND ORGANIZATION

The EPI is managed centrally by a National Director within the Communicable Diseases Department of the MOH, who is, as well, the Executive Director of the EPI component of the Child Survival Project. EPI objectives, policies, and plans are reviewed and vetted by a National EPI Steering Committee. An EPI Joint Committee provides periodic coordination among donors, especially WHO, UNICEF, and USAID.

Coordination with governorate health directorates is managed by periodic meetings with their undersecretaries and director generals, and with the department heads for preventive health services. Coordination is supported by the work of EPI field implementation officers and by EPI staff and the MOH Department for the Prevention of Communicable Diseases, who have a regular schedule of visits to all governorates and most districts each year. Special meetings are organized to coordinate national vaccination campaigns.

The program is decentralized through 27 governorate health directorates, 231 health districts, and 3500 primary health care facilities. Management is the responsibility of each governorate health directorate and, within the directorate, its department for preventive health services. Health directorates are responsible for regional planning, coordination, monitoring, and supervision; training; supply of vaccine, syringes, and other supplies and equipment to the health districts; and maintaining the cold chain.

At the district level, the district health officer manages EPI activities, among all other health care services. The number of districts vary with the size of the governorate, averaging between five and ten per governorate. The average district has a population of more than 250,000, one or more district hospital, and 15 vaccination centers. At the service level, the EPI is administered by a clinic director.

An Executive Committee within the CSP, chaired by the First Undersecretary for Preventive Health, ensures coordination of EPI activities with those of the ARI Control and CS/MCH programs being supported by the Project.

The EPI program has units covering the following activities:

- Vaccine Supply and Monitoring.
- Disease Surveillance, Research, and Evaluation.
- Cold Chain Management and Maintenance.
- Training and Education.
- Office and Administrative Support.

The organization at the central level is shown in Figure 2.1.

VACCINATION ACTIVITIES

NETWORK OF VACCINATION CENTERS

Routine immunization is carried out through a network of fixed vaccination points. Mothers are expected to bring their babies to the health unit for routine immunization. Vaccinations are given at special sessions on specific publicized days. During mop-up operations, mobile teams provide immunization through house-to-house visits operating from the vaccination centers. They also conduct containment and mop-up operations for regional campaigns and in high-risk districts and areas, and collaborate in mass campaigns.

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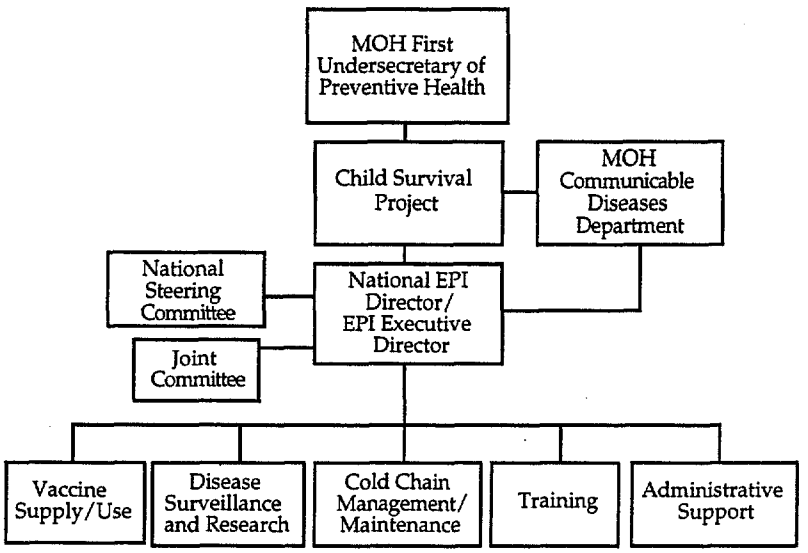
Figure 2.1 Central Level EPI Organization



Vaccination centers in Egypt extend to all PHC clinics. Health bureaus that record vital statistics and provide family planning services also serve as vaccination points. The smallest centers are rural health units that are frequently limited to one doctor and several assistant nurses. Virtually all of the population lives within five kilometers of a center, so it is relatively easy for most mothers to bring their babies for immunization and to come to the center for a TT (tetanus toxoid) immunization for themselves. Table 2.2 shows numbers of vaccination centers in 1984 and 1995.

IMMUNIZATION SCHEDULE

The routine vaccination program includes 12 immunizations against seven diseases, targeted at all infants—estimated at 1.7 million in 1995. Because the majority of births still occur at home, the first encounter for vaccination usually takes place when the baby is six to nine weeks old, when BCG, OPV1, and DPT1 are given. The full vaccination schedule is shown in Table 2.3.

Table 2.2 Vaccination Points in Egypt

	1984	1995
Health Bureaus	367	367
MCH Centers	243	214
Urban Health Centers	79	201
Rural Hospitals	47	171
Rural Health Centers	540	419
Rural Health Units	1866	2255
Total	3142	3627

Source: 1984-EPI/PHC Program Review, May 1984; 1995-EPI Program

Table 2.3 EPI Infant Vaccination Schedule, 1995

Vaccination	Age	Percent Coverage
BCG	Before 3 months	94
OPV1	2 months	96
OPV2	4 months	93
OPV3	6 months	91
OPV4	9 months	90
DPT1	2 months	95
DPT2	4 months	91
DPT3	6 months	89
HB1	2 months	95
HB2	4 months	91
HB3	6 months	90
Measles	9 months	90
OPV Booster*	18-24 months	85
DPT Booster*	18-24 months	79

*Two recommended boosters given between 1-1/2 and 2 years of age

Source: EPI 1995 Report on Immunization Coverage by Health Districts

TETANUS TOXOID IMMUNIZATIONS FOR WOMEN

Tetanus toxoid immunizations are voluntary. Two immunizations, at least one month apart, starting in the second trimester of pregnancy, are strongly recommended and considered to be a routine part of antenatal care. Another booster dose is recommended in any subsequent pregnancy, to a total of five doses, which provides the woman with lifelong immunity. In health districts where women are considered to be at high risk for neonatal tetanus, the recommended practice is to provide TT immunizations to all women of reproductive age who come to the clinics.

MASS CAMPAIGNS AND MOP-UPS

Mass campaigns and mop-up operations have proven an effective and necessary complement to routine immunization, increasing coverage and controlling the spread of infections, especially poliomyelitis and neonatal tetanus. Mass campaigns are conducted nationally in all governorates and health districts. Mop-ups are conducted in a coordinated way in a number of high-risk districts or subdistricts in the same period. They emphasize house-to-house vaccination by mobile teams in order to target hard-to-reach families missed in fixed-site sessions.

VACCINE SUPPLY AND MANAGEMENT

Management of vaccine procurement, supply, and use includes the following:

- Estimating vaccine quantities needed.
- Vaccine procurement.
- Vaccine distribution via the cold chain.
- Monitoring the integrity and reliability of the cold chain.
- Monitoring vaccine use and stocks.
- Monitoring vaccine coverage.
- Periodic meetings with regional EPI managers.
- Field supervision and monitoring.

VACSERA AND EPI

The Egyptian Organization for Biological Products and Vaccines (VACSERA) was formally established in its present status as a public authority in 1972, and remains affiliated to the MOHP. It was created in order to manage the Ministry's laboratories, farms, and other units for the production of vaccines and sera. VACSERA is the sole authorized entity in Egypt responsible for the production, marketing, importing, and exporting of vaccines and biological products. It currently produces a number of human and animal vaccines, antisera, blood products, and parenterals, and performs quality control testing of all biological products. Additionally, it serves as a WHO collaborating regional laboratory for isolation and typing of polio virus for the region.

While VACSERA is responsible for meeting all of Egypt's biological requirements, in recent years it has satisfied Egypt's demand for EPI vaccines largely from donations received in kind from UNICEF. Hepatitis B vaccines for 1993–94 were supplied by USAID.

In recognition of Egypt's commitment to EPI, and withdrawal of ongoing donor support, the MOHP allocated £E35 million for vaccine procurement for FY1994–95. In 1994, VACSERA initiated the procurement process for all of Egypt's vaccine requirements. VACSERA's current production of EPI vaccines is limited to OPV bulk filling, production of a part of the requirement for BCG, and production of TT. Other vaccines are purchased from abroad.

During the 11 years of the Project, CSP sponsored five consultations and technical studies concerning VACSERA, including:

- Assessment of Compliance with International Standards of Good Manufacturing Practices, Quality Control, and Quality Assurance.
- Financial Management Review.
- Legal Review.
- Strategies for Joint Ventures.
- Technical Advisor on Pertussis Production.

THE COLD CHAIN

The proper functioning and maintenance of the cold chain is a fundamental part of an effective EPI. The cold chain in use by the EPI is now well-established throughout Egypt, and has sufficient equipment to keep vaccines at safe temperatures during transport and storage. The development of the system has required years of effort and investment in introducing management systems, recruiting manpower, conducting training, and procuring equipment needed to ensure reliability.

The system was developed in the face of many operating difficulties: high temperatures over most of the country for several months of the year, widespread lack of repair and maintenance facilities, uncertain power supply at many storage and vaccination sites, and staff unfamiliar with the operation of refrigeration equipment.

Establishing a reliable system has required technical assistance, equipment, and supplies from several international agencies, notably USAID, WHO, and UNICEF.

Between 1989–95 more than 44,000 clinic-level health workers and 2600 managers from district health offices who have responsibility for supervision of PHC clinics were trained in correct operation of the cold chain. Courses in repair and maintenance have provided the skills to make major repairs on motors and compressors, as well as minor repairs and adjustments. In 1989, only seven governorates had facilities for repair and maintenance of cold chain equipment. By 1996, operating repair facilities had been established in all governorates.

A survey of equipment status carried out in 1993 showed a total inventory of 448 freezers and 7761 refrigerators. The average age of this equipment was less than five years. The value of the equipment procured since 1989 with assistance from USAID and UNICEF is estimated at over $4 million. The survey included all governorates and districts, and 10 percent of vaccination sites. The survey found a high degree of compliance with standard operating procedures: instances of improper storage or lack of temperature control were found in fewer than five percent of vaccination sites. The cold chain is presently providing adequate storage and handling of vaccine distribution nationwide.

During 1995–96 the EPI has directed its attention to areas still in need of improvement, while efforts were made by the CSP in general to strengthen planning and budgeting to sustain the system through annual budgeting by governorates to cover recurring costs, computerizing stock control for the cold chain in each governorate, and surveying lagging and high-risk districts for disease control and cold chain logistic control.

EPI DISEASE CONTROL AND SURVEILLANCE

POLIOMYELITIS

Among the many accomplishments of the EPI is the near-eradication of poliomyelitis in Egypt. As late as 1992, just before polio eradication policies began to make inroads in interrupting wild virus transmission, the number of reported cases of polio in Egypt was four percent of the global total. Because of its strategic geographic situation, between emerging polio-free zones of the Maghreb states in Northern Africa and the Arab states in the Gulf, Egypt is key to the WHO-led polio eradication effort in the Eastern Mediterranean.

During 1990–95 Egypt progressively implemented each of the WHO-recommended polio eradication strategies:

- Raise and sustain routine OPV coverage.
- Develop surveillance of AFP with laboratory confirmation of cases.
- Follow up each case.
- Conduct mop-up operations in high-risk areas.
- Conduct National Immunization Days.

In 1993, EPI targets for immunization coverage, including polio, were increased to 90 percent nationally, with all districts expected to achieve at least 80 percent coverage. Figure 2.2 depicts OPV3 coverage rates attained between 1989–95.

Routine polio immunization coverage has been maintained nationally at 90–95 percent for OPV1 and OPV2, and at 88–89 percent for OPV3 during 1990–94. Starting in 1992, the EPI added OPV4, given at nine months, at the time of the measles vaccination. Polio vaccine coverage performance is shown in Table 2.4.

The EPI began systematic monitoring of district immunization coverage in 1992. In 1994, 78 percent of health districts achieved polio coverage rates of 80 percent or more. More than half of the health districts reached immunization rates of 90 percent or more. Seven governorates accounted for most of the lagging districts.

Control Measures

The AFP surveillance system requires outbreak control measures to begin within 48 hours of case notification. The main measure is house-to-house containment by OPV vaccination of children under five years in the outbreak area. During investigation of the case, the containment program is decided, maps are prepared, and vaccine carriers and supplies are readied. Normally, between 2000 and 5000 children are vaccinated in each outbreak area.

Mopping-up operations were carried out in high-risk districts, designated on the basis of low immunization coverage and confirmed polio cases over the preceding five years in 1991, 1992, and 1993. Mopping-up activities are conducted door-to-door, administering two doses of OPV to all children less than three years of age, regardless of previous immunization. Decisions about the location and extent of mop-up activities are made by central authorities in consultation with the governorates.

Figure 2.2 National OPV3 Immunization Coverage for Infants, Egypt, 1989–95

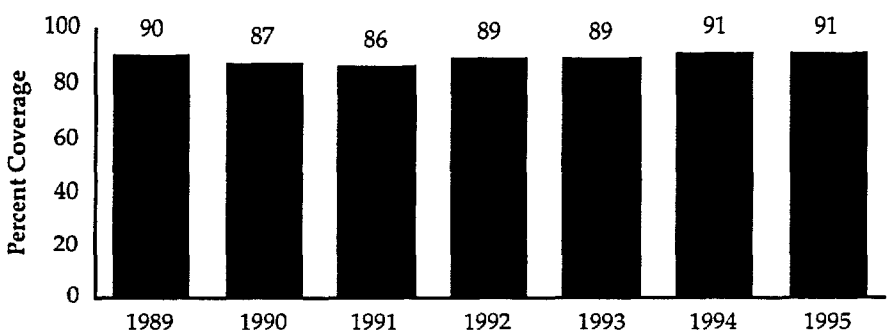


Table 2.4 Polio Vaccine Coverage Performance

Immunization	Recommended Age	1993	1995
OPV1	2 months	98	96
OPV2	4 months	93	93
OPV3	6 months	89	91
OPV4	9 months	80	90
OPV Booster	18-24 months	82	85

Source: EPI Program

Approximately two-thirds of the high-risk districts designated in 1993 were located in the seven governorates of Assiut, Beni Suef, Cairo, Fayoum, Giza, Qalyoubia, and Minya; these accounted for nearly 79 percent of the confirmed cases of polio identified during the year (Table 2.5). In 1995, mop-up operations were conducted in 50 districts in 14 governorates as part of the national polio immunization days carried out in March and May.

Poliomyelitis Surveillance

Following the MOH's decision to eradicate polio, surveillance was expanded to all health facilities in the country, with immediate reporting of acute flaccid paralysis cases, case investigation within 48 hours, and laboratory analysis to identify confirmed cases by polio virus isolation. The surveillance case definition in the polio eradication program includes all cases of AFP, including Guillain-Barré Syndrome, in children under 15 years, estimated internationally to be about one per 100,000; thus for Egypt, the number should be 240 cases. Follow-up for AFP cases is carried out for 60 days from onset of paralysis to help identify confirmed polio cases versus non-polio AFP. In 1994, 100 percent follow-up was reported.

The reverse cold chain, for the safe storage and transportation of stool specimens, was introduced in 1991. Laboratory analysis includes identification of polio virus in specimens (positive, negative, enterovirus) and viral typing of positive samples.

Achievements of Eradication Efforts

The efforts undertaken since the polio eradication program was initiated in August of 1990 have succeeded in bringing Egypt to the verge of polio eradication. Despite a greatly expanded surveillance system, the number of confirmed polio cases has declined sharply, as shown in Table 2.6. However, as seen in the table, efforts have to be strengthened to detect all AFP cases in order to justify certification of polio-free status.

Table 2.5 High-Risk District Polio Mop-Up Operations

	1991	1992	1993	1994	1995
Number of Governorates	12	13	15	13	14
Number of Districts	38	52	53	50	50

Source: EPI Program

Table 2.6 Confirmed Polio Cases

	Reported Cases of AFP	Non-Polio Cases	Confirmed Polio Cases	Population Under 15 Years
1991	712	87	625	22,800,000
1992	671	87	584	23,400,000
1993	196	46	150	24,100,000
1994	200	80	120	23,685,000
1995	210	139	71	24,000,000

Source: EPI Program

In November 1993 a joint national/international team led by WHO conducted an assessment of EPI disease surveillance and control in Egypt. The team found that the very low reported incidence of polio is indeed real and that during 1992–93 polio shifted from being a widespread endemic disease to one with a limited focal distribution. The assessment concluded that the combination of properly conducted National Immunization Days and focused mopping-up immunization in high-risk districts " . . . has been responsible for bringing polio to the brink of eradication in Egypt . . . that these policies are sound, and in governorates where effectively implemented, have led to zero cases of polio."

The assessment noted that a very high proportion of polio cases are being detected. However, full implementation of existing policies and proper documentation of all AFP cases will be needed to confirm achievements. The principal recommendations of the review team are presently guiding ongoing eradication efforts (Figure 2.3).

Figure 2.3 Recommendations of the 1993 Assessment Team

- Achieve routine OPV3 immunization coverage of 90 percent down to the smallest administrative level.
- Conduct National Polio Immunization Days in 1994 and 1995.
- Extend mopping-up with OPV in all districts with confirmed cases of polio in the previous 12 months.
- Include all causes of AFP in polio surveillance, especially Guillain-Barré syndrome, in children under 15 years of age. Train staff and seek active hospital surveillance to implement this policy.
- Provide support to polio laboratories for timely processing of samples and reporting of results. Develop intratypic differentiation capability at VACSERA.
- Develop feedback mechanisms to inform ministers, governorate and district officials, laboratories, universities, and other reporting sites of polio eradication and investigation efforts.
- Extend AFP detection, investigation, and response skills to all major public health conditions.

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During 1994 and 1995, there was an increase in the number of polio-free districts, and a decline in the number of confirmed polio cases. In 1995, efforts to eradicate the virus increased and included social mobilization, intensified surveillance, mop-ups targeting high-risk districts, and National Immunization Days.

Work will be initiated on following WHO recommendations for polio-free certification.

NEONATAL TETANUS

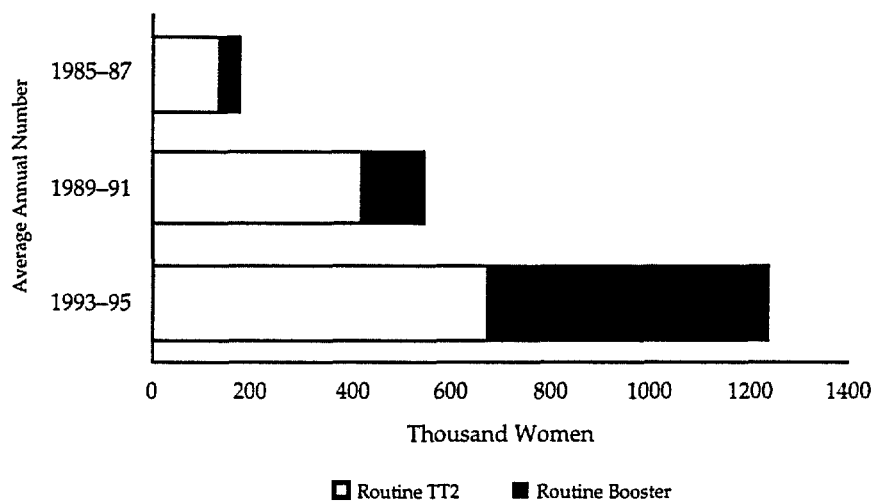
The 1984 EPI/PHC review indicated that neonatal tetanus was a major health problem. TT coverage rates were very low and the high proportion of babies delivered at home by untrained dayas greatly increased the risk of NNT infection in the newborn. The review recommended urgent measures to increase TT immunization coverage of women, and training dayas to manage deliveries more hygienically and refer expectant mothers to PHC clinics for TT immunization. A 1986 survey confirmed that NNT mortality rates were 7 per 1000 live births.

In 1988, the EPI added an annual TT immunization campaign for pregnant women, designed to take place in two rounds during November and December. Between 1985 and 1991, routine immunizations of pregnant women reported by MOH/PHC clinics increased by 75 percent, and from 1993 to 1995—with the additional inputs of the CSP—this increased even more dramatically (Figure 2.4).

The CSP program to train dayas (in collaboration with UNICEF) in hygienic practices and improved management of deliveries and increasing TT2 coverage among pregnant women, resulted in a decline in reported hospitalized cases of neonatal tetanus, and a decrease in neonatal mortality due to NNT.

In 1990, a National Neonatal Tetanus Elimination Plan was developed by the EPI and CSP in collaboration with WHO. A "high-risk" strategy was put into effect starting with the 1992 campaign that targeted all women of reproductive age in high-risk districts. During the period 1991–94, the EPI in collaboration with other components of the CSP, accomplished the following:

Figure 2.4 Average Number of Pregnant Women Routinely Vaccinated with TT2+ Annually, 1985–95



Source: Child Survival Project, EPI Program

- A NNT surveillance system for rapid reporting and early case investigation was established in all governorates and districts.
- Routine TT immunizations emphasized by the PHC system resulted in high levels of TT2+ coverage.
- Annual campaigns were carried out in the fourth quarters of 1991, 1992, and 1993 targeting pregnant women and, in high-risk areas, all women of reproductive age.
- The Child Spacing program of the CSP trained more than 11,000 physicians in improved antenatal care and more than 7000 dayas in safe management of deliveries.

Neonatal Tetanus Surveillance

Elimination of neonatal tetanus, defined as a rate fewer than one case per 1000 live births in all health districts, was adopted in 1988 by the World Health Assembly and by the United Nations' World Summit for the Child as a global goal to be achieved in the 1990s. A national plan was put into effect in Egypt in 1990–92, an important element of which addresses the need for more complete reporting and case investigation.

Surveillance actions taken since 1990 include:

- **Standard Case Definition** This has been widely disseminated to physicians. It is based on an infant normal at birth with normal sucking; the illness starts between 3 and 28 days of birth; the infant's inability to suck and swallow; the infant's rigidity of lips and mouth (lockjaw), causing a characteristic grimace (risus sardonicus); and the infant's stiffness and/or convulsions.
- **Case Reporting** All cases of NNT are supposed to be referred to fever hospitals, and immediate reports to the MOH from fever hospitals remain the basis of NNT surveillance.
- **Case Investigation** Every NNT case is investigated covering information about the vaccine status of the mother, antenatal care, place of delivery, birth attendants, and data about onset, notification, and outcome of disease.
- **Monitoring and Analysis** Indicators of surveillance include the number of cases per district, TT2 immunization coverage, and the percentage of hygienic deliveries—all related to prenatal care, birth attendant, and place of delivery. Data collected by site, district, and governorate is compiled and analyzed to help in disease surveillance and decision-making.
- **Reporting Feedback** One mechanism implemented to achieve feedback has been to hold periodic meetings—at least every six months in high-risk governorates—to discuss the situation, problems faced, and possible solutions. Data analysis carried out at the central level needs to be reported back regularly to the governorates.

Total annual cases of NNT reported by fever hospitals declined from 3275 cases in 1990 to less than 1000 cases by 1995 (Figure 2.5). As of 1995, the national incidence of NNT in terms of reported cases declined to 0.5 per 1000 live births. However, at least 40 percent of NNT cases remain unreported, mainly because of cultural factors combined with the high rate of home deliveries. The goal is to achieve less than one case per 1000 live births in all districts.

Achievements of Elimination Efforts

The activities undertaken by the EPI and CSP to eliminate NNT have produced:

- TT2 coverage for pregnant women maintained at a high level.
- Further declines in reported cases of NNT and in neonatal tetanus mortality.

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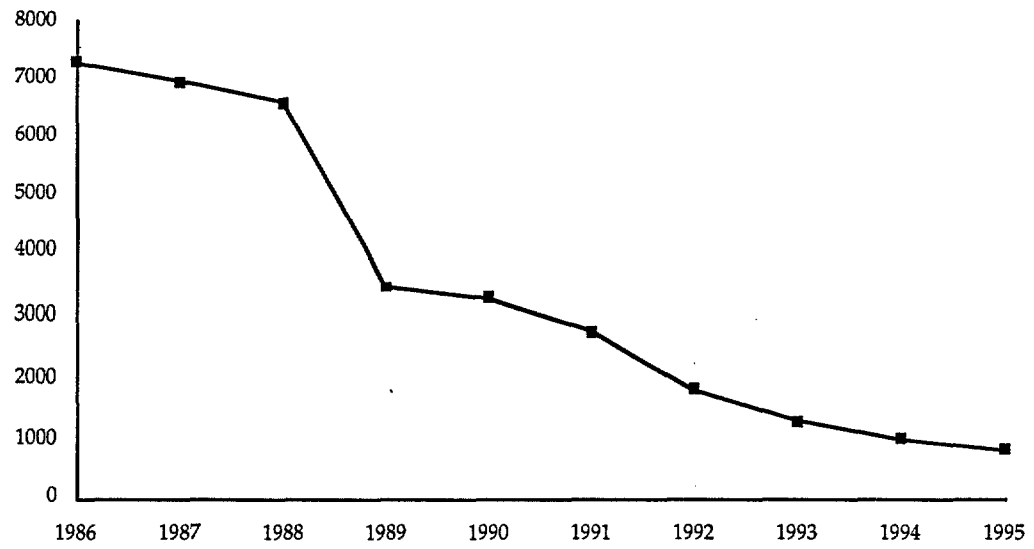
Figure 2.5 Number of Reported Cases of Neonatal Tetanus, Egypt, 1986–95



- Improvement in NNT surveillance and follow-up of reported cases.
- NNT elimination achieved in a large proportion of governorates and districts.
- A high proportion of women of reproductive age adequately immunized against tetanus.

MEASLES

Measles has had a tendency to be epidemic in Egypt every second or third year. Immunization against measles started on a voluntary basis in 1973, and became obligatory in 1977. Since 1981, the Global EPI has recommended a single dose of measles vaccine at nine months of age, a practice that has been followed in Egypt.

The EPI measles control and reduction program aims to achieve a 90 percent reduction in morbidity and a 95 percent reduction in mortality. Figure 2.6 shows measles vaccination coverage and Table 2.7 shows declines in the number of cases in epidemic years.

Figure 2.6 Infant Vaccination Coverage for Measles, Egypt, 1987–95

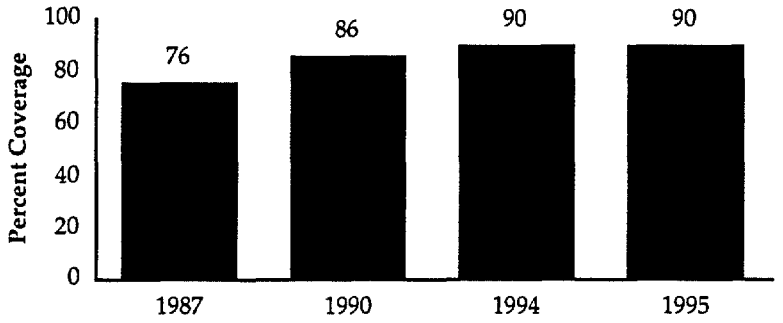


Table 2.7 Number of Measles Cases in Epidemic Years, Egypt

Year	Number of Cases	Percent Decrease in Cases Compared to 1982
1982	7365	—
1984	4895	34
1985	5554	25
1989	4057	45
1992	4403	40
1995	2832	62

Source: MOH

In 1992 EPI developed, with WHO assistance, the National Measles Control Program, designed to address the following problems:

- Under-reporting of the disease.
- Failure of parents, especially in rural areas and in urban slums, to seek medical care for infected children, because the gravity of the disease was not sufficiently recognized by the public.
- Low immunization coverage and high drop-out rates in many areas.
- Inadequate data on, and analysis of, the impact of measles on infant and child morbidity and mortality, and on the efficacy of measles vaccination.

The program included measures as shown in Figure 2.7.

Figure 2.7 Elements of the National Measles Control Program

- Raise and sustain measles vaccination coverage as part of the routine vaccination program.
- Conduct analysis and research on measles mortality and morbidity, measles vaccine efficacy, the need for a two-dose strategy, and vitamin A use on the prognosis of the disease.
- Establish an effective, sensitive surveillance system to detect a high proportion of measles cases, and to collect data on age and vaccination status of infected children.
- Develop educational campaigns for the medical community, especially for pediatricians, to enlist their cooperation.
- Introduce standard case management by training health agents.
- Educate the public about the gravity of the disease, and the need for medical care to treat it, through mass media, social marketing, and health agent advice to parents.

Source: EPI Program

Measles Surveillance

In Egypt, measles reporting by the MOH has historically consisted of in-patient measles cases admitted to fever hospitals.

In 1992, the MOH Department of Communicable Diseases worked to introduce the use of the standard case definition of measles in all governorates, and to develop surveillance sites in four sites in three governorates, later extended to fever hospitals in 26 governorates. Training courses for surveillance were held for more than 350 physicians working in fever hospitals.

During 1995–96 the EPI carried out additional measures to strengthen measles surveillance, including:

- Extension of sentinel sites in all governorates and district fever hospitals.
- Analysis of the age, sex, residence, and vaccination status of reported cases.
- Addition of case reporting—using the standard case definition—by other health facilities and private practitioners, covering both cases treated and cases referred to fever hospitals.

For 1995 and 1996, the EPI adopted the strategy of targeting high-risk areas, defined as those with low coverage and high incidence of measles cases, such as densely populated urban "slum" areas. These areas were concentrated in 48 of 231 districts, representing about a quarter of Egypt's population in 1994. Most of the districts are located in 10 governorates.

HEPATITIS B

As in other countries where the virus is endemic, a large proportion of hepatitis B virus infections in Egypt occur during infancy and early childhood. The WHO recommends initiating an immunization program in any country where the carrier rate for the virus reaches 3–5 percent of the population.

During 1990, the feasibility of launching a national program to integrate HB vaccination into the EPI was studied by the MOH with USAID assistance. In 1991, the MOH asked USAID to support it in launching the program. This assistance was provided through an amendment to the Child Survival Project Paper, and by a formal agreement between the Government of Egypt and USAID. The project agreement provided funding for vaccine requirements for the initial two years.

At the request of the CSP, Clark Atlanta University arranged for a technical assistance team to help develop a detailed work plan. The team, which included the Executive Director of the International Task Force on Hepatitis B Immunization and the Chief of the Hepatitis Branch of the US Centers for Disease Control and Prevention, worked with EPI staff on a plan that was accepted by the MOH and incorporated into the 1992 CSP Workplan. A supply of 12 million doses of HB vaccine was procured by Clark Atlanta University in 1992–93, and infant immunizations started in October of 1992.

The delivery strategy adopted was the immunization of infants with HB vaccine at two, four, and six months, to provide satisfactory immunity. All infants eligible for the first DPT injection were targeted, and immunization is compulsory.

Training for all physicians and nurses in vaccination units was carried out during 1992–93, and a guide for health workers on the HBV program was produced and distributed to all vaccination units. Public information, education, and communication programs have been effective: public acceptance of HB infant immunization is widespread.

Initially, the goal for immunization of infants was set at 80 percent coverage nationally, the same as for DPT and other antigens in the EPI. This target was revised in 1993, along with

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other routine EPI immunizations, to 90 percent, with every district in the country achieving at least 80 percent coverage. Hepatitis B immunization coverage in 1995 is shown in Figure 2.8.

Compulsory universal immunization of infants against hepatitis B has been successfully integrated into the EPI. Sustainability of the program has been ensured by its institutionalization as part of the EPI, and by GOE provision of funding for vaccine procurement and syringes.

Hepatitis Surveillance

Hepatitis B, an endemic disease in Egypt contracted mainly during childhood, affects hundreds of thousands of people, inflicting great social and economic costs.

The hepatitis B immunization program developed by the EPI in the past few years is providing universal infant immunization. However, there has been no mechanism for monitoring hepatitis B incidence, or for differentiating hepatitis B cases from cases due to other forms of the disease (hepatitis A, C, D, or E).

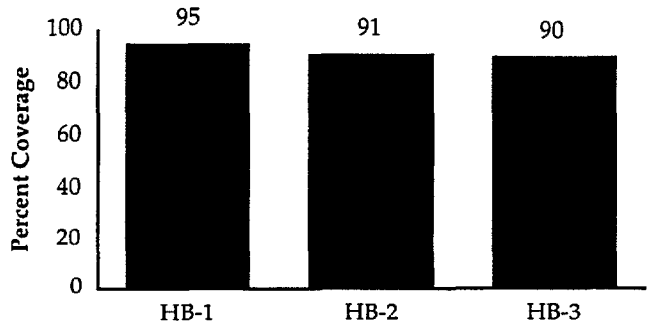
In 1994, with the assistance of Field Epidemiological Training Program (FETP), the MOH initiated a national sentinel site hepatitis surveillance system. The system is based in hospitals in different regions, and will determine the cause of illness of hospitalized cases of acute hepatitis. The system, developed during 1995–1996, will provide the following information:

- Type of virus causing the hepatitis.
- Cause-specific morbidity data by region.
- Prompt recognition of outbreaks of hepatitis.
- The causes and risk factors of hepatitis.

DIPHTHERIA

Diphtheria incidence decreased from 1.6/100,000 of the entire population in 1984 to 0.02/100,000 population in 1995—a drop of 98 percent. Improvement in DPT coverage, in medical training, and in cold chain supervision, which promoted vaccine efficiency, contributed to this decrease.

Figure 2.8 Hepatitis B Immunization Coverage Rate for Infants, Egypt, 1995



Source: EPI

PERTUSSIS

Improving DPT coverage contributed to a decline in pertussis cases. In 1984, 41 cases were reported in the entire population. In 1994, there were no reported cases, and in 1995, only one.

TB MENINGITIS

TB meningitis incidence declined by 80 percent in the period 1985–95, as a result of the improvement in BCG vaccination coverage from an estimated 60 percent in 1985 to 94 percent in 1995. In 1985, the incidence rate in children younger than 15 years was 0.7/100,000. In 1995, that rate had dropped to 0.14.

TRAINING, HEALTH PROMOTION, AND RESEARCH

TRAINING

During the period 1989–95, EPI trained more than 50,000 physicians, nurses, sanitarians, health managers, and clerks, an effort that explains some of the remarkable results achieved by the program.

Training of MOH staff in diseases covered by the program is essential, because doctors and nurses entering EPI service are often not sufficiently informed or skilled in immunization practices and operations. Training has been conducted with governorate health directorates, but has often required the use of trainers from outside the governorate. The strategy adopted by the project and the EPI is to support the development of preservice training by medical and nursing schools, and to help governorates plan and budget for their own training programs.

In 1989, a study was carried out pointing out the problems and assessing the challenges facing the training program. Among the conclusions drawn were:

- Training needed to take into account the rapid turnover of physicians between the different sectors and the shortage of nurses, particularly in Upper Egypt.
- Refresher courses were needed for both nurses and sanitarians.
- Training materials needed to be revised, and additional materials prepared to meet the demands of new activities.

Training Courses

Health personnel to be trained at the central and peripheral levels were identified, and training at the different levels carried out. These participants included 17,916 physicians, 20,656 nurses, and 9624 sanitarians. Table 2.8 summarizes EPI training, 1989–96.

To complement these activities, publications and visual aids were developed and distributed to assist in training health care workers, as well as in educating the public.

Evaluation of training materials and courses was conducted, with the aim of improving them and achieving better results in skills and knowledge acquisition. Pre- and post-training tests have been the primary tools used, and these tests have consistently shown a significant improvement in the health information understanding and practice of trainees, which has been reflected in their performance in the immunization units.

Impact of Training

Training has been a major element of the EPI, with valuable results obtained:

- Better immunization coverage has been achieved throughout the country and reported cases of targeted diseases have declined.

Table 2.8 EPI Training Courses, 1989-96

Course	Trainees	Courses Held
Central Training	4196	120
Local Training for District Directors	2851	147
Peripheral Training for Health Unit Workers	43,594	1607
Training in Epidemiology and Biostatistics	295	11
Total	50,936	1885

Source: EPI Training Unit

- Vaccine efficacy has improved, due to a well-maintained cold chain.
- Monthly reporting and registration systems have improved.
- Disease surveillance is improved.
- Training health workers in data use has improved management/decision-making.

HEALTH PROMOTION

Health promotion and education have been essential elements in EPI efforts to achieve a high degree of acceptance of the childhood immunization program and TT immunization of women, through both routine and special immunization campaigns. Presently EPI is focusing on health promotion and education messages designed to improve coverage in lagging areas and reduce drop-outs.

Messages have been developed as part of an integrated social marketing communications program for all three CSP components. Approaches adopted for health promotion and education of mothers and families have included the use of mass media, counseling mothers during visits to clinics, and the use of MOH health education offices.

Mass Media

The EPI has been working actively with the Health Education and Communications Officers of the MOH to produce print as well as broadcast materials. EPI brochures, immunization cards, and posters have been printed and widely distributed. Immunization schedules and other EPI posters have been displayed in all clinics.

Public service announcements in the national press and on radio and TV have been extensively used to promote the EPI, to encourage families to observe immunization schedules for infants and booster shots for toddlers, and to announce specific immunization days. A few new television spots are produced each year. Recently-produced spots focused on the danger of measles, and the importance of tetanus vaccinations for women in their childbearing years.

The broadcast and print media were instrumental in launching the national campaigns to immunize all children against polio and pregnant women with tetanus toxoid, as well as in introducing the infant hepatitis B immunization program. Other mass media activities to integrate EPI into the popular consciousness have included radio and television talk show appearances and the national press has been encouraged to cover current program activities.

Counseling Mothers

The curriculum of the training courses for PHC physicians and nurses includes training in counseling. This is especially important because more than 1.5 million mothers visit PHC clinics each year for infant vaccinations, and women make one million visits to clinics for TT immunization and/or antenatal care. Training emphasizes informing mothers about the importance of full immunization, possible adverse effects of each immunization, and new information about immunizations.

In the management course, district health officers have been taught to emphasize counseling of mothers during their supervision of clinic implementation of the immunization program.

RESEARCH

Matrix 1 shows major EPI research activities and programmatic uses of the results and recommendations.

LESSONS LEARNED

- Adequate staffing of the program by professionals, including sanitarians and cold chain technicians, is essential. Making EPI work and achieving high immunization coverage has demanded extensive training, development of the cold chain, and development of improved systems for management, monitoring, and supervision of the program at all levels, with emphasis on decentralized program management and supervision.
- To overcome the constraint of frequent transfer of trained physicians out of the PHC system and their replacement by a cadre poorly or inadequately informed about EPI, it has been necessary to work with medical schools to provide EPI training at the undergraduate level, and to train secondary nursing school staff in EPI.
- Inputs essential to develop a reliable cold chain include training, technical assistance, equipment, and supplies, as well as regular monitoring and evaluation. Experience has shown, however, that the operational effectiveness of a cold chain is more dependent on sound organization and people than on equipment. An accurate equipment and spare parts inventory system is essential to manage maintenance.
- Service statistics, if properly developed at the district level, provide effective indicators to monitor EPI performance; household surveys are valuable to verify the correctness of trends and levels of immunization coverage as shown by service statistics. Local capability to prepare and use coverage data based on service statistics should be a priority in any EPI program.
- Although decreased neonatal tetanus incidence has been achieved in Egypt largely through TT immunization, programs to encourage women to seek antenatal care and to ensure hygienic conditions during delivery have also contributed. It is important to stress that neonatal tetanus control became more effective when nationwide campaigns were implemented to supplement the routine TT immunization of pregnant women.

Matrix 1 Major EPI Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
Seroprevalence of Antibody Following TOPV3 (1990–1993). Carried out 1990–93, the study evaluated the role of immunogenicity of TOPV in children under one year of age.	The highest percentage of detected antibodies was for Type 2 at 93.3 percent and the lowest was for Type 3 at 58.5 percent.	The concentration of Type 3 polio virus in TOPV was increased to improve vaccine efficacy. Information on polio immunization was integrated into the curriculum of the faculties of medicine.
BCG Adverse Events (1992–1993). Carried out 1992–93, the study investigated the magnitude of adverse events following BCG vaccination.	Adverse events following BCG vaccination occurred in 12.5 percent of the sample and were closely connected with improper technique in administering the vaccine.	Training was modified to correct and emphasize the proper technique in giving BCG immunization to reduce the occurrences of adverse events.
Polio Reverse Cold Chain (1992–1993). Initiated in 1992, this study investigated compliance in procedures with WHO specifications.	Measures need to be taken to speed up and ensure feedback reporting to the field of the results of lab analysis of suspected polio cases.	Routine collection of stool specimens under optimum conditions (use of reverse cold chain) was introduced within the surveillance activities.
House-to-House Versus Fixed-Site Polio Delivery (1992–1993). Carried out 1992–93, the study compared vaccine coverage by two methods.	The strategy of house-to-house immunization is more effective than immunization at fixed sites.	House-to-house strategy was adopted as the policy for mop-up activities.
Missed Opportunities for Immunization of Infants and Mothers (1993). This study, carried out in 1993, was designed to analyze the magnitude of the problem of missed opportunities for vaccination.	10.7 percent of children studied experienced missed opportunities for immunization; 20.6 percent of women of childbearing age in the study missed the opportunity for TT immunization.	Health personnel were trained to screen all eligible females and infants visiting a health facility and immunize them if required. Mass media health awareness campaigns were initiated to educate parents about the importance of their children receiving all vaccinations on schedule.
Efficacy of Surveillance of Poliomyelitis Cases (1993–1994). Carried out in 1993–94 by FETP, investigated non-reporting of suspected polio.	In several governorates with zero reported cases, unreported cases of suspected polio were identified.	Governorate-level training for physicians was conducted on procedures for reporting all suspected cases of polio immediately.

- Critical to achieving polio eradication is to conduct a combined program of routine vaccination, national immunization days, focused mop-up operations in high-risk areas, and nationwide surveillance covering AFP with immediate reporting and follow-up, as recommended by WHO. Adequate vaccine supply and good management are crucial in order to ensure continuing availability of supplies for the routine vaccination program and timely availability of OPV for national immunization days and mop-ups.
- An effective approach to the introduction of universal infant immunization against hepatitis B is to schedule immunizations at two, four, and six months along with DPT immunizations. The EPI was able to achieve high rates of HB vaccine coverage within three years by using this approach.
- Evaluation of the impact of increasing vaccination coverage on measles incidence is facilitated by household surveys, which can establish the incidence by age group.
- An EPI can contribute to strengthening the primary health care system not only by strengthening that part of the system responsible for vaccinations, but by helping to improve management and planning overall.
- High BCG coverage has not led to declines in tuberculosis, as had been expected in the original design of the Child Survival Project. However, high BCG immunization coverage has led to declines in TB meningitis in children.
- The standardized use of disposable syringes has been effective in ensuring hygienic immunizations and reducing the risk of infection due to poor vaccination practice. Safe disposal of used syringes may be addressed by using self-destruct syringes.
- Improved packing and storage of vaccines has contributed to elimination of waste and duplication in the immunization program in Egypt, and has helped make the system more effective in the control of disease. At the same time, the EPI has learned to plan carefully for its vaccine supply—especially for OPV, because for polio eradication, supply requirements far exceed that for routine immunization.
- Access to trained field epidemiologists is essential for the implementation of an EPI disease control program.
- The routine program of infant and child immunization is mandatory in Egypt. However, the high degree of immunization coverage attained is due to the success achieved in gaining widespread public understanding and acceptance of the program. This has required a sustained effort at public education through counseling by health providers, mass media, and school and community health education programs.

FUTURE DIRECTIONS

Because EPI is an established program, future actions consist essentially in the continuation and strengthening of present activities.

It is expected that WHO certification of polio eradication will take three to four years. Routine immunizations are planned to proceed as usual; two national polio immunization days are planned for the next two winter seasons.

For DPT, the routine immunization program will proceed as planned. Efforts to lower measles morbidity will continue by increasing coverage, health education activities, and community mobilization and participation, and by decreasing drop-out rates and missed opportunities.

Tetanus control activities will continue, with emphasis on high-risk districts, in order to maintain a high rate of tetanus toxoid immunization for pregnant women.

All of these measures will be complemented by actions geared to improve disease surveillance, maintain an effective cold chain and adequate vaccine supplies, and encourage governorates to participate more actively in the planning and analysis of vaccination coverage.

3

Acute Respiratory Infections (ARI) Control Program

More young children die because of acute respiratory infections than from any other cause throughout the world. Wherever infant and child mortality rates are high, ARI are the most important cause of death, and pneumonia is responsible for the majority of these deaths. In developing countries like Egypt, young infants are especially at risk: it is estimated that one of five deaths occurs in the first month of life

While the majority of pneumonia cases in infants and children are viral in origin, bacterial pneumonias have a much higher mortality rate and cause the great majority of deaths. International studies show that about 80 percent of bacterial pneumonias are caused by two agents: *streptococcus pneumonias* and *hemophilus influenza*. The basis of the global ARI effort is that these bacterial agents are susceptible to inexpensive treatment by antibiotics.

Several risk factors have been found to favor the spread of pneumonia. These include low birthweight, undernutrition, poor breastfeeding practices, nutritional deficiencies (vitamin A), chilling in young infants, indoor air pollution (such as smoke from cooking fuels and tobacco), overcrowding, and measles.

Acute respiratory infections are one of the leading cause of infant and child mortality in Egypt as deaths from diarrhea have been reduced (Figure 3.1). In 1992, vital statistics indicated that 29.9 percent of deaths in infants (under one year old) were ARI-related.[4]

In 1991, CAPMAS reported that ARI represented 31.5 percent of all causes of morbidity in children aged 1 to 4 years.[5] The MOH estimates that ARI account for 31–36 percent of child hospitalizations. As in other developing countries, young children in Egypt experience between five and eight episodes of ARI each year on average.

The ARI detection and treatment program has been adopted and is supported by all governorate health directorates and district health offices. It is installed in 3082 clinics and outpatient departments of hospitals. Pediatricians trained as specialists for inpatient treatment of ARI staff 251 hospitals. Case registration and reporting is installed in 222 health districts, and is being integrated into the MOH health information system. During 1995, more than 60 percent of clinics reported ARI-registered cases.

4MOH, CSP, CAPMAS, Infant and Child Mortality Rate, 1980–92, 1996.

5CAPMAS, Pan Arab Project.

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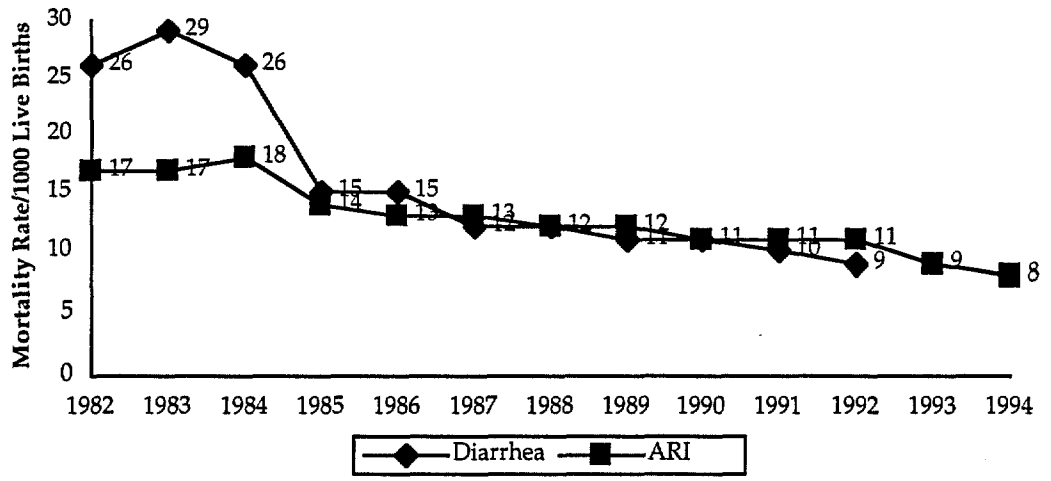
Figure 3.1 Mortality Rate Due to ARI and Diarrheal Diseases for Infants, Egypt, 1982–94



Source: Mortality Rates for Diarrheal Disease, CAPMAS Vital Statistics; Mortality Rates for ARI, CAPMAS Vital Statistics, with 1993-94 statistics from unpublished CAPMAS data

ARI AND THE CSP

HISTORY

The MOH and USAID included the development of a national Acute Respiratory Infections (ARI) Control Program under the CSP as a means of reducing mortality and morbidity due to acute respiratory illnesses, especially pneumonia. The first national ARI Control Program plan was developed in 1989 with technical assistance from WHO and USAID. The plan was modified in 1991–92 by USAID and the MOH to provide $3.6 million support for ARI antibiotic drug supply under the USAID grant. Along with training and supervision, drug supply has been a substantial part of the program.

The objectives of the CSP ARI Control Program, adopted by the MOH, followed the guidelines developed for the WHO ARI Global Program. These objectives are to:

- Reduce mortality from acute lower respiratory infections, especially pneumonia.
- Reduce the severity and complications of acute upper respiratory infections.
- Reduce inappropriate use of antibiotics and other drugs for treatment of ARI.
- Reduce the incidence of ALRI, in particular pneumonia.

The guidelines established by the ARI program follow the WHO ARI Case Management guidelines, with a few modifications:

- Amoxicillin syrup has been adopted as the drug of choice for the treatment of pneumonia and otitis media (home treatment).
- The importance of having antibiotics prescribed only by physicians has been stressed.
- ARI drugs are provided free at MOH clinics or at affordable prices in private pharmacies.

- Management of ARI is standardized at different levels (hospitals, PHC facilities).
- The role of nurses has been defined primarily as assessment of cases, and health promotion and education of mothers at home and in health facilities.

There were several constraints that, although anticipated, either delayed some ARI program activities or became an obstacle to their implementation. Among these were a poor recording and reporting system, lack of well-trained personnel and of appropriate transportation for supervision, problems with maintenance and repair of equipment, absence of outreach activities for mothers to educate them to utilize health services, and the need to supervise some program activities from the central level coupled with the lack of positions in the MOH for ARI coordinators.

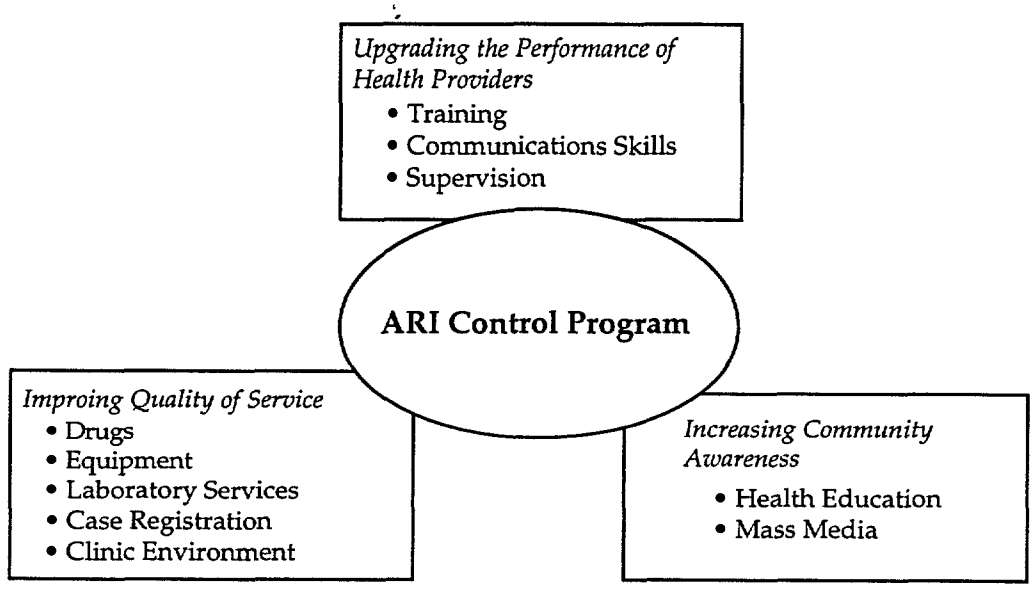
Figure 3.2 shows the elements of the ARI Control Program in practice.

STRATEGY

The three key ARI program strategies under the National Plan of Operations of 1989 have been to:

- **Develop Standard Case Management (SCM) of ARI according to WHO guidelines.** This has been accomplished through installation of SCM in PHC clinics, hospital outpatient departments, and referral hospitals; through training ARI specialists, pediatricians, managers, PHC staff, laboratory specialists, pharmacists, and private physicians; supplying ARI drugs and clinical equipment; upgrading laboratories for diagnosis; and monitoring and supervision.
- **Increase immunization through the EPI, particularly for measles and pertussis.** The EPI reported infant immunization for measles at 90 percent and DPT3 coverage (for pertussis) at 89 percent in 1995.
- **Support of preventive measures to avoid risk factors.**

Figure 3.2 The ARI Control Program in Practice



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Other strategies employed included:

- Development of an ARI information system, including ARI case registration.
- Development of health education and mass media for ARI control and prevention.
- Promotion of appropriate use of drugs by training health providers and pharmacists, through health education activities , and by encouraging regular monitoring and supervision by field advisors.
- Development of a surveillance system covering microbial resistance to ARI drugs.
- Operational research for program management.
- Actions to ensure program sustainability.

A substantial proportion of the decline in infant and child mortality has been as a result of the decrease in deaths from ARI.

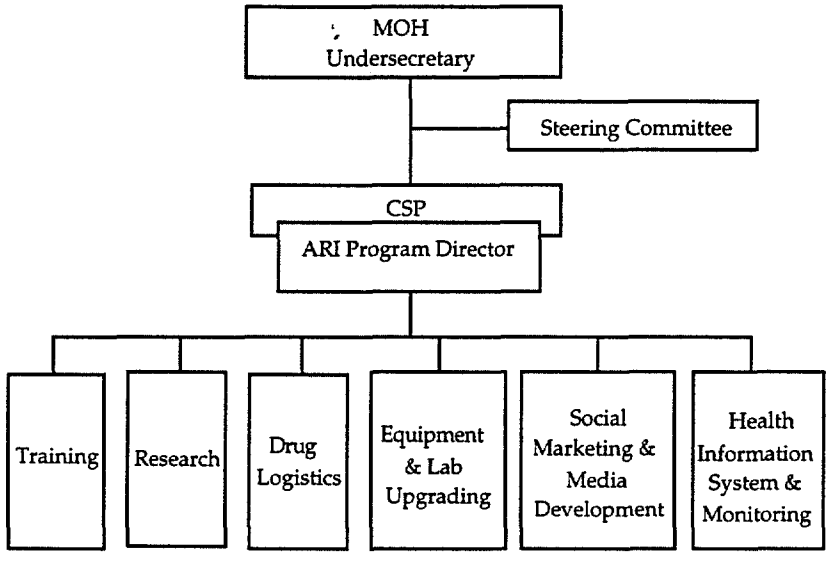
The infant mortality rate due to ARI, as reported by CAPMAS, declined from 17.1 per thousand in 1983 to 8.4 per 1000 in 1994—a reduction of more than 50 percent, and ARI deaths in children aged 1 to 4 years fell by 80 percent in the same period, from 3.6 to 0.7 per 1000.[6] Further significant reductions in ARI mortality are expected during the remainder of the 1990s as ARI control activities continue to make an impact.

MANAGEMENT AND ORGANIZATION

The ARI Control Program operates as part of the governorate health directorate programs and the activities of their district health offices, PHC clinics, and hospitals. Accordingly, MOH inputs include the work of hundreds of health managers at governorate, district, and clinic levels, and thousands of clinic staff. Egyptian universities are participating in training and research.

Program organization is illustrated in Figure 3.3.

Figure 3.3 Central Level ARI Organization



6MOH, CSP, CAPMAS, 1996.

Financial support came from the USAID Child Survival Grant, the GOE cash contribution to the CSP, and from UNICEF. Personnel resources have been provided by the Ministry of Health. Technical assistance was provided with USAID financing, primarily through Clark Atlanta University and its subcontractor for ARI applied research, Johns Hopkins University (JHU); the WHO; UNICEF; and the US Centers for Disease Control and Prevention.

Inputs have included those needed for management support, monitoring and surveillance, drug supply, laboratory upgrading, health education and promotion, training, and research.

STANDARD CASE MANAGEMENT

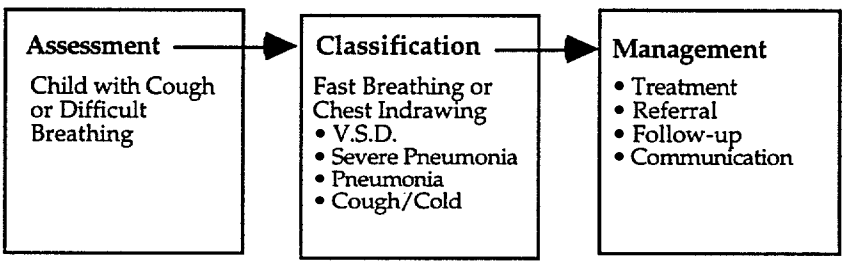
The feasibility and effectiveness of Standard Case Management (SCM) for controlling childhood mortality from pneumonia is now widely accepted. SCM uses simple and specific guidelines for diagnosis and treatment of acute respiratory infections, and has been the cornerstone of the CSP fight against acute respiratory infections. SCM involves assessment, classification, and management, including treatment, referral, follow-up, and communication. Operationally, the aim of the ARI Control Program has been to introduce SCM progressively in all MOH facilities, including general, district, and fever hospitals, and all PHC centers and units.

The critical issue in confronting ARI is to distinguish pneumonia from other respiratory infections so as to be able to provide prompt and adequate treatment. The case management strategy, therefore, involves three essential measures:

- Early recognition of pneumonia by families and health workers.
- Antimicrobial treatment at home or referral to a hospital.
- Supportive measures.

Starting in 1990, the ARI Control Program launched the SCM program in six governorates. In 1992, the program was expanded nationwide. SCM is more effective in detecting, diagnosing, and managing ARI than traditional methods. The SCM criteria chosen to classify sick children have made it possible to differentiate those who really require referral to a hospital from those that can be treated as outpatients, either with antibiotics or with symptomatic measures, reducing the burden on hospital services. The elements of SCM are shown in Figure 3.4.

Figure 3.4 Standard Case Management for ARI



Source: ARI Control Program, 1994

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Correct diagnosis and treatment of ARI has been accomplished by training health providers in SCM, providing essential clinical equipment and laboratory services, ensuring the availability of appropriate drugs, and carrying out the research needed to guide decision-making. Monitoring and supervision are key to ensuring the adoption and use of correct SCM practice by primary health care units and hospitals. A case registration system was implemented to collect routine information for monitoring. To make sure that all actions were properly conducted, a system of supervision was established at all levels.

The SCM approach, which is in the process of being adopted as a standard clinical protocol, has led to a more limited use of antimicrobials—mainly in cases of pneumonia, otitis media, and suspected streptococcal pharyngitis. At the same time it has reduced the widespread use of cough and cold medicines that are not only ineffective, but also occasionally harmful to young children. Because of its widespread use and utility, SCM is now being introduced into the undergraduate curriculum of medical schools, and has been adopted by most of the pediatricians in the country.

ACCESS TO SCM

As a result of the actions taken through the National ARI program, the number of MOH facilities providing SCM to the population in their areas has increased significantly since 1990. By the end of 1995, that number was 3082.

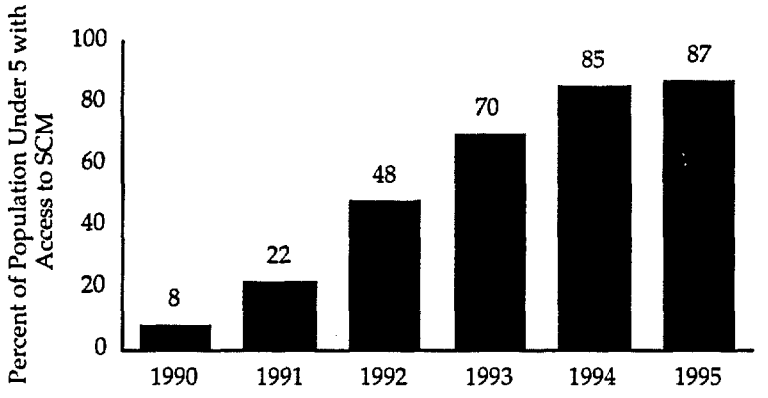
Also, between 1993 and 1995, the number of hospitals staffed with pediatricians trained as specialists for in-patient care of ARI increased from 135 to 251. The total number of trained pediatricians was 1150 in 1995.

By the end of 1995, 87 percent of the population had access to a clinic or hospital that had at least one staff member—doctor or nurse—trained in SCM. The progress achieved in increasing access to SCM is shown in Figure 3.5.

CASE REGISTRATION SYSTEM

The ARI health information system is based on ARI case registration in all clinics, and on the use of monthly clinic reports for monitoring, supervision, and planning. The system provides information on the number of cases seen, age of patient, diagnosis, treatment, drug use, referrals, and availability of drugs and trained personnel in each clinic. First developed and piloted in 1992, implementation by the health districts started in 1993. Case registration

Figure 3.5 Access of Population Under Five to ARI Standard Case Management, 1990–95



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is now installed in all health districts and in most PHC clinics and hospital outpatient departments. In 1995, monthly reporting compliance by clinics averaged about 64 percent, compared to about 58 percent in 1994 and 20 percent in 1993 (Figure 3.6). Table 3.1 shows case registration reporting in clinics and districts in 1993–95.

The case registration system is being integrated into the MOH/HIS. A database has been established in the CSP that provides easily accessed information on training, equipment, drug supplies, health facilities in the program, and status of the program by governorate. There is now greater use of the case registration system for management and decision-making by governorate, district, and clinic managers.

DRUG SUPPLY

The National Plan initially did not establish special mechanisms or procedures for the procurement, storage, and distribution of drugs. The plan provided for the use of existing facilities and logistic support from the MOH, in coordination with the Pharmaceutical Affairs Department, to ensure that the regular logistic system would meet the requirements of the ARI program.

In 1991, because of its effectiveness in treating acute respiratory infections, particularly pneumonia, the Pharmaceutical Affairs Department included amoxicillin in the national list of essential drugs. In order to ensure sufficient supplies of amoxicillin at the clinic level and encourage greater use of clinics for ARI treatment, the MOH and USAID agreed in 1991 to fund amoxicillin supplies for the ARI Control Program under the CSP. Initial procurement of amoxicillin was provided by the USAID Dollar Grant in the amount of $3.6 million. Subsequent purchases have been covered by GOE funds allocated to CSP. Drugs are made available to PHC facilities and hospital outpatient clinics where SCM is in practice.

By 1993, most primary health care facilities were provided with sufficient amoxicillin to meet ARI program needs. By 1995, distributions made by the ARI program from central stocks and procurement, together with carry-over stocks in each governorate, provided for a satisfactory ARI drug supply. A comparison of the amounts (in pediatric doses) of several drugs supplied to the governorates from 1991 to 1995 is shown in Table 3.2.

Figure 3.6 Average Monthly Reporting Compliance of Clinics

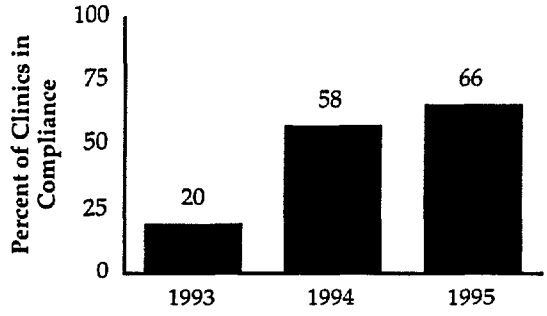

Table 3.1 Case Registration Reporting, 1993–95

Month	1993		1994		1995	
	Districts	*Clinics*	*Districts*	*Clinics*	*Districts*	*Clinics*
January	21	140	179	1766	221	2402
February	27	157	178	1801	223	2431
March	32	184	181	1818	218	2437
April	31	224	195	2057	214	2284
May	44	365	194	2006	213	2311
June	41	359	195	1978	216	2275
July	42	368	193	1932	205	2157
August	79	673	202	2072	206	2137
September	112	1051	202	2095	198	2101
October	128	1353	204	2174	217	2270
November	147	1518	204	2260	207	2100
December	148	1595	209	2306	209	2179
Average	60	666	191	1947	196	2082

Source: Monthly Reports, CRS Unit, ARI Control Program

Initially, the MOH policy was that drugs, particularly amoxicillin, should be made available free of charge. However, issues of sustainability of the program led the MOH to modify that position.

A critical issue in terms of costs, effectiveness, and the possibility of the appearance of new microbial drug-resistant strains is the overprescription of antibiotics for ARI treatment, a problem highlighted in several investigations. The ARI Control Program implemented a series of actions to decrease the inappropriate use of drugs:

Table 3.2 ARI Drugs Supplied to Governorates, 1991–96 (in thousand pediatric doses)

	1991	1992	1993	1994	1995	1996	Total
Amoxicillin 250	107	460	590	1220	802	565	**3744**
Amoxicillin 125	5	177	350	254	351	242	**1379**
LA Penicillin	10	0	20	120	80	113	**343**
Paracetamol	35	165	350	150	150	280	**1130**
Expectorant	33	130	0	0	0	0	**163**
Bronchdilator	0	0	0	0	152	260	**412**

Source: ARI Control Program

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- Discussion of the issue in training courses for MOH physicians.
- Workshops with MOH pharmacists on the use and supply of drugs to combat ARI.
- Development of mass media messages informing parents that mild ARI cases do not require antibiotics and that commercial cough formulations are ineffective.
- Use of the ARI *Bulletin* and Newsletter to inform private physicians of the problem of overprescription and incorrect use of antibiotics.
- Workshops with district health officers on increased monitoring and supervision to ensure correct application of SCM, including prescription and use of drugs.
- Use of the case registration system to monitor drug use and practice.

Sustainability of adequate supplies of medicines for PHC clinics and hospital outpatient departments was addressed when the MOH decided to include in its budget for 1996–97 procurement of essential ARI drugs. Governorate health directorates were advised to meet their requirements for ARI drugs from local resources, including GOE funding for local health budgets. At the same time, it is expected that training in the prescription of drugs and closer supervision will result in diminished demand for medicines.

EQUIPMENT

By the end of 1995, most primary health care clinics and hospitals had essential respiratory rate timers and otoscopes required for implementation of SCM. General, district, and fever hospitals were supplied with oxygen therapy equipment. Delivery during 1996 of 39 oximeters, 340 nebulizers, and 282 oxygen concentrators to hospitals completed the ARI equipment planned for the Child Survival Project. Once this equipment is installed and in use, it will considerably improve ARI diagnosis and treatment in clinics, outpatient departments, and hospital wards.

Table 3.3 lists equipment installed in MOH facilities for ARI detection and control.

UPGRADING LABORATORIES

The objective has been to improve laboratory facilities in selected MOH hospitals in most governorates, to enable them to conduct laboratory analysis for the diagnosis and treatment of ARI, as well as to provide a network for ARI microbial drug resistance surveillance.

Table 3.3 Clinical Equipment Installed in MOH Facilities for ARI Detection and Control

	Installed in 1992–94	Installed in 1995-96
Oximeters	26	39
Oxygen Concentrators	94	282
Oxygen Cylinder Delivery Sets	20	230
Nebulizers	282	340
Pneumatic Otoscopes	182	5400
Respiratory Rate Timers	8,000	10,000

The development of a program of laboratory upgrading followed research carried out in Abbassia and Imbaba Fever Hospitals in Cairo from October 1991 to April 1993, which showed that while most *streptococcus pneumoniae* and *hemophilus influenzae* isolates associated with childhood pneumonia remain susceptible to penicillins and to cotrimoxazole, antimicrobial resistance was present. This research confirmed both the usefulness and feasibility of antimicrobial resistance surveillance. As of December 1995, 20 MOH governorate hospital laboratories were participating in this activity.

CSP participation included:

- Needs assessment and selection of participating hospitals and laboratories.
- Procurement, delivery, and installation of laboratory equipment and supplies.
- Training laboratory staff and hospital physicians.
- Field advisory services.

Procurement, supply and installation of laboratory equipment was near completion in December 1995, while training continued. Laboratory equipment and supplies for the program, valued at $422,000, were procured from USAID funds, and all equipment and supplies were distributed by 1996.

Training was designed to teach or update laboratory staff on techniques of isolation, identification, and susceptibility tests of bacteria causing respiratory infections. The training was developed in collaboration with the Laboratory Directorate of Abbassia Fever Hospital. VACSERA labs were used for validation of results. CDC and JHU provided technical assistance. Workshops were held in Cairo and in the field either for the staff of a single hospital and laboratory, or jointly for two or three laboratories. The second training phase for laboratories was completed in February 1996. The MOH Central Laboratory was selected as the agent to coordinate the networking and reporting for antimicrobial resistance surveillance.

In early 1996, a program review took place to examine the results achieved and to develop a series of recommendations for the continued growth of the national network for microbial drug resistance surveillance.

IMMUNIZATION

Immunization has been an important strategy adopted under the national ARI Control Program to reduce the incidence of and mortality from acute lower respiratory infections. Although immunization is the responsibility of EPI, the ARI program has stressed the benefits of high coverage of infants against diphtheria, measles, pertussis, and tuberculosis—all illnesses involving ARI. EPI coverage has increased dramatically, now ranging between 80 and 90 percent nationally and exceeding 80 percent in most districts for all antigens included in the program. See Chapter 2, "Expanded Program on Immunization (EPI)."

OTHER PREVENTIVE STRATEGIES

Other interventions addressing avoidable risk factors can prevent ARI. Although some of these factors (for example urban air pollution, which is widespread in Egypt's main cities) are beyond the scope of action of the Program, other preventive measures have been supported by the Program, including encouraging breastfeeding and promoting better care of pregnant women to avoid low birthweight babies. These measures also include emphasizing and disseminating

educational messages intended to prevent ARI in children and supporting research studies to collect information on the effectiveness, feasibility, and cost of preventive interventions.

PHYSICIANS' PRACTICE IN PRESCRIBING ARI DRUGS

Physicians trained in ARI treatment are now prescribing appropriate drugs for severe illnesses, as recommended by the Ministry of Health. The 1993–94 Health Facility Survey found that 90 percent of physicians were prescribing correctly for pneumonia, otitis media, and pharyngitis.

However, as in most countries, physicians in Egypt often prescribe antibiotics to treat viral coughs and colds, a practice which is neither beneficial nor recommended. The 1993–94 survey found that trained physicians were still prescribing antibiotics for 31 percent of the cases of cough and colds they treated, a situation that clearly needs improvement. This suggests the need for closer supervision by clinic managers, further training of physicians and pharmacists, and health education to inform parents that antibiotics and commercial cough remedies are not indicated for these conditions

TRAINING, HEALTH PROMOTION, AND RESEARCH

TRAINING

Training was used to introduce Standard Case Management to health workers. The ARI Control Program:

- Established ARI training centers in all governorate general and district hospitals.
- Equipped 70 ARI Centers—five of them in university hospitals—with audiovisual aids and educational materials needed for training.
- Integrated ARI standard case management in the preservice training curriculum of physicians.
- Developed a new curriculum for MOH health officers developed that included ARI program activities.
- Developed a curriculum for training health staff, including physicians, nurses, specialists, district health officers, and trainers.

Training was designed to meet the clinical needs of health staff caring for outpatients and inpatients in PHC clinics and hospitals. Courses provide the basic knowledge and skills needed to assess, classify, and treat children with ARI, in particular pneumonia. They also put emphasis on practical training and on communication skills.

In addition to training centers for PHC physicians and nurses, specialist training facilities for pediatricians were established in four universities: Cairo University Abu El Riesh Hospital Center, Alexandria University El Shatbi University Hospital Center, El Minya University Hospital Center, and Assiut University Hospital Center.

Training Courses

Training courses were provided for:

- Districts Health Officers (Managers) Five days
- Specialists (Pediatricians) Five days
- Primary Health Care Physicians Four days

- Primary Health Care Nurses — Two days, modified to three in 1995
- Trainers — Three days
- Health Educators Trainers — Five days
- Educators — Three days
- Laboratory Technicians — Six days
- Statisticians — Three days
- Equipment Technicians — Three days
- Pharmacists — Two days

By 1995, the program had trained 12,772 physicians and 9774 nurses in Standard Case Management of ARI (Table 3.4).

The program established a cadre of trainers for each governorate including two pediatricians who are also ARI trainers, two chief nurses who are ARI nurse trainers, the governorate health education officer, staff members from the local university department of community health, and one member from the department of pediatrics.

The MOH Health Education Department has supported child survival through activities of the public health education offices located in all governorates and in most districts. Ninety governorate-level health education officers were trained to be trainers of trainers, and 293 more health education officers attended a three-day workshop on the ARI Control Program. The workshops were held as part of the CSP program to train and mobilize health education officers. In addition, an ARI *Health Education Plan and Trainers Manual* was prepared in Arabic.

ARI Training in Secondary Technical Nursing Schools

In 1995, efforts were started to encourage secondary nursing schools—which are located in most of Egypt's health districts—to train student nurses in the principles and practices of standard case management of ARI. Material on ARI control and prevention was added to the curriculum and textbooks, and MOH pediatricians, trained as ARI specialists, were used as trainers in the secondary technical nursing schools. Staff from more than 100 secondary technical nursing schools participated in a training of trainers course and were given copies of the *ARI Nurses' Handbook.*

HEALTH PROMOTION

The ARI health education and promotion strategy used mass media and education activities conducted through MOH health education officers, physicians, and nurses. In 1994, mass media activities were initiated as part of the CSP project-wide effort (See Chapter 5, "Cross-Cutting Programs"). Also in 1994, a manual to be used by trainers was produced.

Table 3.4 ARI Training for Physicians and Nurses, 1990–95

	1990	1991	1992	1993	1994	1995
Physicians	1361	1673	3212	2877	2755	894
Nurses			1445	4121	3297	911

TV and radio spots were produced in the first half of 1995 to carry out a mass media campaign during 1995–96 to disseminate ARI messages to the public. In 1995, media aids produced under the CSP production program included a poster, a health video program for use on TV and with community groups, a flip-chart for counseling mothers, and TV spots.

Key messages were:

- Danger Signs of Pneumonia
- Danger Signs in the Newborn
- Home Care of ARI
- Compliance in the Use of Antibiotics.

To reinforce those messages, a coordinated national mass media campaign covering child survival and safe motherhood was launched by the CSP in late 1995.

The ARI Newsletter was distributed quarterly to both MOH and private physicians throughout the country and internationally. Four issues of the ARI *Bulletin*, designed for the private practitioner, were also published during 1995, and the fifth in March 1996. *ARI Program in Five Years, 1989-94*, recorded the history and accomplishments of the Program. ARI/SCM and ARI brochures contained critical information for health workers and the public about ARI and its treatment.

RESEARCH

A work plan for ARI applied research was developed in 1989–90, and evolved over the years to provide the program with information. It was implemented by the ARI Control Program, with technical assistance from the School of Hygiene and Public Health, Johns Hopkins University, and in collaboration with Egyptian medical faculties and governorate health directorates. Beginning in 1992, the US Centers for Disease Control and Prevention also provided technical assistance to the research program.

Egypt, with one of the most developed national ARI control programs, was used to pilot and develop instruments for global ARI efforts. Highlights of ARI Control Program research are shown in Matrix 2.

LESSONS LEARNED

- Sound technical strategies and policies are crucial. When the Egyptian ARI Control Program was launched in 1989, there was very limited experience in the world on how to implement an effective ARI program. After careful consideration of the various technical options, the CSP concluded that there was sufficient evidence to indicate that case management was effective in significantly reducing mortality from pneumonia. The CSP provided a timely opportunity to test the feasibility of implementing an ARI Program throughout the government health infrastructure and the program has been a pioneer in this area. The Egyptian experience has given credibility to the feasibility and effectiveness of case management by documenting the benefits of an ARI program focused on standard diagnosis and treatment of children with acute respiratory infections.
- Activities to put SCM strategies and policies into practice should be clearly defined from the start. The ARI program realized the need to define clearly the activities required to operationalize case management strategy. Program management was addressed to organizing **training**, **supervision**, and **logistics** to increase access to SCM, and **communication** and **education** to increase use of SCM. **Monitoring** activities were

Matrix 2 Major ARI Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
Respiratory Rate and Chest Indrawing Assessment by PHC Physicians. Study carried out in 1990–91 and published in the *WHO Bulletin* in 1993.	The study confirmed the feasibility and usefulness of respiratory rate counting and appraisal of chest indrawing as diagnostic tools for PHC physicians.	The study led to the decision to give preference to timers rather than personally owned watches and to establish a standard of counting for one full minute.
Clinical Signs and Symptoms Associated with Pneumonia and Hypoxia in Children in Egypt. This study, carried out in 1991–92, was published in 1993 in the *International Journal of Epidemiology.*	The study confirmed the entry criteria of coughing and difficult breathing in the clinical protocol for pneumonia. It also confirmed that fast breathing is a sensitive sign of pneumonia, and that other signs were not sensitive enough and occurred too late in the course of the disease. The study suggests the need for oxygen therapy.	The study contributed to program decisions about training of health providers, design of health education programs for the public, and procurement of oxygen therapy equipment for clinical use.
Acceptability and Compliance of Different Antibiotic Formulations. This study was carried out in 1991–92. Published 1995 in Journal of Tropical Pediatrics	The study determined compliance levels of families that received prescriptions for antibiotics in different formulations (tablets, syrups, single-dose packets of powder). It found that compliance varies but was optimum with syrups.	The study was the basis for developing specifications for local procurement of antibiotic in a syrup.
Management of Children with Pharyngitis. This study, carried out in 1993–94, examined clinical characteristics of throat infections in children.	The study found that revisions in the criteria for the prescription of antibiotics to children with sore throats were needed as a preventive measure against rheumatic fever complications.	The study was the basis for changes made in the criteria for diagnosis and treatment of children with sore throats.
Surveillance of Bacteria Drug Resistance. This study was carried out in 1993–94. Published in the Egyptian Association Magazine	The research demonstrated that most *S. pneumoniae* and *H. influenzae* isolates associated with childhood pneumonia in Cairo remain susceptible to amoxicillin, penicillins, and cotrimoxazole, but that antimicrobial resistance is present in vitro.	The research led to the establishment of a bacteria drug resistance surveillance network in governorate hospitals starting in 1995.

Matrix 2 Major ARI Research Activities and Programmatic Use of the Results and Recommendations (Continued)

Research	Major Findings	Programmatic Implication
Use and Effectiveness of Oxygen Concentrators in ARI Clinical Therapy. An ongoing study carried out jointly with WHO. An interim report became available in 1995. Submitted to BMJ	(1) Training of the health providers using oxygen concentrators is important for proper maintenance and use. (2) Properly maintained oxygen concentrators are a cost-effective way to provide oxygen for clinical therapy. (3) Concentrators are a valuable supplement to oxygen cylinder sets in small hospitals where cylinder replacement is often a logistical problem.	The research has supported project management decisions to invest significantly in the procurement of oxygen concentrators for use in the ARI Control Program.
ARI Facility Surveys. Surveys were carried out in 1991, 1993–94, and 1995–96. They examine ARI SCM practice in samples of PHC clinics and outpatient departments of hospitals.	(1) Installation of SCM has progressed to cover most PHC clinics and hospitals in Egypt. (2) Performance of health providers in SCM improves with training. (3) ARI SCM is becoming widely accepted in the medical community by both trained and untrained physicians. (4) Supervision is a critical element for quality assurance in service delivery.	Survey findings have been a basis for programs for training health providers, developing improved supervision, and providing health education to the public.
Sentinel Survey of ARI Incidence. This survey, covering 115 facilities in five governorates, was carried out in 1993 to provide a standard to determine the proportions of different forms of ARI that MOHP facilities could expect to be called on to treat. Submitted to WHO *Forum*	The survey established the proportions of very severe disease (in infants under two months of age), severe pneumonia, pneumonia, pharyngitis, asthma, otitis media, and mild ARI (cough, cold, or bronchitis) expected in MOHP facilities during different seasons and in different regions. The survey also provided standards for antibiotic supply.	The survey is being used for comparison with current results, as measured by the ARI case registration system..

Matrix 2 Major ARI Research Activities and Programmatic Use of the Results and Recommendations (Continued)

Research	Major Findings	Programmatic Implication
Developing Strategies to Encourage Appropriate Care Seeking for Children with ARI: An Example from Egypt carried out 1990, published 1994 in the *International Journal of Health Planning & Management*	Mothers generally recognize rapid or difficult breathing but do not use the recognition to take appropriate action. A great proportion of children perceived to have severe ARI are not brought to MOH facilities	Local terms for ARI symptoms to be used in health education messages and as inputs in other research.
An Instrument to Assess ARI Case Management in Egypt.. Carried out in 1990. Published in 1993 *Quality Assurance in Health Care*	Physicians do not count RR nor look for chest indrawing. 83 percent of children who did not require antibiotics received them. Some children requiring admission were not admitted. Antibiotics were available for an estimated 7.9 months/year.	Evaluation of supplies and quality of service.
Care and Treatment of ARI in Rural Egypt: Role of Training and Potential Role of the Media. Carried out in 1993. Presented at the ARI International Conference 1994.	The ARI program efforts have made some positive effect, but have not fully achieved the original objectives.	More training in practicing SCM. Methods to reduce antibiotic abuse. Health education for mothers.
Maternal Reporting of Signs and Symptoms of ARI in Egypt Two and Four Weeks after Diagnosis. Carried out in 1991. Published in 1995 *International Journal of Epidemiology.*	Spontaneously mentioned terms had a low sensitivity and high specificity except Nahagan (sensitivity 53 percent and specificity 78 percent). Sedro tale nasal (sensitivity 65 percent and specificity 70 percent). Specificity of terms was inversely related to follow up time.	Choice of terms for health education messages. Use of terms in community surveys. Two weeks recall period is the best.

Matrix 2 Major ARI Research Activities and Programmatic Use of the Results and Recommendations (Continued)

Research	Major Findings	Programmatic Implication
Oral versus Nebulized Albuterol in the Management of Bronchiolitis in Egypt. Carried out in 1991. Published in 1994 *Journal of Pediatrics*	Albuterol is effective in realizing respiratory distress in infants and children with recurrent wheezing but not for first time wheezers. Antibiotics are not needed in management.	Infants wheezing for the first time should receive supportive care only. Infants with recurrent wheezing should receive nebulized albuterol. The ARI Program distributed nebulizers to many MOH facilities.
Knowledge, Attitudes and Practices of Egyptian Mothers on Child Health and Survival. Carried out in 1991-92. Published in the *Egyptian Journal of Community Medicine*	Gaps of knowledge, negative attitudes were detected in mothers. Dayas and pharmacists can be used in educational programs.	Baseline data for future evaluation of interventions in the child survival fields of ARI control, child spacing, EPI and nutrition. Design of educational and training programs.
Validation of Completeness and Accuracy of Under Five Death Registration. Carried out in 1992-93. Presented in 1994 at the ARI International Conference	There was under-notification of deaths, especially in the neonatal period. There was a fair concordance between the verbal autopsy and medical diagnosis.	Design of a corrective mechanism for better death reporting. Training of health staff in how to accurately complete the death certificate.
Report on the Combined CDD/ARI Household Survey in Egypt. Carried out in 1994.	Seasonally adjusted annual diarrhea incidence was 2.5 episodes/child/year. 77 percent of caretakers reported that children with diarrhea should receive more fluids. 70 percent correctly identified when to seek help. ORS access rate was 100 percent. 75 percent of caretakers knew when to seek help for ARI. 78 percent of caretakers sought outside help from a physicians. 19.7 percent of children up to three months of age were breast fed.	Training of MOH staff in the household survey methodology. Design of MOH national policy. Baseline data for evaluating interventions.

implemented to ensure that the activities were carried out as planned, **evaluation** measured progress in achieving access and use targets, **surveillance** made sure that the antibiotic technology was effective in influencing the pneumonia mortality rates, and **research** and **development** provided information to solve problems encountered in the delivery of case management and to develop improved approaches.

With trained personnel in place and drugs available, the need for timely flow of data to monitor the delivery of SCM at health facilities became apparent; accordingly, an effective information system was set up. More recently, attention was given to upgrading a network of laboratories to enable them to conduct reliable surveillance of bacterial drug resistance. The approach of concentrating efforts on different activities in successive phases was successful in ensuring strong direction and coordinated program development.

- Decentralized planning and implementation increases management efficiency. During the initial years of the ARI program, planning and implementation of activities were managed centrally. As the program expanded, it became clear that implementation staff at the central level would need to be considerably strengthened to be able to cope with organizing all the program activities, which would be both resource-consuming and soon reach unmanageable levels. A process of decentralizing planning and implementation from the central level to the governorate PHC coordinators and district health officers was put in motion. The functions of central, regional, and district levels were distinctly identified and defined.

  The process was often slow due to inherent weaknesses in the regional and district health management. The results, however, were encouraging. Experience shows that, given the responsibility for planning, governorate and district officers are committed and motivated to implement the activities they have planned. By delegating direct control over the local activities to the operational levels of the health structure, central management was able to perform its own functions with greater efficiency.

- Quality matters as much as quantity in training. The effort to train personnel in standard case management was considerable. Large numbers of physicians and nurses were trained in the first two years. Although the results of the post-course tests on knowledge were satisfactory, an independent evaluation in 1991—through a health facility survey in a random sample of health units—indicated that there was not much difference between trained and untrained physicians, in particular as regards the inappropriate prescription of antibiotics for children with cough and colds. These findings prompted a revision of the training methodology, with longer courses and greater emphasis on clinical practice to increase the probability of producing permanent changes in physicians' case management habits. The benefits were evident in the next health facility survey in 1994, which found a significant difference between trained and untrained personnel in assessing, classifying, and treating children with ARI.

  In-service training to upgrade the performance of doctors and nurses has demanded considerable effort. Once the program reached a high coverage of training of health facilities staff, it was clear that it was important to look into graduate and preservice training, which also had several advantages: its cost is relatively low because it is carried out by established institutions with their own staff, and the trainees are self-supporting.

- Communication activities and health education can lead to measurable changes in home practices. The program concentrated its communication/health education efforts on teaching physicians and nurses to counsel families taking children with ARI to health

facilities. An evaluation conducted through an independent household survey in Lower Egypt in 1994 showed that mothers can recognize danger signs and have been motivated to provide timely care-seeking. These changes have been brought about by effective one-to-one counseling, since mass media activities and messages had only been used to a limited extent. However, the number of families reached through the public health services is relatively small in comparison with those seeking care from private doctors. It is therefore important to investigate factors that lead to an increase in care-seeking, and to develop a communication intervention that includes the right balance of mass media and counseling through the health infrastructure.

- To increase awareness and care-seeking when services are not available is counter-productive. Unlike diarrheal diseases, where communication activities promote health care practices at home that can by themselves reduce diarrhea mortality, ARI programs seek to reduce pneumonia mortality by promoting case management that depends on assessment and treatment outside the home. This means that health facilities should be adequately staffed with trained personnel and provided with antibiotics before communication activities start to promote their services.

  From the beginning, therefore, the ARI program took the decision not to use mass media to disseminate messages on danger signs of ARI in children before the health facilities were able to provide SCM and were regularly supplied with essential antibiotics, in particular amoxicillin for treatment of pneumonia. Only in 1994, when the program reached a level that 85 percent of the population had access to SCM was it considered appropriate to use mass media to reinforce health education.

- Provision of equipment needs to be backed up with effective maintenance and repair. The program made a large investment in providing oxygen concentrators to hospitals outside large towns that had experienced frequent difficulties in ensuring a regular supply of oxygen cylinders. However, the first concentrators distributed by the program were not suitable for the conditions of high temperature and dust found in Egypt, and there were frequent shortcomings in their functioning. More appropriate concentrators were purchased and distributed by the program. Although these are robust machines, they need maintenance, and occasionally, repair. To address this, the program organized training in the use and maintenance of the equipment for hospital staff, and in repair for hospital equipment technicians at the governorate level.

- Monitoring the delivery of SCM requires a regular flow of data from the field. The program instituted a permanent system of registry and monthly reporting of cases, deaths, and drug stocks from health facilities to the governorate and central levels. The processing of this data has been computerized, and the system achieved full operational coverage in 1994. More than 80 percent of health facilities submit monthly reports. The monthly analysis of data helps to detect problems in the way health facilities manage cases of ARI. It also provides information to orient supervision, reinforce the knowledge and skills acquired by doctors during in-service training, and detect irregularities in drug supplies.

- Selective surveillance and research provide essential information. Many aspects of SCM control methods were undefined or insufficiently supported by scientific studies. Research to solve technical and operational problems and improve delivery of SCM was necessary to ensure the development and sustainability of the program. Research has provided valuable information concerning the relationships between the signs and symptoms of ARI reported by mothers, the clinical findings of pediatricians, the results of chest X-rays, and the oxygen saturation measured by pulse oximetry, and identified the most sensitive terms used by mothers to describe pneumonia signs. These were used in

communication messages to promote appropriate care-seeking, as well as mothers' compliance with antibiotic prescriptions for children with pneumonia.

- Involvement of leading professionals in public health, pediatrics, and related disciplines facilitates the introduction and development of program activities. In 1989, the ARI Control Program was in its infancy globally, and most health professionals in Egypt had not heard of standard case management as a strategy to reduce mortality from pneumonia. ARI standard case management could therefore easily have been dismissed by health professionals as an unacceptable simplification of clinical practice. Crucial to the successful introduction of SCM were CSP activities to obtain professional endorsement and support from influential health professionals, through meetings and seminars.

  An ARI steering committee was established with representatives from the medical schools' departments of pediatrics and community medicine, as well as private doctors and pharmacists. The Committee brought together a rich variety of experience in technical and educational matters, ensuring links with the universities and playing a promotional role. Seminars and training courses for private doctors were also organized since the private sector provides a substantial proportion of health care. The early involvement of health professionals gave nationwide recognition to the problem, helped to avert the risks of counterproductive debates, and heightened the visibility of the program.

FUTURE DIRECTIONS

While the Egyptian ARI Control Program is one of the most comprehensive national programs in the world, there are still challenges that have to be faced. Most critical will be to integrate the Program within the MOH structure, a process that has received Ministerial approval and is well underway, including the development of a five-year plan of action.

It is also critical that decentralization efforts begun should continue, to ensure that decentralized management of the program becomes a reality. The continued supply of essential drugs at low or no cost, once support for drug supply under the CSP is no longer available, must also be addressed.

Finally, future activities will need to continue to develop links with universities, medical associations, and nursing schools, and in particular to continue the education of physicians involved in pediatric care to ensure proper use of antibiotics and to emphasize the dangers and costs of inappropriate use of cough medicines.

4

Child Spacing/Maternal and Child Health (CS/MCH) Program

The Ministry of Health in Egypt has always given high priority to the care of mothers. Women's health is clearly linked to child survival, and infant mortality rates are used as indicators of women's reproductive health.

CS/MCH AND THE CSP

HISTORY

In the original Project Paper formulated in the mid-1980s, the Child Survival Project's emphasis in Maternal and Child Health (MCH) was to be on a program to reduce neonatal mortality through improved maternal health care during pregnancy, delivery, and the postpartum period, and through the use of Child Spacing (CS) to reduce high-risk births. Among the interventions planned was training of dayas (traditional birth attendants) because they attend about 70 percent of the births in Egypt, as well as training physicians providing maternal care in 3400 PHC facilities.

In 1989 President Mubarak issued a decree proclaiming 1989–99 the Decade for the Care and Protection of the Egyptian Child. One of the goals was reducing infant and maternal mortality. Egypt was also among the six countries which called the Summit Conference for the Protection and Development of Children held in New York in 1990, which strongly endorsed safe motherhood programs and strategies.

The CSP Project Paper Amendment of 1991 recognized this enhanced focus on maternal and neonatal health. It provided for continuing the CS/MCH program in order to reduce infant and maternal mortality and recommended interventions to increase outreach for CS/MCH services, improve MCH delivery services, and conduct monitoring and operational research. Output indicators were established for developing neonatal centers, delivery rooms, and MCH laboratories, and for increasing the number of women seeking antenatal care.

Safe motherhood activities within the Child Survival Project were mainly carried out by CS/MCH, supported by Project-wide activities. These activities began in 1989, and have been pursued through CSP annual workplans for seven years. In December 1991, the MOH and USAID decided to integrate nutritional interventions into the CS/MCH program, focusing on promotion of breastfeeding and better weaning practices.

During the time of the CSP, the MOH National Breastfeeding Program has become more active, and the MOH participates closely in the plans and strategies of the National Council of Motherhood and Childhood and the National Population Council, both of which strongly support safe motherhood programs.

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The design of the CS/MCH program was based on significant factors for maternal and child health and maximum impact strategies. Given the large number of infants deaths each year, of which 40 percent or more were in the first month of life, significant decreases in infant and neonatal mortality could be achieved by identification and referral of high-risk pregnancies, and improvements in neonatal and infant care. Improving the quality and availability of antenatal, emergency obstetrical, and postpartum care, and implementing child spacing, could significantly reduce maternal mortality and morbidity.

Traditional birth attendants (dayas) exercise great influence on the health of mothers, because a large proportion of women choose dayas to deliver their babies and advise them on health matters. Dayas needed basic training in midwifery skills and in child spacing and maternal counseling. Daya training and support also represented an opportunity to increase PHC outreach by increasing referrals for antenatal care (ANC), TT immunizations, obstetrical services, and family planning, and to provide counseling by influential women at the community level on maternal and infant nutrition and on the need for birth spacing.

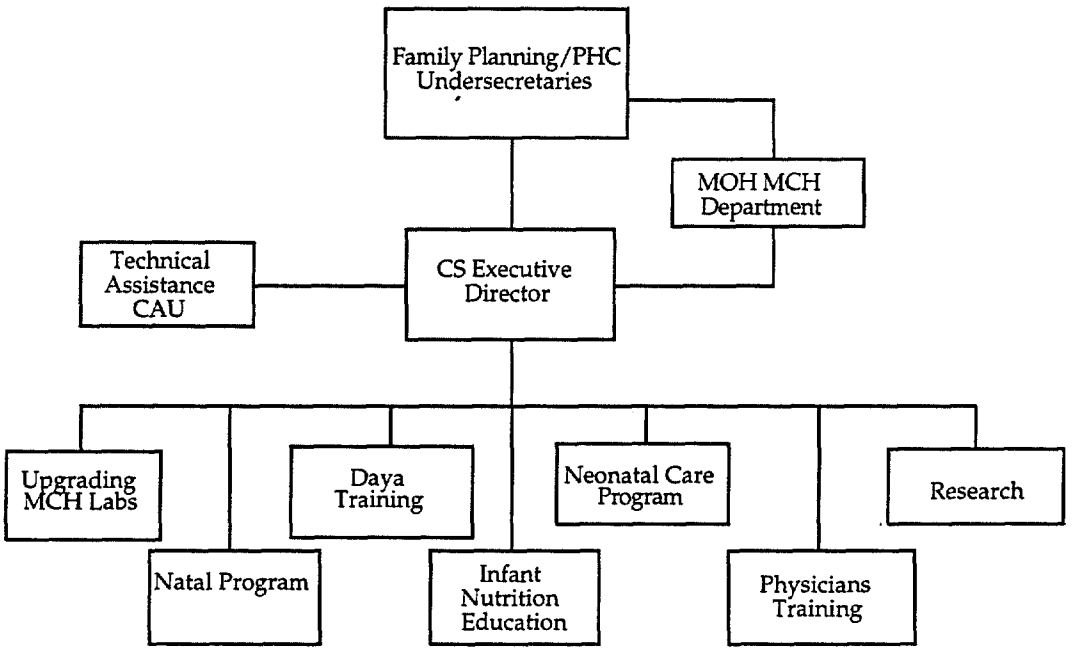
Mothers' knowledge and attitudes about breastfeeding and weaning, anemia, and growth monitoring of infants needed to be improved.

The CS/MCH program has carried out its activities through focused and mutually reinforcing subprograms, under the general umbrella of the CSP. The central level organization is shown in Figure 4.1.

Inputs have included procurement and distribution of equipment, field advisory services, technical assistance, workshops, training, development of a mass media program, and support for health education, research, studies, and evaluation.

To improve conditions in PHC facilities in order to provide quality MCH care, and to expand the outreach of the PHC system using traditional birth attendants for MCH services activities have included:

Figure 4.1 Central Level CS/MCH Organization



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- Conducting PHC physician skills/competence training for MCH care.
- Conducting PHC nurse and midwife skills/competence training for MCH care.
- Upgrading MCH laboratories.

The CS/MCH component faced a number of challenges, including:

- A deficient information system, which made planning actions difficult at the start.
- Inadequate registration of cases, which contributed to the lack of information.
- Widespread lack of managerial skills at the district level.
- Lack of trained staff and supplies (blood banks, antibiotics) at first referral level facilities.
- Deficient laboratory services compounded by lack of awareness among health providers and the general public about lab services.
- Protocols for the management of obstetric emergencies were lacking.
- A pervasive lack of awareness among women and their families about how to access health services, and the benefits of antenatal care.
- A weak referral system for ensuring access to quality emergency services at primary, secondary, and tertiary care levels.
- Medical and paramedical birth attendants lacked training.
- Insufficient follow-up and supervision by governorate directors.
- Lack of communication between obstetrician and pediatrician.
- Financial, budgetary, and sustainability obstacles.

STRATEGY

CS/MCH program objectives have been addressed and implemented through the following activities:

- Training MCH staff for improved service delivery.
- Upgrading MCH laboratory equipment.
- Improving supervision.
- Training TBAs (dayas) and enhance their connection to the PHC system.
- Improving health education and counseling at the PHC level.
- Supporting UNICEF's Baby Friendly hospital activities.
- Improving first referral delivery room equipment and services.
- Establishing nurse-midwife training.
- Developing a national entry-level neonatal care system with equipped neonatal care units and trained staff.
- Conducting national baseline maternal mortality and neonatal surveys to direct program development and determine the extent of avoidable causes of maternal deaths.
- Raising national awareness of measures available to reduce maternal mortality and morbidity and promote safe motherhood.

- Developing measures to promote safe motherhood with regional health directorates and district health offices.
- Developing a curriculum for medical students in CS/MCH.
- Disseminating mass media messages concerning CS/MCH issues: good breastfeeding and weaning practices, the need to reduce maternal mortality, and safe motherhood.
- Mobilizing the MOH's Health Education Department to support CS/MCH activities.
- Promoting MCH service standards.

These activities have produced publications, a television film, training and workshops, and management tools, as below:

- A report on the findings and conclusions of the National Maternal Study, published in 1994, was presented at the International FIGO Conference of Obstetricians and Gynecologists in Montreal (Canada) in September 1994, at the International Mother and Child Conference held in Dacca (Bangladesh) in November 1994, and the International Conference on Population and Development (ICPD III), held in Cairo (Egypt) in 1994.
- A manual, *Maternity Care at the First Referral Level*, was published by CS/MCH in 1994.
- Manuals on training of PHC physicians, on resuscitation, and on essential obstetrical services for the staff of FRDRs (first referral delivery rooms) were published.
- Guideline for managing emergencies in deliveries were published for midwives in Arabic; guidelines on neonatal care were published for physicians in English, and in Arabic for nurses; and guidelines for lab technicians were published in Arabic.
- A neonatal care newsletter was distributed throughout the country to both public and private health care facilities.
- A film on the importance of mother care and safe delivery, *Aziza Had a Boy*, was produced and shown at regional workshops and on television.
- A survey of low birthweight prevalence was completed in six districts, and a district health approach aimed at monitoring maternal/fetal/neonatal care was proposed. Another survey, on pregnancy outcomes of about 2000 pregnant women in each of two selected districts, was conducted as a basis for developing a district health approach to monitoring for maternal/fetal/neonatal care in 1995–96.
- Training in neonatal resuscitation and stabilization was provided for 190 FRDRs and MCH delivery rooms.
- Twenty regional workshops were conducted with governorate- and district-level personnel to review the findings of the National Maternal Mortality Study.

MCH Laboratory Upgrading

MCH laboratory upgrading initially included training laboratory technicians, providing equipment and supplies, and developing a laboratory manual. Advisory services to governorates on the management of MCH laboratories were added later. The program has enabled MCH laboratories to carry out a greater variety of tests for improved diagnosis and client care. The basic set of tests included in the program are: urine analysis, stool analysis, hemoglobin level, sedimentation rate, blood grouping, Rh factor testing, blood sugar levels, liver function, pregnancy testing, kidney function, and VDRL (syphilis testing).

Several problems had to be overcome to implement this program, including lack of trained staff, deficiencies in resupplying laboratory items in some districts, and failure of some physicians and laboratory managers to recognize and appreciate the importance of laboratory analysis in the diagnosis and treatment of patients. In spite of these difficulties the following was accomplished by 1996:

- MCH laboratories were upgraded by providing equipment and kits, increasing the number of clinics provided with improved laboratories to 194.
- More than 1150 technicians from 194 MCH laboratories were trained.
- CS/MCH staff and advisors reviewed MCH laboratory management with 27 governorate health directorates, and district health officers and clinic managers in about 150 districts.

NATAL CARE

The CSP Natal Program addressed the need to upgrade and improve maternal health services throughout the country to reduce maternal mortality and morbidity and perinatal mortality due to pregnancy complications.

Activities focused on the development of information and data related to maternal care and mortality, and on measures by governorate health directorates to improve delivery and obstetrical care at first referral facilities in the following areas:

- Training, equipping, and registering dayas.
- Training PHC physicians in MCH service delivery.
- Carrying out research that resulted in the National Maternal Mortality Study.
- Developing decentralized nurse-midwifery training programs.
- Conducting workshops for obstetricians.
- Developing mass media messages for health education on safe motherhood.
- Upgrading first referral delivery rooms and obstetrical services.
- Training midwives.

An important consideration was the need to improve public understanding that a significant percent of births require the care of trained obstetricians and midwives, and that cases of high-risk pregnancy and difficult delivery should be referred to hospitals without delay. This has been addressed by training health education officers and dayas in counseling and interpersonal communication and the general public through mass media.

The program provided an advisory team on the organization and management of first referral delivery rooms and obstetrical services. The team made two visits to each unit being upgraded, and a manual on essential obstetrical services for the staff of first referral delivery rooms was reviewed with obstetrical staff in a one-day workshop. A package of management and technical activities based on quality assurance/quality control and Total Quality Management principals was developed for four pilot hospitals with upgraded obstetrical and neonatal care units.

NEONATAL CARE

Between 1990–96, the CSP made major efforts to improve care for newborns, recognizing that a significant proportion of infant deaths occur during the neonatal period. Beginning with a needs assessment for incubators, the Project developed the Egyptian National Neonatal Care Program (ENNCP), which now encompasses more than 80 hospital neonatal units in the 27 governorates. The challenge was to establish a system of care that would impact outcomes from conception and that would be sustainable. The main focus of the program has been on common neonatal problems that can be addressed by applying available knowledge and technology.

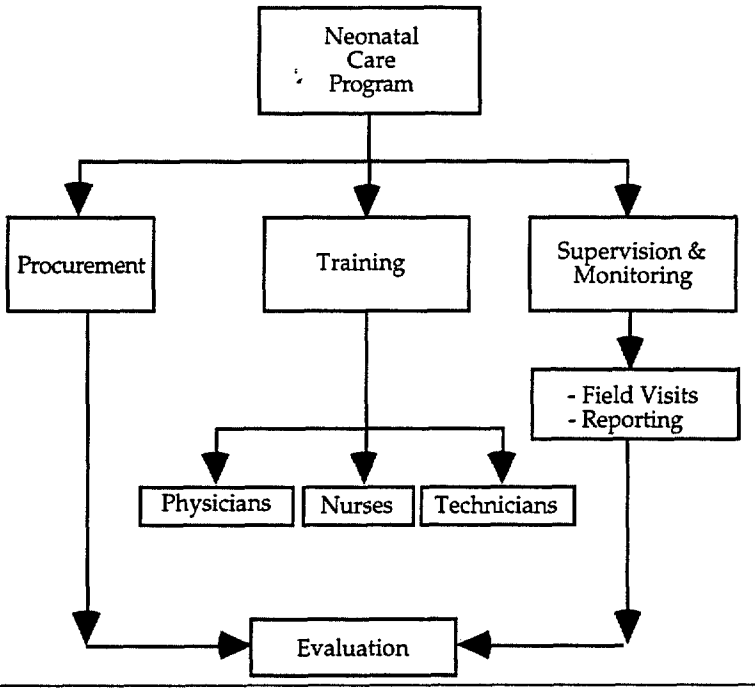
Steps taken to establish a network of quality first referral entry level neonatal care centers in MOH hospitals included procurement, begun in 1990, and selection of centers and installation of incubators in 1991–92.

The Neonatal Care Program also worked with governorate health directorates to develop a national perinatal system that integrates maternal delivery and neonatal care services. This was a major task in a country where traditionally neonatal facilities have been limited. The components of the program are illustrated in Figure 4.2.

Strategies employed by the Neonatal Care Program included:

- Making care for sick neonates available within a system of community-responsive hospital units distributed throughout Egypt.
- Systematically standardizing care, focusing on clinical problems of high incidence that are not technology- or cost-intensive.
- Continuously improving the quality of care in units and upgrading capacity and capability when needed and as resources are available.

Figure 4.2 Components of the CS/MCH Neonatal Care Program



- Coordinating neonatal unit activity with other maternal and child care, especially antenatal, peripartum, and infant care in the home, community, and private sector.
- Educating health care personnel: doctors, nurses, and technicians.
- Coordinating system activities with neonatal units in private, military, and university hospitals.
- Staying cost-conscious and innovative: producing and procuring equipment locally, privatizing services when appropriate.

It was anticipated that the operating costs of neonatal care centers would be incorporated into the operating costs of the collaborating hospitals, and that use of the centers would increase as centers become known and the referral system is developed.

The survival of neonates should be significantly enhanced by the quality of care. Investments in equipment, training, and facilities will increase the capacity of these centers substantially.

ACHIEVEMENTS

- Eighty neonatal care centers in the 26 governorates and Luxor were established, and are providing first entry level neonatal care for more than 12,000 neonates per year. All of these centers have been provided with equipment, staff have been trained, and advisory assistance offered to improve the capacity and quality of service. Advisory services and on-the-job training for staff were provided by monthly visits to more than half of the MOH centers by a central team of specialists in neonatology and neonatal care center operations.
- Three groups of physicians received certification as trainers in neonatal resuscitation after they participated in a two-week course organized by Dartmouth-Hitchcock Medical Center (USA). Ten-day basic training courses for a total of 250 nurses and 300 doctors were carried out in training centers established at five university neonatal care facilities. Training capacity in neonatal resuscitation and stabilization has been developed, and will be used to certify neonatal care centers and delivery rooms/obstetrical services. Several two-day regional workshops were conducted for participants who included neonatologists from several governorates (220 physicians and 150 nurses).
- A wide range of equipment was procured, delivered, and installed in 1995–96. Maintenance of 360 neonatal care incubators has been ensured by routine visits twice a year to each center, and by purchasing a maintenance contract.
- A reporting system on neonatal center client load and service delivery provided routine quarterly reports for a national database on neonatal care. A management information system for the neonatal care program was installed in all MOH neonatal care centers in 1993, with reporting compliance reaching 70 percent in 1994, 85 percent in 1995, and 95 percent in 1996. As of March 1996, quarterly reports were being received regularly from all centers. In addition, the system has been integrated into the MOH Health Information System for primary health care. The concept of a perinatal care system involving collaboration among pediatricians and obstetricians/gynecologists is being developed.

Although neonatal care received considerable program and fiscal support from the MOH/CSP, additional resources will be required to make high quality neonatal care more widely available. Cooperation among different sectors was good, but the program would have benefited from greater collaboration and communication among pediatricians, obstetricians, PHC staff, and others whose work relates to neonatal care. As the program began, there was a

lack of knowledge of the attitudes and behavior of the general population about neonatal care.

Interventions such as control of hypothermia, resuscitation, care of the large premature, and early treatment of sepsis will continue to improve outcomes. The ENNCP neonatal care efforts provided a framework for expansion throughout the entire country, and have shown that coordinated obstetric and neonatal care activities that include health maintenance, risk assessment in ambulatory as well as hospital sectors, and routine and consultative care can produce significant results.

INFANT NUTRITION

Since 1989 the CSP has sought to improve infant and maternal nutrition. Between 1989–91, CSP trained more than 15,000 health providers in nutrition; provided growth monitoring scales and nutrition monitoring equipment to 27 governorate health directorates for installation in clinics; distributed several thousand copies of a nutrition manual to governorates and nursing schools; and helped the health directorates to establish nearly 300 facilities to demonstrate and counsel mothers about infant feeding. At the beginning of 1992, the breastfeeding and weaning activities of the nutrition component were transferred to CS/MCH, and the separate CSP nutrition component was disbanded.

During 1992–93, CS/MCH included maternal and infant nutrition in PHC physician and daya training programs. CS/MCH also worked with an MOH task force and with UNICEF to promote breastfeeding and develop the Baby Friendly Program, which enlists hospital/maternity ward cooperation in breastfeeding promotion.

The Infant Nutrition program:

- Trained more than 12,600 PHC physicians and 9500 dayas in infant nutrition practice and in counseling mothers.
- Sent four trainers to courses at WellStart/San Diego, USA.
- Completed a pilot low birthweight study.
- Designed a mass media campaign targeted at mothers that included messages on breastfeeding, weaning, and growth monitoring.
- Promoted breastfeeding in 15 governorates. UNICEF managed the program in the other 12 governorates.
- Installed the Baby Friendly Program in three governorates.
- Included maternal and infant nutrition in midwifery training programs at the governorate level.

TRAINING, HEALTH PROMOTION, AND RESEARCH

TRAINING

Physician Training

The program has trained more than 12,600 physicians in 27 governorates; developed and piloted a midwifery training program; trained 2988 daya trainers and supervisors in 16 governorates and 104 health districts; and held workshops for 654 obstetricians (Table 4.1).

Table 4.1 Training PHC Physicians in MCH Service Delivery, 1989–95

	Physicians Trained	Number of Governorates
1989-90	1665	10
1991	2953	16
1992	2845	15
1993	1209	14
1994	2506	15
1995	986	21
1996	446	9
Total	**12,610**	**27**

Each physician trained in the six-day workshop received a copy of CSP's *Primary Health Care Physicians' Training Manual*, which covered 16 topics, as shown in Figure 4.3.

Training courses were carried out on a decentralized basis by the health directorate of each governorate using local trainers or trainers from Egyptian universities: Cairo, Tanta, Al Azhar, Zagazig, Minya, Assiut, Ain Shams, Alexandria, Mansoura, Menoufia, and Suez Canal. The courses included pre- and post-course tests of understanding to monitor learning and evaluate course content. A number of clinics where physicians were trained were visited by field implementation officers, and trainees and clients were interviewed to determine the impact of the training.

The courses were provided in 27 governorates, and included participants from virtually all PHC clinics in the country. The basic training program was completed in 1994, and was replaced in 1995–96 by a three-day refresher training course carried out in all governorates. Personnel trained since the beginning of the program are shown in Table 4.2.

Midwifery Training

From January to June of 1994 a four-month midwifery training program was piloted in Menoufia governorate for newly graduated nurses. The program was subsequently extended to the governorates of Dakahlia, Beheira, Gharbia, Giza, and Fayoum. This program has resulted in an increase in the numbers of nurse-midwives trained and in the initiation at the governorate level of a practical scheme to increase the number of nurses working in primary health care.

Other activities included an assessment of training needs in six governorates, distribution of a manual on midwifery practices and standards, and a workshop on national planning for midwifery development, held in March 1995.

Daya Training

UNICEF supported pilot daya training programs in Upper Egypt in the mid-1980s. These demonstrated that dayas—if taught techniques for clean deliveries and provided with a medical support system—could manage deliveries safely, referring high-risk cases to first referral obstetric facilities. They also showed that dayas provide an effective way to increase PHC outreach to women in the community.

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Table 4.2 Summary of Training by the CS/MCH Program, 1989–95

	1989	1990	1991	1992	1993	1994	1995	1996	Total
PHC Physicians	0	1665	2953	2845	1209	2506	986	446	**12610**
PHC Nurses	0	0	0	785	0	0	0	0	**785**
Daya Supervisors/Trainers									
- Physicians	50	200	240	260	280	320	106	80	**1536**
- Nurses	30	175	225	180	355	228	219	40	**1452**
Dayas (Basic Training)	65	825	1360	1995	1950	2060	890	390	**9535**
Dayas (Refresher Training)	0	0	0	0	0	0	800	1500	**2300**
Laboratory Technicians	20	89	65	150	134	153	153	400	**1164**
Neonatology (Basic Training Course)									
- Physicians	0	0	0	175	368	384	78	60	**1065**
- Nurses	0	0	0	106	180	117	77	40	**520**
Neonatology (Workshops)									
- Physicians	0	0	0	0	100	220	370	300	**990**
- Nurses	0	0	0	0	50	150	249	100	**549**
- National Conference	0	0	0	600	0	0	0	0	**600**
Neonatal Resuscitation									
- Physicians	0	0	0	0	0	0	549	250	**799**
- Nurses	0	0	0	0	0	0	224	250	**474**
Biomedical Engineers	0	0	0	200	0	0	0	0	**200**
Obstetricians (Workshops and Conference)	0	0	0	0	0	202	452	0	**654**
Breastfeeding									
- Physicians	0	0	0	0	0	96	836	0	**932**
- Nurses	0	0	0	0	0	107	511	0	**618**
Nurse-Midwifery									
- Trainers/Managers	0	0	0	0	28	34	124	20	**206**
- Nurse-Midwives	0	0	0	0	0	40	70	32	**142**
Total	**165**	**2954**	**4843**	**7296**	**4654**	**6617**	**6694**	**3908**	**37131**

The CSP-supported Daya Program started in 1989. It included training and equipping dayas in Lower Egypt, and established mechanisms to support and monitor their work, including daya registration within PHC facilities and health districts. The program aimed to improve dayas' basic skills in the management of normal deliveries. Dayas were taught counseling skills and to refer patients to clinics for antenatal care, tetanus toxoid immunization, care for high-risk pregnancies, postpartum care, child spacing information, neonatal care, and breastfeeding. Refresher courses covered basic skills and provide further training in neonatal risk assessment and family planning. The daya program also aimed to increase cooperation between dayas and local PHC staff, including the clinic and first referral delivery room/ obstetrical services.

The program was expanded to cover 18 governorates, including those in Lower Egypt and the frontier governorates. By March 1996, more than 70 percent of the active dayas in these governorates had been trained and were collaborating in the primary health care program. A total of 1536 physicians, 600 nurse inspectors, and 1452 chief nurse-midwives were recruited and trained as daya trainers and supervisors. More than 9500 dayas were trained in the basic course, provided with a delivery kit (procured by the CSP for the program), and certified as trained and registered by the local health district.

The cumulative impact of the daya program has been to increase the proportion of daya-assisted births managed by trained dayas to about 70 percent.

HEALTH PROMOTION

The CS/MCH program and its activities were featured in the 1995–96 Project-wide mass media campaign. See Chapter 5, "Cross-Cutting Activities."

All CS/MCH training activities included modules to teach physicians, nurses, midwives, and dayas counseling skills that would enable them to impart health education messages to their clients. Primary among the messages were:

- To seek skilled obstetrical care for high-risk pregnancies.
- To go to a PHC facility for routine TT vaccination, antenatal care, and neonatal care.
- To breastfeed and wean appropriately.
- To understand the benefits of child spacing.

These messages were also contained in a number of training and health education publications produced by the CS/MCH component.

RESEARCH

CS/MCH carried out innovative and programmatic research throughout the CSP years. One project, however, which resulted in the publication, *National Maternal Mortality Study: Findings and Conclusions*, was honored by winning the WHO-Abu Dhabi prize for excellence in health projects.

Maternal Mortality Study

To study the extent, causes, and problems of maternal mortality, a national survey was designed in 1991 and carried out in 1992–93. The objectives of the survey were to:

- Obtain reliable estimates of national and regional ratios of maternal mortality.
- Identify the main causes of maternal mortality.
- Identify avoidable causes of maternal mortality.
- Provide recommendations to health policymakers for reducing maternal mortality.

The findings, conclusions, and recommendations of this survey constitute the basis of national planning for maternal care in Egypt, and of the continuing efforts being carried out. Two major avoidable factors need to be addressed: delays in seeking medical attention on the part of the woman and her family, and substandard care on the part of medical professionals. The reasons for delay in seeking care need to be explored more fully, while at the same time campaigns should be implemented to tackle issues of women's awareness and health professionals' attitudes.

Substandard care by obstetricians contributed to the deaths of 47 percent of the women. To address this problem protocols for the management of common obstetric emergencies should be developed and used, in-service training should be provided for obstetricians and general practitioners, senior obstetricians should be more involved in obstetric care. At the same time, the MOH and the medical schools should review and re-evaluate the postgraduate training programs, emphasizing the need for practical training. Because dayas play an important role in referring women with complications promptly, daya training programs should be continued and strengthened.

Many conditions leading to maternal death cannot be addressed at the community level and require essential obstetric functions that are only available at the first referral level (district hospital) or higher. It is therefore imperative to improve these health services. Shortages of blood contributed to six percent of maternal deaths. Further investigations were recommended on the issue of blood supply and ways of maintaining it.

Although the effectiveness of antenatal care in preventing maternal deaths is being questioned, antenatal care can detect and treat conditions that are dangerous in pregnancy. The focus should be on strengthening aspects of antenatal care most likely to have an effect.

Educated women have a lower maternal mortality ratio for all causes of death examined. The effect of education is conceivably mediated by other factors such as residence, socioeconomic status, and the ability to demand good quality care. No efforts should be spared in improvements in the socioeconomic status of women. Great progress has been made with family planning programs; because of their potential to reduce women's deaths they should be strengthened.

USAID and CSP introduced the maternal mortality ratio as an indicator of goal achievement in 1991. In 1994, a target of "a 15 percent reduction (in the maternal mortality ratio) between 1988 and 1995" was set. The 1988 baseline, established as an expert estimate based on several local studies, was 220 maternal deaths per 100,000 live births. The National Maternal Mortality Survey (NMMS) conducted by the CSP in 1992-93 provided the first reliable annual measure of the national maternal mortality ratio in Egypt. It estimated the maternal mortality ratio at 174 maternal deaths per 100,000 live births. Although a comparison of these two measures indicates a 21 percent reduction in the maternal mortality ratio between 1988 and 1995, it cannot be concluded that this is representative of a decline on a national level.

It is reasonable to assume that the increase in deliveries attended by trained birth attendants, strengthened referral systems and obstetric care, and improvements in child spacing will translate into further reduction on maternal death.

Other Research, Studies, and Evaluations

Major CS/MCH research is shown in Matrix 3.

A series of evaluations and program reviews were carried out, including:

- **MCH Laboratory Upgrading Program.** A comprehensive review of MCH laboratory management and the operation of the MCH laboratory upgrading program was initiated in July 1994, and by March 1996 assessments had been carried out in 14 governorates.

Matrix 3 Major CS/MCH Research Activities and Programmatic Use of the Results and Recommendations

Research	Major Findings	Programmatic Implication
National Maternal Mortality Study. Population-based survey in 21 governorates, carried out in 1992–93.	The study found a national maternal mortality ratio of 174 maternal deaths per 100,000 live births, ranging by region from 132 to 233. Ninety-two percent of the deaths had one or more avoidable cause.	Detailed recommendations in the report are being used to guide MOHP planning for safe motherhood and reproductive health. The baseline provides a basis for a follow-on survey to establish trends in maternal mortality proposed for 1996–97.
Pilot Low Birthweight (LBW) Study. A pilot study in Qalyoubia Governorate of LBWs in 1000 consecutive births in 1994.	The study found a LBW incidence of 15.7 percent; weight below 2000 grams accounted for 3.8 percent. It concluded that neonatal mortality is six times greater among LBW babies, that birth interval from the last pregnancy of less than two years is the greatest risk factor, and that dayas could be used for field work.	The pilot study became the basis for a national study now underway in representative districts in six governorates.
Anemia in Pregnancy and During Lactation. This study was carried out among 300 women using PHC facilities in Menoufia Governorate in 1994–95.	Preliminary findings indicate that iron deficiency anemia remains a serious concern for maternal health. A report of findings will be published in 1996.	The study was designed to provide baseline data and information for programming improved MCH service delivery for safe motherhood/perinatal care.
Survey of MCH Facilities. This study, carried out in six governorates in 1995, looked at the status and MCH operations of a large sample of PHC facilities.	The survey details characteristics of MCH Centers, Urban Health Centers, Rural Health Centers and Units, and Rural Hospitals in their organization and delivery of MCH services.	The study provides a baseline to evaluate efforts to strengthen PHC facilities, and information on which to base programs to improve MCH services during 1996–2000.
Survey of Neonatal Care Centers. This survey of 75 first referral neonatal care facilities was carried out in the first quarter of 1996.	Preliminary findings: (1) Many centers have developed well in the past five years and are providing effective first referral neonatal care. (2) Referral systems need development. (3) Recently introduced service standards need to be followed closely. (4) Steps need to be taken by collaborating hospitals and governorates to ensure adequate funding for center operations.	The survey provides information on which to develop a five-year effort to expand neonatal care facilities to all districts and improve the capability and functioning of existing centers. Baseline data provides a base for future evaluation of neonatal care programs.

- **Daya Program.** A review carried out in May 1994 and October 1995 with the help of an external consultant.
- **Midwifery Pilot Program.** In-house review in mid-1994 and an external review in early 1995.
- **Neonatal Care Program.** A review was carried out by an external consultant in the fall of 1994; a certification-type review was conducted in early 1996. Program quarterly reports and the "certification" review data provide ongoing indicators.

LESSONS LEARNED

- Emphasizing the connection between mother and child health is important. Activities stressing the close relationship between the health of the mother and that of her baby have increased acceptance of the importance of improving mothers' health. An approach that integrates health care for improved pregnancy outcomes with perinatal care (fetal health care, gestation monitoring, and neonatal care) can lead to declines in maternal mortality and morbidity, pregnancy losses, and neonatal mortality and morbidity. Identification of a high-risk pregnancy, or high-risk circumstances during delivery, has an impact on both the mother and her baby.

  CSP experience indicates that in order to increase the demand for antenatal care by Egyptian women, particularly those in rural areas, it will be necessary to convince mothers and families of the need for ANC as an essential routine precaution.
- Effective neonatal care requires collaboration between disciplines and a well-established referral system. Increased collaboration between obstetricians and pediatricians is important to foster a joint approach to maternal outcomes and perinatal care. Effective evaluation of neonatal risk and of referral from the PHC system—including dayas and private physicians—to first referral neonatal care centers are necessary. First referral delivery rooms and neonatal care centers require adequate neonatal resuscitation facilities, complemented by a system of quality control and certification of public and private neonatal care centers.
- Midwifery training must be coordinated with TBA training and should establish links between them.
- Hospital maternal care must be the focus. Emergency obstetric problems can only be dealt with at hospital level. Therefore management and planning should focus on upgrading hospital maternity services for delivery and obstetric emergencies. Since most maternal deaths occur in district hospitals, the CS/MCH component decided to improve and renovate delivery rooms and services in these hospitals.
- The problem of delay in care seeking must be addressed. Delay in seeking medical care or noncompliance with medical advice are among the major avoidable factors in maternal deaths in Egypt. Social marketing techniques are crucial to educate families about the dangers of pregnancy and delivery, the need for timely professional care for high-risk pregnancies, and the importance of avoiding delay in seeking professional obstetrical care in the event of complications during delivery or the postpartum period.
- Infant nutrition education is important. Health education has played an important role in modifying practices such as continuing exclusive breastfeeding beyond the sixth month, and motivating mothers—especially in rural areas—to introduce appropriate weaning foods by the seventh month.

- Research can be effectively conducted by MOH personnel. Through the execution of the National Maternal Mortality Study (1992–93) it was proven that MOH personnel can carry out well-organized, well-designed operational research. This study was conducted by Ministry of Health personnel, the Central Agency for Public Mobilization and Statistics (CAPMAS), and Egyptian universities and with technical assistance through Clark Atlanta of the London School of Hygiene and Tropical Medicine. The research was supported by USAID, and its findings were recognized by WHO and UNICEF. The maternal mortality survey was followed by the Low Birth Weight and Anemia in Pregnancy surveys.
- A range of IEC activities is needed to support education and training efforts. Messages can be conveyed and reinforced using a range of media and social mobilization efforts. For example CS/MCH TV spots were complemented by TV interviews and newspaper articles, and by a special social drama.
- Mechanisms to assure quality of care are essential. Teams comprising physicians and university neonatology and public health staff have made an important contribution to improving quality of care by monitoring services in neonatal units and supervising training courses.
- Changing the attitudes of and towards TBAs is important. Training increased dayas' confidence in their work and their relationships with health teams in health units and at hospitals. This encouraged them to refer antenatal risk cases and high-risk deliveries. Their attitude toward breastfeeding also changed and TBAs are now promoting early initiation of breastfeeding, particularly since this leads to easier delivery of the placenta.
- Better physician communication skills could increase acceptance of antenatal care. Egyptian women do not place a high value on antenatal care, in part because this service is free, and also because they believe that this service is useless. Doctors in the public sector often treat women badly. As a result, women prefer not to use public clinics. The CSP found that training physicians in communication and counseling skills led to a marked improvement in the doctor's performance and a better doctor-patient relationship.
- Supervision and management needed improvement. Lack of proper supervision and poor management were identified by CS/MCH as areas that needed to be improved and, in coordination with other CSP components, a series of actions were taken to improve both managerial and supervision capability at the district level.
- Training nurses in practical midwifery is essential. An evaluation of nurse training concluded that the emphasis of training should be on practical skills, and a shift should be made to also train nurses in midwifery practices.
- More attention should be paid to patients' needs. To meet patients' needs, services directed to pregnant women should be provided in one package—antenatal care, family planning, clean delivery, and essential obstetric care. These services should include counseling and health education and provide adequate opportunities for privacy for women during consultations and examinations, an issue which patients often raise.
- Increasing attention should be paid to perinatal care since a recent study showed that neonatal deaths constitute 49.8 percent of infant mortality.
- Health professionals need specialized training in neonatal care. Although the response of community pediatricians and nurses to the creation of a system of neonatal care was positive, additional training was necessary to enable them to provide a good level of

care and to introduce new treatments and interventions. Training and care activities should be complemented by the implementation of a data system to evaluate and qualify improvement.

- Nationwide resource requirements for hospital care of newborns need to be carefully estimated. For an effective neonatal care program, a large number of additional neonatal hospital beds are necessary.
- Clinical care in the neonatal system should emphasize standardized management of common problems, using available interventions. Problems such as prematurity and low birthweight, sepsis, and difficulty with initial breathing and stabilization are responsible for a large proportion of poor outcomes. Pressure to become involved in clinical efforts that are very expensive and demanding should be resisted in favor of dealing with common problems through tested, standardized, cost-effective approaches.
- Neonatal/perinatal services should be closely associated with other MCH services. Integration of the neonatal care system and providers into a comprehensive perinatal or MCH program is important, but requires considerable effort.

FUTURE DIRECTIONS

CS/MCH experience and activities through the CSP suggest clear strategies for the future to improve maternal and child health. In the short-term, training and health education will continue to be important. In the long-term, policies to improve women's education and to change the medical curriculum of doctors and nurses are required. Preventive measures should also be given priority since they are ultimately the most cost-effective.

More specifically, because dayas are very influential in their communities, their role and training should be expanded to include participation in health education activities, particularly in convincing mothers of the importance of breastfeeding.

Ensuring safe motherhood and reducing maternal mortality and morbidity require increased understanding by health authorities of the problems facing the system, to determine policies needed in relation to deliveries, links between antenatal delivery care, private, and hospital care, and the referral system for emergencies. Further improvement in maternal and neonatal health can be achieved through sustaining actions to upgrade delivery rooms and essential and emergency obstetrical services and systems to ensure service quality.

In addition, the health of women before they are pregnant—as girls and adolescents—should be given attention, because of its impact on the future health of the mother and her children.

Neonatal program efforts initiated by the CSP will need a permanent administrative location within the MOH infrastructure for these efforts to be sustained. It will also be important for the MOH to endorse and implement nationwide a regionalized perinatal care system that includes training and education.

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Cross-Cutting Activities

A key issue to be considered in relation to the CSP was sustainability. Sustainability is defined as the possibility of continuing a project's activities, as well as reaping its benefits and outputs, after funding for the project is terminated. The 1994–95 CSP Work Plan outlined three approaches to ensure technical, institutional, and financial sustainability: institutionalization, integration, and decentralization.

Institutionalization is required to develop an appropriate constituency and a commitment to continue support for child survival services among the government, health workers, and the general public. **Integration** of services is essential to improve sharing of resources, client and provider satisfaction, efficiency, and productivity, and to generate local-level commitment to, and demand for, child survival services. **Decentralization** is needed to bring about a commitment at the governorate and district levels in order to ensure mobilization of local resources.

These approaches have been implemented through six cross-cutting programs:

- Decentralized Health Planning and Management
- Health Information System (HIS)
- Clinic Management Improvement Program (Model Clinics)
- Field Epidemiology Training Program/Unit
- Revision of the Curriculum for Medical and Nursing Students
- Mass Media and Health Education (IEC).

During 1994, CSP worked closely with the administrative sections of the central MOH—specifically the Departments of Planning, Health Education, and Information and Documentation—to coordinate the planning and implementation of these cross-cutting programs within the organizational framework of the MOH.

It was intended that these cross-cutting programs would:

- Enable governorates to improve health management and supervision by assisting them to develop capabilities in planning and budgeting to sustain and extend child survival interventions, in accordance with the guidelines and procedures developed by the MOH Planning Department.
- Help governorates to develop and install management and health information systems.
- Assist governorates to improve health management and supervision through developing and implementing a standardized clinic management improvement program.
- Assist the MOH to develop a competency-based integrated training program for improving the delivery of child and maternal health services.
- Mobilize the training offices of governorate health directorates to plan and organize ongoing preservice and in-service training.

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- Assist medical and nursing schools to produce graduates trained in child survival principles and techniques.
- Improve and extend public knowledge, attitudes, and practices regarding safe motherhood and child survival.
- Mobilize health education officers to support child survival interventions.

The Project employed the following strategies:

- Carrying out the decentralization program in close collaboration with MOH Planning, Information and Documentation, Health Education, and Training Departments.
- Integrating the Decentralized Planning and Management Support Program into the ongoing activities of the MOH, particularly within the Planning Department.
- Incorporating the HIS program into the overall MOH Health Information System; focusing use of the program on decision-making and management.
- Integrating the Health Education Program into the activities of the MOH Department of Health Education to ensure follow-up and sustainability.
- Assisting the Ministry of Health to develop an integrated training program for improving the delivery of maternal and child health services.
- Assisting the medical faculties and Higher Institutes of Nursing to revise curricula for training in child survival.

APPROACHES TO SUSTAINABILITY

From the start, the organizational framework of the CSP was designed to incorporate approaches that have been critical to the success of sustainability of donor-funded projects, in particular:

- The CSP was established as a project directed and managed by MOH staff (as a semi-autonomous program) and all Project services have been provided through the MOH delivery system.
- National commitment to the Project and its objectives was ensured by a partnership approach between the GOE and USAID, as the main donor.
- Commitment, agreement, and ongoing support for project objectives, design, and the approach to implementation have been supported through joint negotiations between the MOH and USAID.
- A policy of open communication and coordination with other key donors—UNICEF and WHO.

Financial and budgetary sustainability was identified by USAID as one of the most critical issues. Consequently, USAID commissioned an analysis of the recurrent costs of all child survival activities in Egypt. The conclusions of the analysis were incorporated into the 1994–95 CSP Final Work Plan and the CSP identified and quantified recurrent costs of Project activities that had been targeted for sustainability. CSP also assessed GOE capacity to absorb the costs of these activities under existing budget lines, and identified potential sources of funding.

INSTITUTIONALIZATION

Institutionalization is the process of incorporating CSP activities into the existing structure. This process required the development of an appropriate constituency and commitment for the continued support of CSP activities within the MOH. For this reason, CSP components and key activities were located in the relevant MOH units/sections, under the direction of an MOH undersecretary, from the start.

The CSP was organized with an administrative project secretariat with three major operational units—EPI, ARI, and CS/MCH—each of them headed by an executive director seconded from the MOH. At the national level, all three components worked with designated MOH counterparts, while being managed as programs within the CSP.

The EPI ties with its MOH counterpart are very close and the institutional relationship and administrative work for the sustainability of EPI have been established.

The designated ARI counterpart is the MOH's Curative Medicine Department. This is an interim measure, and the MOH has approved permanent administrative placement of ARI under the Primary Health Care Department in the near future and facilitated the establishment of cooperative working ties before the end of the CSP.

The CS/MCH activities are incorporated under the MCH Department of the MOH. The current director of the MCH Department was the Executive Director of the CSP, and is the current Executive Director of the new USAID-funded Healthy Mother/Healthy Child Project in cooperation with the MOH. This Project covers the years 1995–2001.

The institutionalization of child survival activities has been and will continue to be strengthened through simultaneous decentralization and integration approaches.

Service delivery is in the process of being decentralized to the governorate and district levels and integrated with existing MOH health delivery systems. The CSP has supported governorate- and district-level capacity building and efforts to strengthen the existing primary health care service so that it can integrate the full spectrum of child survival activities into its delivery systems.

INTEGRATION

Integration of CSP components within the existing PHC service delivery system has been an essential approach, both to improve the quality of health services and to ensure a more comprehensive approach to health care. This integration is intended to increase client and service provider satisfaction, as well as the level of commitment and demand for child survival services at the local level.

The ability to offer a full range of integrated child survival services at each MOH clinic, combined with a health worker team approach to clients and pre-screening of patients, has resulted in better referrals to all CSP components.

DECENTRALIZATION

Decentralization has involved the transfer of responsibility for planning, management, and decision-making from central to governorate and district levels. The framework to support the decentralized integration of child survival activities into the MOH's PHC service delivery system had already been established, following national policy to decentralize administration and operation of health care delivery to the governorate and district levels. The Project aimed to support the MOH's decentralization process to ensure sustainable implementation of child survival services, and to support the integration of CSP program planning, management, and implementation into the MOH's PHC system. CSP concentrated on strengthening and expanding capabilities at the governorate and district levels.

DECENTRALIZED HEALTH PLANNING AND MANAGEMENT

The program's achievements include:

- An increase in the ability of governorate health directorates to manage EPI, including disease surveillance, cold chain operations, routine vaccination, and other disease control measures.
- Management of the ARI program by all health directorates and health districts, and most hospitals and primary health care clinics in Egypt.
- Implementation of staff training and systems to manage, supervise, register, train, and support dayas in 17 governorates and more than 100 districts.
- Development, in cooperation with the MOH Department of Planning, of a system to support governorates and districts in strengthening their management and planning for child survival, safe motherhood, and other health programs.

HEALTH INFORMATION SYSTEM (HIS)

The Health/Management Information System (HIS/MIS) begins the process that can create a comprehensive health information database that, together with a program of monitoring and performance indicators, will support health policy decision-making, health services management and planning, and health services monitoring and evaluation. Using a computerized HIS/MIS, the MOH will be able to develop a series of customized reports to meet the information needs of health policy makers and managers.

In 1992, in response to MOH interest in developing an improved HIS, the CSP assessed the potential for a computer-based system to be installed in each governorate. The Project also reviewed how it could best assist governorates in collecting, storing, processing, and analyzing the health data being forwarded to the Ministry of Health.

The HIS program was developed in 1993 in collaboration with the MOH Department of Health Information and Documentation. A computer-equipped center for health information was established in each governorate. Technical assistance to develop the HIS was provided by Arabic Software Engineering, Inc., through a subcontract with CAU. The system enables computerized processing of primary health data collected from health facilities, and the production of management indicators to be used at regional and local levels. The goal of the HIS was to improve data collection and analysis within the MOH to support more effective planning and management of services at different levels of the health system.

The HIS was also designed to address problems in the existing health information system, among them:

- Unavailability of some health data, and a high percentage of errors in reported data.
- Low utilization of data in management decision-making.
- Too many health data input forms, lack of standardization of procedures for data flow, and over-burdening of those responsible for collecting/reporting health data.
- Lack of feedback resulting from one-way data flow.

The CSP initially targeted improvement of the information systems of its three main programs—EPI, ARI, and CS/MCH. This was later expanded to cover the development of a complete, integrated, computer-based information system covering all activities of the MOH. Development of a Geographic Information System was started, to be used as a base for an Egypt Atlas of Health Services, in support of planning and decision-making at the central level.

As a result, 24 data collection forms were developed. Seventeen additional forms to cover mainly costing and budgeting systems were added at the request of the Data for Decision Making Section of the MOH Department of Planning. The total number of forms developed for the HIS were approximately 43, as shown in Table 5.1

The CSP installed a comprehensive, decentralized, computer-based health information system in 27 governorates and field-tested it in four pilot governorates at the district, governorate, and central levels. The HIS/MIS was integrated into the Information and Decision Support Center at the MOH, and a framework established for future expansion of the HIS to cover other activities at the MOH.

Technical constraints included weak technical skills of the personnel responsible for statistics at facility and department levels, and lack of awareness of the important role of information in health planning, as well as lack of computer skills. These were addressed through training employees at the directorate information centers in computer use and application of the new system and holding training courses to improve the skills of personnel in charge of statistics.

Administrative constraints, including communications difficulties, lack of motivation to use the new system, and inadequate supplies of data collection forms, have only been partially solved, since they are difficult to overcome without direct and active intervention from the central level.

CLINIC MANAGEMENT IMPROVEMENT (MODEL CLINICS)

To achieve integration of services at the point of delivery, CSP chose a "Model Clinic" approach. Model clinics, offering a full range of CSP services, were developed by the Project on a pilot basis. The program focused on clinic improvement, staff training, and supervision in order to establish and maintain basic service standards for facilities, equipment, and procedures for clinical care. It provided a valuable demonstration of how the MOH can achieve and maintain an acceptable quality of child survival interventions. Model Clinics are intended to serve as a standard for expansion to other governorate/district clinics.

Service Standards, developed by the program, will allow governorates and districts to standardize both the quality of care in clinics and its monitoring by supervisors. The Model Clinic program developed an approach based on periodic self-assessment by clinic staff, followed by supervisor assessment and joint discussion of actions taken to meet the Standards. The assessment allowed supervisors, the CSP, and the MOH to monitor the progress of participating clinics toward 100 percent achievement of standards.

The program is based on the concept of a center organized to demonstrate effective organization, clinical operation, and management of PHC facilities. This center is used to train PHC staff, and to orient and train undergraduate medical students in primary health care. Each Model Clinic is provided with a fully equipped training center for use by the district and governorate to train newly assigned PHC physicians and for in-service training of PHC staff in skills required for the EPI, ARI, MCH, and other PHC programs.

Clinics are located at the governorate level, and are close to a medical school in order to facilitate collaboration with the medical faculty and use for orientation, demonstration, and training of undergraduate medical students. By December 1994, 13 governorates had chosen to collaborate in the CSP Model Clinics program. Governorate supervisory teams were constituted and completed orientation training in 10 governorates. Each governorate has selected at least one urban health center to serve as a model clinic, and has enlisted the cooperation of at least one district health team to pilot the Model Clinic program. By the end of the CSP, two clinics were established in Port Said, and two in Cairo, with the rest located

Table 5.1 Health Information Systems Forms Developed

Form	Type
Infrastructure of the Health Facility	Annual Report
Internal Division of the Health Facility	Annual Account
Monitoring Medical Equipment & Instruments	Annual Report
Monitoring Drugs at Facility Pharmacies	Annual Report
Monitoring Drugs in Facility Departments & Divisions	Annual Report
Vaccine Control	Monthly Report
Monitoring Medical Supplies at Facility Level	Annual Report
Monitoring Medical Supplies in Facility Departments	Annual Report
Monitoring Vehicles	Annual Report
X-ray Department Activities	Monthly Account
Employees	Annual Account
Training By Course	Annual Account
Patients Attending Clinics and Admitted to the Health Facility (Free/Charged)	Monthly Account
Discharged Inpatients According to Diagnosis	Monthly Account
Surgical Operations Performed	Monthly Account
Communicable Diseases	Weekly Report
Dentistry Activities	Monthly Account
Endemic Diseases Treatment Activities	Monthly Account
Blood Bank Activities	Monthly Account
Births and Deaths, Indicating Cause of Death per Case	Monthly Account
Food Monitoring and Supervision Activities	Monthly Account
Immunization Activities	Monthly Account
Independent Labs Activities	Monthly Account
Activities of Labs Annexed to Health Facilities	Monthly Account
Leprosy Control Activities per Case	Monthly Account
Filaria Control Activities	Monthly Account
Leishmania Control Activities (Insect Surveillance)	Monthly Account
Leishmania Control Activities (Cutaneous Leshmaniasis)	Monthly Account
Leishmania Control Activities (Visceral Leishmania)	Monthly Account
Acute Flaccid Paralysis Surveillance and Follow-up	Case Report
Neonatal Tetanus Surveillance	Case Report
Zero Reporting	Monthly Account
Diarrhea and Dehydration Control Activities	Monthly Account
Control of Acute Respiratory Infections of Children Under 5 Years	Monthly Account

Table 5.1 Health Information Systems Forms Developed

Form	Type
Neonatal Care	Monthly Report
Quarantine Activities	Monthly Report
Malaria Control Activities	Monthly Report
Furniture Monitoring	Annual Report
Liquid Waste Drainage Inspection Activity	Monthly Account
Samples Taken from Potable Water Nets	Monthly Account
Expenses	Annual Report

one in each of 12 governorates, as shown in Figure 5.1. Renovations improved the physical facilities of selected centers.

Developing Service Standards is an effective way to improve clinic management, service delivery, and quality assurance of health care in Egypt. Service Standards were compiled covering Child Survival and Safe Motherhood interventions. They include ARI, CS/MCH, EPI, and General Clinic Service Standards. Use of the Service Standards is facilitated by

Figure 5.1 Locations of Model Clinics

Clinic Name	Governorate
Mandra	Alexandria
El-Kuwait	Port Said
El-Zahour	Port Said
Shebeen El-Kour	Menoufia
El-Salam	Ismailia
Malawi	Menia
Moubarak	Assuit
El-Galaa	Cairo
El-Nozha El-Gedida	Cairo
El-Sheikh Monsa	Luxor
Menia El-Kamh	Sharkia
Barha	Qualyoubia
(Being developed)	Sohag
(Being developed)	Gharbia
(Being developed)	Dakhahlia
(Being developed)	Qena

checklists that were prepared in Arabic and English. Three manuals were developed and produced by the Central Model Clinic Team and consultants provided by Clark Atlanta University:

- *The Model Clinic Introduction Manual* was prepared in Arabic and English editions during 1993-94. It explains the model clinic program process and provides Service Standards and Service Standards Check Lists. It is used by the collaborating governorates, districts, and clinics.
- *The Model Clinic Operations Manual* was completed in Arabic in 1996, for use as a handbook for trainers and a guide for members of the Clinic Management Team and the Governorate and District Supervisory Teams.
- *The Model Clinic Supervision Manual* will be replaced by a learner's guide, now in its final draft.

Although the use of the model clinics certified to date for training and demonstration for medical students has so far been limited to Port Said, Menoufia, and Ismailia, it is expected that other medical faculties will use them for student orientation and training in PHC.

FIELD EPIDEMIOLOGY TRAINING

The primary goal of the Field Epidemiology Training Program (FETP) is to foster the professional development of field-trained epidemiologists in the MOH who are competent in the practical application of epidemiologic methods to a broad range of health-related problems. Accomplishing this task should strengthen the public health infrastructure and substantially improve the MOH's ability to monitor and improve the public's health.

FETP training focuses on developing three main competencies: epidemiologic process, written and verbal communication skills, and professionalism. The FETP trains health professionals to be capable and interested in responding rapidly to any public health emergency or threat, and to behave calmly under stressful conditions. Training emphasizes the need to collect information, analyze, organize, and report results as promptly and accurately as possible to MOH officials responsible for implementing control measures. After completing this practical training, epidemiologists understand how to design and conduct the appropriate studies and field work to respond to actual public health problems and emergencies. The FETP has a strong focus on assuring the validity of data being collected in the field, whether from surveillance systems, outbreak investigations, or special studies. The training shows in an applied fashion how to use the appropriate statistical methods to identify possible risk factors for disease and to use the data collected to design appropriate interventions or control measures.

In 1993, an agreement to initiate an FETP was reached between senior MOH officials, USAID, and the US Centers for Disease Control and Prevention (CDC, Atlanta) under the CSP. Egypt's FETP is similar to CDC-sponsored training programs in Saudi Arabia, Indonesia, Thailand, Indonesia, Mexico, Spain, Peru, and Hungary.

In April 1995, a Field Epidemiology Training Unit (FETU) was established in the MOH, and given the responsibility to design, conduct, analyze, and communicate the findings of epidemiologic and special studies. Graduated participants of the FETP are the core staff of this Unit.

Epidemiology provides the tools necessary to scientists to properly analyze, evaluate, and understand public health information. Practical epidemiologic training is important for public health professionals trying to organize complex information, take prompt and appropriate action, design strategies for control measures, make the most efficient possible

management decisions, and enhance credibility in both the public and scientific community. The principle of FETP training is that developing countries need at least a minimum capacity for accurately monitoring and evaluating public health activities and the progress of disease control programs. This capacity includes activities including:

- Measuring indicators of health status and the magnitude of disease problems in the population.
- Evaluating the effectiveness of health service delivery and utilization of health resources.
- Evaluating the effectiveness and impact of health-promoting and disease-preventing interventions.
- Communicating properly analyzed and interpreted health information in a timely manner to policy makers and planners.

FETP's training through service is accomplished largely through supervised experience during field work. The FETP is based on the two-year CDC model training program. The exposure to field experience is intensive and focuses on training-by-doing, similar to clinical training programs in the field of medicine. Training starts with a three to four month period of classroom learning that includes the history of epidemiology, principles of biostatistics, and epidemiology under the direction of university faculty and CDC staff epidemiologists and biostatisticians. Students move on to complete at least 20 months of applying these principles to field activities.

Faculty from Egyptian and American University Schools of Public Health have conducted introductory training for persons interested in applying for the two-year FETP training. A Masters Degree Program in Applied Field Epidemiology was approved by the MOH as an integral part of the two year FETP training. Senior technical experts and faculty members from the Schools of Public Health serve in a supervisory capacity, along with responsible officials from the MOH, for ongoing field activities.

In addition to academic requirements, participants in FETP training are required to demonstrate an ability to fulfill all of the following:

- Use data from surveillance systems or other sources to identify a public health problem requiring epidemiologic evaluation.
- Conduct a field investigation into a public health problem in the population that requires a rapid assessment.
- Design, conduct, analyze, and report an appropriate epidemiologic analysis of health-related data representing information on the health status of a population, and make appropriate recommendations to responsible MOH officials.
- Design, implement, or evaluate a surveillance system.
- Develop and conduct a pre-planned epidemiologic study to assess a subject of public health importance.
- Demonstrate an ability to conduct a literature search on a subject of public health importance to better understand other epidemiologic work already completed and use this to interpret the implication of the study being conducted.
- Submit regular field reports summarizing ongoing activities.
- Present the scientific results of a public health-related study at a national or international scientific meeting.

- Organize findings of a public health study to be suitable for submission to a peer-review journal for publication.
- Teach an introductory or intermediate level epidemiology seminar or presentation for junior FETP colleagues.
- Conduct all scientific studies using only the highest professional integrity and ethics, assuring MOH officials that all data collected and reported represent the actual situation as accurately as possible, given any limitations in time or funding.
- Assure that persons who participate in any scientific studies do so voluntarily and with informed consent.
- Work calmly and professionally under even the most difficult conditions, including emergencies.

The staff and trainees of the FETP regularly provide epidemiologic support to any MOH department (preventative or curative) at the national or governorate level for any subject of public health importance. Maternal-child health-related topics, surveillance, and outbreak response receive priority. There is an equal focus for both communicable disease-related problems (e.g., polio eradication) and non-communicable problems (e.g., antenatal care, childhood lead toxicity, breastfeeding), with an emphasis on prevention and health education.

A key element in assuring the accuracy of epidemiologic assessments is linking clinical data with the Central Public Health Laboratory to accurately test for various exposures or infectious agents. This includes testing for heavy metals (e.g., arsenic, lead, mercury) in biologic specimens or obtaining specimens to identify infectious agents such as virologic, mycologic or bacteriologic agents or immunologic responses to these.

FETP reports and research are listed in Annex 8.

REVISION OF CURRICULA FOR MEDICAL AND NURSING STUDENTS

Although efforts to retrain in-service medical professionals were encouraging, the CSP recognized that a strategy to improve undergraduate and preservice education would be cost-effective. To institutionalize child survival interventions and overcome the problem of rapid turnover of trained health providers, CSP began collaborative activities in 1993 with universities and nursing schools to develop undergraduate training in child survival and primary health care topics.

A curriculum and faculty development program was initiated, with the objectives of:

- Assisting medical schools in Egypt, including faculties of community health, pediatrics, and obstetrics and gynecology to revise their curricula for training of medical students in child survival interventions.
- Assisting national Higher Institutes of Nursing (HIN) and Secondary Technical Schools of Nursing to revise their curriculum for training registered nurses and nursing students in child survival interventions.
- Assisting the MOH Department of Manpower Development and Training to include child survival materials as part of preservice training for PHC physicians.

In January 1993, the development of new undergraduate training for medical students and nurses was initiated. A steering committee was established and a manual, *Child Survival: A Rational Approach*, was drafted as a comprehensive reference for teaching undergraduate students in departments of community medicine, pediatrics, and obstetrics. At the end of 1994,

revisions to the manual and a program of workshops for faculty to revise the medical curriculum and integrate the contents of the manual were proposed. In line with CSP's integrated training strategy, the existing medical manual required further evolution to focus on "competencies" that doctors would require on the job. Therefore, a job analysis was carried out and a process of remodeling of existing medical content into an educational framework was initiated. A trial module on nutrition was drafted, and revisions were initiated to integrate new maternal and child health initiatives such as integrated case management of the sick child, mother-baby package, and safe motherhood.

During 1995–96, CSP continued training teachers in more than 150 Secondary Technical Nursing Schools for instruction of nursing students in the competencies required for the EPI and ARI programs. The ARI component arranged with the MOH Directorate of Training to modify the standard curriculum of these schools to include specific instruction in ARI standard case management. The curriculum had already been modified to provide appropriate training in the EPI program.

A joint committee of representatives of the Ministry of Health and of university medical faculties has been established to oversee efforts to modify and improve undergraduate medical school curricula and teaching of health interventions for child survival and safe motherhood. A comprehensive manual was published and distributed. Arrangements have been made with several universities to provide practical training for medical school undergraduates in primary health care programs in Model Clinics. A process has been developed for conversion to a competency-based curriculum for use during practical learning periods (4th–6th years, internship, preservice).

The process and nature of medical education poses significant challenges in implementing competency-based methodology, especially because of class sizes and the extensive use of "knowledge-transfer" methods of instruction. Initial development of a "knowledge-based" medical curriculum did not place equal emphasis on educational methodology or on development of job-related competencies and skills. To correct this, competency-based methodology was introduced; however, it was difficult for medical faculty to embrace competency-based methodology fully, because of entrenched methods of medical instruction.

MASS MEDIA AND HEALTH EDUCATION

Improvement of the health of women and children requires changes in behavior. The CSP has recognized that information, education, and communication (IEC) are important activities to achieve any health intervention objectives. The best facilities and services will be under-utilized if people are inadequately informed or are not encouraged to take appropriate action to improve family health. To achieve sustainable improvements in awareness and changes in attitudes and behavior, CSP has included efforts on two fronts: mass media to reach out to communities all over Egypt, supported by enhancing the communication skills of health personnel at all levels.

Mass media has been a crucial component for the dissemination of child survival and safe motherhood messages. Each CSP component developed print materials for use by health care practitioners, health educators, and clients. These component-specific materials included posters, leaflets, and newsletters. Inserts for distribution in popular women's magazines were developed in areas such as ARI, breastfeeding, and immunization. Each component also made use of TV and radio talk-shows as a forum for health messages. During the first eight years of the CSP, 15 TV spots were produced by the MOH for the Project. The majority of these spots dealt with immunization and contributed to the success of the EPI program.

However, despite these efforts, the Project recognized that mass media was under-utilized. The MOH did not have the capacity to produce the volume of television and radio spots necessary to adequately address Project priorities. The existing production mechanism did not allow for strategically designed campaigns, adequate expert review, or focus group testing of messages.

In 1994, with technical assistance from Clark Atlanta University, the Child Survival Project established a Mass Media/Communications Unit to:

- Design and implement an effective mass media campaign based on research findings and project priorities.
- Develop materials that integrated the health messages of all three technical components for use in the field by the health education officers.
- Develop and review RFPs, select agencies/individuals to undertake production or research as needed, and monitor the activities of these parties.

The aim was to design a unified campaign that addressed the communications needs of each of the three major components. From the outset, it was essential to establish consensus regarding the approach, the priority messages, and the target audience. These elements were clearly outlined in the communication strategy document that was approved, and agreement greatly facilitated decision-making throughout the implementation phase of the campaign.

A social marketing approach was adopted in the development of communication materials. This approach applies marketing principles to solving social problems and encouraging changes in behavior, not simply imparting information. Toward this end, an analysis of the current attitudes, knowledge, and practices that serve as barriers to the adoption of desired health practices was undertaken.

The communications strategy developed was based upon the CSP Knowledge, Attitude, and Practice (KAP) study, the Maternal Mortality study, and the Egypt Demographic Health Survey, as well as a number of health ethnographies. The strategy outlined key and subsidiary messages, and identified areas of resistance as well as the demographic and psychographic make-up of the target audiences, as shown in Figure 5.2. Messages designed to overcome these resistances were created.

A second key strategy was to develop the IEC skills of health education officers and other communication personnel that form district IEC teams, in order to reinforce mass media messages, improve face-to-face communication, and provide consistency of messages at health facilities and in communities. The objective of this strategy was to coordinate with the CSP mass media strategy through community showings of CSP mass media products, display and use of print materials, distribution of CSP materials to all health education officers through IEC workshops, and linking the mass media campaign strategy with IEC activities at the local level. Priority was given to the most vulnerable groups.

As the primary target audience is typically characterized by low literacy, but high television viewing, the CSP 1995–96 Mass Media Campaign focused on TV and radio spots, as well as two 15-minute video programs for use on television and by health educators for community screenings. Priority was given to those messages which impact most directly upon the reduction of infant and maternal mortality. Messages and materials were tested through focus groups with women and dayas. Funding for the social marketing campaign was provided by USAID through the Ministry of Health. CAU administered the campaign. PubliGraphics, a private advertising agency, developed the television and radio spots and the print materials. Support Center International was responsible for the majority of the focus group testing and Social Planning Analysis and Administrative Consultants (SPAAC) conducted the KAP studies. Expatriate technical assistance totaled approximately 15 person-months. A national media expert was employed for one year.

Figure 5.2 Target Audience of 1995–1996 CSP Mass Media Campaign

	Primary Target Audience: Married Women
Demographic:	Married women of reproductive age (15–45), primarily but not exclusively from rural communities.
Socio-Economic:	C, D, and E classes.
Psychographic:	Influenced by husbands, mothers, neighbors. Taught to serve needs of family without complaint or delay. Ashamed to call attention to difficulties—accepting of discomfort and pain.
Secondary Target Audience: Husbands of these women, as well as other relatives and neighbors	
	Although they are not the sole target of specific messages, they have been portrayed due to their significant role in influencing behavior.

The mass media unit produced 12 TV spots and 11 radio spots for broadcast in 1995–96. Their messages are summarized in Figure 5.3. To enhance recall a number of creative elements were developed to unify the campaign:

- Dramatic style.
- Tone, which is positive and helpful.
- Overarching theme, which creates a sense of responsibility and confidence within the family.
- Voice of the narrator.
- Musical theme.
- Rhyming call-to-action tag line.

Each spot directly addressed an identified resistance for the specific message. These resistances are expressed by a variety of influential family members or neighbors in the form of helpful advice. The narrator clearly outlines the desired health practice and encourages immediate action. The call-to-action tag line common to each spot is: *"Their lives are in your hands. Don't take chances. Take them to a doctor, clinic, or hospital."*

The spots were broadcast nationally between 15 December 1995 and 15 January 1996 in prime time. Airing resumed in March (following Ramadan) and continued until August. The 11 radio spots were aired on major radio stations July–August 1996.

The most serious constraint to the success of the social marketing campaign has been lack of adequate broadcasting time. Ideally, to ensure strong audience-reach, a newly-released spot should be broadcast at least four to five times a day for the first month, followed by two to three prime time airings daily for the next six to nine months.

To address the issue of hemorrhage—a leading cause of maternal mortality —a 15-minute video drama, entitled *Aziza Had a Boy*, was produced and broadcast nationally. The story, based on actual scenarios reported in the Maternal Mortality Study, is in keeping with that of the TV spots, but includes secondary messages that expand on the theme: women who give birth frequently and without spacing between births are at greater risk of hemorrhaging

Figure 5.3 TV and Radio Spots—Key Messages

Spot Number	
	ARI
1	If your child has a cough, fast breathing, and/or chest indrawing he/she may have pneumonia.
2	If your child has a cold or cough, provide appropriate home care and take him/her to a doctor if signs of pneumonia develop.
3	(TV only) If your doctor has prescribed antibiotics for your child, it is important that you follow your doctor's advice, mix it correctly, and complete the course of antibiotic even if your child feels better.
	EPI
4	Begin immunizing your child from birth and complete the course, even if the baby is slightly ill.
5	If you are pregnant, it is critical for you and your baby's health that you receive a TT vaccination. It will not harm you or your baby in any way.
	CS/MCH
6	If you are pregnant it is important for you to have routine check-ups, even if you are feeling fine.
7	If you are feeling tired and weak, or if you are experiencing swelling, dizziness, or pain during pregnancy, you may be suffering from anemia or toxemia.
8	Bleeding during pregnancy is dangerous for you and your baby. If bleeding occurs go immediately to a hospital.
9	If there are problems during delivery and the mother is in active labor for a day and a night, or if contractions are continuous for two hours, or the daya feels that the labor is difficult/unusual, the mother must be taken to a hospital immediately.
10	If there are any problems after delivery, and the mother has heavy bleeding, fever, or severe pain, she must be taken to the hospital immediately.
11	Observe your newborn closely and if you detect any change in color, temperature, or feeding schedule he/she may be seriously ill.
12	Begin breastfeeding your baby within the first half-hour of birth and continue to breastfeed exclusively for six months.

during pregnancy, and receiving immediate, quality medical care is often difficult. A variety of obstacles may stand in the way, i.e. lack of knowledge, transportation, or an inadequate blood supply.

The drama was tested with six focus groups of women representative of the target audience and the report indicated that both key and secondary messages were clearly understood. Three hundred copies of the program were distributed to health education offices as well as to 11 MOH video vans. Health educators were trained to use the video.

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ARI is a leading cause of death among infants and children, but because the danger signs are difficult for parents to distinguish from a common cold or flu, families need to be made aware of the danger signs and motivated to take immediate action. A 15-minute video on ARI was produced, combining three actual ARI cases of differing severity with docu-drama segments, clarifying the appropriate care for children with a common cold and pneumonia. The video, entitled *Caring for Your Child: Common Cold and Pneumonia,* was designed primarily for use by health educators in the field. Three hundred copies were distributed to health education offices. Health educators were trained to use the video with community groups.

In cooperation with the Health Education Unit, the Mass Media/Communications Unit developed a flip-chart for use by MOH clinic nurses in counseling mothers. Nurses are an important target of CSP communications because they are frequently asked questions by mothers and could offer advice. The flip-chart can also be used by health educators to support them in their counseling work. Health educators are an important target of CSP communications because their role is to motivate mothers, fathers, and other community influentials to adopt desired health practices.

The flip-chart is primarily pictorial with the main information points printed on one side (in Arabic) as reminders for nurses and health educators. It integrates messages for all three CSP components and follows a life-cycle approach from pregnancy through early childhood. Nurses and health educators can refer to those pages which are most appropriate for the woman they are counseling. Initially 1000 copies were printed and distributed.

As the target audience for CSP messages is characterized by low literacy, the campaign developed only three posters and charts, primarily to replace posters/charts which were outdated, and serve as reminders to nurses. A pictorial immunization schedule chart for mothers and caregivers was designed, approved by expert review, and tested with mothers. Mothers suggested that the chart be used on the official birth certificate as it clearly shows the number and type of vaccines that are to be given, and at what stage of development. A pictorial immunization reminder chart for nurses that shows how each immunization is to be administered was also designed and approved by expert review. A pictorial chart illustrating exclusive breastfeeding followed by the introduction of appropriate foods was designed, approved by expert review, and tested with mothers.

During 1995, a new health education officer curriculum, consisting of eight modules containing 20 session plans, was developed for field-testing. The curriculum covers all the communication skills necessary to implement IEC activities effectively at the local level and has been translated into Arabic and further revised as a result of field testing.

INTEGRATED TRAINING

The CSP emphasized the concept of coordination and integration of training activities from the start, establishing a single training unit in 1989 headed by a Training Coordinator.

The CSP was designed to have four vertical programs: EPI, ARI, CS/MCH, and Nutrition. In 1990, the number of CSP long-term advisors (LTAs) was reduced from six to two. The training LTA position was lost. Each vertical program director assigned a staff member to coordinate the component's training activities, with no coordination of activities or schedules between the vertical programs.

The CSP mid-term evaluation in 1992 recommended that services and training be integrated. The Service Standards developed for use at the Model Clinics were one approach taken to promote a shift from vertical to integrated service interventions, with an emphasis on the quality of services being provided to the sick child.

The mid-term evaluation also noted the need for further improvement in health worker performance and need to strengthen the training using competency-based training (CBT) methodology which is defined as a set of educational principles and practices in which the focus is on the development of essential job-related skills, knowledge, and attitudes with an aim of preparing learners to perform their jobs competently.

With the conversion to competency-based curricula in 1994, the need to coordinate training materials development and training activities again became obvious and the concept of establishing an Integrated Training Unit (ITU) evolved in August 1995. The principle of the ITU was approved by the CSP Executive Director, and objectives, a job description for the ITU Director, and a work plan were drafted by the CSP competency-based training consultant. The purpose of the ITU was to assist in development, integration, institutionalization, and decentralized use of competency-based curricula and materials for EPI, ARI, and CS/MCH, and support IEC strategies that are technically relevant, correct, up-to-date, and "user friendly".

One potential constraint to the establishment of a functional ITU was administrative concerns about losing control of program-specific training activities. These concerns were minimized by discussion with all program directors and the CSP Executive Board members regarding the objectives of the ITU and potential benefits to all programs.

LESSONS LEARNED

- Working closely with program directors, content experts associated with the Project, and with those whom the communications aim to influence was essential to the success of the mass media campaign. The value of focus group testing all materials with representatives of the target audience cannot be overestimated. Although focus group testing is time-consuming, input from the focus groups contributed significantly to the quality of the materials which were developed. The feedback from focus groups on the TV and radio spots was particularly useful. Testing early in development with a video story-board or animatic allowed the unit to make significant changes without greatly increasing costs. The target audience directly contributed to the content, pacing, word usage, and overall creative style.
- To develop quality materials, it is important to use the best talent available, particularly in a media market with the audience sophistication of viewers in Egypt. It is equally important to have a small core team working on a daily basis with the creative producers of the materials to ensure that the messages are accurate and in keeping with the communications objectives of the Project.
- Competency-based methodology has provided the framework for training inputs which are closely linked to the job requirements of communication personnel and which develop appropriate skills. Field testing of the curriculum has also provided valuable feedback to improve the materials for future IEC workshops.
- The reasons for disbanding the original position of CSP Training Coordinator need to be thoroughly explored so as to avoid a similar fate for the ITU Director. Means of minimizing potential conflicts between programs, their training activities, and access to training resources will require careful scrutiny. For the ITU to function effectively, staffing must be at full strength, staff must master the competencies and skills required to operate the unit, and staff turn-over must be minimized. The scope and magnitude of training activities requires these activities to be carefully integrated and coordinated if quality control of training is to be maintained.

FUTURE DIRECTIONS

Although the 1995–96 mass media campaign made a strong start, there is a continuing need for MCH messages. Unlike family planning or oral rehydration programs, MCH does not have a single core message or target audience. Priority will need to be given to key preventive or quality health care messages that were beyond the scope of this campaign, covering key areas including: maternal care, neonatal care, and infant feeding practices. As the greatest need will remain among the lower socio-economic classes, these should remain the primary target audience. TT vaccination messages for all women also need emphasis. Appropriate printed materials for home use—fliers and brochures—will be needed to help mothers remember recommended health practices.

Improving coordination with different agencies working in IEC will be important for effective implementation, and partnerships with the state information service and other agencies for strategy development will be necessary. Training and curriculum materials may need to be revised to incorporate new priorities and strategies. Competency-based methodology was proven to be effective for development of skills and should be kept as the training methodology in the future.

The decentralized Health Information System has provided the MOH with new and much improved methods of dealing with information. Its development was administered and executed under the supervision of the CSP in coordination with the Documentation and Information Center of the MOH. To ensure effective HIS support for decentralized health services management in the future, continued support will be required at the district level. Further revision and integration of the comprehensive national HIS will also be necessary to support all levels, and to further rationalize the system.

The successful CSP adaptation to an integrated training approach based on a competency-based methodology will go a long way toward ensuring that health professionals trained and supported by the Project master the job-specific competencies and skills required for improving the survival of children.

Modification in teaching at the university level is a long-term process that will require continuing cooperation between the MOH and medical faculties for several years. The MOH intends to continue support for this collaboration during 1996–2000. The target is to train university staff as trainers to help install modified curricula in the medical faculties and the Higher Institutes of Nursing—including medical faculties for community medicine, pediatrics, and obstetrics and gynecology—and to ensure that graduate medical students are provided with practical skills and knowledge for primary and preventive health care during their internships. A related target is practical orientation for 4th–6th year medical students in primary health care by a course taken within a Model Clinic training center.

The medical curriculum development process needs to go through four stages in its evolution to significantly address maternal and child health needs in the country:

- Updating medical content, integrating new maternal and child health initiatives, and orienting and developing consensus among senior faculty to the updated content.
- Integration of competency-based methodology for the development of essential competencies and skills of medical students during 4th–6th years of study, internships, and preservice.
- Faculty development in competency-based methodology; field testing, revision, and integration of new competency-based curriculum in medical schools. Proposed modules for the curriculum include: Safe Motherhood Initiatives; Providing Antenatal Care; Managing Labor and Delivery; Providing Postnatal Care; Reproductive Health; Providing Immunization (EPI); Diagnosing, Treating, and Preventing ARI, Diarrheal

Diseases, and Malnutrition; Preventing Childhood Accidents; Working Effectively with the Health Team; and Integrated Case Management.

- Integration of Service Standards developed for Model Clinics to improve performance of physicians on-the-job by using "performance certification logs," and institutionalizing the concept of Model Clinics within university hospitals.

6

ORGANIZATION AND ADMINISTRATIVE, TECHNICAL, AND FINANCIAL SUPPORT

BACKGROUND

The Child Survival Project (CSP) continued a succession of USAID bilateral public health projects with the Ministry of Health, including the Urban Health Project, the Rural Health Project, and the National Control of Diarrheal Diseases Project. It continued the work of previous projects in strengthening the physical PHC infrastructure of the MOH, had available to it experienced Egyptian staff within the MOH, and could incorporate earlier "lessons learned" in the CSP design.

Three key factors contributed to CSP structure and operation.

First, the Project design reflected the emphasis of Child Survival programs during the mid-1980s, focusing on specific technical interventions and support mechanisms. It incorporated the pre-existing national EPI; initiated the ARI effort based on a case management approach; and promoted child spacing as the child survival intervention interfacing with family planning. It aimed to bring together well-established national programs with near universal reach and entirely new programs. The focus on technical interventions and differences in the stage of development of different programs were to affect the structure of the Project significantly.

Second, previous projects had already developed a cadre of experienced managers within the MOH who held well-developed ideas about the organization and management of the new Child Survival Project. This experience, along with the delayed start of inputs from Clark Atlanta University (CAU), the prime technical assistance contractor, contributed to the strong national direction and control of the CSP.

The third factor contributing to structure and operation was that the Project was designed not to deliver services but to strengthen MOH capability to do so, through the provision of technical assistance for planning and management, training, and procurement of commodities. As the CSP progressed, increasing emphasis was placed on developing sustainability and decentralization to governorate and district levels.

The interplay of these factors led to distinct organizational changes and phases during the history of the CSP, as shown in Figure 6.1.

The 1989 reorganization by the Ministry and USAID, which moved from the original idea of an integrated design to a more vertical design, was felt to be more appropriate to starting the new ARI initiative and to the differing levels of development of the various technical areas. The recommendations of the mid-term evaluation were consistent with the global shift in thinking of the early 1990s, from fostering vertical programs to emphasis on integration of services and sustainability.

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Figure 6.1 CSP Organizational Chronology

1985–88	Prime contractor selection. CSP starts in 1986 as a separate secretariat established within the (then) MOH. Project is headed by a single Executive Director over 14 components. Project planned to start in five governorates.
1989–90	Prime Contractor, CAU, starts January 1989 and fields initial two of six planned staff in the first quarter of 1989. Slow progress leads to reorganization of overall CSP structure into four largely vertical technical programs, each headed by an Executive Director reporting technically to an undersecretary within the MOH, with an overall Project Executive Director responsible for administrative matters and reporting to a First Undersecretary within the MOH. The Prime Contract is revised to cut long-term advisor positions from six to two. Significant Project implementation starts by mid-1990.
1991–92	Technical programs consolidate their organizational structures and staff, as stable growth of activities develops. Support activities develop but are not project-wide. CAU and MOH agree to a unified administrative structure within the secretariat. As of mid-1992, CAU has a permanent two-person long-term advisor team. Mid-term evaluation finds sound technical programs, and recommends more attention to greater decentralization and closer integration with MOH support departments. Ministry of Health ends Nutrition component as a separate technical area, integrating breastfeeding and weaning into the Child Spacing component. In recognition of its neonatal and maternal care activities, the CS component is officially broadened to include MCH.
1993–96	Along with rapid growth in each technical area, cross-cutting support activities are developed as the multiple elements of a coordinated sustainability strategy. Programs show increasing impact.

Although the vertical program structure was less favorable to the development of cross-cutting activities, as the advantages of these activities became apparent—such as in a coordinated social marketing mass media campaign or the introduction of an HIS—they obtained more project-wide support.

The Project benefited from the stability in leadership among the program Executive Directors appointed in October 1989 and in the CAU team after mid-1992. This was important given the fairly frequent changes in MOH undersecretaries and personnel within the USAID/Office of Health.

ADMINISTRATIVE ORGANIZATION

RELATIONSHIP OF CSP COMPONENTS TO THE CENTRAL MOH STRUCTURE

After the reorganization in late 1989, the CSP administrative structure remained largely unchanged. The relationship with the various levels of the MOH reflected the reorganized Project structure and is shown in Figure 6.2. Each of the original four (later three) Executive Directors reported to an undersecretary in the central Ministry of Health on technical program matters. The Project Executive Director reported to the First Undersecretary, designated by the Minister of Health to have overall responsibility for the Project. The Executive Directors were re-appointed on an annual basis by the Minister of Health.

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Table 6.9 CAU Invoiced Expenditures, 1989–96, in US $

Year	Total	Offshore Procurement
1989	764,586	0
1990	1,268,158	858,084
1991	1,609,321	4,593,290
1992	1,979,546	2,230,413
1993	2,385,168	3,284,232
1994	2,855,297	8,407,550
1995	2,811,244	1,506,111
1996 (est.)	2,426,680	2,320,320
Total	16,100,000	23,200,000

PLANNING AND MONITORING

After the first year of the Project, CAU and the MOH agreed to a unitary Project annual planning process beginning about November of each year and resulting in the annual work plan required by USAID each January. These annual work plans provided projections of activities, technical assistance needs, staffing increases or changes, and procurement needs which were then used in monitoring. The CAU Chief of Party maintained a quarterly matrix for CSP activities to identify implementation activities, responsible parties, deadlines, and status. This was then tied to a quarterly progress report to track the status of each major activity.

Each Executive Director maintained his/her own monitoring system for program activities such as training schedules and research studies. Smaller scale plans were developed for specific activities of subprograms such as the neonatal care system or measles control.

Considerable effort was devoted to trying to develop computerized management systems, but it was necessary to seek a balance between the time and effort needed to maintain a system, frequent changes in schedules due to external factors, management styles, and practicality.

Similarly, much early effort was focused on project-wide coordination, through monthly review meetings with the Executive Directors and the COP. In latter years, networking by the Project Executive Director and the COP, and meetings of the Executive Board on an "as needed" basis, became the accepted cross-project management mode and generally proved functional.

EVALUATION

Systematic in-house evaluation has been carried out in the CSP as a management tool to ensure proper implementation, and to provide data to appraise accomplishments, measure impact, and serve as a baseline for future efforts. Executive Directors were responsible for monitoring and evaluation of their programs in accordance with the annual work plans. An evaluation office with a long-term advisor was established in mid-1991 to assist the

Table 6.8 GOE Contribution in £E, 1989–96

Item	Cum. to 1988	1989	1990	1991	1992	1993	1994	1995	1996*	Cum. to Date
Incentives		99,568	165,917	353,314	586,845	539,377	666,983	1,179,140	558,144	4,149,288
Recurrent & Research		22,242	58,797	210,886	1,231,713	7,610,397	9,183,650	10,042,430	8,180,070	36,540,185
Non-Residential Buildings					196,937	221,340	215,137	500,759	499,538	1,633,711
Transport				50,000	110,000				564,660	724,660
Equipment & Tools								1,013,731	1,051,142	2,064,873
Office Supplies & Furniture									208,575	208,575
Customs & Insurance								30,014	72,002	102,016
Misc.	153,637									153,636
Total	**153,637**	**121,810**	**224,714**	**614,200**	**2,125,495**	**8,371,114**	**10,065,770**	**12,766,074**	**11,134,131**	**45,576,944**

*Through June 1996

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distributed within Egypt, and in the case of the ARI Newsletter, internationally. The TV spots produced as part of the integrated Child Survival mass media campaign reached most television viewers in Egypt during prime time. More than 25 articles on applied research studies and program accomplishments were published in international journals. Another 10 are currently being reviewed.

A series of integrated training manuals and modules using competency-based training methodology were developed for model clinics, IEC training for health information officers, training for decentralized planning and budgeting, and revision of the medical school curriculum. All research and publications are listed in Annex 6.

Table 6.7 CSP/USAID and GOE Funded Expenditures, 1989–96

US $	Obligated	Cum. Exp. till Dec. 1995	Projected Exp. in 1996
USAID FUNDS	**67,940,999**	**59,251,227**	**8,689,772**
Technical Assistance	**19,650,000**	**15,713,915**	**3,936,085**
CAU Contract	16,100,000	13,433,979	2,666,021
PASA	2,175,647	1,421,032	754,615
Short/Long-Term Buy-in	858,904	858,904	0
Unearmarked Balance	515,449	—	515,449
Training	**8,076,000**	**6,785,878**	**1,290,122**
Out-of-Country	2,298,931	2,222,558	76,373
In-Country (PILs 14–17/20/23)	5,777,069	4,563,320	1,213,749
Commodities	**36,650,000**	**33,859,152**	**2,790,848**
Offshore	26,573,546	24,266,387	2,307,159
Local (PILs 4/6/9/ 13/18/22/25)	10,076,454	9,592,765	483,689
Other Support*	**3,149,999**	**2,674,366**	**475,633**
Audit & Evaluation	**415,000**	**217,916**	**197,084**
GOE CASH CONTRIBUTION**	**13,689,373**	**10,205,367**	**3,468,954**
TOTAL (USAID + GOE)	**81,630,372**	**69,471,646**	**12,158,726**

* Secretariat Support, Studies, & Health Promotion (PILs 4/11/12/21)
**Excludes vaccine purchases.

Table 6.6 Commodities Procurement in US$

Program	USAID-Funded		GOE-Funded	Total in US$
	Offshore	*Local*		
ARI	4,252,415	332,477	2,805,132	7,390,024
ARI/Bilbeis Study	506,745	—	—	506,745
ARI/VACSERA	594,057	—	—	594,057
EPI	1,964,501	5,506,214	7,025,438	14,496,153
EPI/VACSERA	590,717	—	—	590,717
EPI/Vaccines*	12,000,000	—	40,059,000	52,059,000
CS/MCH	4,138,432	3,459,677	773,667	8,371,776
Administration/ Project-Wide	1,733,423	568,400	131,791	2,433,614
GDDDC	11,331	59,102	39,750	110,184
Total	25,791,621	9,925,870	50,834,778	86,552,270

*In addition to the GOE cash contribution to the Project.

FINANCES

Overall funding reached $86.5 million, including that provided by the GOE direct commitment to the Project and all USAID obligations. In addition, the GOE provided vaccines/sera costing about $40 million during the CSP's last two years. Expenditures are summarized by area and year in Table 6.7. More detailed breakdowns for the GOE contribution and CAU contracts are provided in Tables 6.8 and 6.9.

A financial Management Review done by DATEX, Inc., Washington, DC., stated that "The procedures for the procurement of expendable and non-expendable supplies and equipment are considered adequate. During the physical testing of inventories at the MOHP warehouse and the field locations which were visited, we found no discrepancies between the physical count and the reported quantities in the inventory records. Check disbursement procedures and management of petty cash was reviewed and found to have adequate safeguards and internal controls." [7]

PUBLICATIONS, REPORTS, AND CONFERENCES

The CSP produced numerous reports, publications, studies, newsletters, plans, training manuals, software, posters, and other health communication materials, videos, and mass media spots. Major studies such as the *National Maternal Mortality Study* and reports such as *Ten Years of EPI* were distributed to an international audience. ARI and EPI newsletters, which were intended to help provide continuing education for physicians, were widely

7DATEX, Inc., Washington.

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Executive Directors and coordinate monitoring and evaluation of project-wide and cross-cutting activities.

Regular external evaluations and program reviews were also carried out in addition to in-house efforts. The mid-term evaluation by a team of consultants appointed by the Ministry of Health and USAID in November 1992, produced recommendations that were instrumental in setting project-wide priorities for the remaining years of the CSP. WHO and UNICEF assisted in the program review and evaluation process, especially for the activities of the EPI cold chain, disease surveillance, polio eradication program, and neonatal tetanus elimination program. A final assessment of the CSP carried out by a team appointed by USAID in April–May 1996 examined lessons learned and actions needed to ensure sustainability of the interventions introduced during the life of the Project. CSP Performance Indicators from the Project Paper and its amendments were reported on semi-annually by the evaluation office. See Annex 1 for the Project's Logical Framework and Annex 2 for Measurable Indicators.

Baseline and impact data came from broader studies including the 1988, 1992, and 1996 Demographic Health Surveys and the 1991 PapChild study and from Project-generated studies:

- 1992 and 1994 KAP studies as a baseline for the mass media campaign, and the 1996 KAP planned for evaluation of the mass media campaign.
- The 1991–92 Menoufia study to measure the impact of the National Control of Diarrheal Diseases Project and as a baseline for the ARI Control Program.
- The National Maternal Mortality Study of 1992–93, to serve as a baseline for safe motherhood efforts.

More than 30 reviews of programs or parts of programs were conducted over the life of the Project. These included small-scale research studies by Project staff or in cooperation with Egyptian universities, in-house evaluations, and evaluations by external teams. A full listing appears in Annex 7.

Demographic and social trends including education of girls to secondary level, greater use of contraceptives and child spacing, later marriages and increased age of mother at first birth, and medicalization of delivery are all taking place fairly rapidly in Egypt and contribute to the overall reduction in neonatal, infant, and child mortality; these need to be kept in mind when measuring Project impact.

Final impact evaluations have included a two-governorate study, the 1996 Egypt Demographic Health Survey, and a synthesis of mortality data from all major studies of the last decade. The impact of the EPI is most easily documented and attributable to specific interventions. The specific impact of the ARI Control Program is more difficult to measure because cause of death cannot be clearly deduced from the vital statistics, and because the full impact of the program would only have been apparent after 1995. While the CS/MCH training efforts have improved delivery practices, actual measurement of impact has been difficult. The neonatal care system has established outreach to about 15–20 percent of the low birthweight neonates at risk in districts where it is installed, but the program is too young for impact in terms of the reduction in neonatal death rates to be measured.

LESSONS LEARNED AND OBSERVED

The Child Survival Project was large and its complexity reflected the original design and the revisions and structural decisions made by USAID, the Ministry of Health, and the senior Project leadership. Nonetheless, by 1992 it was functioning productively and the following lessons can be drawn from the CSP experience.

ADMINISTRATION

- The Project benefited from a unitary administrative structure for the Contractor and MOH administrative operations. This minimized personnel problems and reduced administrative decisions likely to be at cross purposes with one another.
- A practical management information system that strikes a balance between time required to maintain the system and the actual level of detail needed to move activities forward—and which is acceptable to key managers—is necessary.
- Salary issues in a multi-tiered personnel system inevitably cause tensions. Early general agreement among key Project leaders and their commitment to applying the agreements can save much time and energy.
- Personnel handbooks, standard operating procedures and contracts, and a good financial accounting system eliminate a great many problems.
- Paying close attention to the fiscal cycle of the banker can help prevent cash flow problems which slow Project operations.
- Early establishment of editorial guidelines and standards, as well as mechanisms for document cataloguing and control, saves a great deal of time and energy in report production.
- Different organizational styles of work should be recognized as reasonable based on their effectiveness.

IMPLEMENTATION WITHIN A COMPLEX MILIEU

- When faced with exogenous structural problems such as the misfit between particular Project programs and the existing structures within the MOH, flexibility, planning, and well-based arguments for change may prove effective.
- Building effective ties to the MOH is essential to avoid obstacles in program implementation but involves developing constituencies and capabilities to interact effectively.
- A continual problem-solving approach toward any given goal is critical to effectively overcome obstacles to program development and implementation within an organization as complex and many-layered as the CSP and MOH. A "one- or two-time effort" is not enough.
- Stability in Project leadership and staff with institutional memory enhance the chances for effective operations, especially when key external stakeholders change relatively often.
- Attempting cross-cutting activities among vertical programs is difficult but this approach can be more efficient and provide better results than carrying out the same activities separately within each program.

DATA AND INFORMATION

- Sufficient attention should be devoted to a system to collect and process data effectively to maximize program impact.
- While more data was collected than was effectively utilized by the CSP, during the life of the Project the ability to use and acceptance of the use of data as information for action increased. The well-developed use of data in the global EPI effort proved effective when

replicated by the ARI program, and provided a basis for supervisory management tools essential to decentralization and planning.

CONSULTANTS

- Repeat consultancies increase efficiency considerably and motivate Project staff to take action on trip recommendations between consultant visits.
- Management of consultancies within the field is often essential to maintain focus, especially in less well-defined consultancies.
- High-level consultancies by leading authorities can sometimes get issues or decisions out of a dead-end or break log-jams.
- Study consultants who combine research or epidemiological orientations with solid understanding of program issues and implementation requirements or priorities are very valuable but also scarce.

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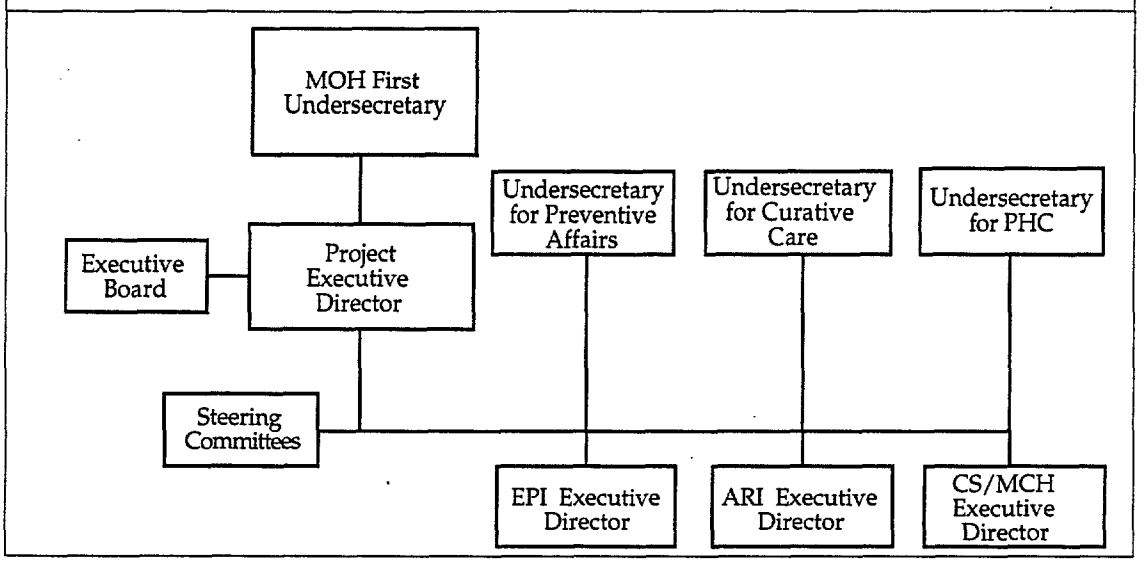
Figure 6.2 MOH–CSP Organizational Relationship



Each of the technical programs had a steering committee of senior MOH officials and university professors or prominent medical professionals. There was no formal coordinating body within the Ministry, but the First Undersecretary, the Executive Directors, and the Chief of Party (COP) constituted an Executive Board for overall policy decisions in the later years of the Project.

The EPI Executive Director reports to the Undersecretary for Preventive Affairs. At the central MOH level it functioned closely with the Directorate for Communicable Disease Control in the surveillance aspects of its work; with VACSERA in vaccine supply, cold chain operations, and polio virology; and increasingly with the Central MOH Laboratory on hepatitis and polio virology. The Executive Director appointed in 1989, Dr. Esmat Mansour, remained as head of the EPI until shortly after her appointment as Director General of MCH within the MOH and CSP Executive Director in 1994. She was succeeded by Dr. Ahmed Darwish, with a staff complement of about 34.

The ARI unit was initiated from within the Project with its Executive Director, Dr. Nagwa Khallaf, reporting to the Undersecretary for Curative Care. During the period 1990–92, the ARI Executive Director developed an organizational unit and staff for a fully operational, comprehensive national program in ARI. The relationship to the central MOH was somewhat complicated by the spread of activities within the program, which focused mainly on the application of standard case management by PHC staff but which also depended on first referral hospital services for severe and very severe pneumonia. This meant that there was no one Directorate within the Ministry to serve as a logical counterpart. This issue was first addressed in 1993 and ultimately resolved by Ministerial decree to create a Directorate for ARI Control within the PHC division of the MOH. The ARI unit grew to a staff of 20 by 1995.

The Child Spacing/Maternal and Child Health program developed a wide range of activities, which raised problems similar to those encountered by ARI in terms of relations to the central MOH structure. The Executive Director reported initially to the Undersecretary for Family Planning, and then to the Undersecretaries for Family Planning, Curative, and Primary Health Care, although most of the program's activities were developed relatively autonomously. The unit had a staff of 31 in 1995.

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RELATIONSHIP OF CSP TO MOH GOVERNORATE AND DISTRICT OFFICES

Implementation of the Child Survival Project nationally required close collaboration with governorate, district, and service delivery unit levels. Initially, each governorate was asked to establish a CSP Steering Committee to coordinate, advise, and report on the program at the local level. These did not function to any significant extent, however, even after an attempt was made to revitalize them following the mid-term evaluation, being perceived locally as redundant and foreign to the existing health structure of the governorates.

The CSP worked closely with the Undersecretary or Director General of Health and his or her staff in each governorate health directorate, and the degree and quality of Project implementation within a governorate was dependent on their level of commitment, initiative, and drive. Cross-cutting activities were targeted at various governorate-level offices, in particular the health information centers, which were established and computerized by the HIS program, and the training both of health education officers and of governorate staff responsible for planning and budgeting.

The CSP followed earlier projects in having counterpart coordinators for ARI, EPI, and CS/MCH within each governorate health directorate. The EPI coordinator was usually the Head of the Preventive Health Care Department; the CS/MCH coordinator was the officer in charge of MCH programs; and a physician from the PHC or MCH office was assigned as the ARI coordinator. In some cases the same person served as coordinator for both CS/MCH and ARI. The coordinators played a key role in assisting with the organization of training, research, monitoring and supervision, planning, distribution of supplies and equipment, and reporting.

At the district level the CSP conducted considerable training in Project activities for district health officers and members of the DHO staff, such as sanitarians. In some activities—such as the neonatal care system and the clinic management improvement program—there was a more direct link with individual health delivery units for program implementation.

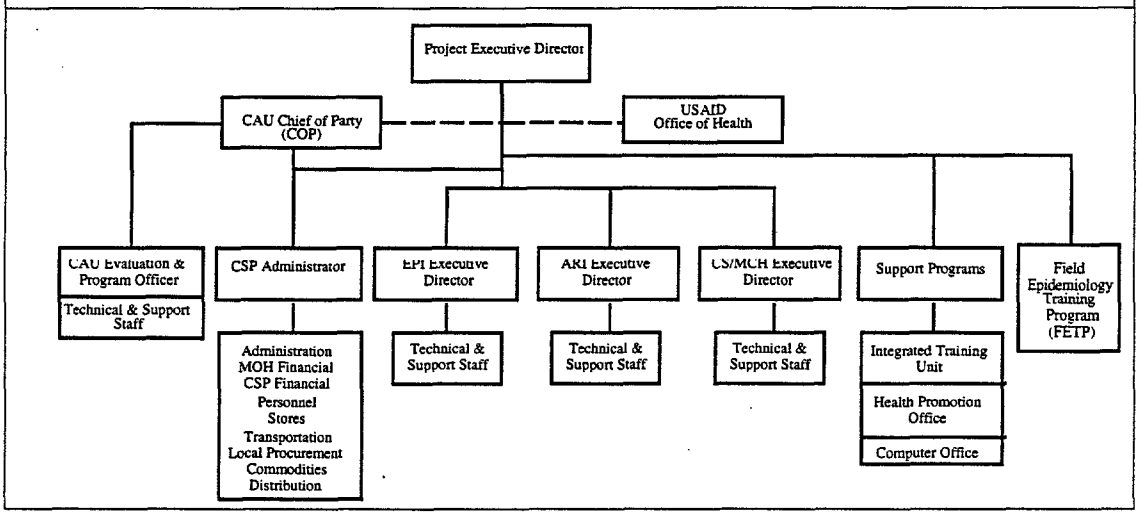
INTERNAL CSP ORGANIZATION

The structure is presented in Figure 6.3 and consists of the Office of the Project Executive Director and the various associated administrative and support offices under her, the technical programs (which are discussed in more detail in their respective chapters), and the Cairo Office of Clark Atlanta University (CAU) as the prime technical assistance contractor.

The Project had been staffed by personnel on secondment from the MOH, staff employed under the MOH–USAID PILs, and staff employed through the CAU contract, some of whom report to the Executive Directors. Initial tensions inherent in this structure because of the three different salary scales involved have largely been resolved. A unified administrative unit under the Project Administrator, employed by CAU and reporting to the COP and Project Executive Director, has operated since 1991. The Project also utilizes personnel at the governorate and district levels who have received incentives from the GOE contribution to the Project.

The program Executive Directors had responsibility for developing their programs nationally, liaison with the MOH and other parties, identifying technical assistance needs within their areas, and overall management of their units.

Figure 6.3 CSP Organizational Chart



ROLE OF THE TECHNICAL ASSISTANCE CONTRACTOR

Clark Atlanta University, an historically Black university established in 1988 out of the consolidation of Atlanta University and Clark College (both founded in the 1860s), was selected by the MOH in 1989 to provide technical assistance as the prime contractor under a host country contract agreement. CAU provided technical assistance in the areas of human resources—more than 335 person-years of long- and short-term management and technical consultants, conferences and seminars, technical materials, and offshore procurement (more than $23 million worth of commodities). The Cairo staff was assisted by a home office in Atlanta, USA, with a team of two full-time and one part-time staff.

CAU's technical assistance focused on five main areas:

- **Human Resources**
  Two long-term advisors and several short-term project management advisors provided assistance in the overall management of the project and liaison with the various sectors and players in Egypt. This consisted of providing expertise in project planning, in particular the development of annual plans; implementation; and monitoring and evaluation, including devising and producing CSP administrative reports. CAU, for example, assisted the CSP in contracting the 1992 and 1995 KAP surveys to a local firm.

  CAU also provided technical expertise, in the form of short-term consultants, in the areas of office systems development, accounting, information systems development, publications, and revision of training methods and materials for IEC activities to conform to the CSP competency-based approach. CAU supplied consultants with technical-medical expertise, for example to support the FETP, and a number of consultants through a subcontract with Johns Hopkins University.

  Other examples of CAU human resources input include the assignment of a technical consultant to set up the cold chain monitoring and development unit; key input into the study of how to strengthen the management and organization of Egypt's vaccine and sera-producing institute, VACSERA; arranging for a technical assistance team to help develop a detailed work plan for the integration of hepatitis B vaccination into the EPI

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program; and a major role in establishing a mass media unit within the CSP to design a mass media strategy and oversee a social marketing program.

- **Management and Technical Skills Development**
  CAU arranged study tours and overseas training programs for senior MOH official and medical experts. It provided the Project with a list of short-term training programs available internationally and arranged tailored courses for senior CSP staff. In order to foster links between senior MOH officials and international organizations active in child survival, CAU organized the attendance of CSP Executive Directors at a number of international conferences.

- **Coordinating Conferences and Seminars**
  CAU assisted the CSP to organize conferences and seminars to encourage the exchange of research and experience between a wide range of health practitioners and trainers in Egypt, including those working in the public and private systems, hospitals and medical schools, specialized institutes, and organizations of health professionals.

- **Provision of Technical Materials**
  CAU provided CSP with a regular supply of relevant technical reports, journals, articles, manuals, and other publications produced internationally by other organizations involved in child survival, medicine, and development. Consultants assisted in developing a library, leaving the MOH with a permanent collection of resource and reference materials organized in a resource center.

- **Commodity Procurement**
  Through its subcontractor, TransCentury Associates, CAU undertook the off-shore procurement of $23,200,000 worth of commodities, including vaccines and antibiotics (for example, the supply of 6 million doses of hepatitis B vaccine in 1992) and equipment for laboratories, the cold chain, and health clinics. The approximate value of procurement in 1992–93 was US$18 million.

  Local procurement was managed by CSP administration through which a total of US$10 million worth of local procurement was done according to USAID policies and procedures, in addition to an estimated US$12 millions of procurement from the GOE contribution.

  CSP Administration established a database that accounts for the equipment purchased by the grant funds, in addition to other databases to monitor the distribution and locations of this equipment nationwide.

The Project also received technical assistance from WHO, UNICEF, CDC, and other international institutions and agencies. WHO provided major support for the ARI and EPI programs through its Eastern Mediterranean Regional Office (EMRO) and headquarters in Geneva. UNICEF assisted by providing commodities for EPI and ARI, conducting daya training in Upper Egypt, producing publications and health education materials, and through other technical support.

The Centers for Disease Control and Prevention (CDC) provided some technical assistance during the early years of the Project, and this was expanded when an agreement to develop a Field Epidemiology Training Program under the umbrella of the CSP was reached in 1992. A long-term advisor was based in the CSP from 1993. Further technical assistance was provided through the CDC/PASA thereafter. As a result of these inputs a Field Epidemiology Training Unit was established within the MOH in 1995.

INVOLVEMENT OF VACSERA IN EPI ACTIVITIES

The Egyptian Organization for Biological Products and Vaccines (VACSERA) was formally established in its present status as a public authority in 1972, and remains affiliated to the MOHP. It was created in order to manage the Ministry's laboratories, farms, and other units for the production of vaccines and sera. VACSERA is the sole authorized entity in Egypt responsible for the production, marketing, importing, and exporting of vaccines and biological products. It currently produces a number of human and animal vaccines, antisera, blood products, and parenterals, and performs quality control testing of all biological products. Additionally, it serves as a WHO collaborating regional laboratory for isolation and typing of polio virus for the region.

While VACSERA is responsible for meeting all of Egypt's biological requirements, in recent years it has satisfied Egypt's demand for the six EPI vaccines largely from donations received in kind from UNICEF. Hepatitis B vaccines for 1993–94 were supplied by USAID.

In recognition of Egypt's commitment to EPI, and withdrawal of ongoing donor support, the MOHP allocated £E35 million for vaccine procurement for FY1994–95. In 1994, VACSERA initiated the procurement process for all of Egypt's vaccine requirements. VACSERA's current production of EPI vaccines is limited to OPV bulk filling, production of a part of the requirement for BCG and DT vaccines, and production of the TT vaccine. Other vaccines are purchased from abroad.

During the 11 years of the Project, CSP sponsored five consultations and technical studies concerning VACSERA, including:

- Assessment of Compliance with International Standards of Good Manufacturing Practices, Quality Control, and Quality Assurance.
- Financial Management Review.
- Legal Review.
- Strategies for Joint Ventures.
- Technical advisor on Pertussis Production.

ORGANIZATIONAL INPUTS

STAFFING

Staffing under the three sources of Project funding is shown by year in Table 6.1, and staffing at the end of 1995 for each area by category of staff is provided in Table 6.2. At the end of 1995, the total staff numbered 172, of whom 51 were from the MOH, 50 under the PIL, and 71 employed under the CAU contract. Staffing grew most rapidly in the first few years of the Project and stabilized during the latter part of the Project. The Executive Directors, conscious of future sustainability, have avoided using CAU-funded employees to fill core staff positions. Each of the programs now operates with an experienced and efficient team.

Table 6.1 CSP Staffing Levels, 1989–1995

	Number of Personnel						
Funding Source	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
MOH	32	32	39	50	57	55	51
PIL/USAID	10	14	26	43	46	50	50
CAU/Cairo Office							
Long-Term Staff	16	26	34	34	34	42	37
Consultants and Part-Time	3	8	27	11	10	35	34
Total	61	80	98	131	167	151	172

The CAU contract, as amended, provides a specified maximum level of effort (LOE) for various categories of personnel. CAU met the contract LOE requirements through provision of 335 person-years of technical assistance, not counting some technical assistance provided through fixed price contracts in Egypt, as shown in Table 6.3.

CSP administration developed personnel policies according to the GOE labor regulations. All through the project lifetime, various inspections were carried out by both the Labor Office and the Social Insurance Office. None of these inspections resulted in any negative findings.

TECHNICAL ASSISTANCE

The technical assistance provided to the Project by CAU, CDC, WHO, and UNICEF is summarized in Table 6.4 by year and area. Each component used technical assistance differently. EPI used 5.0 person-years, ARI 9.6, and CS/MCH 3.9. Cross-cutting activities used 17.9 person-years, and general project management 25.7, for a total of 62.1 person-years of offshore technical assistance. A complete listing of consultancies is provided in Annex 4 and the resulting major reports are listed in Annex 6.

OVERSEAS TRAINING

The original bilateral agreement provided for significant levels of long- and short-term overseas training for Egyptian professionals. While this was scaled down over the life of the Project, 155 participants received training organized by USAID (summarized in Table 6.5 and detailed in Annex 5).

Table 6.2 CSP Staffing by Unit, 1995

Unit	Professional	Secretarial	Service	Consultants	Total
ARI	9	5	1	5	20
CS/MCH	4	6	0	21	31
EPI	14	12	0	8	34
Technical Offices	7	1	0	4	12
Administrative	20	25	29	1	75
Total	54	49	30	39	172

Table 6.3 CAU Level of Effort

	Person-Months	
	Contract Maximum	*Actual*
CAU Long-term Advisors	173	172
CAU Home Office	234	226
Offshore Consultants	400	372
Long-term Egyptian Staff	2710	2660
Egyptian Consultants	740	589
Total	4257	4019

INFORMATIONAL TRAVEL AND CONFERENCES

The CSP Executive Directors, senior Ministry officials, and senior staff in the technical units traveled under the CSP, through USAID, for various official and informational visits, and to attend and present papers at international conferences. Several CSP programs or activities acquired international recognition as leading programs within the global child survival effort, and the Executive Directors were called upon by various agencies including WHO and UNICEF to serve as evaluators or consultants and to provide regional leadership.

Table 6.4 Technical Assistance, 1989–96, in Person-months

Area / Source	CAU	CAU/JHU	CDC/FETP	Other*	Total
ARI	865	580	168	462	2075
CS/MCH	965	0	10	49	1024
EPI	641	0	163	110	914
EPI/VACSERA	457	0	46	39	542
Training/General	982	0	166	0	1148
HIS/HMS	509	0	3	30	542
Health Education/ Communication	857	0	21	0	878
Evaluation	308	0	0	443	751
Program Management	2166	0	175	0	2341
Long-Term Advisors	3250	431	899	0	4580
Total	11,000	1011	1651	1133	14,795

*UNICEF, WHO, USAID Buy-Ins

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Table 6.5 Short-term Overseas Training, 1989–96

Year	Number	Unit	Topic
1987	10	Project	Project Management
	3	Project	Project Evaluation
1988	1	Project	HIS
	6	Project	Project Management
1989	1	Project	Project Management
1990	3	EPI	Health Programs
1991	5	Nutrition	Health Programs
	5	ARI	Health Programs
1992	3	ARI	Epidemiology
	2	EPI	Epidemiology
	1	ARI	Laboratory Techniques
1993	7	EPI	Epidemiology
	1	EPI	Health Management
	4	ARI	Epidemiology
1994	10	Project	Health Management
	4	CS/MCH	Lactation Management
	10	CS/MCH	Neonatal Resuscitation
	3	ARI	Health Management
	11	Project	Child Survival
	3	ARI	MIS
1995	10	CS/MCH	Neonatal Resuscitation
	42	MOH	Management
1996	10	CS/MCH	Neonatal Resuscitation

PROCUREMENT

More than 54 percent of CSP/USAID funding was dedicated to local and offshore (or overseas) procurement of commodities to strengthen MOH services. Expenditures are summarized in Table 6.6, and are presented in detail in Annexes 9 and 10. It is important to recognize the GOE's demonstrated commitment to take on responsibility for vaccine and antibiotic costs in the last years of the Project.

Significant resources were provided to EPI to upgrade the cold chain, improve vaccine production and lab services at VACSERA, and purchase syringes and 12 million pediatric doses of hepatitis B vaccine—enough to cover the first two years of vaccinations. ARI, as a new activity, received significant inputs of basic equipment and laboratory upgrading materials and supplies. By special request of the Minister of Health, ARI also received a basic supply of the selected antibiotic—amoxicillin—acquired locally and overseas. CS/MCH benefited from the purchase of more than 400 incubators and other neonatal care equipment, MCH lab sets, and obstetrical unit equipment for first referral hospitals.

Annex 1

CSP Logical Framework: USAID Project #263-0203

Project Paper Amendment #2

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ANNEX 1
CHILD SURVIVAL PROJECT NO. 263-0203
REVISED LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
PROJECT GOAL	MEASURES OF GOAL ACHIEVEMENT		ASSUMPTIONS FOR ACHIEVING GOAL
To improve the health of the Egyptian people and particularly the health of children and women of childbearing age.	1.1 Zero cases of confirmed indiginous poliomyelitis by 1995 (baseline: 550 cases in 1988).	EPI Disease Surveillance System	Present and future levels of resources and services from GOE and other donors will continue to be provided.
	1.2 80% reduction in neonatal tetanus cases by 1995 (baseline: 7,256 cases in 1986)	EPI Disease Surveillance System	
	1.3 25% reduction of infant mortality due to ARI by 1995 (baseline: 13/1000 in 1989).	CSP Special Studies CAPMAS	
	1.4 15% reduction in maternal mortality ratio due to complications of pregnancy and childbirth by 1995. (baseline: 220/100,000 in 1988).	Maternal Mortality Studies	
	1.5 50% Reduction in Infant Mortality by 1995 as compared to 1988 (baseline: 97/1000 in 1988)	DHS	
	1.6 45% reduction in Child Mortality (1 through 4 years) by 1995 as compared to 1988 (baseline: 36/1000 in 1988).	DHS	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
PROJECT PURPOSE	CONDITIONS THAT WILL INDICATE PURPOSE HAS BEEN ACHIEVED: END OF PROJECT STATUS		ASSUMPTIONS FOR ACHIEVING PURPOSE
To promote child survival and safe motherhood and to reduce morbidity and mortality in infants under five years old, and in women of childbearing age.	2.1 90% infant immunization coverage nationwide, with coverage in every district maintained at least at 80% against diphtheria, pertussis, tetanus, measles, poliomyelitis, hepatitis B and tuberculosis by 1995.	Coverage Survey Service Statistics	Present and future levels of resources and services from GOE and other donors will continue to be provided.
	2.2 Immunization coverage of pregnant women against tetanus (TT2+) reaches and is maintained at at least 70% by 1995.	Coverage Survey Service Statistics	
	2.3 70% of mothers aware of risks of ARI and, at least, 50% of these seek timely care and comply with treatment for children against severe ARI and practice proper home treatment for mild ARI.	KAP studies	Mass media campaigns are accomplished.
	2.4 60% of pregnant women receive prenatal care.	KAP studies DHS	
	2.5 70% of mothers correctly breast feed their babies for at least four to six months and utilize appropriate weaning food in addition to breastfeeding.	KAP studies DHS	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OUTPUTS	OBJECTIVELY VERIFIABLE INDICATORS: MAGNITUDE OF OUTPUT	MEANS OF VERIFICATION	ASSUMPTIONS FOR ACHIEVING OUTPUTS
1. An expanded, improved, maintained and utilized national immunization system.	3.1.1 The national EPI program is providing effective vaccines in all PHC clinics (app. 3,300)	MOH Supervision data, CSP reporting	
	3.1.2 Production capability and quality control for the currently produced vaccines is updated to meet acceptable standard of Good Manufacturing Practices (GMP), in support of the national EPI program.	Consultant Reports	The GOE will permit VACSERA to operate with significantly more administrative and financial autonomy. Donors will provide adequate inputs to improve production and GMP capabilities.
	3.1.3 80% of EPI primary health care physicians, nurses, and technicians in all governorates trained in EPI.	CSP Training Records, Sample Assessment. MOH/CAU Supervision data.	
	3.1.4 Improved EPI Management Information System	MOH/CAU Supervision data	
2. Established national system for the prevention, diagnosis, and treatment of ARI illness for children under 5 years.	3.2.1 A national ARI detection and treatment program capable of reducing infant/child mortality is established and is providing access to Standard Case Management (SCM) to 80% of the population.	MOH/CAU Supervision data Health Facility Survey	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	3.2.2 80% of primary health care physicians, nurses and technical staff trained to recognize symptoms of severe ARI and, at least, 60% of these physicians prescribe drugs according to standard case management.	MOH/CAU Supervision data CCI Training Records	
	3.2.3 An effective Management Information System for the ARI control program.	MOH/CAU Supervision data	
3. An expanded and improved MCH system reaching pregnant women.	3.3.1 80% of PHC physicians trained in providing improved MCH services.	MOH/CAU Supervision data	
	3.3.2 80% of Dayas in Lower Egypt adequately equipped and trained in safe delivery, postnatal procedures and referral for family planning, prenatal and immunization services.	MOH/CAU Supervision data	
	3.3.3 200 hospital delivery rooms and 100 neonatal care centers providing improved obstetrical and neonatal care. 150 MCH laboratories will be upgraded.	MOH/CAU Supervision data Quarterly Reports	
	3.3.4 Development of a Management Information System for the neonatal care program.	MOH/CAU Supervision data	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	3.3.5 80% of primary health care physicians and nurses knowledgeable of proper maternal nutrition practices, including breastfeeding, weaning, prevention of anemia and diarrheal case management.	MOH/CAU Supervision data	
4. Mass Media/Health Education programs to promote all CSP interventions.	3.4.1 Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminate regularly throughout Egypt.	MOH/CAU Supervision data Consultant Reports	
	3.4.2 MOH Health Education Department mobilized to support child survival through activities of the public health education officers located in all governorates and most districts.	MOH/CAU Supervision data	
PROJECT INPUTS The level of USAID inputs is $67.9 million over the life of project.	1. USAID INPUTS a. Technical Assistance $15,000,000 b. Training $7,600,000 c. Commodities $36,140,000 d. Other Support Costs $9,200,000		
	2. GOE INPUTS Inkind LOP contributions of LE. 31.2 million and cash contributions of LE. 81.9 million.		
	3. OTHER DONOR INPUTS a. UNICEF provides measles and polio vaccine, TA, and cold chain Equipment. b. WHO provides TA, training and commodities		

PREVIOUS INDICATOR	CURRENT INDICATOR	COMMENT
PROJECT GOAL INDICATORS		
1.1	1.1	Eradication of poliomyelitis was changed from 1994 to 1995 specifying that this criteria is only for indigenous cases since it is likely that exogenous cases may occasionally cross the borders into Egypt. Baseline data added.
1.2	1.2	No change. Baseline data added.
1.3	1.3	No change. Baseline data added.
1.4	--	Dropped because the data for infant mortality specifically due to pregnancy is too difficult to collect and unnecessary for measuring project progress.
1.5	1.4	The 35% reduction in maternal mortality was reduced to 15% in order to make the target more realistic. Baseline data added.
1.6	--	Dropped because the hepatitis carriage rate was not considered an appropriate goal level indicator.
1.7	--	References to nutrition indicators were dropped since the nutrition component is no longer part of the project.
—	1.5	Indicators for overall infant mortality rates were added because this data is available from DHS surveys and is useful in measuring project progress. Baseline included.
—	1.6	Ditto for child mortality.
PROJECT PURPOSE INDICATORS		
2.1	2.1	Due to the success in meeting targets, immunization coverage rates were increased from 80% to 90%.
2.2	2.1	Moved up and included in 2.1
2.3	2.2	This indicator was improved to include at least two tetanus shots.
2.4	2.3	80% of mothers aware of ARI risks dropped to 70%.
2.5	2.4	No change.
2.6	3.3.2	Moved to Outputs and made more specific.
2.7	--	Dropped because the Mission's population projects are more involved with this activity.
2.8	2.5	Corrected to reflect that mothers will continue to breastfeed children even after weaning foods are introduced. The target was reduced from 80% to 70% to make it more realistic.
OUTPUT INDICATORS		
3.1.1	3.1.1	No change.
3.1.2	3.1.2	No change.
3.1.3	3.1.3	Change in wording only.
3.1.4	--	Dropped because it is redundant; already covered in 3.1.3
--	3.1.4	Added as an indicator to reflect an important activity that is taking place, the EPI MIS.
3.2.1	3.2.1	Wording refined to be more quantifiable.
3.2.2	3.2.2	Wording refined to be more quantifiable.
--	3.2.3	Added to reflect an activity that is taking place, the ARI MIS.
3.3.1	--	Dropped because the nutrition component is no longer part of the project.
--	3.3.2	Previously 3.4.3
--	3.3.3	Added to provide a more useful and measurable target.
--	3.3.4	Added to reflect an important activity that is taking place, the Neonatal MIS.
3.3.2	3.3.5	Wording refined.
3.4.1	--	Dropped because it was too vague. Other indicators such as 3.3.3 are more useful and quantifiable.
3.4.2	--	Dropped because the Mission's population projects are more involved with this activity.
3.4.3	3.3.2	UNICEF trains dayas in Upper Egypt while the project trains those in Lower Egypt. The target was changed to clarify that 80% of the dayas in Lower Egypt would be trained and equipped. The old indicator implied that the project was trying to increase the number of births attended by the dayas, which is incorrect.
3.5.1	3.4.1	No change.
--	3.4.2	Added to better define the activities in health education that will be promoted.

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Annex 2

SUMMARY OF VERIFIABLE INDICATORS FOR PROJECT OBJECTIVES AS UPDATED IN AMENDMENT #2, AND ACHIEVEMENTS TO DATE

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Annex 2

Summary of Verifiable Indicators for Project Objectives as Updated in Amendment #2, and Achievements to Date

Project Goal: To improve the health of the Egyptian people and particularly the health of children and women of childbearing age.

Measures of Goal Achievement

1.1 **Zero cases of confirmed indigenous poliomyelitis by 1995**
(baseline: 550 cases in 1988)
The 1993 assessment of EPI disease surveillance and control concluded that a combination of National Immunization Days and focused mopping-up operations in high-risk areas "has been responsible for bringing polio to the brink of eradication in Egypt." Despite a much stricter surveillance system, which the evaluation team reported was accurately detecting cases, the number of cases in the whole country is now less than 100 annually. By 1995, almost half the governorates (13/27) reported no confirmed cases. Only 71 cases were reported nationwide.

1.2 **80% reduction in neonatal tetanus cases by 1995**
(baseline: 7,256 cases in 1986)
An assessment of EPI disease surveillance and control in November 1993 conducted by a joint national-international team concluded that "tremendous progress had been made towards . . . neonatal tetanus elimination." Total cases of NNT reported by fever hospitals halved within two years, from 7256 cases in 1988 to 3275 cases in 1990. In 1995, 76 percent of districts attained NNT elimination based on reported cases. However, despite great improvements in the surveillance system over the period, at least 40 percent of NNT cases are estimated to go unreported. House-to-house mop-ups and efforts at social mobilization in the last two months of 1995 should speed progress towards elimination.

1.3 **25% reduction of infant mortality due to ARI by 1995**
(baseline: 13/1000 in 1989)
Research to establish the level of mortality between 1991 and 1995 is planned for 1996–97. However, figures for the three previous years show promising results. Between 1987 and 1990, there is evidence of a 16 percent decline in infant mortality due to ARI. The MOHP estimates that overall infant mortality decreased 47 percent between 1987 and 1995.

1.4 **15% reduction in maternal mortality ratio due to complications of pregnancy and childbirth by 1995.**
(baseline: 220/100,000 in 1988)
The decrease in maternal mortality will not be known until a national survey is carried out. This survey will compare 1997 maternal mortality with a 1992–93 survey carried out by the CSP which found a maternal mortality ratio (MMR) of 174 maternal deaths per 100,000 births. In setting the target of a 15 percent reduction in MMR, the CSP specified a baseline for 1988 of 220/100,000. Measured against this baseline, the 1992–93 survey suggests a 20.9 percent decrease in the 4–5 year period.

1.5 **50% reduction in infant mortality by 1995 as compared to 1988**
(baseline 97/1000 in 1988)

1.6 **45% reduction in child mortality (1 through 4 years) by 1995 as compared to 1988**
(baseline 36/1000 in 1988)

Project Purpose: To promote child survival and safe motherhood and to reduce morbidity and mortality in infants under five years old, and in women of childbearing age.

Conditions Indicating Achievement of Purpose

2.1 **90% infant immunization coverage nationwide, with coverage in every district maintained at least at 80% against diphtheria, pertussis, tetanus, measles, poliomyelitis, hepatitis B, and tuberculosis by 1995**
EPI service statistics confirm that infant immunizations for the six major childhood diseases and hepatitis B have reached 90 percent or more coverage in Egypt. In 1994 national routine vaccination rates for all vaccines required in the first year of birth were about 90 percent. More than 75 percent of EPI health districts have achieved coverage rates of over 80 percent.

2.2 **Immunization coverage of pregnant women against tetanus (TT2+) reaches and is maintained at at least 70% by 1995.**
Between 1985 and 1990, routine tetanus immunization of pregnant women reported by MOHP/PHC clinics increased by 178 percent. Between 1990 and 1993, the average coverage rate was greater than 70 percent. The January 1995 household survey found that 62 percent of mothers with a child under one year had received either two injections or one injection to supplement a previous tetanus immunization. According to EPI service statistics, the coverage rate for 1995 for TT was 70 percent.

2.3 70% of mothers aware of risks of ARI and, at least, 50% of these seek timely care and comply with treatment for children against severe ARI and practice proper home treatment for mild ARI.

In the January 1995 household survey, 73 percent of mothers recognized either difficulty breathing or rapid breathing (or both) as danger signs requiring prompt medical attention. However, the emphasis tended to be on difficult breathing. Only 37.6 percent recognized rapid breathing as a danger sign. Some mothers who recognized it treated it as less serious than difficult breathing. The revised target for 1997 is to increase the proportion of women who recognize both signs to 70 percent of mothers of under-fives.

About 70 percent of mothers appear to comply with home treatment prescribed for pneumonia. except with respect to return visits for check-ups. A 1995 KAP survey found that most mothers knew antibiotics should only be given on a doctor's instructions and that antibiotics should not be saved for future use. Three-quarters of mothers surveyed considered a return visit for a check-up as advised was necessary, but only 57 percent actually made a return visit. More than 50 percent of mothers are believed to comply with proper home treatment of mild ARI.

2.4 60% of pregnant women receive prenatal care.

The 1995 household survey found that 67.5 percent of mothers of under-fives received some antenatal care. This compares with three different surveys in 1991–92 that indicated just over 50 percent of Egyptian women received some antenatal care. The 1995 KAP survey also found that more women were seeking regular antenatal care as a matter of routine than in 1992—highlighting an increase from 16.4 to 29.4 percent.

2.5 70% of mothers correctly breast feed their babies for at least four to six months and utilize appropriate weaning food in addition to breastfeeding.

The KAP survey carried out in January 1995 showed that 78.2 percent of mothers with children under five reported that they breastfed their babies for at least four months before initiating supplemental feeding. A 1995 household survey also found that nearly 60 percent of mothers initiate breastfeeding within three hours of delivery and 76 percent within 12 hours. The same survey found that 67.5 percent of mothers initiated supplementary feeding when their babies were four months or older, suggesting that these babies were predominantly breastfed for at least the first four months of life, and 70 percent of mothers continued breastfeeding beyond the first year.

Objectively Verifiable Indicators

1. AN EXPANDED, IMPROVED, MAINTAINED, AND UTILIZED NATIONAL IMMUNIZATION SYSTEM.

3.1.1 The national EPI program is providing effective vaccines in all PHC clinics (app. 3,300).

EPI is now providing sufficient and effective vaccine in nearly 3500 vaccination units, including virtually all PHC centers and the 365 health bureaus. Between 1989 and 1996 more than 44,000 clinic-level health workers and 2600 managers were trained. A 1993 cold chain survey found a high degree of compliance with standard operating procedures. Instance of improper storage or lack of temperature control were found in less than 5 percent of vaccine sites.

3.1.2 Production capability and quality control for the currently produced vaccines is updated to meet acceptable standard of Good Manufacturing Practices (GMP), in support of the national EPI program.

A concerted program of action by the MOHP and the Egyptian Organization for Biological Products and Vaccines (VACSERA) has been agreed to achieve this target. A study of VACSERA's organization and management was undertaken in 1994 by the MOHP/CSP with assistance from CAU. Recommendations for establishing VACSERA on a sounder footing were agreed by the MOHP and international donors in 1995. Key among these are:

- The establishment of an independent National Control Authority for Biologicals.
- The need for managerial and financial autonomy of VACSERA.
- The implementation of an 18-month plan developed by a CSP consultant to ensure good manufacturing practice and quality control.

3.1.3 80% of EPI primary health care physicians, nurses, and technicians in all governorates trained in EPI.

Training of more than 50,000 PHC staff covering all governorates, health districts, and PHC districts has been carried out, meeting the target of 80 percent of staff trained. However, because of the high turnover of trained staff, especially physicians, there is a continuing need for training new personnel and for refresher training. Since 1993 CSP has been working with governorates to develop decentralized capacity for this training, which is now being implemented by the governorates through a clinical management improvement program, by the introduction of a CSP curriculum into the training of medical students and nurses at the Higher Institutes of Nursing, and a program to train secondary nursing school teaching staff as EPI trainers.

3.1.4 Improved EPI Management Information System.

The EPI management information system has been significantly strengthened since 1989. Improvements have focused on:

- Monitoring vaccine supply and distribution.
- Immunization coverage analysis for decision-making.
- Disease surveillance and case investigation for disease control.
- Cold chain monitoring.

A decentralized health and management information system integrated into the MOHP health information system has been installed in all governorates, and plans are in place to extend it to the district level.

2. ESTABLISHED NATIONAL SYSTEM FOR THE PREVENTION, DIAGNOSIS, AND TREATMENT OF ARI ILLNESS FOR CHILDREN UNDER 5 YEARS.

3.2.1 A national ARI detection and treatment program capable of reducing infant/child mortality is established and is providing access to Standard Case Management (SCM) to 80% of the population.

The ARI program has been adopted by all 27 Governorate Health Directorates and all 231 District Health Offices. The program has been introduced into 94 percent of ARI clinics and outpatient departments of hospitals. The number of PHC facilities and hospitals providing standard case management (SCM) increased from nearly 2400 in 1993 to 3082 at the end of 1995. By the end of 1995, 87 percent of the population had easy access to a clinic or hospital practicing SCM. Over 90 percent of cases observed in the 1993–94 ARI facility study were judged to be correctly managed.

3.2.2 80% of primary health care physicians, nurses, and technical staff trained to recognize symptoms of severe ARI and, at least, 60% of these physicians prescribe drugs according to standard case management.

65 ARI training centers have been established in all governorate (general hospitals, district hospitals, and some nursing schools) in addition to 5 ARI training units established in university hospitals (Alexandria, Azhar, Cairo, Menia, and Assiut). Different in-service training courses are now conducted, for district health officers, pediatricians, PHC physicians, PHC nurses, trainers, health educators, statisticians, lab specialists and technicians, equipment technicians, and school nursing leaders.

By 1995 the Project had trained 12,772 physicians. It is estimated that more than 80 percent of PHC physicians permanently in the system have been trained. The MOHP estimates that 85 percent of all MOHP outpatient facilities are now staffed by at least one physician trained in SCM.

Close to 10,000 nurses had been trained in SCM by 1995—about 33 percent of all PHC nurses. The percentage of nurses assigned to pediatric

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service is higher. At least one trained nurse was present in the majority of ARI facilities surveyed in 1993–94. At the end of 1995, it was estimated that most MOHP outpatient clinics had more than one nurse trained in SCM.

ARI standard case management has been introduced into the preservice training of physicians and there is agreement to incorporate ARI Control Program material into the curriculum of secondary nursing schools.

The 1993–94 health facility survey found that 90 percent of physicians were prescribing correctly for pneumonia, otitis media, and pharyngitis. However, antibiotics were still being prescribed by physicians for 31 percent of coughs and cold. Strategies to overcome this have been put in place. These include more discussion on prescribing in the training of MOHP physicians, workshops for MOHP pharmacists, and workshops with district health officers on supervision.

3.2.3 An effective Management Information System for the ARI control program.

An ARI health information system has been set up based on ARI case registration in all clinics and the use of monthly clinic reports for monitoring, supervision, and planning. Case registration is now operating in all health districts and most PHC clinics and hospital outpatient departments. In 1995, monthly reporting compliance by clinics averaged 66 percent. The case registration system has now been integrated into the MOHP Health Information System.

3. AN EXPANDED AND IMPROVED MCH SYSTEM REACHING PREGNANT WOMEN.

3.3.1 80% of PHC physicians trained in providing improved MCH services.

About 90 percent of PHC physicians were trained during 1990–96 in providing improved MCH services, most of them in a standard six-day course with particular emphasis on antenatal and delivery care as well as counseling skills to promote child spacing and good infant feeding practices. As a result, most PHC facilities in the country have one or more physicians trained in MCH.

3.3.2 80% of Dayas in Lower Egypt adequately equipped and trained in safe delivery, postnatal procedures and referral for family planning, prenatal and immunization services.

More than 9500 dayas in Lower Egypt and the frontier governorates were trained in delivery, postnatal procedures, referral for family planning, antenatal, and immunization services, and referral of neonates requiring medical attention. Since the total number of dayas is not known, it is not possible to calculate whether the target has been met. However, based on a 1995 household survey, the CSP calculates that in 1994 more than 60 percent of daya-assisted deliveries were conducted by

trained dayas. This figure is estimated to have increased to about 70 percent by the end of 1995—a year in which approximately 300,000 women were delivered by a trained daya.

3.3.3 200 hospital delivery rooms and 100 neonatal care centers providing improved obstetrical and neonatal care. 150 MCH laboratories will be upgraded.

A total of 190 hospital delivery rooms are being upgraded by the CSP to provide improved obstetrical care including neonatal resuscitation and stabilization. The Project expects to complete the establishment of about 90 first referral neonatal care centers by June 1996. A total of 194 laboratories have been upgraded.

3.3.4 Development of a Management Information System for the neonatal care program.

A comprehensive system was developed in 1994 and has been installed in most of the 82 MOHP neonatal care centers. Quarterly reports are being received from more than 90 percent of centers.

3.3.5 80% of primary health care physicians and nurses Knowledgeable of proper maternal nutrition practices, including breastfeeding, weaning, prevention of anemia and diarrheal case management.

More than 15,000 MOHP/PHC health providers have been trained in MCH issues, and substantial numbers of physicians and nurses have been trained in lactation management and the Baby Friendly program. This will be assessed by an MCH/PHC health facility survey which will indicate the proportion and knowledge levels of PHC facility staff who have had training in maternal nutrition, breastfeeding, weaning, nutrition and management of diarrhea.

4. MASS MEDIA/HEALTH EDUCATION PROGRAMS TO PROMOTE ALL CSP INTERVENTIONS.

3.4.1 Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminate regularly throughout Egypt.

A health education plan was established to raise community awareness about various ARI problems through mass media, e.g., newspapers, magazines, T.V. and radio. T.V. spots were produced and aired.

The program arranged 4 workshops for training of trainers: 90 were trained; 12 workshops were conducted locally for training of health educators, 293 were trained.

15 minutes video film about ARI program was produced and distributed to all governorates.

Posters, home care cards, and leaflets about important ARI messages were distributed to all health facilities. 13 ARI Newsletters and 5 ARI

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Bulletins were produced and distributed nationwide and abroad. An integrated mass media campaign involving a series of coordinated radio/TV spots and production of two videos, three posters, and a flip-chart was launched in 1995.

3.4.2 MOH Health Education Department mobilized to support child survival through activities of the public health education officers located in all governorates and most districts.

The MOHP Health Education Department worked with the CSP in 1994–95 to develop, and train trainers for, a training program for health education offices. Materials for use by Health Education Officers have also been devised and distributed. By the end of 1995, Health Education officers from nearly all governorates had attended workshops.

Annex 3

IMPLEMENTATION ANALYSIS, MARCH 1996

Analysis of CAU Implementation of Services and Tasks Under Its Contract, With the Ministry of Health, as specified in Article I - Statement of Work and as revised through Amendment 3, Child Survival Project USAID No. 263-0203

A. Component 1: Organization and Management of the Secretariat

Contract Task 1.1 Assist the Project Executive Director in developing an organizational structure for the Secretariat.

Task 1.1 Implementation. Accomplished.

CAU worked with the Project Executive Director to develop a unified administrative structure. The Chief of Party works on a day to day basis on project administration.

Contract Task 1.2 Assists Project staff in identifying requirements for expatriate and Egyptian short-term and Egyptian long-term specialists, preparing scopes of work and fielding technicians in a timely manner.

Task 1.2 Implementation. Accomplished.

Annual work plans identify TA requirements. CAU develops terms on reference in iterative process with Executive Directors, hires local staff and local consultants, and fields off-shore consultants. See off-shore consultant list and list of local hires.

Contract Task 1.3 Assist in identification of appropriate short-term training programs and observational visits and seminars for the Egyptian Steering Committee members, senior Secretariat Staff and selected other CSP participants.

Task 1.3 Implementation. Accomplished.

CAU regularly supplies the Project with a list of short term training programs and identifies tailored courses, as requested, for senior CSP staff.

Contract Task 1.4 Establish an overall management information and budgeting system for the Project headquarters.

Task 1.4 Implementation.. Accomplished.

CAU developed a standard personnel manual and financial system for its own operations, and has assisted the Executive Director in developing and implementing the Project management information system. It has assisted in establishing and implementing a project budgeting system based on the Annual Work Plans.

Contract Task 1.5 Design, organize, train personnel and initiate production of a Project newsletter.

Task 1.5 Implementation Accomplished.

Project and individual units have produced newsletters, bulletins and other publications with CAU technical and management assistance, including the ARI Newsletter, the ARI bulletin, CSP News, EPI Newsletter, Egyptian Neonatal Care System Newsletter, technical series and survey reports.

Contract Task 1.6 Provide books, articles, reports, films and videos on Child Survival Interventions.

Task 1.6 Implementation Accomplished.

The CAU home office has sent an extensive collection of Child Survival related newsletters, reports, articles, and videos, as requested by the CSP and as identified on an on-going basis. CAU assisted in developing a CSP library and library procedures.

B. Component 2: General Consultation and Project Planning

Contract Task 2.1 Assist the Project Executive Director in finalizing and obtaining MOH and USAID approvals of annual work plans for Child Survival interventions.

Task 2.1 Implementation Accomplished.

CAU has worked with CSP components, and the Executive Director to develop and obtain MOH and USAID approval for annual work plans for the Project, as required under task 2.1, including

1990 Work Plan	*1993 Work Plan*
1991 Work Plan	*1993-95 Planning Document*
1992 Work Plan	*1994-95 Work Plan*

1995-96 Work Plan.

Contract Task 2.2 Assist the Project Executive Director resolve issues or problems encountered in technical areas related to project implementation, management and administration, such as on-going planning, budgeting, evaluation and project procedures.

Task 2.2 Implementation. Accomplished.

CAU has worked closely, through the Chief of Party, with the Project Executive Director and the Project Executive Committee, Component Executive Directors, Sub-Program Managers, and USAID to monitor implementation and to address technical issues of implementation of the annual work plans, including component work plans and

project-wide cross-cutting activities, budgeting, procurement, evaluation and project procedures.

Examples:
- *Monitoring of work plan implementation*
- *Personnel Management (Staff in Office of Administration)*
- *Financial Management; internal financial audits.*
- *Management and support of project evaluation*
- *Implementation and Resolution of problems related to overseas procurement (through CAU's sub contractor, TransCentury).*

Contract Task 2.3 Assist the Project Executive Director in finalizing a report on the Child Survival Project and recommendations for effective child survival actions in Egypt.

Task 2.3 Implementation. In process.

The draft report will be submitted on 15 April 1996. The annual reports and the 1995-96 evaluation plan provide information needed for the preparation of the CSP Final Report and Recommendations. Continuation plans have been done for ARI and sub-elements of other programs.

C. Component 3: The EPI Program

Contract Task 3.1 Provide the EPI Executive Director with technical advice in organizing and implementing the required activities of Component 3.

Task 3.1 Implementation. Accomplished.

CAU has regularly provided the EPI Executive Director with technical advice in organizing and implementing the required activities. This work has been carried out through regular consultations by the CAU Chief of Party, the CAU Evaluation Officer, the CAU Administration Officer, the home office Project Officer, part time local consultants (Ing. Shehata and Dr. Hanafi), and expatriate consultants. Examples are technical advice in organizing and implementing:

- *The EPI Training Program (which has reached over 50, 000 PHC staff)*
- *Strengthening of the Cold Chain*
- *Development of the Polio Eradication Program*
- *Development of the Hepatitis B Program*
- *Development of the EPI Information System; including vaccination coverage*
- *Recommendations developed for the MOH and the Egyptian Organization for Biological Products and Vaccines (VACSERA) for strengthening organization and management, good manufacturing practice and quality control in vaccine production and distribution.*

Contract Task 3.2 Provide direction and guidance for the establishment of an office for immunizations Component, including but not limited to

• Policies: to organize routines for setting, recording and communicating unit policies and procedures.

• Work Scheduling: to prepare devices to meet requirements of the component for managing work such as charts, files, computer spreadsheet templates and train component personnel in their use, whether MOH or Contractor employees. including work scheduling, problem tracking, meeting agenda record keeping, component cost budgeting and work scope preparation for proposed grants and contracts.

• Training: Provide training to introduce all unit personnel, whether MOH or contractor employees, to use CSP procures for requesting and monitoring services providing by components 7 to 14 [1]

• Coordination: Develop arrangements (such as scheduled periodic meetings, written advisories or other devices) to ensure coordination of efforts among components 3 to 6 and to prevent dysfunctional simultaneous or conflicting schedules of implementation.

Task 3.2 Implementation Accomplished.

CAU provided direction and guidance for the establishment of the EPI Component through contractor staff managing the Office of Administration, through local and expatriate consultants and through use of the CAU project team and CAU home office staff. The establishment of the EPI Office took into account the fact that EPI had been operating for a number of years as part of the MOH's Department of Communicable Disease Control, the development of EPI policies, work scheduling, staff training and coordination with other units.

Contract Task 3.3 Provide advice to Component personnel as to participant training resources (out of country) for MOH personnel and other personnel participating in the immunization programs of the GOE.

Task 3.3 Implementation Accomplished.

CAU has accomplished this task as part of annual work planning and implementation. CSP and USAID preferred to manage participant training as a project-wide activity.

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[1] 7:Training, 8:Health Promotion, 9:Evaluation, 10: Decentralized HIS and Disease Surveillance system), 11: Off shore procurement, 12:Logistics and Inventory Control (and Distribution), 13: Contracts and Human Resources Management, and 14 Organization and Management of Contractor Support.

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Contract Task 3.4 Prepare requests for services; review proposed implementation plan, projected budget, and qualifications of implementing entity; monitor and supervise performance and analyze results for following assigned duties required for the EPI. :

- Training - design training programs and training materials
- Evaluation - collect base line data and conduction evaluation studies for testing vaccine effectiveness
- Health Information - In Coordination with component 10 assist and advise in the development of a HIS
- Logistics - In coordination with components 9 and 12 evaluate cold chain equipment and evaluate EPI supply storage and coverage and related items.

Task 3.4 Implementation Accomplished. *See the narrative for task 3.7.*

Contract Task 3.5 Assist the EPI Executive Director with preparation of EPI Section of the Annual Workplan

Task 3.5 Implementation Accomplished.

CAU accomplished this task as part of Task 2.1

Contract Task 3.6 Based on the annual work plan the Contractor shall provide technical assistance to the EPI Executive Director as requested in the planning and implementation of the immunization component.

Task 3.6 Implementation. Accomplished.

CAU has provided technical assistance regularly and on a sustained basis to the EPI Executive Director for nearly seven years, since its contract with the Ministry of Health entered into effect in December 1988. TA has been supplied as specified in annual work plans and as requested on an ad hoc basis during the work year, for planning, implementing and evaluating the EPI program. Technical assistance is provided regularly by long term expatriate staff, home office staff, expatriate consultants, and local consultants provided by the CAU. TA needs and supply have taken into account TA supplied by WHO, UNICEF and CDC.

Contract Task 3.7 Prepare requests for services; review proposed implementation plan. projected budget and qualifications of implementing entity; monitor and supervise performance and analyze results for following assigned duties required for of the EPI:

(1) Training: (a) Implement EPI training nationwide in all districts; (b) test and evaluate pre-service [(sic) -this may be a typo for in-service] EPI training and integrate same with regular pre-service training; and c) implement training of health workers concerning the importance of immunization of pregnant women with tetanus toxoid.

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Task 3.7 Implementation (Training) Accomplished.

CAU staff and consultants have worked steadily over the past seven years to help plan. support, implement monitor and evaluate all phases of the EPI program, as needed, including training, as follows:

(a) EPI training has been implemented nationwide in all districts and has involved close collaboration and support of the governorate health directorates.

(b) The training carried out has been primarily in-service training for PHC personnel including physicians, nurses, sanitarians and clerks, and health managers. Since 1993, CSP including the EPI component has initiated actions to strengthen pre-service training

c) Training has covered planning and management of immunization programs, immunization practice, maintenance and operation of the cold chain, disease surveillance and field epidemiology. It has included TT immunization training.

(2) Health Promotion: In coordination with Component 8 (Health Promotion): Develop, test, produce and evaluate media messages to support immunization campaigns, test messages in same and in the national media (including but not limited to: television, radio and newspapers)

Task 3.7 Implementation (Health Promotion) Accomplished.

During 1989-93, the EPI component, under its annual work plans, with assistance from CAU, WHO and UNICEF ,and in collaboration with the MOH Audio Visual Aids and Health Education Departments, was successful in developing and using effectively media messages to support immunization campaigns, and routine immunization programs. These include TV spots, public service radio and TV announcements, and posters. During 1993-to present, CAU received authority and resources to help the Child Survival Project develop a social marketing and integrated communications strategy which is being implemented through a mass media campaign carried out in 1995-96 and through mobilization of and training for health education offices located in districts and governorates.

3. Evaluation - Conduct Sentinel Surveys

Task 3.7 Implementation (Evaluation - Conduct Sentinel Surveys) Accomplished.

CAU technical assistance has contributed to the development of EPI disease surveillance through sentinel surveys and disease registration. The EPI component in collaboration with the MOH Department of Communicable Disease, and with assistance from CAU, WHO, UNICEF and the US. Centers for Disease Control and Prevention, expanded the disease surveillance system including nationwide surveillance of polio and NNT,

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Contract Task 4.2 Provide direction and guidance for the establishment of an office for the ARI Component, including but not limited to

- Policies: Organize routines for setting, recording and communicating unit policies and procedures.

- Work Scheduling: Prepare devices to meet requirements of the component for managing work such as charts, files, computer spreadsheet templates and train component personnel in their use, whether MOH or Contractor employees. including work scheduling, problem tracking, meeting agenda record keeping, component cost budgeting and work scope preparation for proposed grants and contracts.

- Training: Provide training to introduce all unit personnel, whether MOH or contractor employees, to use CSP procures for requesting and monitoring services providing by components 7 to 14[2]

- Coordination: Develop arrangements (such as scheduled periodic meetings, written advisories or other devices) to ensure coordination of efforts among components 3 to 6 and to prevent dysfunctional simultaneous or conflicting schedules of implementation.

Task 4.2 Implementation. Accomplished.

CAU provided direction and guidance for the establishment of the ARI Component through contractor staff managing the Office of Administration, through local and expatriate consultants and through use of the CAU project team and CAU home office staff. The establishment of the ARI Components Office took into account development of ARI policies, work scheduling, staff training and coordination with other units and the two-year ARI implementation plan developed in 1989 by the MOH with USAID, WHO and CAU assistance.

CAU has also provided management and technical assistance to the ARI Control Program in defining the requirements for and organization within the Ministry of Health of a permanent Department for ARI Control, and in developing a 5-year plan of operation for 1996-2000.

[2] (7:Training, 8:Health Promotion, 9:Evaluation, 10: Decentralized HIS and Disease Surveillance system),11: Off shore procurement, 12:Logistics and Inventory Control (and Distribution), 13: Contracts and Human Resources Management, and 14 Organization and Management of Contractor Support.

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Contract Task 4.3 Provide advice to Component personnel as to participant training resources (out of country) for MOH personnel and other personnel participating in the ARI programs of the GOE.

Task 4.3 Implementation. Accomplished.

CAU has accomplished this task as part of annual work planning and implementation. CSP and USAID preferred to manage participant training as a project-wide activity.

Contract Task 4.4 Prepare requests for services; review proposed implementation plan, projected budget and qualifications of implementing entity; monitor and supervise performance and analyze results for following assigned duties required for Component Four:

• Training - (a) design training programs for trainers and for health personnel and (b) develop training materials.

• Evaluation - (a) Initiate baseline data collection for ARI; (b) Curriculum content in medical and nursing schools, [item c missing], (d) (sic) initiate data collection on clinical management or ARIs in health facilities in Egypt; (e) initiate KAP studies on ARI and (f) establish protocols for treatment of ARI. collect base line data and conduction evaluation studies for testing

• Logistics - In coordination with component 12: (a) Survey University and Teaching Hospitals and Fever Hospitals and Health Units as defined herein, for treatment diagnostic equipment requirements and (b) Begin procurement based on surveys and Project Director approvals for required equipment.

• Applied Research - Assist with planning, conduct and analysis of applied research studies for the National ARI Program.

Task 4.4 Implementation. Accomplished.

This task relates to the early establishment of the ARI Component . See narrative under task 4.7.

Contract Task 4.5 Assist the ARI Executive Director with preparation of the ARI Section of the Annual Work Plan.

Task 4.5 Implementation. Accomplished.

CAU has performed this task as part of Task 2.1

Contract Task 4.6 Based on the annual work plan the Contractor shall provide technical assistance to the ARI Executive Director as requested in the planning and implementation of the ARI component.

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improved sentinel coverage of measles, and the development, starting in 1995, of a sentinel surveillance system for Hepatitis.

In addition, CAU financed a national baseline survey in 1991/92 to determine knowledge, attitudes and practices of married women with children under five years of age, with respect to child survival interventions, including immunization, acute respiratory infection control and child spacing and MCH care. A second KAP study of married women with children under 5 was carried out in January 1955 and a report of findings made available in May 1995. CSP/CAU plans a final KAP study in May 1996 which will help evaluate results of the mass media campaign, and measure CSP behavioral performance indicators. In addition a study of CSP impact is being done in 2 governorates during 1995 and 1996 partially through CAU.

4. Health Information System - In coordination with Component 10: phase the Health Information System into all governorates)

Task 3.7 Implementation (Health Information System) Accomplished.

See Component 10 and item (5) below.

5.(a) - Logistics - In coordination with components 10 and 12, develop EPI Management Information System.

Task 3.7 Implementation (Logistics-EPI Management Information) Accomplished.

Through 1993, EPI , with technical assistance from CAU, UNICEF, WHO and CDC, has developed an effective management information system, in collaboration with the MOH Communicable Disease Department, which covers systematic monitoring of routine immunization, immunization campaigns and the immunization status of women and children and:

- *monthly and quarterly tracking of vaccines supplies, and vaccine coverage*
- *reporting on cold chain equipment, operations and repair*
- *training being carried out and EPI training status by governorate*
- *strengthened disease surveillance and case reporting..*

Starting in 1993 and on-going, CSP with CAU assistance has been working with the MOH Department of Information and Documentation to install a decentralized computer based health information and disease surveillance system, which is integrated with the national Health Information System, and which increases the capacity of governorate health directorates to process, analyze and use data for decision making.

5 (b) - Logistics. In coordination with components 10 and 12, define requirement, prepare procedures and documentation and arrange purchase of equipment specified in annual plans.

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Task 3.7 (Implementation - Procurement) Accomplished.

CSP and CAU have developed requirements for offshore procurement in annual work plans and implemented them using procedures and documentation developed jointly with USAID. This planning has resulted in the procurement and delivery through CAU during 1991-95 of materials required for strengthening the EPI cold chain and for improving quality control and production of vaccines within VACSERA.

CSP with management assistance provided by CAU has developed procedures, in collaboration with USAID for local procurement financed and delivered in accordance with annual work plans under USAID Project Implementation Letters.

(6) VACSERA - Assist VACSERA as requested through and approved by the EPI Executive Director in improvement of production and production practices of DPT, and its components, and of OPV vaccines, and in review of management and institutional structure.

Task 3.7 Implementation (VACSERA). Accomplished.

During 1993-95, CAU provided technical assistance at the request of CSP to accomplish the above, including studies of measures and options for Institutional Autonomy, and carried out on-going procurement to improve VACSERA production and production practices involving DPT and OPV. The procurement, under IFB 8, is complete. Recommendations for strengthening the management and institutional structure have been developed in April 1995, with MOH and donors, and are pending MOH action.

D. Component 4: Acute Respiratory Infections (ARI)

Contract Task 4.1 Provide ARI Executive Director with technical advice as needed in organizing an implementing the required activities of Component 4.

Task 4.1 Implementation Accomplished.

CAU has regularly provided the ARI Executive Director with technical advice as needed in organizing and implementing the required activities. This work has been carried out through regular consultations by the CAU Chief of Party, the CAU Evaluation Officer, the CAU Administration Officer, part time local consultants, and expatriate consultants. Examples are CAU technical advice in organizing and implementing:

- *The ARI Training Program (which has reached over 20 000 PHC staff)*
- *Development of Field Implementation Monitoring and Surveillance*
- *Monitoring and Evaluating Progress Towards Establishment of a National System for Detection and Treatment of ARI*
- *Development of the ARI Case Registration System*
- *The ARI Program of Operational Research*

Task 4.6 Implementation Accomplished.

CAU has provided technical assistance to the ARI program regularly and on a sustained basis for nearly seven years, since its contract with the Ministry of Health entered into effect in December 1988. TA has been supplied as specified in annual work plans and as requested and approved on an ad hoc basis during the work year, for planning and implementing the ARI program. Technical assistance is provided regularly by long term expatriate and home office staff, expatriate consultants, and local consultants provided by the CAU. TA supplied by CAU has taken into account assistance also supplied by WHO, UNICEF and CDC.

Contract Task 4.7 Prepare requests for services; review proposed implementation plan. projected budget and qualifications of implementing entity; monitor and supervise performance and analyze results for following assigned duties required for Component Four (ARI):

(1) Training

(a) Implement training programs for MOH physicians, nurses and other health personnel; and (b) integrate ARI training into pre-service training.

Task 4.7 Implementation (Training). Accomplished.

CAU staff and consultants have worked steadily over the past seven years to help plan, support, implement, monitor and evaluate all phases of the ARI program, as needed, including training. ARI training has been implemented nationwide in all governorates covering facilities in all districts, and has involved close collaboration and support of the governorate health directorates. The training carried out has been primarily in-service training for PHC personnel including physicians and nurses, and health managers. It has included training for nearly all MOH pediatricians as specialists, most MOH pharmacists, and laboratory specialists from many hospitals.

Since 1993, CSP including the ARI component has initiated actions to strengthen pre-service training in medical faculties, in Higher Institutes of Nursing and in Secondary Nursing Schools. By the end of 1995, training of staff as ARI trainers and teachers in secondary nursing schools was completed in all governorates.

(2) Health Promotion

In coordination with Component 8 (Health Promotion): Develop, test, produce and evaluate media messages designed to support early diagnosis and treatment of ARI for use in national media.

Task 4.7 Implementation (Health Promotion) Accomplished.

During 1989-92 the ARI component avoided development of media messages pending development of a national capacity to detect and treat ARI according to case management protocols. Instead, ARI focused on education of child caretakers via inter personnel communications by medical personnel called upon to diagnose and treat sick children. CAU provided TA for ethnographic studies carried out to help define needed messages and communication. strategy. The MOH/USAID interim evaluation endorsed this approach.

Since 1993, the ARI component has worked to develop a media program, involving TV and radio and the district and governorate health education offices. During this period, CAU received authority and resources to help the Child Survival Project develop a project-wide social marketing and integrated CSP communications strategy being implemented through a mass media campaign carried out in 1995-96 and through mobilization of and training for health education offices located in most districts and all governorates.

(3) Evaluation

Design, implement and evaluate surveys that will provide epidemiological information on ARIs for the MOH; and plan, conduct and analyze impact studies of the National ARI Program.

Task 4.7 Implementation (Evaluation) Accomplished.

• *CAU provides technical assistance to the Child Survival Project and the ARI component to evaluate progress and impact of the program. Evaluations of progress in the installation of standard case management in MOH facilities include health facilities surveys carried out in 1990 and 1993, and process evaluations with the help of the CAU/CSP evaluation officer in April 1993, December 1993 and December 1994. CAU also provided a team to help evaluate the ARI project for community based surveillance in Bilbeis in Sharkia Governorate.*

• *CAU provides TA for studies used to collect ARI epidemiological information[3]; CSP and the ARI component are conducting with CAU technical assistance is helping conduct a study of CSP and ARI impact in two governorates.*

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[3]These studies include: (a) A Community Survey in 12 villages of Menoufia Governorate;(b) Validation of Completeness and Accuracy of Under 5 Death Registration; (c) A sentinel survey of ARI covering 115 reporting units in 1993; and (d) Management of children with pharyngitis (group A beta hemolytic streptococcal throat infections in children aged 2-8).

• *CAU has supported establishment by the ARI component of a national case registration system currently providing case registration data from over 2500 health activities.*

• *CAU financed a national baseline survey in 1991/92 to determine knowledge, attitudes and practices of married women with children under five years of age, with respect to child survival interventions, including immunization, acute respiratory infection control and child spacing and MCH care. A second KAP study of married women with children under 5 was carried in January 1955 and a report of findings made available in May 1995. CSP/CAU plans a final KAP study in May 1996 which will help evaluate results of the mass media campaign, and measure CSP behavioral performance indicators.*

(4) Health Information System

In coordination with Component 10: (a) Establish surveillance system for ARI's and (b) Establish effective reporting system for ARI's in the Ministry of Health.

Task 4.7 Implementation (Health Information System). Accomplished.

In process. See Component 10.

(5) Logistics

In coordination with component 12: (a) identify appropriate pharmaceuticals for treatment of ARIs; and (b) Ensure supply of appropriate available Pharmaceuticals in MOH Facilities.

Task 4.7 Implementation (Logistics) Accomplished.

CAU has provided TA to the ARI component for planning and implementing distribution and monitoring programs to assure the supply of appropriate ARI drugs in MOH facilities[4]. The decision on appropriate pharmaceuticals to be used was made by the National ARI steering committee in consultation with WHO, taking into account applied research activities[5] supported by CAU.

CSP and CAU have also developed requirements for offshore procurement of clinical equipment for the ARI program in annual work plans and implemented them using procedures and documentation developed jointly with USAID. This planning has resulting in the procurement and delivery through CAU during 1991-95 of substantial amounts of clinical and laboratory equipment required for strengthening the ARI diagnosis and treatment. CSP with management assistance provided by CAU has developed procedures, in collaboration with USAID for local procurement of clinic and

[4]The supply of antibiotics for MOH facilities was assured by USAID-funded and GOE-funded procurement.
[5](a) Acceptance and Compliance of Different Antibiotic; (b) Formulations; Management of Children with Pharyngitis; and (c) Management of Infants with Wheeze.

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laboratory equipment and supplies financed and delivered in accordance with annual work plans under USAID Project Implementation Letters.

(6) ARI Applied Research

Assist with planning, conduct and analysis of applied research studies for the National ARI Program.

Task 4.7 Implementation (ARI Applied Research) Accomplished.

CAU provided significant inputs of technical assistance for the ARI Applied Research Program through its sub-contractor, the School of Public Health and Hygiene, Johns Hopkins University (JHU). The assistance was provided in accordance with a work plan for ARI Applied Research first developed in 1989/90 and update annually with the help of CAU/JHU.

E. Component 5: Child Nutrition

This component carried out its program in 1989-91. In December 1991, MOH disbanded the Child Nutrition component and transferred residual activities to promote infant nutrition to the CS/MCH (No. 6) component. During three years of activity of the Child Nutrition component, CAU provided management and technical assistance similar to that provided for other components. Outputs of the Component were principally the training of some 15000 PHC physicians, nurses, and dietitians in 16 governorates and the establishment of demonstration feeding centers in health centers. The component procured and distributed a limited amount of clinical equipment (scales, hemoglobin meters) and demonstration kitchen equipment to collaborating governorates. A report on work of this component is found in Chapter IV of the 1991 CSP Annual Report.

F. Component 6: Child Spacing/Maternal and Child Health (CS/MCH)

Contract Task 6.1 Provide CS/MCH Executive Director with technical advice as needed in organizing and implementing the required activities of component.

Task 6.1 Implementation Accomplished.

CAU has regularly provided the CS/MCH Executive Director with technical advice in organizing and implementing the required activities. This work has been carried out through regular consultations by the CAU Chief of Party, the CAU Evaluation Officer, the CAU Administration Officer, the home office Project Officer, part time local consultants and expatriate consultants. Examples are technical advice in organizing and implementing:

- *The program for development of a national first referral system for neonatal care*
- *The national Maternal Mortality Survey carried out in 1993/93*

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- *The implementation and evaluation of the Daya Program.*
- *Implementation and evaluation of the Midwifery Training Program.*
- *Measures to improve maternal care.*
- *Measures to strengthen the MCH laboratory up-grading program.*
- *The national low birth weight study of 1995/96.*

Contract Task 6.2 Provide direction and guidance for the establishment of an office for the Child Spacing Component, including but not limited to the following services:

- Policies: to organize routines for setting, recording and communicating unit policies and procedures.

- Work Scheduling: to prepare devices to meet requirements of the component for managing work such as charts, files, computer spreadsheet templates and train component personnel in their use, whether MOH or Contractor employees. including work scheduling, problem tracking, meeting agenda record keeping, component cost budgeting and work scope preparation for proposed grants and contracts.

- Training: Provide training to introduce all unit personnel, whether MOH or contractor employees, to use CSP procures for requesting and monitoring services providing by components 7 to 14 [6]

- Coordination: Develop arrangements (such as scheduled periodic meetings, written advisories or other devices) to ensure coordination of efforts among components 3 to 6 and to prevent dysfunctional simultaneous or conflicting schedules of implementation.

Task 6.2 Implementation. Accomplished.

CAU provided direction and guidance for the establishment of the CS/MCH Component through use of the CAU project team and CAU home office staff CAU staff managing the Office of Administration, and through local and expatriate consultants. The establishment of the CS/MCH Office took into account the development of CS/MCH policies, work scheduling, staff training and coordination with other units, and expectations as set forth in the CSP Project Paper.

Contract Task 6.3 Provide advice to Component personnel as to participant training resources (out of country) for MOH personnel and other personnel participating in the immunization programs of the GOE.

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[6] 7:Training, 8:Health Promotion, 9:Evaluation,10: Decentralized HIS and Disease Surveillance system),11: Off shore procurement. 12:Logistics and Inventory Control (and Distribution), 13: Contracts and Human Resources Management, and 14 Organization and Management of Contractor Support.

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Task 6.3 Implementation. Accomplished.

CAU has accomplished this task as part of annual work planning and implementation. CSP and USAID preferred to manage participant training as a project-wide activity. Particularly assistant has been provided for 3 off-shore participant training workshops for neonatologists.

Contract Task 6.4 Prepare requests for services; review proposed implementation plan, projected budget, and qualifications of implementing entity; monitor and supervise performance and analyze results for following assigned duties required for Component Six:

(1) Training

(a) Develop CS/MCH training designed to emphasize health benefits of child spacing; (b) develop training to demonstrate the importance of tetanus toxoid immunization for pregnant women; (c) develop training plan for dayas; (d) develop training for trainers of dayas and orientation of clinic personnel for support and coordination with daya services; and (e) make recommendations for participant training.

(2) Evaluation

(a) Initiate anthropological surveys to determine reasons for gaps in knowledge and practice of child spacing and to develop information for media messages;

(b) develop surveys of MOH personnel to determine knowledge, attitudes and practices (KAP) in determining the need and acceptance of child spacing as a health measure;

(c) review and evaluate UNICEF program for training dayas (also known as traditional birth attendants) and revise as required for national implementation;

(d) review Secondary Technical Nurse (STN) Program to determine more effective ways to use the STN in the CS/MCH.

(3) Logistics

In coordination with component 12 evaluate equipment requirements for training programs for daya kits for CS/MCH Component and (b) initiate procurement of required equipment.

Task 6. 4. Implementation. Accomplished.

See narration under task 6.7.

Contract Task 6.5 Assist the CS/MCH Executive Director with preparation of CS/MCH Section of the Annual Workplan.

Task 6.5 Implementation. Accomplished. .

CAU accomplished this task as part of Task 2.1

Contract Task 6.6 Based on the annual work plan the Contractor shall provide technical assistance to the CS/MCH Executive Director as requested in the planning and implementation of the CS/MCH component.

Task 6.6 Implementation. Accomplished.

CAU has provided technical assistance to the CS/MCH Executive Director regularly and on a sustained basis for nearly seven years, since its contract with the Ministry of Health entered into effect in December 1988. TA has been supplied as specified in annual work plans and as requested on an ad hoc basis for planning, implementing, monitoring and evaluating the CS/MCH program.

Technical assistance is provided by long term expatriate staff, home office staff, expatriate consultants, and local consultants provided by the CAU. TA supplied has taken into account TA supplied by WHO, UNICEF and CDC.

Contract Task 6.7 Prepare requests for services; review proposed implementation plan, projected budget, and qualifications of implementing entity; monitor and supervise performance; and analyze results for following assigned duties required for CS/MCH:

(1) Training

(a) Train dayas in improved safe childbirth care techniques; (b) Provide orientation to Ministry of Health clinic staff in supervision of the daya; (c) develop training materials and services to expand immunization of pregnant women with tetanus toxoid; (d) develop training programs for MOH physicians and nurses for improved childbirth care; (e) assist with the development of training of personnel for neonatal units in hospitals; (f) assist with the development of a nurse-midwife training of trainers program, and (g) assist with development of a PHC physicians training program.

Task 6.7 Implementation (Training) Accomplished.

CAU staff and consultants have worked steadily over the past seven years to help plan, support, implement monitor and evaluate all phases of the CS/MCH program, as needed, including training, as noted in the following examples:

(a) Train dayas in improved safe birth child techniques: *Nearly 9285 dayas have been trained in improved safe child birth care and in referrals for maternal and neonatal care.*

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b) Orient MOH staff for daya supervision: *Over 2500 PHC physicians and nurses have been trained as supervisors and trainers for dayas;.*

(c) Develop training materials to promote TT immunization of pregnant women: *Dayas, nurse mid-wives and PHC physicians have been provided materials and trained in the requirements to expand TT immunization of pregnant women and CAU assisted in development of TV spots on TT immunization as part of the Project wide social marketing effort.*

d) Train MOH personnel in improved child birth care: *Training programs for physicians and nurses in improved child birth care have been carried out.*

(e) Train personnel of MOH neonatal care units: *Training programs have been developed and carried out in neonatology-in-practice for nursing staff and physicians of all the MOH neonatal care units in the country in Egypt and off-shore.*

(f) Develop a midwifery Training of Trainers Program: *A midwifery training of trainers program has been carried out; nurse midwifery training programs installed in five governorates;*

(g) Develop a PHC physicians training program: *a PHC physician training program was developed and implemented in all governorates; 12000 physicians trained.*

(2) Health Promotion

In coordination with Component 8 (Health Promotion): Develop, test, produce and evaluate multimedia messages that promote childbirth care and child spacing that can be used in national media.

Task 6.7 Implementation (Health Promotion) Accomplished.

During 1989-92 the CS./MCH component, under its annual work plans, with assistance from CAU, WHO and UNICEF, and in collaboration with the MOH Audio Visual Aids, was successful in developing and airing widely a series of 5 TV spots which promoted antenatal care, child spacing, and child birth care.

During 1993-to present, CAU received authority and resources to help the Child Survival Project develop a social marketing and integrated communications strategy which is being implemented through a mass media campaign and through mobilization of health education offices located in districts and governorates. The media campaign being carried out in 1995/96 targets maternal and neonatal care and child spacing in its key messages. CAU assisted in production of 1 15-minute drama on maternal mortality (Aziza Had a Boy).

(3) Evaluation

In coordination with Component 9: (a) design, test, and evaluate innovative service delivery systems that will promote MOH supervision of childbirth care and need for proper child spacing practices and are appropriate for nationwide implementation; (b) continue collection of data on childbirth care; (c) assist with planning for and analysis of a national maternal mortality study; and (d) assist with planning and analysis of a nationally representative low birth weight study.

Task 6.7 Implementation (Evaluation), Accomplished and on-going.

(a) Service Delivery to Promote MOH supervision of child birth care and the need for Child Spacing:

A requirement to design, test and evaluate innovative service delivery to promote MOH supervision of childbirth care and need for proper child spacing appears to be an afterthought and ***not*** *an assigned duty of the CS/MCH component. Quality of MCH service delivery has been addressed through the project wide PHC Clinic Management Improvement Program.*

(b) Collection of data on birth delivery and child spacing:

The maternal mortality study carried by the CS/MCH component with CAU assistance provided for a national collection and review of data on child birth delivery. A follow-up program in 1995-96 has developed a questionnaire as a tool data collection and self assessment of childbirth care by district and general hospitals. In addition, CAU financed a national baseline survey in 1991/92 to determine knowledge, attitudes and practices of married women with children under five years of age, with respect to child survival interventions, including child spacing and MCH care. A second KAP study of married women with children under 5 was carried out n January 1955 and a report of findings made available in May 1995. A third round is planned for May 1996.

(c) Carry out a National Maternal Study and Analysis.

Done. See item (b).

(d) Carry out a national low birth weigh study.

This study was piloted in 1994 and an expanded national study is underway and scheduled to be completed by June 1996.

In addition, CAU has worked closely with the CS/MCH unit over the past 7 years to monitor and evaluate its program. Evaluations of sub programs have been carried out with CAU technical assistance. These include evaluations of physician training,

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nursing training, midwifery training, the daya program and the MCH laboratory improvement program.

(4) Logistics

In coordination with components 12: (a) equip neonatal care centers. (b) equip hospital obstetric units, (c) supply dayas with appropriate instruments and materials for home deliveries, and (d) equip MCH testing units.

Task 6.7 Implementation (Logistics). Accomplished and on-going.

Accomplished or in process in accordance with annual work plans. See 1994 Annual Report, Chapter IV, 1995 CS/MCH Annual Report, and reports of the neonatal consult, Dr. George Little.

G. Component 7: Directorate for Control of Diarrheal Disease (CDD)

1. Contractor Tasks

Assist the Director General CDD with planning, applied research, evaluation and logistics

Task G.1. Implementation Accomplished.

CAU has worked with the DG/CDD in the areas of planning, applied research, evaluation and logistics, through:

- *Development of the Annual Work Plans for CSP Financial Support to the CDD for 1993, 1994-95 and 1995-96.*
- *A program review in the first quarter of 1994 by CAU consultant Dr. N. Hirschhorn.*
- *Consultations by the CAU Chief of Party (who previously was COP for the National Diarrheal Disease Control Program in Egypt).*

H. Component 7: Training

Objectives

- Raise practical capabilities of MOH personnel for child survival services
- Raise MOH capabilities for continuing education programs, including through Training of Trainers.
- Up grade the capabilities of the existing but nonfunctional system of Governorate and Urban Health Zone Health Training Centers (40 sites, including MOH Special

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Training Centers, by equipment and by providing standardized instructional materials.

- Upgrade capabilities of dayas.

Contract Task 7.1 Provide direction and guidance for the establishment of an office for the Training Component, including but not limited to the following services:

• Policies -	Routines for setting, recording and communicating Unit policies and procedures.
• Requests - for Services	Participate with other component directors and personnel in preparing requests for Component services and in defining service requirements.
• Priority - Setting	Provide a Component management mechanism to determine policies and practices and for setting priorities among CSP Component requests for service.
• Production	Arrange directly or through subcontracts, CSP grants or other mechanisms for the implementation of production services.
• Other	Provide all other related functions required to provide an effective Component Service. Unit (to meet training requirements of other Units as specified above)

Task 7.1 Implementation Accomplished.

CAU has provided direction guidance for centralized and project wide training activities of the CSP. A central training office for the Child Survival Project was established briefly in 1988-89, but dissolved in October 1989 when training activities were assigned to the technical component, By decision of the MOH and the Project Executive Committee, the bulk of training in 1989-94 was carried out by technical components with their own training units. Proposals to establish a central Training Coordination Office were not approved by the CSP Executive Committee. Coordination of training policies, strategies, programs and operations of the technical components was managed by the Project Executive Committee.

Project-wide training programs[7] supplementing those of the technical components were specified in Annual Work Plans. Project wide training programs and were managed by the Project Executive Director with assistance by CAU.

During 1995, the Project Executive Director authorized study and work by CAU consultants and staff, and CSP staff, on the establishment of an Integrated Training Unit. This Unit is designed to develop, integrate, institutionalize and decentralize use of CSP

[7]Participant training; development of pre-service training for child survival in medical faculties; training for the Clinic Management Improvement Program; Field Epidemiological Training Program.

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competency-based curriculum and materials for undergraduate, pre-service and in-service training of physicians, nurses, pharmacists, statistical clerks, health education officers and state information officers. Although the unit is in process of being established, the work on developing integrated, competency based training materials for the MOH is proceeding under the direction of the Project Executive Director and the CAU Chief of Party.

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Contract Task 7.2 During Year 1, establish training of MOH trainers capable of providing in-service training of physicians and clinic personnel during years 2, 3 and 4.

Implementation of Task 7.2 Accomplished.

From the initiation of the program in 1989, CSP with assistance from CAU has established training of MOH trainers for in-service training of health cadre. The process of developing trainers has included recruitment of central trainers, and training of trainers within most Governorates - and the establishment (especially for ARI) of University Training Centers. Starting in 1993, CAU has assisted in curriculum development for Universities and for curriculum development and training of trainers for the Clinic Management Improvement Program.

Contract Task 7.3 Provide Support for the Governorate and Urban Health Zone training programs including developing and testing prototype training materials; curriculum development; TA through short-term specialists for training of MOH trainers (if required) and participant training requirements.

Task 7.3 Implementation Accomplished.

Under the CSP project and work plans, implementation of this task was the responsibility of technical components and CSP cross-cutting sub programs. Support of Governorate and Urban Health Zone training programs was provided by CSP with CAU support under EPI, ARI, CS/MCH and CDD programs; and by the CSP/CAU project-wide program to Improve Clinic Management.

CSP contributions to governorate/district training programs include: a) the training of several thousand local trainers, b)establishment of 70 district training centers by the ARI component, c) staff training in EPI and ARI in over 150 secondary nursing schools, d) CSP component support to help conduct pre-service training courses organized by governorates during March and September each year for newly assigned PHC physicians on their first assignments, and e) starting in 1994, development of standardized competency-based training materials for local training programs.

Contract Task 7.4 Develop training teams to provide direct training of personnel on a rotational basis, using effective instructional materials prepared for improved child survival services.

Task 7.4 Implementation: Accomplished.

CSP technical components with CAU assistance developed and used such training teams, and prepared such instructional materials.

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Contract Task 7.5 Adapt training guidelines and materials used by such recognized organizations as the WHO, and the US Centers for Disease Control and Prevention.

Task 7.5 Implementation: Accomplished.

CSP with CAU and CDC assistance drew extensively on WHO and CDC materials in developing training programs and materials.

Contract Task 7.6 Evaluate in-country training programs and follow-up returned participant trainees.

Implementation of Task 7.6 Accomplished

CSP with CAU, CDC and UNICEF assistance has monitored and evaluated in-country training programs extensively . Follow up of long term participant trainees was a function of USAID as CAU was not involved in approving their selection or placement. However, CSP with CAU assistance has made extensive use of participants trained in the US. Examples include ARI research programs, the use of participants trained in breast feeding, and the use of MOH neonatologists trained as trainers in neonatal resuscitation), and use of participants trained in epidemiology.

Contract Task 7.7 Establish and maintain an information and referral program to provide up-to-date descriptions of sites in the US. or developing countries for professional training, observation of current practices, and conferences and meeting sessions appropriate to the needs of the CSP participating personnel and other MOH personnel involved in child survival services.

Implementation of Task 7.7 Accomplished.

See narrative for task 1.3. CAU has assisted in arranging for conference attendance and participation and in arranging meetings of Executive Directors with technical groups in the US and Europe.

Contract Task 7.8 Evaluate existing daya training systems in use in Egypt; determine requirements for the national program of training for dayas, operate through each Governorate a training program for dayas.

Implementation of Task 7.8 Accomplished.

This task was a responsibility of the CS/MCH component, to be carried out with CAU support. In 1988/89 CSP reviewed the daya training program as developed by UNICEF and decided to adopt the UNICEF approach, including training materials. Training and training materials were modified by CS/MCH during the course of the program to provide more emphasis on child spacing. CAU assisted with the interim and final evaluation of the Daya Program (see reports of Ms. Anne Richter).

With respect to operations through each governorate, initially it was determined by the MOH that UNICEF would continue to conduct daya training concentrating on Upper Egypt and that the CSP daya program would concentrate on other governorates. This determination has been followed to this date. Daya training has been operated through District Health Offices in Governorate Health Directorates. CAU has assisted CSP conduct several evaluations of the daya program.

I. Component 8: Health Promotion

Objectives

• Raise the level awareness of target audiences concerning the high incidence of illnesses and deaths among young children due to the four high risk child survival project: lack of effective immunization, deficient identification and treatment of ARI; inadequate weaning food practices and deficient identification and treatment of anemia; and lack of understanding of need for and practice of childbirth care and child spacing.

• Increase the target audiences' knowledge of the causes of the four high risk child survival factors.

• Educate the target audiences as to the serious symptoms of the four high risk child survival factors requiring medical attention.

• Inform the target audiences of the availability of services to treat or otherwise address the four high risk child survival factors, including preventive services.

• Educate the target audiences in good nutritional practices for infants and young children emphasizing the importance of the weaning period.

• Increase the demand for preventive and curative Child Survival Services from the public and private health sectors.

Contract Task 8.1 Provide direction and guidance for the establishment of an office for the Health Promotion Component including but not limited to the following services;

• Policies -	Routines for setting, recording and communicating Unit policies and procedures.
• Requests - for Services	Participate with other component directors and personnel in preparing requests for Component services and in defining service requirements.
• Priority - Setting	Provide a Component management mechanism to determine policies and practices and for setting priorities among CSP Component requests for service.
• Production	Arrange directly or through subcontracts, CSP grants or other mechanisms for the implementation of production services.
• Other	Provide all other related functions required to provide an effective

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Component Service Unit (to meet health promotion requirements of other Units as specified above)

Task 8.1 Implementation: Accomplished/In Process as follows:

CAU has provided advice and guidance, technical assistance and staff support for health promotion, including establishment of a CSP Health Promotion Office. CSP, however, found it difficult to establish, staff and maintain a central Health Promotion Office. An office for the Health Promotion Component was established briefly in 1988-89, but dissolved. A health promotion office under the direction of the Project Executive Director was re-established in 1992 at CAU's recommendation In 1993/94, CSP established an office for Health Education and one for development of a Mass Media Campaign. CSP is involved in extensive integrated curriculum development, TOT, and training of Governorate Health Education Officers and staff of SIS.

Contract Task 8.2 CSP Log Design

Task 8.2 Implementation Accomplished.

The logo was in fact developed prior to the signing of the CAU contract. It has been used consistently and is widely recognized.

Contract Task 8.3 Mass Media Planning: The contractor shall establish a Health Promotion Unit which is capable of preparing Project Media Plans for integrated media campaigns involving use of print and broadcast media at the request of other Component units. The integrated media campaigns shall be presented for approval by the Project Executive Director prior to execution.

Task 8.3 Implementation: Accomplished.

CAU has provided support for mass media planning, including staff for a Health Promotion Unit and for a Mass Media Planning and Development Office. Progress in Mass Media Planning was achieved beginning in 1993 at which time the Contractor, with the approval and support of the CSP Executive Director, established a Mass Media Planning and Development Office.

During 1993-95, the office prepared an integrated social marketing and communications strategy for child survival, and developed an integrated mass media campaign in collaboration with the technical component. USAID provided for funding through the CAU contact for local contract for funding design, testing, production, and airing mass media materials. The mass media campaign is being carried out in 1995-96. All materials have been reviewed and approved for dissemination by the Child Survival Executive Committee and by senior levels in the Ministry of Health.

Contract Task 8.4..The Contractor shall arrange contracts to pretest all print materials including the designs for the logo and billboards with groups of mothers of young children. Such pretests may be done through group discussions in designated sites, for example, a large urban MCH Center, a rural health center and a large Hospital. Before final printing of the audio tapes, spot announcements and television, the contractor shall pretest them in designated sites, for example a large MCH center. Arrange contracts to (sic) sample national surveys periodically as post-tests to assess message impact.

Task 8.4 Implementation: Accomplished.

CAU has contracted for focus group tests of all materials prepared for the integrated social marketing program and mass media campaign.[8] *CAU has arranged contracts for national surveys to provide base line information on behavior patterns and to assess mass media campaign and health education impact. The national KAP surveys carried out in 1991/92 and 1994/95 provide base line information. The KAP survey planned, under the 1995-96 work plan, to be carried out in May 1996 will provide data to assess the impact of the mass media program. An extensively tested flip-chart has been developed under the CAU contract for PHC clinic staff to use with clients.*

Contract Task 8.5 The Contractor shall define, develop, and implement social marketing campaigns using mass media techniques as requires to fulfill the requirements of the CSP components 3 to 6 herein, using any or all of the approaches defined in this Task [Radio and Television; Printed Tape; Billboards; and Press]

Task 8.5 Implementation Accomplished.

CAU has defined, developed and implemented an integrated social marking and communication strategy and campaign, using mass media techniques, to meet needs to the CSP components, and emphasizing Television and Radio.

Contract Task 8.6 The Contractor shall present to the Contracting Agency a report at the end of a designated campaign time period with the following information:

(1) An Analysis of the media campaign which describes, problems encountered, and with an interpretation of these (sic) successes and problems.

(2) A detailed listing of the final production and distribution quantities for each media production. It must include the locations (names of governorates, town and health facilities where posters, pamphlets, etc. were distributed as well as the names of newspapers, magazines and television stations with dates and types of presentations.

(3) Copies (reproducible in their original medium) of all media presentations: posters, pamphlets, photographs of billboards, audio and video cassettes,

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[8]Print materials, especially those used for training, and prepared by CSP technical components with WHO and/or UNICEF assistance, were not pre-tested by CAU.

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film etc. These shall be the property of the Contracting Agency and can be used as it sees fit.

Task 8.6 Implementation. Pending.

CAU will provide this report in 1996 using results from the third round KAP study of May 1996. Copies of all materials used in the mass media program are being made or have been made available to the CSP and to the MOH Health Education Department. These materials are the property of the MOH.

J. Component 9: Evaluation

The overall tasks of the Evaluation Component are to provide services for conducting expert special surveys and studies as required by the technical components and the Project as a whole and to monitor Project inputs and outputs. Such services shall be conducted for the purpose of determining the efficacy and efficiency of designs, tests and implementation methods useful in interventions of the CSP.

Objectives

- Determine common practices and beliefs of the target audience that could impact either positively or negatively on Child Survival Factors.

- Evaluate attitudes and practices of Egyptian health personnel that affect Child Survival Factors.

- Utilize information grained from studies, surveys and data collection for the design of health promotion activities for target audiences and training programs for health personnel.

- Measure impact of Child Survival activities through evaluation and analysis of Project Data.

- Monitor Project inputs and outputs.

Contract Task 9.1 Provide Direction and guidance for the establishment of an office for the Evaluation Component, including but not limited to the following services:

• Policies -	Routines for setting, recording and communicating Unit policies and procedures.
• Requests - for Services	Participate with other component directors and personnel in preparing requests for Component services and in defining service requirements.
• Priority - Setting	Provide a Component management mechanism to determine policies and practices and for setting priorities among CSP Component requests for service.

- Production — Arrange directly or through subcontracts, CSP grants or other mechanisms for the implementation of production services.
- Other — Provide all other related functions required to provide an effective Component Service Unit (to meet evaluation and monitoring requirements of other Units as specified above)

Task 9.1 Implementation. Accomplished.

CAU has provided direction and guidance for the CSP monitoring and evaluation program and for a CAU Evaluation Office. CSP and CAU found it sufficient to establish an Evaluation Office consisting of one expatriate advisor provided by CAU. Project monitoring and evaluation have been built into the programs of each technical component and in Project-wide sub programs. Evaluation and monitoring activities have been specified in each annual work plan. The CAU evaluation officer has coordinated planning and CAU support for Project monitoring and evaluation, under the direction of the CAU Chief of Party and with support from the CAU home office staff. External experts supplied by CAU, WHO, UNICEF and CDD have been used extensively to help CSP and its technical components carry out its monitoring and evaluation activities.

Contract Task 9.2 Select methodologies to ensure required precision, validity and reliability of measurements and findings.

Task 9.2 Implementation: Accomplished.

CAU accomplished this task with its staff and selected specialists.

Contract Task 9.3 Arrange contracts to conduct knowledge, attitudes and practices (KAP) studies concerning the four high risk child survival factors[9] by defined population groups.

Task 9.3 Implementation Accomplished/In Process

CAU arranged contracts for KAP studies in 1992/93 and 1994/95. A final KAP study is planned May 1996. CAU has also supported several health facility surveys.

Contract Task 9.4 Arrange contracts to conduct national and limited media campaign evaluations of Project media messages and methods using, for example, intercept studies and audience surveys to measure coverage, listener ship, and changes in knowledge, attitudes and practices.

Task 9.4 Implementation. Accomplished/In Process.

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[9] 1) lack of effective immunization; 2) deficient identification and treatment of ARI; inadequate weaning food practices and deficient identification and treatment of anemia; and (4) lack of understanding of need for an d practice of child birth care and child spacing.

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CAU arranged for subcontracts for KAP studies and will evaluate social marketing with follow up surveys.

Contract Task 9.5 Arrange contracts to conduct evaluations to measure impact and changes in behavior as a result of media messages and support activities for the four child survival components.

Task 9.5 Implementation Accomplished.

Carried out as noted under Tasks 9.3 and 9.7.

Contract Task 9.6 Design, supervise and evaluate special surveys and studies to support media messages and Project activities to improve and increase mothers' knowledge of good infant and child nutritional practices.

Task 9.6 Implementation Accomplished.

CAU designed and supervised several surveys and studies to support media messages and Project Activities. These extended to but were not limited only to activities to improve and increase mothers knowledge of infant and child nutrition practice.

Contract Task 9.7 Arrange contracts to evaluate the impact of the Child Survival Project in two representative districts or sub districts.

Task 9.7 Implementation Accomplished/In process.

CAU, at the request of CSP and USAID, arranged contracts with Johns Hopkins University and American University in Cairo to provide technical services in support of a survey of CSP impact in two Governorates. The study is underway and will extend past the end-of-project.

K. Component 10: Decentralized Health Information System and Disease Surveillance System

Contract Task 10.1 Provide direction and guidance for the establishment of an office for the Decentralized Health Information and Disease Surveillance Component.

Task 10.1 Implementation. Accomplished.

At the request of CSP and with the approval of USAID, CSP established a Health Information Office in 1994 under the direction of the CAU Chief of Party who has provided it necessary direction and guidance. This office is installing and supporting development of a decentralized health information system which includes reporting on disease surveillance. Responsibility for infectious disease reporting is primarily the MOH Department of Communicable Disease in collaboration with the EPI Office.

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Responsibility for surveillance of acute respiratory infections is primarily the responsibility of the ARI Control program.

Contract Task 10.2 Analyze the present manual record keeping systems relating to immunizations and ARIs, including morbidity, mortality and related statistics.

Task 10.2 Implementation Accomplished.

CAU conducted this review in collaboration with the MOH Department of Information and Documentation.

Contract Task 10.3 Design and test forms and instructions for data preparation and inputs to computer.

Task 10.3 Implementation Accomplished.

Contract Task 10.4 Develop and implement processing routines for receiving data input forms, logging records, inputting and validating data accuracy, cross checking data completeness and other related tasks.

Task 10.4 Implementation Accomplished.

Contract Task 10.5 Specify, procure, install and test software, hardware, and peripherals on a time phased basis; the sentinel governorates specified herein shall have the system introduced at all approved sites and levels.

Task 10.5 Implementation Accomplished.

The decentralized health information system is not being limited to sentinel governorates. The system has been procured, tested and installed in 27 Governorates. The system has also been introduced at the district level (13 districts) in Giza Governorate where District Offices have already installed computer systems from a previous project.

Contract Task 10.6 Provide advice and guidance for negotiation of equipment maintenance services, including exploration of MOH developing capability for diagnosis of hardware faults and provision of maintenance services by using exchanges of defective hardware components such as printed circuit boards with a local supplier/

Task 10.6 Implementation Accomplished.

A long term maintenance contract has been provided with the local supplier of the hardware. MOH's Department of Information and Documentation has not capacity to provide maintenance services. Such capacity should probably be developed at the Governorate rather than the national level.

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Contract Task 10.7 Prepare in the Arabic language user-friendly templates and data entry formats with error checking routines within the available functions of the software packages (and without resort to special custom programming outside the capabilities of the software packages provided.)

Task 10.7 Implementation. Accomplished.

Contract Task 10.8 Train data entry staff users to start and end processing sessions, to maintain environmental controls and covering for equipment to secure data storage disks and other media, to enter data, and validate the accuracy of input data..

Task 10.8 Implementation Accomplished *in 27 governorates, including Giza districts.*

Contract Task 10.9 Train data analysis and supervision staff users to use each and every command of the software packages provided for specific applications without relying on advice or support services from specialist programmers or other expensive advisors.

Task 10.9 Implementation Accomplished.

Formal training courses completed. OTJ training by field support and implementation teams continued during 1995-96.

Contract Task 10.10 Supervise conversion of workload for the system on a time-phased basis.

Task 10.10 Implementation Accomplished.

The conversion has been fully completed in all governorates, by 1996, and is underway in other governorates by trained supported with support by MOH/DID and CSP/CAU field support and implementation teams.

L. Component 11: Off Shore Procurement Services

Contract Task 11.1 The Contractor shall be responsible for arranging for the purchase of all equipment, furnishings and supplies requested by the Project Director under Handbook 11, Chapter 3.

Task 11.1 Implementation. Accomplished/In Process.

Final procurement and installation for 1995-96 is in process (IFB-8 and 9).

Contract Task 11.2 The Contractor shall be responsible for following up on orders placed to expedites suppliers performance, and, if the supplier cannot deliver, to take necessary actions to reprocure.

Task 11.2 Implementation: Accomplished.

CAU through its subcontractor TransCentury Associates followed up on orders placed in order to expedite, and in cases where a supplier could not deliver, took action to reprocure.

Contract Task 11 3 The Contractor shall be responsible for consolidating shipments to the extent possible, packaging for export when necessary, and arranging freight

Task 11.3 Implementation: Accomplished.

CAU through its subcontractor TransCentury Associates consolidated shipments at the freight forwarder's warehouse in the US., making sure that items were packed for export, and arranged for freight.

Contract Task 11.4 The Contractor shall be responsible for arranging independent inspection of commodities as requested by the Contracting Agency. The Contractor shall be responsible also for conducting visual inspections for material being consolidated for shipment to assure that all items are accounted for and that there are no obvious items not accounted for and that there are no obvious discrepancies between commodities contracted for and those shipped.

Task 11.4 Implementation: Accomplished.

CAU through its subcontractor and sub contractor freight forwarder have arranged for inspection of commodities, as requested by the Contracting Agency..

Contract Task 11.5 The Contractor shall be responsible for obtaining marine insurance in the name of the Contracting Agency, and for the Contracting Agency's account on all cargoes on a warehouse to warehouse basis at a 120% percentum of the CIF value and for handling any insurance claims arising thereunder

Task 11. 6 Implementation: Accomplished.

CAU through its subcontractor ensured that all shipments had marine insurance in the name of the Contracting Agency and for the Contracting Agency's account on all cargoes on a warehouse to warehouse basis. All insurance claims were handles and projects accounted were refunded with any insurance refunds.

Contract Task 11.6 Any procurement necessary, other than when the original supplier cannot deliver (see paragraph 3.5 L.2.b herein) which exceeds the range of items to be purchased shall be handled in accordance with General Provision, herein, entitled" Change Orders."

Task 11.6 Implementation: Accomplished.

Contract Task 11.7 The Contractor shall be responsible for arranging the issuance of letters of credit.....

Task 11.7 Implementation: Accomplished.

CAU through its subcontractor has arranged to open L/Cs to suppliers, as needed, under the L/Comm issued by USAID to CAU.

Contract Task 11.8 In all work undertaken by the Contractor under this Scope of Work, the Contractor shall follow appropriate USAID. regulations.....

Task 11.8 Implementation: Accomplished.

CAU and its contractor has always made sure that procurement was done according to USAID rules and regulations and that USAID approval was always obtained.

Contract Task 11.9 The Contractor shall be responsible for arranging for the procurement and delivery of all items on a timely basis as required by the Project schedule. Delays in the progress of the Project shall be considered Contractor-caused delays. All items must be on the required sites and where applicable installed and fully operable by the time required.

Task 11.9 Implementation. Accomplished/In Process.

CSP, CAU and its sub contractor monitor delivery dates for all equipment and CAU's sub follows up with all suppliers to make sure that orders are received in a timely manner.

Contract Task 11.10 For all procurement or commodities and commodity-related services under this Scope of Work, the Contractor shall follow the rules set forth in Section 2 of Chapter 3 of USAID Handbook 11.

Task 11.10 Implementation: Accomplished.

Rules and regulations in HB11, Chapter 3 have always been observed. Any waivers have been based on justifications set forth in Chapter 3.

Contract Task 11.11 Except as otherwise authorized by USAID. in writing, the Authorized source for procurement of commodities, ocean and air transportation and marine insurance is USAID. Geographic Code (US. only).

Task 11.11 Implementation: Accomplished.

The geographic code for all items purchased under the Project is 000 (US. only) except in cases when a waiver was received.

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Contract Task 11.12 The Contractor shall be responsible, when specifically requested by the Contracting Agency, for arranging for: (1) Purchase of operations and maintenance manuals; (2) Contracts for servicing of equipment; (3) Training in the use of specified equipment; and (4) Obtaining spare part lists.

Task 11.12 Implementation Accomplished.

As requested by the Project, CAU through its subcontractor has purchased operation and maintenance manuals and arranged contracts for maintenance and training. Within HB 11, Chap 3 guidelines, spare parts have been procured to help assure repair and maintenance.

Contract Task 11.13 The Contractor is expected to pursue economies in the procurement process that may be obtained through improved specifications, consolidated shipments, project freight rates, soliciting from producers or sources involving the smallest mark-ups and other sound purchasing practices.

Task 11.13 Implementation Accomplished.

CAU through its contractor has been careful to: a) have at least three bidders who can quote on the requested specifications; b) observe latest technical specifications, including international rules and regulations; c) consolidate shipments, except when items are urgently needed; d) purchase from manufacturers or sold distributors when a solicitation is conducted; and e) award by line item in a large IFB to make sure that the lowest responsive bidder receives an ward.

Contract Task 11.14 The Contractor shall seek offers and bids from a reasonable number of the most appropriate types of suppliers.....; the Contractor shall solicit, on behalf of the Contracting Agency, discounts, rebates, or other credits from the supplier or manufacturer of a commodity, the carrier and the insurer and will assure that all such credits are reflected in the supplier's invoice to the Contracting Agency.....

Task 11.14 Implementation: .Accomplished.

All IFBs are advertised in both the CBD and the AID bulletin. All AID rules and regulations are followed. In case of solicitations, CAU through its subcontractor tries to obtain the most competitive price. In no case did TransCentury Associates acting as a PSA for the Project receive any discounts, commissions or benefits from procurement conducted for the Project.

Contract Task 11.15 The procurement transaction shall be conducted in a manner to provide open competition to the maximum extent practical in order to assure the most advantageous process. Although the Contractor may seek information from suppliers in carrying out its contractual responsibilities, the Contractor shall assure that no supplier receives unfair advantage.

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Task 11.15 Implementation: Accomplished.

Procurement transactions were carried out in accordance with USAID regulations and to provide open competition to the maximum extent possible, with no supplier receiving unfair advantage. All IFB documents are sold to the potential bidders at the same time. Any amendment or clarification to the tender documents is sent to all bidders. A public bid opening is conducted to make the offers known to all bidders.

M. Component 12: Logistics Inventory Control and Distribution

Objectives

- Provide commodity items required by the CSP objectives (Exhibit 3.10)
- Increase availability of equipment required in laboratories of hospitals and health centers
- Increase the availability of equipment required in pediatric care units
- Increase the availability of equipment for training services in MOH training centers
- Increase the availability of equipment for microcomputer services in MOH headquarters and Field Directorates
- Increase the availability of equipment for cold chain maintenance systems in MOH Field Directorates
- Increase the availability of refrigerated vehicles for cold chain service (EPI).

Contract Task 12.1 Provide direction and guidance for the establishment of an office for the Logistics, Inventory Control and Distribution Component including:

- Policies: Organize routines for setting, recording and communicating unit policies and procedures.

- Work Scheduling: Prepare devices to meet requirements of the component for managing work such as charts, files, computer spreadsheet templates and train component personnel in their use, whether MOH or Contractor employees. including work scheduling, problem tracking, meeting agenda record keeping, component cost budgeting and work scope preparation for proposed grants and contracts.

- Training: Provide training to introduce all unit personnel, whether MOH or contractor employees, to use CSP procures for requesting and monitoring services providing by components 7 to 14[10]

- Coordination: Develop arrangements (such as scheduled periodic meetings, written advisories or other devices) to ensure coordination of efforts among

[10] (7:Training, 8:Health Promotion, 9:Evaluation, 10: Decentralized HIS and Disease Surveillance system),11: Off shore procurement, 12:Logistics and Inventory Control (and Distribution), 13: Contracts and Human Resources Management, and 14 Organization and Management of Contractor Support.

components 3 to 6 and to prevent dysfunctional simultaneous or conflicting schedules of implementation.

Task.12.1 Implementation: Accomplished.

The functions of the proposed Logistics, Inventory Control and Distribution Component have been included in the functions of and exercised by the CSP Office of Administration which include a units for Stores (storage and distribution) and staff who manage logistics and inventory control. CAU provides staff and technical assistance in the organization and management of the Office of Administration.

Contract Task 12.2 Based on standards studies.. prepare and conduct surveys in university and teaching hospitals laboratories and pediatric care units, fever hospital laboratories, MOH training centers and the National Nutrition Institute...(to) identify present facility services and programs, equipment, and availability of maintenance services, spare parts, users manuals, repair manuals and service technicians.

Task 12.2 Implementation: Accomplished.

This task to survey equipment and maintenance availability and needs is in fact a task which can only be carried out by the CSP with contractor advice and guidance. The task in fact was not carried out under this component. Instead, such studies and surveys as were needed to determine equipment and supply and maintenance requirements were carried out by the technical components. For example, the equipment requirements for first referral level neonatal care centers (referred to as pediatric centers in the above) were developed following a national survey of neonatal care centers carried out in 1990.

Contract Task 12.3 Analyze survey (task 12.2 results.....)

Task 12.3 Implementation: Accomplished.

As in task 12.2 above, task 12.3 has been the responsibility of technical components. Technical components, supported by specialists and consultants provided by CAU, and by the Office of Administration engineer staff, have carried out such analysis.

Contract Task 12.4 Recommend gross quantities required for each type of equipment, including facility-specific requirements and requirements for packages of groups of equipment for types of facilities.

Task 12.4 Implementation: Accomplished.

As in task 12.2 and task 12.3, task 12.4 has been the responsibility of technical components. Technical components, supported by specialists and consultants provided by CAU, and by engineers in the Office of Administration, have provided the recommendations for equipment required..

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Contract Task 12.5 Develop specifications for use in procurement requests, including references to current catalogs of equipment and considering system life costs of each item specified and the availability of maintenance services and spare parts in remote and well as urban settings of use.

Task 12.6 Implementation: Accomplished..

Development of specifications for use in procurement has been the responsibility of technical components. The contractor has assisted in development of such specifications by CAU engineering and procurement staff/sub contractors.

Contract Task 12.6 Advise the Project Executive Director on local purchase processing for off-the-shelf items, as requested.

Task 12.6 Implementation. Accomplished, by CAU and the Office of Administration.

Contract Task 12.7 Prepare purchase requests for off-shore procurement and provide support to the process of purchase requests.....

Task 12.7 Implementation: Accomplished, by CAU and the Office of Administration.

Contract Task 12.8 Review, monitor and advise the Project Executive Director on the processing of procurement documents derived from off-shore procurement, such as invitations for bids, bills of lading and other documents.

Task 12.8 Implementation: Accomplished, by CAU and the Office of Administration.

Contract Task 12.9 Advise the Project Executive Director on customs clearance requirements for incoming commodity shipments (except for clearances).

Task 12.9: Implementation: Accomplished, by CAU and the Office of Administration.

Contract Task 12.10 Arrange controls for receipt of incoming commodity purchases (offshore and local) including timely and secure protection, storage and inspection.

Task 12.10: Implementation Accomplished, by CAU and the Office of Administration.

Contract Task 12.11 Advise the Project Executive Director on the data and descriptions which may be needed for recording in governorate of Egypt property records systems for the commodity items procured under the Project.

Task 12.11 Implementation Accomplished by CAU and the Office of Administration.

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Contract Task 12.12 Arrange contracts funded outside the scope of this Contract for proper storage and distribution of commodity items to user sites.....

Task 12.13 Implementation Accomplished.

This task has been primarily the responsibility of the CAU supported CSP Office of Administration.

Contract Task 12.13 Advise the Project Executive Director on the need for user training.

Task 12.13 Implementation: Accomplished

By CAU and the CSP Office of Administration, in collaboration with the technical components.

N. Component 13: Contracts and Human Resources Management

Overall Task: The Contracts and Human Resources Management Component shall be to plan, organize and operate services to support internal operations of the Secretariat in contracting and in personnel, respectively.

Implementation of the Overall Task: The functions of the proposed office were included in those of the CSP Office of Administration, headed by a CAU employee and including several CAU key staff, and supported by technical advice and guidance from the CAU contract team and home office staff.

Objectives

- Establish controls over contracting procedures to ensure high quality, timely products and services are performed by Project subcontractors, greatees and outside contractors, meeting rules and regulations of the GOE and USAID

- Establish controls over hiring procedures to ensure properly qualified and experienced personnel are engaged for services by the Contractor or subcontractors, meeting rules and regulations of the GOE and USAID.

Contract Task 13.1 Provide direction and guidance for the establishment of an office for the Contracts and Human Resources Component, including but not limited to:

- Policies: Organize routines for setting, recording and communicating unit policies and procedures.

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• Work Scheduling: Prepare devices to meet requirements of the component for managing work such as charts, files, computer spreadsheet templates and train component personnel in their use, whether MOH or Contractor employees. including work scheduling, problem tracking, meeting agenda record keeping, component cost budgeting and work scope preparation for proposed grants and contracts.

• Training: Provide training to introduce all unit personnel, whether MOH or contractor employees, to use CSP procures for requesting and monitoring services providing by components 7 to 14[11]

• Coordination: Develop arrangements (such as scheduled periodic meetings, written advisories or other devices) to ensure coordination of efforts among components 3 to 6 and to prevent dysfunctional simultaneous or conflicting schedules of implementation.

Task 13.1 Implementation: Accomplished.

The specified office was not included in CSP organization. Instead, the functions of the proposed office were included in those of the CSP Office of Administration, headed by a CAU employee and including several CAU key staff.

Task 13.2 Prepare forms for contract agreements, bidder evaluations, job descriptions, work performance evaluations, employment records and staff cadre record keeping systems for the Contractor and subcontractor personnel under the Contract..

Task 13.2 Implementation: Accomplished.

This task was the responsibility of the CSP Office of Administration. The contractor provided staff support and technical assistance to the Office for implementation of the task.

Contract Task 13.3 Prepare requirements descriptions, specifications, bidding and contracting documents and contract management record keeping for the CSP.

Task 13.3 Implementation Accomplished.

This task was the responsibility of the CSP Office of Administration. The contractor provided staff support and technical assistance to the Office for implementation of the task. Specifications were the responsibility of technical components supported by the Office.

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[11] (7:Training, 8:Health Promotion, 9:Evaluation, 10: Decentralized HIS and Disease Surveillance system),11: Off shore procurement, 12:Logistics and Inventory Control (and Distribution), 13: Contracts and Human Resources Management, and 14 Organization and Management of Contractor Support.

CAU developed RFPs for its major subcontracts in Egypt for KAP studies and mass media messages.

Contract Task 13.4 Prepare grant agreements, including requisite descriptions and specifications of the purposes and phases of work to be pursued for the CSP.

Task 13.4 Implementation Accomplished

This task was the joint responsibility of technical components and the Office of Administration.

Contract Task 13.5 Prepare, distribute, and publish announcements of: future CSP employment opportunities, future procurement actions, recently negotiated and approved contract and grant agreements; and invitations to bid.

Task 13.5 Implementation Accomplished.

This task was the responsibility of the CSP Office of Administration. The contractor provided staff support and technical assistance to the Office in support of implementation of the task. Invitations to bid for offshore procurement were the responsibility of the PSA subcontractor and were executed as required.

Contract Task 13.6 Search, screen, interview (with necessary technical participation), hire and orient new CSP Contract personnel as requested.

Task 13.6 Implementation: Accomplished.

This task was the responsibility of the CAU COP and CSP Office of Administration. The contractor provided staff support and technical assistance to the Office in support of implementation of the task.

O. Component 14: Organization and Management of Contractor Support

Component Objective: To provide support for in-country operations to ensure timely completion of Contract services.

Contract Task 14.1 During the period of mobilization...provide specialized services (for start up)

Task 14.1 Implementation Accomplished.

During the first 60 days, CAU fielded two Arabic fluent long term expatriate staff to establish a field office.

Task 14.2 Purchase office equipment and other items for support of contractor operations...

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Task 14.2 Implementation Accomplished

CAU purchased and supplied necessary equipment during the life of the Project, as required.

Task 14.3 Provide for payment of resident expatriate personnel expenses related to household utilities for gas, water and electricity.

Task 14.3 Implementation Accomplished.

Task 14.4 Provide arrangements for all required shipping of household goods as authorized for expatriate personnel.

Task 14.4 Implementation Accomplished.

Task 14.5 Hire, train and supervise office personnel for support of Contractor operations

Task 14.5 Implementation Accomplished.

Task 14.6 Provide home office support to Contractor operations

Task 14.6 Implementation Accomplished.

CAU Home Office and Cairo Office work closely together on a day-to-day basis. Periodic home office visits to Cairo and COP visits to Home Office allowed for planning and for problem identification and resolution.

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Annex 4

TECHNICAL ASSISTANCE

Area : Child Spacing/MCH

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1994								
1	A. Brownlee	breastfeeding prog develop	Recommendation	CAU/Well	Jun-Jul	17.0		LA94-09
2	O. Campbell	maternal mortality study	Study	CAU/LSHTM	Jan	12.0		CA93-17/2
3	E. Creer	breastfeeding prog dev.		CAU/Well	Jun-Jul	15.0		LA94-09
4	A. Davies	neonatal care prog backup		CAU/Dart	-	45.0		LA94-03/1
5	V. Flanigan	resuscitation trg	Training	CAU/Dart	-	42.0		LA94-03/1
6					Sep-Oct	16.0		LA94-11
7	H. Hilmy	video	Video	CAU	Sep	-	E	CA94-18
8	G. Little	neo-natology rev/TR	Recommendation/	CAU/Dart	Jan-Feb	18.0		LA94-03/2
9			Training		Sep-Oct	16.0		LA94-11
10					-	39.0		LA94-03/1
11	T. Marshall	maternal mortality report	Study	CAU/LSHTM	Apr	5.0		CA94-06
12	N. Ragheb	video focus groups/report	Study	CAU	Nov	-	E	CA94-21
13	A. Richter	daya program eval./eval.	Evaluation	CAU/ACNM	Apr-May	29.0		LA94-07
14	C. Ronsmans	maternal mortality report	Study	CAU/LSHTM	Apr	6.0		CA94-04
15	R. Saada	breastfeeding prog dev.		CAU/WHO	Jun-Jul	7.0		LA94-10
16	G. Batouty	Pan African conf		CAU	May	-		-
17	L. Keith	Pan African conf.		CAU	May	-		-
18	E. Kessel	Pan African conf		CAU	May	-		-
19	A. Omran	Pan African conf		CAU	May	-		-
						267.0		
*	C. Shulman	maternal mortality report		LSHTM	Apr	5.0		

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Area : Child Spacing/MCH

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1993								
1	G. Allison	mid-wifery program planning	Recommendation/	CAU/ACNM	May	24.5		LA93-02
2		and curriculum	Manual		Sep-Oct	26.0		LA93-06
3	O. Campbell	maternal mortality study	Study	CAU/LSHTM	Feb-Mar	18.0		CA93-07
4					Jun	10.0		CA93-11
5					Oct	12.0		CA93-17
6	G. Little	neo-natology training	Training	CAU/Dart. C.	Jul	24.0		LA93-04
7	J. Wilkinson	maternal mortality study	Study	CAU/LSHTM	Jul	14.0		CA93-19
						128.5		
*	A. Brownlee	breastfeeding program dev .		WHO/Wellst.	Feb	7.0		
*	C. O'Gara	breastfeeding program dev.		WHO/Wellst.	Feb	7.0		
*	E. Abu-Heider	birthing kit dev.		PATH	Feb	9.0		
*	D. Robinette	birthing kit dev.		PATH	Feb	9.0		

AR... ARI/JHU/Applied Research Subcontract

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
1990						
1	R. Black	senior management		JHU	Oct	11.4
2	P. Charache	laboratory review		JHU	Nov	9.0
3	A. Gadomski	signs and symptoms		JHU	Jul	78.5
4	A. Gadomski	signs and symptoms		JHU	Oct	-
5	A. Gadomski	wheezing, signs & sympt.		JHU	Nov	-
6	L. Harrison	facilities survey		JHU	Jul	39.3
7	L. Harrison	facilities survey		JHU	Dec	-
8	E. Herman	ethnographic survey		JHU	Jul	41.5
9	E. Herman	ethnographic survey		JHU	Sep	-
						181.5
1991						
1	R. Black	senior management		JHU	Sep	22.0
2	P. Charache	antibiotic susceptibility		JHU	Oct	10.0
3	E. Ellerbeck	antibiotic acceptability and compliance		JHU	Jul	18.8
4	A. Gadomski	sign and symptoms		JHU	Jan	91.1
5	A. Gadomski	wheezing, signs & sympts.		JHU	May-Jun	-
6	A. Gadomski	wheezing, signs & sympts.		JHU	Sep	-
7	N. Graham	pharyngitis		JHU	-	14.3
8	S. Harrington	antibiotic susceptibility		JHU	Oct-Nov	27.8
9	L. Harrison	Geneva meeting		JHU	Feb	69.3
10	L. Harrison	antibiotic resistance		JHU	May	-
11	L. Harrison	antibiotic resistance		JHU	Nov	-
						257.1

Area: ARI.JHU/Applied Research Subcontract

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
1992						
1	S. Becker	child mortality		JHU	Feb	35.5
2	S. Becker	child mortality		JHU	Jul-Aug	-
3	S. Becker	child mortality		JHU	Oct	-
4	R. Black	research review		JHU	Feb	38.3
5	R. Black			JHU	Oct	-
6	P. Charache	antibiotic susceptibility		JHU	Jan	13.1
7	E. Ellerbeck	acceptibility of antibio.		JHU	-	5.0
8	A. Gadomski	wheezing		JHU	May-Jun	56.8
9	N. Graham	pharyngitis study		JHU	-	2.0
10	S. Harrington	antibiotic susceptibility		JHU	Jan	6.0
11	L. Harrison	facilities/antiobiotic sus.		JHU	-	85.4
12	E. Herman	ethnographic studies		JHU	-	2.7
13	M. Steinhoff	pharyngitis study		JHU	Aug-Sep	29.0
14	M. Steinhoff	pharyngitis study		JHU	Oct	-
						273.9
1993						
1	A. Abashawl	maternal reporting		JHU	-	12.0
2	S. Becker	child mortality		JHU	Mar	41.1
3	S. Becker	child mortality		JHU	Oct	-
4	R. Black	senior management		JHU	Jan	35.5
5	A. Gadomski	signs and symptoms		JHU	-	8.5
6	S. Harrington	antibiotic susceptibility		JHU	Jan	7.0
7	L. Harrison	antibiotic resistance		JHU	-	30.3
8	M. Steinhoff	pharyngitis		JHU	Jan	25.0
						159.4

JHU backstopping is estimated at 221.35 days.

ARI/JHU/Applied Research Subcontract

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
1994						
1	F. Ahmed	pharyngitis study		JHU	-	7.6
2	S. Becker	child mortality		JHU	Apr	30.9
3	S. Becker	child mortality		JHU	Sep	-
4	R. Black	senior management		JHU	-	18.0
5	R. Black	ARI conf.		JHU	Jun	3.0
6	R. Black	CSP utilization study		JHU	Jul	21.5
7	K. Hill	CSP utilization study		JHU	Jul	23.0
8	M. Steinhoff	pharyngitis		JHU	Dec	25.0
						129.0
*	R. Langston	CSP on utilization study		JHU/CSF		

JHU backstopping is estimated at 121.4 days.

1995						
1	S. Becker	child mortality		JHU	-	17.2
2	R. Black	senior management		JHU	-	-
		CSP utilization study				2.8
3	K. Hill	CSP utilization study		JHU	May-Jun	8.0
4	M. Steinhoff	pharyngitis study		JHU		19.0
5	statistician	pharyngitis study		JHU		6.0
						1.0
						54.0
•	R. Langston	CSF on utilization study		JHU/CSF		

JHU backstopping is estimated at 20.3 days

1996						
1	S. Harrington	lab evaluation		JHU	Mar	
2	K. Hill	CSP utilization study		JHU		
3	R. Black	senior management		JHU		
		CSP utilization study				

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Area : Child Spacing/MCH

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1	J. Rittmann	CS portion of 1990 IWP	Work Plan	CAU	Nov	22.0		CA89-05
1990								
1	A. Wahba	Eval. of nursing course	Evaluation	CAU	Aug	23.0		CA90-09
1991								
1	O. Campbell	maternal mortality study	Study	CAU/LSHTM	Sep	12.0		CA91-07
2	M. Graven	neo-natal program develop	Training	CAU/USF	Dec	13.0		CA91-13
3	S. Graven	neo-natal program develop	Training	CAU/USF	Dec	13.0		CA91-13
						38.0		
1992								
1	O. Campbell	maternal mortality study	Study	CAU/LSHTM	Feb	10.0		CA92-02
2	O. Campbell	maternal mortality study	Study	CAU/LSHTM	Nov	18.0		CA92-16
3	J. Fortney	maternal mortality study	Study	CAU/WHO	Mar	6.0		CA92-05
4	S. Graven	neo-natal conference		CAU/USF	Jan	11.0		CA92-01
5	G. Little	neo-natal program start-up evaluation	Evaluation	CAU/Dart. C.	Sep-Oct	22.0		LA92-11
6	A. Richter	daya program evaluation	Recommendation	CAU/ACNM	May	12.0		LA92-04
						79.0		

Area: EPI

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE	Local Hire	CA/LA #
1996								
*	See CDC/PASA for F. Averhoff							
*	N. Ward	Polio surveillance	Recommendation Evaluation	WHO	Feb	1.0		

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE	Local Hire	CA/LA #
1993								
1	T. Matthews	motorcycle training	Training	CAU	Jan	14.0		CA93-01
2	A. Penn	motorcycle training	Training	CAU	Jan	14.0		CA93-02
						28.0		
*	See CDC/PASA for TA of F. Averhoff, R. Linkins, and F. Mahoney and FETP of D. Hatch, R. Cox, and M. Malison.							
	See TRG for P. Brachman							
*	N. Ward	EPI sur. system review	Evaluation	WHO	Nov	10.0		
*	B. Aylward	EPI sur. system reivew	Evaluation	WHO	Nov	10.0		
*	S. Cochi	EPI sur. system review	Evaluation	WHO/CDC	Nov	10.0		
*	F. Verani	EPI sur. system reivew	Evaluation	WHO/Rot	Nov	10.0		
*	M. Birmingham	EPI sur. system review	Evaluation	WHO	Nov	10.0		
1994								
1	K. Attawell	EPI newsletter planning	Recommendation	CAU	Apr-May	20.0		CA94-03
2	B. Aylward	EPI articles/draft articles	Article	CAU/WHO	Sep	22.0		LA94-18
3	T. matthews	EPI motorcycles prog. eval/eval	Evaluation	CAU	Apr	16.0		CA94-01
						58.0		
*	See CDC/PASA for K. Bussel, R. Linkins, F. Mahoney and FETP for R. Cox, D. fishbein, D. Hatch, and V. Peavy.							
	See EPI/Vacsera for Vacsera related activities.							
1995								
1	B. Aylward	Surveillance supervision	Recommendation	CAU	Mar	16.0		CA95-06
2	B. Aylward	EPI articles/articles	Article	CAU	-	12.0		CA95-14
3	B. Grover	EPI 10-Year Report		CAU	Aug-Oct	8.5	E	CA95-15
						36.5		
*	See CDC/PASA for F. Averhoff							
*	M. Birmingham	Disease surveillance rev.	Evaluation	WHO	Jun			
*	E. Drurry	Disease surveillance rev.	Evaluation	WHO/CDC	Jun			
*	N. Ward	Disease surveillance rev./eval	Evaluation	WHO	Jun			
*	H. Hull	Disease surveillance rev.	Evaluation	WHO	Dec	2.0		
*	N. Ward	Disease surveillance rev.	Evaluation	WHO	Dec	2.0		
	See EPI/Vacsera for Vacsera related activities.							

Area: EPI

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE	Local Hire	CA/LA #
1989								
1	P. Brachman	EPI portion of 1990 IWP	Work Plan	CAU/HO	Dec	9.0		na
1990								
1	F. Averhoff	polio program review	Recommendation	CAU/WHO	Aug	10.0		LA90-04
2	F. Averhoff	polio officer training	Training	WHO	Nov	14.0		LA90-05
3	J. Pott	cold chain evaluation	Evaluation	CAU	Jan-Mar	37.0		CA90-01
4	J. Pott	cold chain development	Report	CAU	May-Oct	131.0		CA90-06
5	J. Pott	cold chain development	Report	CAU	Nov-Dec	49.0		CA90-10
						241.0		
•	See training for applied epidemiology course							
1991								
1	F. Averhoff	polio program review	Recommendation	CAU	May-Jun	17.0		CA91-03
2	F. Averhoff	polio program review	Recommendation	CAU	Oct-Nov	15.0		CA91-08
3	E. Brenner	EPI-SAS development	Recommendation	CAU	Sep	21.0		CA91-09
4	E. Brenner	EPI-SAS and EPI-MAP develop	Recommendation	CAU	Dec	12.0		CA91-09
5	L. Kreiger	hep B intro planning	Plan	PATH	Sep-Oct	20.0		LA91-02
6	H. Margolis	hep B intro planning	Plan	CDC	Sep-Oct	10.0		-
7	J. Maynard	hep B intro planning	Plan	PATH	Sep	14.0		LA91-02
8	J. Pott	cold chain dev./QR & FR	Report	CAU	Jan-May	100.0		CA90-10
						209.0		
*	See training for applied epi and management courses							
1992								
1	F. Averhoff	polio program review	Recommendation	CAU	Feb	11.0		CA92-03
2	E. Brenner	EPI-SAS, see HIS/HMS also	Manual	CAU	Feb-Mar	21.0		CA92-04
3	F. Rahman	polio program evaluation/ER	Evaluation	CAU	Jul-Aug	27.0		CA92-11
						59.0		
*	See training for applied epi and management courses							
•	See CDC/PASA					64.0		-
*	M. Demming	national measles plan dev.	Plan	CDC/WHO	Feb-Mar	13.0		-
•	M. LaForce	NNT elimination verification	Plan	WHO	Apr	12.0		-
•	J. Sokhey	NNT elimination verification	Plan	WHO	Apr	12.0		-

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Area : Child Spacing/MCH

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1995								
1	O. Campbell	hospital study	Study	CAU	Jun	19.0		LA93-17/3
2	O. Campbell	hospital study	Study	LSHTM	Dec	2.0		
3	A. Davies	neonatal back-up	Manual	CAU/Dart	-	50.0		LA95-04
4	E. Fateem	daya focus groups	Study	CAU	Sept-Oct	na		CA95-19
5	V. Flanigan	neonatal back-up	Manual	CAU/Dart	-	48.0		LA95-04
6	R. Goldenberg	lbw study	Recommendation	CAU	Feb	10.0		CA95-03
7	B. Kwast	midwifery prog. eval./eval	Evaluation	CAU/ACNM	Mar	21.0		LA95-01
8	G. Little	neonatal back-up/reports		CAU/Dart	-	42.0		LA95-04
9		neonatal planning	Recommendation		Jan	12.0		LA95-02
10		lbw study	Recommendation		Feb	13.0		LA95-02
11		sustainability planning	Recommendation		Jul	8.0		LA95-04/1
12		Pediatric conf.			Sep	10.0		LA95-09
13	A. Richter	daya trg. evaluation	Evaluation	CAU/ACNM	Oct	25.0		LA95-08
						3.0		
14	K. Scanlon	midwifery prog. eval.	Evaluation	CAU/ACNM	Mar	18.0		LA95-01
15	P. Velebil	hospital study & MCH		CAU	Jun	21.0		CA95-10
		surveillance	Study			302.0		
*	See CDC/PASA for B. McCarthy in Feb and Jul							
1996								
1	G. Little	neonatal unit review/trg.	Training	CAU/Dart	Jan	8.0		LA96-01
		neonatal back-up	Recommendation/ Evaluation		-	22.0		
2	V. Flanigan	neonatal trg	Training		Mar-Apr	12.0		
		neonatal back-up	Manual		-	17.0		
3	A. Davies	neonatal back-up	Manual		-	19.0		
3/19/1996						92.0		

Area: ARI

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1	R. Black	applied research plan		CAU/JHU	May	8		-
2	R. Black	applied research plan	Plan	CAU/JHU	Dec	10		CA89-08
						18		
*	A. Pio	ARI National Plan	Plan	WHO	na	na		-
1990								
1	A. Gadomski	signs and symptoms study	Study	CAU/JHU	Mar	25		CA90-05
2	E. Herman	ethnographic research	Study	CAU/JHU	Mar	25		CA90-04
						50		
*	see JHU subcontract list			CAU/JHU		182		subcon.
1991								
1	K. Attawell	ARI newsletter develop	Recommendation	CAU/AHRTAG	Aug	19		CA91-11
2	A. Kielmann	management/Geneva		CAU	Feb	5		-
3	M. Naficy	ARI newsletter/#1		CAU	Oct-Nov	31	E	CA91-11
						55		
*	J. Heiby	quality assurance		AID/W	Aug	6		-
*	A. Lewis	senior fellow		JHU	Apr-Dec	203		-
*	S. Ostroff	drug resistance study	Study	CDC/WHO	May-Jun	20		-
*	S. Ostroff	drug resistance study	Study	CDC/WHO	Oct-Nov	26		
*	see JHU subcontract list			CAU/JHU		257		subcon.
						512		
1992								
1	J. Bennett	Bilbeis evaluation	Evaluation	CAU/TFCS&D	May	15		LA92-04
2	H. Campbell	see training	Training	CAU	Nov	13		CA92-10
3	A. Crowley	training evaluation		CAU	Jul-Oct	65	E	CA92-08
4	M. Daniels	drug distribution plan		CAU	Jul-Oct	60	E	CA92-13
5	M. Daniels	drug dis. and HIS		CAU	Oct-Jan	42	E	CA92-18
6	B. Metchock	Bilbeis evaluation	Evaluation	CAU	May	13		CA92-06
7	M. Naficy	ARI Newsletter		CAU	Jan-Jun	67	E	CA91-11
8	M. Naficy	ARI Newsletter		CAU	Jul-Oct	40	E	CA92-12
9	M. Naficy	ARI Newsletter		CAU	Nov-Dec	24	E	CA92-19
10	D. Sencer	drug policy	Recommendation	CAU/MSH	Jan	15		LA92-01
						354		

Area: ARI

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
•	R. Dopson	oxygen concentrators	Study	WHO	Sep	12		-
•	R. Glazier	see training	Training	WHO	Nov	13		-
•	A. Lewis	senior fellow		JHU	Jan-Nov	228		-
•	S. Ostroff	drug resistance study	Study	CDC	Jan	6		-
•	see JHU subcontract list			CAU/JHU		274		subcon.
•	see CDC/PASA list			CDC		81		-
						614		
1993								
1	M. Daniels	ARI drug logisitics/HIS		CAU	Jan	17.25	E	CA92-18
2	M. Daniels	ARI drug logistics		CAU	Feb-Apr	44.38	E	CA93-05
3	M. Daniels	ARI HIS system		CAU	Jun-Nov	91.00	E	CA93-14
4	H. Dobson	oxy. concentrator study	Study	CAU/WHO	Sep-Oct	18.00		LA93-09
						170.63		
•	see JHU subcontract list							
•	see CDC PASA list for Ostroff							
1994								
1	H. Amin	ARI video		CAU	Jan-Feb	38.00	E	CA94-17
2	S. Blumenfeld	quality assurance dev.	Recommendation	CAU/URC	Apr-May	33.00		LA94-04
3	R. Chase	ARI conf. coordinator		CAU	May-Jun	62.38	E	CA94-05
4	R. Glazier	ARI conf.		CAU	Jun	6.00		CA94-08
5	B. Jensen	ARI video		CAU	Jan	16.00	E	CA94-16
6	K. O'Malley	ARI conf.		CAU	Jun	4.00		-
7	D. Peel	oxy. concentrator trg	Training/Manual	CAU	Jan	14.00		CA93-25
						173.38		
•	see JHU subcontract list							
•	see CDC PASA list for Ostroff							
1995								
1	M. Dobson	oxy. conc. study	Study	CAU	Jan	9.00		CA95-01
2	D. Peel	oxy. conc. study	Study	CAU	Jan	11.00		CA95-02
3	A. Pio	ARI planning	Plan	CAU	Aug	24.00		CA95-11
						44.00		
•	see JHU subcontract list							
1996								
•	see JHU subcontract list for S. Harrington							
•	see CDC for S. Ostroff					44.00		

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Program Management		CAU/HO		CAU/LTE	CAU/CONS.	CDC	Total
	1989	28		732	32	0	792
	1990	170		397	119	0	686
	1991	112		379	35	53	579
	1992	110		379	166	95	750
	1993	48		546	409	21	1031
	1994	60		546	650	16	1272
	1995	48	e	546	474	0	1068
	1996	31	e	276	189	0	496
Total		607		3801	2074	185	6674

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List of Abbreviations

General

*	TA provided through an organization other than CAU
CY	Calendar year
SOW	Scope of work
CA/LA	Consultant Agreement/Letter Agreement
Local Hire/E	Expatriate consultant living in Egypt or an Egyptian Firm

Organization

ACNM	American College of Nurse Midwives
Arab	Arabsoft
AUC	American University in Cairo
BU	Boston University
CAU	Clark Atlanta University
CAU/HO	CAU Home Office
CAU/SM	CAU Senior Management
CDC	Centers for Disease Control and Prevention
Chem	Chemonics
CSF	Child Survival Fellow
Dart	Dartmouth College, Hitchcock Medical Center
DHS	Egyptian Demographic Health Survey
EP&A	Ernie Petrich and Associates
GIT	Georgia Institute of Technology
GSU	Georgia State University
JHU	Johns Hopkins University
JSI	John Snow International
LSHTM	London School of Hygiene and Tropical Medicine
MSH	Management Sciences for Health
ROT	Rotary Club International
TFCS&D	Carter Center/Task Force for Child Survival and Development
URC	University Research Corporation
USF	University of South Florida

Training/General		CAU	CDC	Other	Total	Notes
	1989	0	0	0		CDC includes FETP
	1990	40	38	0	78	long term advisor
	1991	34	52	0	86	(899 days).
	1992	43	42	0	85	CAU includes training
	1993	86	228	0	314	not allocated to technical
	1994	390	284	0	674	units including applied
	1995	300	291	0	591	epidemiology courses and
	1996	89	130 e	0	219 e	cross-cutting.
Total		982	1065	0	2047	

HIS/HMS		CAU	CDC	Other	Total	Notes
	1989	15	0	0	15	CAU: Work under
	1990	0	0	0	0	Arabsoft fixed price
	1991	65	0	0	65	contracts not included.
	1992	93	0	35	128	Estimate is 891 days
	1993	229	3	0	232	additional,
	1994	86	36	0	122	1993-1996.
	1995	21	0	0	21	
	1996	0	0	0	0	
Total		509	39	35	583	

Summary of Technical Assistance

Health Education/ Communication		CAU	CDC	Other	Total	Notes
	1989	13	0	0	13	CAU: Does not include time under Publi-Graphics contract 1994-96, SPAAC or for SCI.
	1990	0	0	0	0	
	1991	21	21	0	42	
	1992	120	0	0	120	
	1993	169	0	0	169	
	1994	204 [1]	0	0	204	
	1995	204	0	0	204	
	1996	126	0	0	126	
Total		857	21	0	878	

Evaluation		CAU	CAU/JHU	CDC	Other	Total	Notes
	1989	0	0	0	0	0	CAU: Does not include evaluation assigned to technical units or time under SPAAC fixed price contracts for KAP. Includes mid-term and final evaluation teams and Child Survival Fellow at AUC.
	1990	0	0	0	0	0	
	1991	0	0	0	0	0	
	1992	0	0	0	202	202	
	1993	0	0	0	39	39	
	1994	27	45	0	130	202	
	1995	0	30	0	282	312	
	1996	207	10 e	0	180 e	397	
Total		234	85	0	833	1152	

Summary of Technical Assistance

In Person-Days, at 260 Person Days/Year

ARI		CAU	JHU	CDC	Other	Total
	1989	18	0	0	0	18
	1990	50	182	0	0	232
	1991	55	257	46	6	567
	1992	354	274	87	25	968
	1993	171	159	14	0	344
	1994	173	85	10	0	268
	1995	44	34	1	0	79
	1996	0	20	10	0	30
		865	1011	168	31	2506

CS/MCH		CAU	JHU	CDC	Other	Total
	1989	22	0	0	0	22
	1990	23	0	0	0	23
	1991	38	0	0	0	38
	1992	79	0	0	0	79
	1993	129	0	0	32	161
	1994	267	0	0	5	272
	1995	302	0	10	0	312
	1996	92	0	0	12	104
		952	0	10	49	1011

Summary of Technical Assistance

EPI		CAU	CDC	Other	Total	Notes
	1989	9	0	0	9	CAU includes J. Pott under 2 6-months contracts in 1990 (180 days) and 1991 (100 days).
	1990	241	0	0	241	
	1991	209	0	0	209	
	1992	59	64	37	160	
	1993	28	47	50	125	
	1994	58	46	0	104	
	1995	37	6	22	65	
	1996	0	0	1	1	
Total		641	163	110	914	

EPI/VACSERA		CAU	CDC	Other	Total	Notes
	1989	0	0	0	0	FDA work is not included, nor work of organizational assessment studies of 1994.
	1990	0	0	0	0	
	1991	0	0	0	0	
	1992	0	0	35	35	
	1993	140	0	0	140	
	1994	189	0	0	189	
	1995	16	0	4	20	
	1996	0	0	0	0	
Total		345	0	39	384	

Area: Training and Short Courses

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1993								
1	R. Ainsworth	Integrated clincal manage.	Manual	CAU/EP&A	Sep-Dec	67.0		LA93-07
2	P. Brachman	applied epi course/TR, course		CAU	Dec	19.0		LA93-10
3	G. Little	See CS/MCH		Dart	Jul	24.0		LA93-04
4	T. Matthews	See EPI		CAU	Jan	14.0		CA93-01
5	A. Penn	See EPI		CAU	Jan	14.0		CA93-02
						138.0		
*	See CDC/PASA for D. Hatch, V. Peavy, and D. Klauke, FETP and applied epi. course							
1994								
1	P. Brachman	applied epidemiology	Training	CAU	Dec	19.0		CA93-10/2
2	J. Carneiro	decentralization trg	Training	CAU/SOZA	Mar-May	44.0		LA94-06
3	T. Coles	model clinic trg	Manual	CAU/EP&A	May	33.0		LA94-08
4					Sep-Oct	76.0		LA94-20
5					-	11.0		LA94-24
6	F. Heegaard	decentralization trg	Training	CAU/SOZA	Mar-May	59.0		LA94-06
7	D. Peel	See ARI		CAU	Jan	14.0		LA93-25
8	E. Petrich	model clinic backup		CAU/EP&A	-	10.0		LA94-08
9	R. Schneider	model clinic management	Recommendation	CAU/EP&A	Jan-Feb	53.0		LA93-07-1
10					Apr-May	29.0		LA94-08
11					Aug-Sep	34.0		LA94-20
12					-	6.0		LA94-24
						390.0		
*	See CDC/PASA for D. Hatch, V. Peavy, and D. Fishbein							

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[illegible] and Short Courses

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1990								
1	P. Brachman	Planning		CAU/HO	May	7.0		-
2	P. Brachman	applied epi course planning		CAU/HO	Sep	9.0		-
3	P. Brachman	applied epidemiology course		CAU/HO	Nov-Dec	17.0		-
4	E. Brenner	applied epidemiology course		CAU	Dec	7.0		CA90-11
5	R. Fagan	applied epidemiology course		CDC	Dec	10.0		-
6	R. Linkins	applied epidemiology course		CDC	Dec	14.0		-
7	V. Peavy	applied epidemiology course		CDC	Dec	14.0		-
						78.0		
*	S. Stolba	training plan development		Pragma	Feb	na		
1991								
1	P. Brachman	senior management course		CAU/HO	May	10.0		-
2	P. Brachman	applied epidemiology course		CAU/HO	Dec	14.0		-
3	R. Linkins	applied epidemiology course		CDC	Dec	13.0		-
4	D. Klauke	senior management course		CDC	May	8.0		-
5	K. Miner	health education/senior management course/TR		CAU/Emory	May	10.0		CA91-02
6	M. Pappaouanou	data for decision making/ senior management course		CDC	May	10.0		-
7	V. Peavy	senior management course		CDC	May	8.0		-
8	V. Peavy	applied epidemiology course		CDC	Dec	13.0		-
						86.0		
1992								
1	P. Brachman	applied epidemiology course		CAU/HO	May-Jun	9.0		-
2	P. Brachman	FETP course		CAU/HO	Dec	14.0		-
3	H. Campbell	ARI specialist course		CAU	Nov	13.0		CA92-10
4	E. Picard	off-shore training planning		CAU/HO	Jan	11.0		-
5	R. Schrunk	health management/applied epidemiology course		CAU	May-Jun	9.0		CA92-07
						56.0		
*	R. Glazier	ARI specialist course		WHO	Nov	13.0		-
*	M. Lapointe	applied epidemiology course		CDC	May-Jun	9.0		-
*	M. Malison	applied epidemiology course		CDC	May-Jun	9.0		-
*	D. Klauke	FETP course		CDC	Dec	12.0		-
*	V. Peavy	FETP course		CDC	Dec	12.0		-
*	see CDC/PASA for FETP planning			CDC		53.0		
						108.0		

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Area: EPI/VACSERA

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1994								
1	G. Chalenor-Larsson	VACSERA QA & NCI	Recommendation	CAU	Oct-Nov	27.0		CA94-20
2	E. Glennie	VACSERA study coordinator	Report	CAU	May-Oct	123.5	E	CA94-09
3	R. Mahoney	VACSERA joint venturing	Recommendation	CAU/PATH	Oct-Nov	38.0		LA94-22
4	Ali Hassouna	VACSERA legal review	Report	CAU	Jul-Dec	-	E	LA94-15
5	IDC	VACSERA human resources rev.	Report	CAU	Jul-Dec	-	E	LA94-16
6	F. Mansour	VACSERA financial rev	Report	CAU	Jul-Dec	-	E	LA94-17
						188.5		
1995								
1	G. Chalenor-Larsson	VACSERA workshop		CAU	Mar	8.0		CA95-04
2	E. Glennie	see Project Management		CAU	Jan-Mar	-	E	CA94-19
3	R. Mahoney	VACSERA workshop		CAU	Mar	8.0		CA95-05
						16.0		
*	J. Milstein	VACSERA workshop		WHO	Mar	2.0		-
*	?	VACSERA workshop		WHO	Mar	2.0		-

AL 2 JEPI/VACSERA

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1992								
*	J. Milstein	VACSERA planning-eval/rpt	Evaluation	WHO/UNICEF	Nov-Dec	7.0		-
*	C-N. Hhih	VACSERA planning-eval	Evaluation	WHO/UNICEF	Nov-Dec	7.0		-
*	J. Gilmartin	VACSERA planning-eval	Evaluation	WHO/UNICEF	Nov-Dec	7.0		-
*	P. Parkman	VACSERA planning-eval	Evaluation	WHO/UNICEF	Nov-Dec	7.0		-
*	P. Holmes	VACSERA planning-eval	Evaluation	WHO/UNICEF	Nov-Dec	7.0		-
						35.0		
*	Various FDA visits							
1993								
1	B. Houtart	VACSERA utilities engineer	Recommendation	CAU	Jun	9.0		CA93-12
2	B. Houtart	VACSERA engineering dev.	Recommendation	CAU	Sep, Nov	24.0		CA93-26
3	D. Stainer	VACSERA DPT production	Recommendation	CAU	Jun, Aug	21.0		CA93-13
4	D. Stainer	VACSERA pertussis production	Recommendation	CAU	Sep-Oct	23.0		CA93-22
5	J. Weber	VACSERA OPV production	Recommendation	CAU	Jun,Sep	35.0		CA93-09
					Oct	-		
						140.0		
*	L. Beaver	VACSERA		FDA	Sep, Nov			
*	E. Esbar	VACSERA GMP/QC		FDA	Sep, Nov			
*	W. Habig	VACSERA GMP/QC		FDA	Aug-Sep			
*	M. Heintzelman	VACSERA GMP/QC		FDA	Sep			

Note: This FDA work is part of a joint activity. Earlier FDA work is not accounted for here.

Area: HIS/HMS

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1	W. Cotterman	review of HIS plan	Recommendation	CAU/GSU		5.0		CA89-03
2	V. Slamacka	review of HIS plan	Recommendation	CAU/GIT		10.0		CA89-02
						15.0		
1990								
1991								
1	P. Saleh	HMS plan development	Recommendation	CAU	Apr-May	32.0		CA91-04
2	J. Schuler-Repp	HIS plan development	Recommendation	ISTI	Apr-May	33.0		LA90-03
						65.0		
1992								
1	E. Brenner	HIS decentralization/TR	Recommendation	CAU	Feb-Mar	21.0		CA92-04
2	D. Satchel	HIS decentralization	Recommendation	CAU	Jul-Oct	72.0	E	CA92-09
						93.0		
•	W. AbuBaker	quality assurance planning	Recommendation	QA	Apr-May	15.0		-
•	N. Rafi	quality assurance planning	Recommendation	QA	Apr-May	15.0		-
•	D. Nicholas	quality assurance planning	Recommendation	QA	Jul	na		-
1993								
1	R. Ainsworth	Decentralization planning	Plan	CAU/EP&A	Jun-Aug	38.0		LA93-05
2	R. Ainsworth	See Training	Training	CAU/EP&A	Sep-Dec	67.0		LA93-07
3	Arabsoft	HIS Software	Manual	CAU	Oct-Dec	na	E	PO
4	K. Fattah	HIS system development	Plan	CAU/Chem.	Jul-Oct	90.0	E	LA93-03
5	P. Hoover	HIS system development	Plan	CAU/Chem.	Jul-Oct	36.7		LA93-03
6	L. de Madrigal	HIS system development	Plan	CAU/Chem.	Jul-Aug	28.0		LA93-03
7	N. Marsh	Decentralization planning	Plan	CAU/EP&A	Jun-Aug	36.0		LA93-05
8	M. Youssef	See Project Management		CAU	May-Oct	126.0	E	CA93-08
						228.7		

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Area: Training and Short Courses

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1995								
1	P. Brachman	applied epidemiology		CAU	Dec	19.0		CA93-10/3
2	T. Coles	model clinic training	Manual	CAU/EP&A	Jan-Mar	43.0		LA94-24
					-	7.0		
3	T. Coles	integrated curriculum	Manual	CAU/EP&A	Mar	6.0		LA95-05
			Training		Jun-Aug	55.0		
					-	36.0		
		decentralization/			Dec	48.0		LA95-10
		curriculum and trg	Manual		-	4.0		
4	S. Mehra	see Health Promotion		CAU	Sep-Oct			CA95-17-1
					Nov-Dec			
5	M. Narula	University curriculum	Manual	CAU	Sep-Oct	32.0		CA95-16
6	A. Omran	management trg	Training	CAU	Dec	25.0		CA95-12
7	D. Peel	see ARI		CAU	Jan	11.0		CA95-02
8	R. Schneider	model clinic management	Recommendation	CAU/EP&A	Jan-Feb	23.0		LA94-24
					-	2.0		
						311.0		

* See CDC/PASA for D. Hatch and R.Liang and CDC for V.Peavy, D.Hamilton, and R.Goodman

Note: Off-shore training is not included

1996								
1	T. Coles	integrated curriculum	Manual	CAU/EP&A	-	13.0		LA95-10
				CAU/EP&A	Mar-May	64.0		LA96-04
					-	12.0		
2	S. Mehra	see Health Promotion	Training	CAU	Jan			CA965-17-2
			Training	CAU	Apr-Jul			CA96-01
						89.0		

* See CDC/PASA for D. Hatch

Area: Health Education/Promotion

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1	G. Hursh-Cesar	KAP RFP Development	Request For Proposal	CAU	Nov	13.0		CA89-06
1990								
1991								
1	D. Glik	Social marketing RFP	Request For Proposal	CAU/USC	May	21.0		CA91-01
2	K. Miner	See training				-		
3	M. Naficy	See ARI				-	E	
sub	SPAAC	KAP survey	KAP	SPAAC	Nov-Dec	na	E	subcon.
						21.0		
1992								
1	F. Catron	health ed/promotion planning	Recommendation	CAU/PATH	Mar	5.0		LA92-02
2	L. Krieger	health ed/promotion planning	Recommendation	CAU/PATH	Feb-Mar	38.5		LA92-02
3	L. Krieger	Health Promotion Office (HPO) development	Training	CAU/PATH	Jun-Jul	34.0		LA92-06
4	M. Naficy	See ARI					E	
5	R. Warner-Rowe	health ed/promotion planning	Recommendation	CAU/PATH	Mar	23.5		LA92-02
6	R. Warner-Row	HPO development	Training	CAU/PATH	Jun	19.0		LA92-06
sub	SPAAC	KAP survey	KAP	SPAAC	Jan-Sep	na	E	subcon.
						120.0		
1993								
1	M. Favin	social marketing dev.	Recommendation	CAU/Manoff	Nov	24.0		LA93-09
2	M. Griffiths	social marketing dev.	Recommendation	CAU/Manoff	Nov	21.0		LA93-09
3	L. Krieger	interpersonal communication	Recommendation	CAU	Sep-ct	26.0		CA93-23
4	L. Krieger	inter. comm. workshops	Training	CAU	Dec	29.0		CA93-23
5	M. Naficy	CSP newsletter		CAU	Jan-May	68.7	E	CA93-04
						168.7		

Area: HIS/HMS

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1994								
1	Arabsoft	Software dev.	Manual	CAU/Arab	Jan-Jun	na	E	LA94-05
2					Jul-Sep	na	E	LA94-19
3					Oct-Dec	na	E	LA94-23
4	R. Hussein	Indicators dev.	Recommendation	CAU/SOZA	Jun-Aug	70.0		LA94-12
5	J. Lamer	Indicators dev.	Recommendation	CAU/SOZA	Jul-Aug	16.0		LA94-12
						86.0		
*	See CDC/PASA for K. Bussel and R. Linkins							
1995								
1	Arabsoft	Software dev. & trg	Manual	CAU/Arab	Jan-Mar	na	E	LA95-03
2		Software dev. & trg	Manual		Apr-Jun	na	E	LA95-06
3		Software dev. & trg	Manual		Jul-sep	na	E	LA95-07
4		Software dev. & trg	Manual		OCT-DEC	na	E	LA95-11
5	C. Grego	mapping-GIS/TR	Recommendation	CAU	Jun-Jul	21.0		CA95-08
						21.0		
1996								
1	Arabsoft	Software dev. & trg	Manual	CAU/Arab	Jan-Mar	na	E	LA96-02

Area: Health Education/Promotion

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1996								
1	S. Mehra	IEC curriculum & trg	Training/Manual	CAU	Jan	14.0		CA95-17-0
					-	21.0		
					Apr	17.0		CA96-01
					May	17.0		
					Jun-Jul	17.0		
					-	40.0		
2	Publi-Graphics	mass media	Mass Media Spots	CAU/PUBLI	Jan-Dec	na	E	sub
3	Support Center Int'l	focus groups	Study	CAU/SCI	Jan-Dec	na	E	LA94-25
						126.00		

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[illegible] Education/Promotion

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1994								
1	H. Amin	See ARI		CAU	Jan-Feb	38.0	E	CA94-17
2	M. Favin	social marketing concept	Plan	CAU/Manoff	-	5.0		LA93-08-4
3					-	6.0		LA94-21/1
4	M. Griffiths	social marketing RFP	RFP	CAU/Manoff	Jul	21.0		LA93-08-3
5		social marketing concept	Plan		-	15.0		LA94-21/1
6	C. Groff	mass media management		CAU	Jun-Dec	113.4	E	CA94-14
7	H. Hilmy	See CS/MCH		CAU	Sep	-	E	CA94-18
8	B. Jensen	See ARI		CAU	Jan	16.0	E	CA94-16
9	L. Krieger	health education eval.	Evaluation	CAU	Aug-Sep	27.0		CA93-23/3
10	S. Morch	social marketing RFP	RFP	CAU/Manoff	Feb	39.0		LA93-08-2
11					Jun-Jul	4.0		LA94-21/1
12	Publi-Graphics	mass media production	Mass Media Spots	CAU/Publi	Oct-Dec	-	E	Sub
13	N. Ragheb	See CS/MCH		CAU	Nov	-	E	CA94-21
14	Support Center International	focus groups	Study	CAU/SCI	Dec	-	E	LA94-25
						284.4		
1995								
1	M. Favin	materials review	Recommendation	CAU/Manoff	-	2.0		LA94-21/2
2	M. Griffiths	materials review	Recommendation	CAU/Manoff	-	2.0		LA94-21/2
3	C. Groff	mass media management		CAU	Jan-May	63.0	E	CA94-14
4		mass media management		CAU	Jun-Sep	46.2	E	CA95-13
5	S. Mehra	IEC curriculum & trg	Manual	CAU	Sep-Oct	27.0		CA95-17-1
6					Nov-Dec	34.0		
7					-	30.0		
	Publi-Graphics	mass media management	Mass Media Spots	CAU/Publi	Jan-Dec	na	E	Sub
	Support Center International	focus groups	Study	CAU/SCI	Jan-Dec	na	E	LA94-25
						204.2		

Area: Evaluation

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1993								
1	O. Campbell	see CS/MCH		CAU/LSHTM	Feb-Mar	18.0		CA93-07
2					Jun	10.0		CA93-11
3					Oct	12.0		CA93-17
4	J. Wilkinson	see CS/MCH		CAU/LSHTM	Jul	14.0		CA93-19
						54.0		
*	WHO polio team	see EPI		WHO,UNICEF	Dec	50.0		
*	DHS	1992 DHS (released Dec 93)			Dec	na		
*	R. Black	CSP impact study		JHU/PASA	May,Dec	11.0		
*	K. Hill	CSP impact study		JHU/PASA	Jul, Dec	28.0		
1994								
1	O. Campbell	see CS/MCH		CAU/LSHTM	Jan	12.0		CA93-17/2
2	N. Hirschhorn	CDD program	Recommendation	CAU/JSI	Feb	27.0		LA94-01
3	L. Krieger	see Health Ed/Promotion		CAU	Aug-Sep	27.0		CA94-23/3/4
4	T. Matthews	see EPI		CAU	Apr	16.0		CA94-01
5	A. Richter	see CS/MCH		CAU/ACNM	Apr-May	29.0		LA94-07
sub	SPAAC	KAP		CAU/SPAAC	Dec	-	E	sub.
						111.0		
*	R. Black	see JHU		JHU	Jun	21.5		
*	K. Hill	see JHU		JHU	Jun	23.0		
*	R. Langston	see JHU		JHU/CSF	Jun-Dec	130.0		
						174.5		
1995								
1	E. Fateem	see CS/MCH		CAU	Sept-Oct	na		CA95-
2	B. Kwast	see CS/MCH		CAU/ACNM	Mar	18.0		LA95-01
					-	3.0		
3	A. Richter	see CS/MCH		CAU/ACNM	Oct	25.0		LA95-08
					-	3.0		
4	K. Scanlon	see CS/MCH		CAU/ACNM	Mar	18.0		LA95-01
5	SPAAC	KAP		CAU/SPAAC	Jan-Dec	na	E	Sub
						67.0		
*	K. Hill	see JHU		JHU	May- Jun	8.0		Sub

Area: Evaluation

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
*	DHS	1988 DHS		DHS				
*	UNICEF	EPI cluster survey		UNICEF				
1990								
1	J. Pott	see EPI						
2	A. Wahba	see Child Spacing						
1991								
1	O. Campbell	see Child Spacing						
sub	SPAAC	see Health Ed/Promotion						
*	AUC/CSP/JHU	Menoufia study		AUC				
*	CSP/MOH/NAMRU3	Bilbeis study						
1992								
1	J. Bennett	see ARI						
2	O. Campbell	see Child Spacing						
3	A. Crowley	see ARI						
4	G. Little	see Child Spacing						
5	B. Metchock	see ARI						
6	F. Rahman	see EPI						
7	A. Richter	see Child Spacing						
*	AUC/CSP/JHU	Menoufia study	Study	AUC				
*	DHS	1992 DHS		DHS				
*	CSP/MOH/NAMRU3	Bilbeis study						
*	PAPCHILD	PAPCHILD survey						
*	A-M. Foliz	mid-term evaluation	Evaluation	DATEX	Oct-Nov	34.0		
*	A. Henn	mid-term evaluation	Evaluation	DATEX	Oct-Nov	34.0		
*	V. Lara	mid-term evaluation	Evaluation	DATEX	Oct-Nov	34.0		
*	A. Roison	mid-term evaluation	Evaluation	DATEX	Oct-Nov	34.0		
*	A. Pio	mid-term evaluation	Evaluation	WHO	Oct-Nov	18.0		
*	R. Billig	mid-term evaluation/ER	Evaluation	DATEX	Sep-Oct	24.0		
*	F. Reed	mid-term evaluation	Evaluation	DATEX	Sep-Oct	24.0		

Area: Project Management

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1989								
1	J. Cascone	CAU office management	Recommendation	CAU	Sep	6.0		CA89-01
2	A. Thivierge	1990 IWP development	Work Plan	CAU	Nov-Dec	26.0		CA89-07
1990								
1	W. Luck	procurement planning	Recommendation	CAU	May	20.0		CA90-07
2	J. Oki	1990 IWP revision	Work Plan	CAU/Pragma	Feb	20.0		LA90-01
3	G. Smith	CAU fiscal management	Recommendation	CAU	Feb	12.0		CA90-03
4	G. Smith	CAU fiscal & personnel SOPs/SOPs	Recommendation	CAU	May	17.0		CA90-08
5	P. Saleh	1991 IWP development	Work Plan	CAU/ISTI	Oct-Dec	49.5		LA90-02
						118.5		
*	J. Oki	start-up workshop planning		Pragma	Feb	na		-
1991								
1	J. Sonnemann	1992 IWP development	Work Plan	CAU	Nov-Dec	35.0		CA91-12
*	See CDC for PASA and FETP development					53.0		
1992								
1	A. Anderson	fiscal Management manual	Manual	CAU/AA	Sep-Dec	-	E	LA92-10
2	R. Dweck	PM/SA software	Recommendation	CAU/BU	Oct	23.0		LA92-12
3	M. Rohr Neema	report development/editing		CAU	Oct-Nov	25.0	E	CA92-15
4	C. Shepheard	PM/SA training & installation	Recommendation	CAU/BU	Oct	23.0		LA92-12
5	M. Trisolini	project management/admin. systems (PM/AS) review	Recommendation	CAU/BU	Jul-Aug	11.0		LA92-07
6	M. Trisolini	PM/AS development with Project Administrator		CAU/BU	Aug-Sep/ Boston	12.0		LA92-08
7	M. Trisolini	PM/SA installation	Recommendation	CAU/BU	Oct	25.0		LA92-12
8	M. Youssef	PM/analytical studies		CAU	Nov-Dec	47.0	E	CA92-17
						166.0		
*	See CDC/PASA for PASA management					42.0		

Area: Evaluation

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
•	R. Langston	Child Survival Fellow		JHU/CSF	Jan-Dec	-		PASA
•	WHO surveillance team	see EPI						
•	N. Arnas	GAO CS review		GAO	Aug	11.0		
•	D. Bruno	GAO CS review		GAO	Aug	11.0		
1996								
1	S. Becker	mortality paper	Study	CAU/JHU	Apr	6.0		LA96-05
					-	20.0		
2	R. Black	mortality paper			-	2.0		
					-			
3	Research asst.	mortality paper				26.0		
4	R. Langston	2-governate study		CAU/AUC	Jan-Jul	153.0	E	LA96-03
5	SPAAC	KAP, 2nd round		SPAAC	Jan-Jun	na	E	Sub
						207.0		
*	K. Hill	see ARI/applied research			-	-		
*	R. Black	see ARI/applied research			-	-		
*	N. Ward	see EPI		WHO	Feb	1.0		
*	L. Cobb	Final evaluation		USAID	Mar-May	36.0		
*	F. Baer	Final evaluation		USAID	Mar-May	36.0		
*	M. Debey	Final evaluation		USAID	Mar-May	36.0		
*	M. El-Fatamy	Final evaluation		USAID	Mar-May	36.0	E	
*	DHS			USAID		-		
						145.0		

Area: CAU HO and Senior Management

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
1989						
1	F. Cummings/PM	orientation and start-up		CAU/HO	Mar	15.0
2	F. Cummings/PM	CAU office management		CAU/HO	Sep	13.0
						28.0
1990						
1	T. Cole/Pres	senior management review		CAU/SM	Feb	7.0
2	T. Cole/Pres	senior management review		CAU/SM	May	6.0
3	F. Cummings/PM	quarterly review		CAU/HO	Feb	8.0
4	F. Cummings/PM	Acting COP		CAU/HO	Mar-May	46.0
5	F. Cummings/PM	quarterly review		CAU/HO	Jul	21.0
6	F. Cummings/PM	quarterly review		CAU/HO	Oct	19.0
7	A. Curley	senior management review		CAU/SM	May	9.0
8	H. Ward	senior management consul.		CAU	Feb	11.0
9	H. Ward	senior management consul.		CAU	Mar-Apr	20.0
10	H. Ward	senior management consul.		CAU	May-Jun	12.0
11	H. Ward	senior management consul.		CAU	Jul	11.0
						170.0
*	H. Ward	senior management consul.		CAU	Dec	8.0
1991						
1	T. Cole/Pres	senior management review		CAU/SM	Jan	8.0
2	F. Cummings/PM	quarterly review		CAU/HO	Apr-May	23.0
3	F. Cummings/PM	quarterly review		CAU/HO	Jul-Aug	20.0
4	F. Cummings/PM	quarterly review		CAU/HO	Sep-Oct	21.0
5	A. Curley	senior management review		CAU/SM	Jan	8.0
6	W. Larson/CS	fiscal system review		CAU/HO	May	12.0
7	W. Larson/CS	consolidated admin. system		CAU/HO	Aug	14.0
8	W. Larson/CS	1992 IWP budgeting		CAU/HO	Oct-Nov	16.0
						112.0
*	H. Ward	senior management consul.		CAU	May-Jun	9.0
*	H. Ward	senior management consul.		CAU	Nov	8.0

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Area: Project Management

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days	Local Hire	CA/LA #
1993								
1	J. Aziz	Administrative officer		CAU	Jan-Jul	69.0	E	CA93-06
2	J. Eaton	1993-95 planning	Work Plan	CAU	Jun-Jul	23.0		CA93-15
3	P. Saleh	1993-95 planning	Work Plan	CAU	Jun-Jul	29.0		CA93-16
4	P. Saleh	1994-95 planning	Work Plan	CAU	Dec	25.0		CA93-27
5	A. Stellato	Administrative officer		CAU	Jan-Apr	52.0	E	CA93-03
6	M. Youssef	Senior Technical Officer		CAU	Jan-Apr	85.0	E	CA92-17
7	M. Youssef	Senior Technical Officer		CAU	May-Oct	126.0	E	CA93-08
						409.0		
1994								
1	F. Aral	Editor		CAU	June-Dec	130.8	E	CA94-12
2	N. El-Nasher	Translation		CAU	May-Dec	148.3	E	CA94-15
3	E. Glennie	see EPI/VASCERA		CAU	May-Oct	123.5	E	CA94-09
4	E. Glennie	Sustainability management		CAU	Nov-Dec	28.0	E	CA94-19
5	B. Grover	Editing		CAU	May-Jun	17.8	E	CA94-10
6	B. Grover	Editing		CAU	Jun-Dec	143.5	E	CA94-11
7	F. Mansour	Audit/audit report	Administration	CAU/Mansour	Jul-Oct	-	E	LA94-14
8	S. Mottram	Resource Center dev.	Plan	CAU/AHRTAG	Dec	14.0		CA94-23
9	H. Naficy	Decentralization program		CAU	May-Jun	13.6	E	CA94-07
10	H. Naficy	Decentralization program		CAU	Jul-Dec	117.5	E	CA94-13
11	P. Saleh	CSP Workplan refinement		CAU	Feb-Apr	37.0		CA94-02
						773.9		
1995								
1	F. Aral	Editor		CAU	Jan-May	95.5	E	CA94-12
2	F. Aral	Editor		CAU	Jun-Dec	116.4	E	CA95-12
3	C. Chelala	Final report	Final Report	CAU	Jan-Mar	19.0		CA95-21
4	N. El-Nasher	Translation		CAU	Jan-Mar	76.0	E	CA94-15
5	E. Glennie	Sustainability management		CAU	Jan-May	76.0	E	CA94-19
6	B. Grover	Editing		CAU	Jul-Oct	80.6	E	CA94-11
7	H. Naficy	Decentralization program	Training	CAU	Jan	10.0	E	CA94-13
						473.5		
1996								
1	F. Aral	Editor		CAU	Jan-Jun	107.0	E	CA95-12
2	C. Chelala	Final report	Final Report	CAU	Jan-Mar	22.0		CA95-21
						60.0		
						169.0		

Area: CAU HO and Senior Management

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
*	H. Ward	senior management		CAU	Jan	9.0
					Mar-Apr	8.0
					Nov	5.0
						22.0
1996						
1	F. Cummings	HO visit		CAU	Mar-Apr	31.0

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Area: CAU HO and Senior Management

CY	Consultant	SOW	Output	Organization	Cairo Dates	Total LOE/days
1992						
1	T. Cole/Pres	senior management review		CAU/SM	Jan-Feb	9.0
2	F. Cummings/PM	quarterly review		CAU/HO	Jan-Feb	19.0
3	F. Cummings/PM	quarterly review		CAU/HO	Apr-May	18.0
4	F. Cummings/PM	quarterly review		CAU/HO	Sep-Nov	34.0
5	A. Curley	senior management review		CAU/SM	Jan-Feb	10.0
6	W. Larson/CS	ACOP		CAU/HO	Jun-Jul	20.0
						110.0
•	H. Ward	senior management consul.		CAU	Jan-Feb	7.0
*	H. Ward	senior management consul.		CAU	Oct	8.0
1993						
1	T. Cole/Pres	senior management		CAU/SM	May	3.0
2	F. Cummings/PM	HO visit		CAU/HO	Jun-Jul	22.0
3	F. Cummings/PM	HO visit		CAU/HO	Nov-Dec	17.0
4	W. Larson/CS	HO visit		CAU/HO	Dec	6.0
						48.0
•	H. Ward	senior management		CAU	May	7.0
1994						
1	F. Cummings/PM	ACOP		CAU/HO	Mar	24.0
2	F. Cummings/PM	ACOP		CAU/HO	Aug-Sep	36.0
						60.0
*	H. Ward	senior management		CAU	Jan-Feb	14.0
		senior management		CAU	Feb-Mar	4.0
1995						
1	F. Cummings/PM	ACOP		CAU	Feb	28.0
2	F. Cummings/PM	ACOP		CAU	Jul	15.0
3	T. Cole	senior management		CAU	Dec-Jan	5.0
						48.0

Area: CDC (1990, 1991) and CDC PASA (1992)

CY Area	Consultant	statement of work	Month in Cairo	Estimated Cairo LOE/days
1993				
TA	F. Averhoff	hepatitis B studies	Jan-Feb	12.0
TA	R. Linkins	polio operations research	Jan, Apr	23.0
TA	F. Mahoney	hepatitis B studies	Jan-Feb	12.0
TA	M. Malison	HIS training	Jan	3.0
TA	S. Ostroff	antiobiotic susceptibility	Jan, May	14.0
FETP	D. Hatch	long term advisaor	Jan-Feb	27.0
			Mar-Apr	16.0
			May-Dec	173.0
FETP	D. Klauke	FETP management and course	Dec	6.0
Trg	V. Peavy	applied epi course	Dec	12.0
Man	R. Cox	senior management	May	8.0
Man	J. Davis	senior management	Dec	6.0
Man	D. Satcher	senior management	Dec	1.0
				313.0
1994				
TA	K. Bussell	HIS for surveillance	May-Jun	18.0
TA	R. Linkins	HIS for surveillance	May-Jun	18.0
TA	F. Mahoney	hepatitis surveillance	Aug	10.0
TA	S. Ostroff	antibiotic susceptibility	Mar	6.0
TA	S. Ostroff	ARI conf	Jun	4.0
FETP	D. Fishbein	FETP lectures	Aug	12.0
FETP	D. Hatch	long term advisor	Jan-Dec	260.0
Trg	V. Peavy	applied epi course	Dec	12.0
Man	R. Cox	senior management	Feb	3.0
Man	D. Klauke	senior management	Dec	13.0
				356.0
1995				
TA	F. Averhoff	surveillance supervision	Mar	6.0
TA	B. McCarthy	lbw study	Feb	4.0
TA	B. McCarthy	MCH surveillance	Jul	6.0
FETP	D. Hatch	long term advisor	Jan-Dec	260.0
FETP	B. Maclachlan	FETP budgeting	Jan-Feb	10.0
FETP	A. Liang	admin	Dec	12.0
				282.0
1996				
TA	F. Averhoff	polio surveillance		
TA	S. Ostroff	ARI lab review		
FETP	D. Hatch	long term advisor	Jan-Aug	162.5

Area: CDC (1990, 1991) and CDC PASA (1992)

CY Area	Consultant	statement of work	Month in Cairo	Estimated Cairo LOE/days
1990				
Trg	see training section for trips of R. Fagan, R. Linkins, and V. Peavy			
1991				
Man	R. Cox	PASA development	Oct	9.0
FETP	H. Kalter	FETP and TA development	Sep-Oct	18.0
FETP	H. Kalter	FETP and TA development	Dec	21.0
FETP	M. Pollock	FETP and TA development	Dec	5.0
				43.0
ARI	see ARI for trips of S. Ostroff			
EPI	see EPI for trip of H. Margolis			
Trg	see Training for trips of D. Klauke, R. Linkins, M. Pappaouanou and V. Peavy(2)			
1992				
Man	R. Cox	PASA management	Feb	5.0
Man	J. Davis	PASA management	Feb	5.0
Man	R. Cox	PASA management	May-Jun	10.0
Man	R. Cox	PASA management	Sep	8.0
Man	R. Cox	PASA management	Nov	7.0
Man	L. Weakland	PASA management	Nov	7.0
FETP	D. Klauke	FETP plan development	Jun	10.0
FETP	J. Drescher	FETP plan development	Jun	10.0
FETP	D. Hatch	FETP plan refinement	Sep	13.0
FETP	D. Hatch	FETP planning/course	Nov-Dec	20.0
ARI	S. Ostroff	antibiotic resistance study	Jan	6.0
ARI	S. Ostroff	antibiotic resistance study	Apr	6.0
ARI	S. Ostroff	antibiotic resistance study	Aug-Sep	12.0
ARI	R. Breiman	laboratory dev. planning	May	9.0
ARI	R. Facklam	laboratory dev. planning	May	9.0
ARI	G. Stroh	sample size calc.	Jul	1.0
ARI	R. Breiman	laboratory development	Sep-Oct	10.0
ARI	R. Facklam	laboratory development	Sep-Oct	11.0
ARI	D. Sniadack	laboratory development	Sep-Oct	17.0
EPI	M. Deming	WHO measles workshop	Feb-Mar	13.0
EPI	G. Stroh	NNT program	Jul	3.0
EPI	M. Silvers	NNT progream	Sep	12.0
EPI	R. Linkins	polio program	Sep-Nov	36.0
Trg	M. Malison	applied epi course	May-Jun	9.0
Trg	M. LaPointe	applied epi course	May-Jun	9.0
Trg	D. Klauke	FETP/applied epi course	Dec	12.0
Trg	V. Peavy	FETP/applied epi course	Dec	12.0
				282.0

Annex 5

Offshore Training

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PARTICIPANT NAME	COMP.	TYPE	COURSE	UNIVERSITY	DURATION
TAWFIK OMAR RASLAN	NUTRITION	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	7/2 - 30/5/91
KHALIFA ABDEL GELIL	ARI	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	20/5 - 17/8/91
LOULOU JACOUB EL DAFASHI	ARI	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	20/5 - 17/8/91
SUZAN KAMEL FARHOUD	ARI	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	20/5 - 17/8/91
NEVINE ALI AMRO	ARI	ST	INTERN. GRADUATE SUMMER SESSION	MICHIGAN	7/7 - 26/7/91
ABU BAKR ABDEL REHIM	ARI	ST	INTERN. GRADUATE SUMMER SESSION	MICHIGAN	7/7 - 26/7/91
KHALED BADR	ARI	ST	EPIDEMIOLOGY COURSE	EMORY	30/9 - 25/10/92
NAIRA MAHMOUD	ARI	ST	EPIDEMIOLOGY COURSE	EMORY	30/9 - 25/10/92
SAFEYA YOUNIS	ARI	ST	EPIDEMIOLOGY COURSE	EMORY	30/9 - 25/10/92
FAROUK ABDEIN	EPI	ST	EPIDEMIOLOGY IN ACTION	EMORY UNIV.	MAY 18 - 28, 92
MOUNRI EL ATTABANI	EPI	ST	EPIDEMIOLOGY IN ACTION	EMORY UNIV.	MAY 18 - 28, 92
MONA ASSAAD	ARI	ST	SPECIAL TRAINING COURSE	CDC	FEB 92 -ONE MONTH
IBRHAMIM FAHMY MOUSSY	EPI	ST	MANAGMENT METHODS FOR HEALTH	ATLANTA	MAR 93 / 2 MONTHS
MOHAMED AHMED EL SHARKAWY	EPI	ST	MANAGMENT MEHTODS FOR HEALTH	ATLANTA	MAR 93 / 2 MONTHS
NABIH ISMAIL	EPI	ST	MANAGEMENT METHODS FOR HEALTH	ALTANTA	MAR 93 / 2 MONTHS
YOUSRY SOBHY SAAD	EPI	ST	MANAGEMENT METHODS FOR HEALTH	ATLANTA	MAR 93/ 2 MONTHS
MOHAMED EL SHARKAWI	EPI	ST	EPIDEMIOLOGY&HEALTH MANAGEMENT	ATLANTA	MARCH/93 2 MONTHS
YOUSRI SOBY SAAD	EPI	ST	EPIDEMIOLOGY&HEALTH MANAGEMENT	ATLANTA	MARCH/93 2 MONTHS
IBRAHIM FAHMY MOUSSY	EPI	ST	EPIDEMIOLOGY&HEALTH MANAGEMENT	ATLANTA	MARCH/93 2 MONTHS
SAWDAT SHENOUDA	EPI	ST	HEALTH MANAGEMENT	BOSTON	FEB /93 6 WEEKS
NAGLAA MAHMOUD SAAD	ARI	ST	EPIDEMIOLOGY & HEALTH MANAGEMENT	ATLANTA/EMORY	MAR 15, 93/8 WEEKS
	ARI	ST	EPIDEMIOLOGY & HEALTH MANAGEMENT	ATLANTA/EMORY	MAR 15, 93/8 WEEKS
ABUL MAGD ABDEL REHIM	ARI	ST	EPIDEMIOLOGY & HEALTH MANAGEMENT	ATLANTA/EMORY	MAR 15, 93/8 WEEKS
KAMAL MOHAMED GOUDA	ARI	ST	EPIDEMIOLOGY & HEALTH MANAGEMENT	ATLANTA/EMORY	MAR 15, 93/8 WEEKS
HASSAN ABDEL REHIM YASEEN	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
ISHAK IBRAHIM BISHARA	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
MAGDA FAWZY LOUKA	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
MOHAMED HAMZA ABDEL AAL	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
MOHAMED MOUSSA SOLIMAN	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
MOHSEN MOHAMED ABDEL RAH	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
NASR KELLINI WASSEF	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
NASSEF AYYAD ZAKA	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94

LIST OF CSP TRAINING PARTICIPANTS

CHILD SURVIVAL PROJECT

PARTICIPANT NAME	COMP.	TYPE	COURSE	UNIVERSITY	DURATION
ABDEL KHALEK FARID AWAD	PROJECT	ST	MANAGEMENT OF CHILD SURVIVAL	BOSTON	22/2 - 12/4/87
EL SAYED IBRAHIM EL HELALY	PROJECT	ST	MANAGEMENT OF CHILD SURVIVAL	BOSTON	22/2 - 12/4/87
NADIA SOLIMAN DAWOOD	PROJECT	ST	MANAGEMENT OF CHILD SURVIVAL	BOSTON	22/2 - 12/4/87
TAHANI ABBAS EL FERENI	PROJECT	ST	MANAGEMENT OF CHILD SURVIVAL	BOSTON	22/2 - 12/4/87
AMIN ELIAS EL RAYES	PROJECT	ST	EVALUATION &IMPLEMENTATION OF CHILD HEALTH SERVICES	HAWAII	26/4 - 29/5/87
WAFAA ANTONIOS	PROJECT	ST	EVALUATION &IMPLEMENTATION OF CHILD SERV.	HAWAII	26/4 - 29/5/87
SAID AHMED MOURSY	PROJECT	ST	MNGT. TRNG. FOR MEDIC. OFFICERS	HAWAII	28/6 - 2/8/87
NAGWA FARAG KHALLAF	PROJECT	ST	MNGT. TRNG. FOR MEDIC. OFFICERS	HAWAII	28/6 - 2/8/87
ESMAT MANSOUR IBRAHIM	PROJECT	ST	MNGT. TRNG. FOR MEDIC. OFFICERS	HAWAII	28/6 - 2/8/87
EKBAL SHAFIK GIRGIS	PROJECT	ST	MNGT. SKILLS FOR CHILD SURVIVAL	BOSTON	11/10 - 13/11/87
AMINA LOTFY	PROJECT	ST	MNGT. SKILLS FOR CHILD SURVIVAL	BOSTON	11/10 - 13/11/87
BAHIG AZIZ SALIB	PROJECT	ST	MNGT. SKILLS FOR CHILD SURVIAL	BOSTON	11/10 - 13/11/87
IBRAHIM FARAAG	PROJECT	ST	A COM. RESEARCH&EVAL. PROGRAM	KONEKTEKAT	2/11 - 15/12/87
AHMED SAID EL SHARKAWI	PROJECT	ST	MICROCOMPUTER&HELTH INFO.SYS.	BOSTON	15/8 - 9/9/88
GAMAL ABDOU ELGUINDI	PROJECT	ST	F.P. PROGRAM MNGT. WORKSHOP	CALIFORNIA	19/9 - 19/11/88
SALAMA ABDELMONEIM MORSI	PROJECT	ST	F.P. PROGRAM MNGT. WORKSHOP	CALIFORNIA	19/9 - 19/11/88
FAYEK AYAAD GIRGIS	PROJECT	ST	F.P. PROGRAM MNGT. WORKSHOP	CALIFORNIA	19/9 - 19/11/88
MOHAMED MAHMOUD BEKEER	PROJECT	ST	MNGT. SKILLS IN CHILD SURVIVAL	BOSTON	10/10 - 11/11/88
SALAMA MOHAMED KHEDR	PROJECT	ST	MNGT. SKILLS IN CHILD SURVIVAL	BOSTON	10/10 - 11/11/88
HODA AZIZ ABDEL MALEK	PROJECT	ST	MNGT. SKILLS IN CHILD SURVIVAL	BOSTON	10/10 - 11/11/88
AHMED MOHAMED MOSTAFA	PROJECT	ST	MNGT. SKILLS IN CHILD SURVIVAL	BOSTON	2/10 - 3/11/89
MOHAMED ABDALLA MOHAMED	EPI	ST	INTERNATIONAL HEALTH PROGRAMS	SANTACRUS/CALIF.	17/9 - 25/10/90
ESAM MOHAMED AHMED	EPI	ST	INTERNATIONAL HEALTH PROGRAMS	SANTACRUS/CALIF.	17/9 - 25/10/90
MOHAMED AYMAN RAGAB	EPI	ST	INTERNATIONAL HEALTH PROGRAMS	SANTACRUS/CALIF.	17/9 - 25/10/90
SALWA MOHAMED EL BESHRI	NUTRITION	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	7/2 - 30/5/91
KHAIRY ANIS FAKHRY	NUTRITION	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	7/2 - 30/5/91
GAD ELKARIM RAGAB	NUTRITION	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	7/2 - 30/5/91
MAHMOUD ABUL NASR	NUTRITION	ST	HEALTH CARE IN DEV. COUNTRIES	BOSTON	7/2 - 30/5/91

Long-term CSP Training Paticipants

Participant	Component	LT	Duration	Course	University
Mohamed Hanafy Tant	EPI	LT	Jan 91 1 yr. to Ext.	MA Public Health	Tulane
Samy Wadei Morkos	CS	LT	Jan 91 1 yr. to Ext.	MA Public Health	Tulane
Nihad Amer Mosaad	CS	LT	Jan 91 1 yr. to Ext.	MA Public Health	Pittsburg
Basma Fawzi El-Shazly	EPI	LT	May 91 1 yr. to Ext.	MA Public Health	Boston
Ahmed Raafat Amin	Nutrition	LT	May 91 1 yr. to Ext.	MA Public Health	North Carolina
Dr. Nasi Nasri		LT		MA Public Health	
Dr. Salaman		LT		MA Public Health	

PARTICIPANT NAME	COMP.	TYPE	COURSE	UNIVERSITY	DURATION
FAWKIYA EL SAYED	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOHAMED HAMZA	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
DALAL AYAAD	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
ALY KHATER	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
MOSHIRA EL SHAFEI	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
ESMAT MANSOUR	PROJECT	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
NAGWA KHALLAF	PROJECT	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
HOSNY TAMMAM	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
SAID OON	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
ABDEL R. SALAMA	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
ALY BADAWY	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
BADR EL MASRY	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
MOHAMED HUSSEIN	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
MOSTAFA HAMOUDA	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
AKEF HAFEZ	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
MOHAMED NABIL	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
HASSAN BELAL	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
SAYED NOUR ELDIN	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95
SAMIR ABUL SAAD	MOH	ST	SENIOR-LEVEL TRAINING	G.WASH-UNIV.	5/9-25/9, 95

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TransCentury Associates

IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 20	($35,078.95)	2 10
		CHEMICALS			
IFB - 1	ARI/BELBEISS	CHEMICALS	263-203- 21	($1,380.00)	3
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 22	($4,046.85)	10 24
IFB - 1	ARI/BELBEISS	SAFTEY CABINET	263-203- 23	($6,906.00)	3
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 24	($94,284.00)	2 3 6 10 11
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 25	($71,434.10)	'3 6 7
IFB - 1	ARI/BELBEISS	MICROSCOPES	263-203- 26	($5,413.00)	3
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 27	($13,421.25)	2 3 10
IFB - 1	ARI/BELBEISS	RADIO-FILMS	263-203- 28	$4,813.66	7
IFB - 1	ARI/BELBEISS	OPHTALMOSCPE	263-203- 29	($4,195.00)	3
		BLOOD PRESS KIT			
		STIRRER			
		MICROSCOPE			
IFB - 1	ARI/BELBEISS	BALANCE TOP	263-203- 30	($3,250.00)	3
			263-203- 30A		82 83
			263-203- 30B		82
IFB - 1	ARI/BELBEISS	LAB EQUI & CHEM.	263-203- 31	($5,094.40)	2 3 12 82
IFB - 1	ARI/BELBEISS	COMPUTERS	263-203- 32	($54,376.20)	3 7 10
		CENTRIFUGES			
IFB - 1	ARI/BELBEISS	SPARES INCUBATOR	263-203- 32A	($3,543.00)	24
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 33	($2,056.62)	6 10 3
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 34	($4,043.50)	3
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 35	CANCELLED	
IFB - 1	ARI/BELBEISS	LAB EQUIP.	263-203- 36	($34,964.12)	2 6 10 12
IFB - 1	ARI/BELBEISS	SCANTRON FORMS	263-203- 37	($16,999.84)	16 17
RFQ - 1	ARI	OXIMETERS	263-203- 38	($20,511.84)	12 + (HAND CARRIED)
		TRANSDUCERS			
IFB - 2	EPI	REFRIG. TRUCKS	263-203- 39	($986,165.06)	19 21 24
IFB - 2	EPI	S.P. FOR REFRIG TRUCKS	263-203- 39A	($131,075.05)	
			263-203- 39B	($126,663.80)	84 87
IFB - 2	EPI	FAN/THERMOMETER	263-203- 40	($1,091.75)	24
IFB - 2	EPI	DEFROSTER	263-203- 41	($4,430.00)	24
IFB - 2	EPI	RECORDER	263-203- 42	($6,493.69)	24
IFB - 2	EPI	WALK IN ROOMS	263-203- 43	($62,346.00)	25
RFQ - 2	ARI/BELBEISS	ANTI-HUMAN MOUSE	263-203- 44	($13,958.83)	24
		SAFETY CABINET			
RFQ - 2	ARI/BELBEISS	CHEMICALS	263-203- 45	($12,755.00)	24
		READER			
RFQ - 2	ARI/BELBEISS	CHEMICALS	263-203- 46	($3,700.00)	
RFQ - 2	ARI/BELBEISS	CHEMICALS	263-203- 47	($1,687.10)	

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Clark Atlanta University
Child Survival Project

REQUEST NUMBER	COMPONENT or ENTITY	DESCRIPTION	PURCHASE ORDER	VALUE of the order	INCLUDED IN SHIPMENT NUMBER
RFQ - D	ARI/BELBEISS	SCANTRON	263-203- 1	($5,455.00)	3
RFQ - A	ARI/VACSERA	WESTFALIA	263-203- 2	($122,621.00)	18
RFQ - A	ARI/VACSERA	INSTALATION	263-203- 3	($10,335.01)	(INSTALLATION)
RFQ - B	ARI/VACSERA	BDH CHEMICALS	263-203- 4	($2,628.14)	8
RFQ - C	ARI/VACSERA	DIFCO CHEMICALS	263-203- 5	($935.40)	4
IFB - 1	ARI/VACSERA	CO2 INCUBATORS	263-203- 6	($12,324.00)	3 4 12
IFB - 1	ARI/VACSERA	FREEZER/DRYER	263-203- 7	($15,933.00)	3 4
IFB - 1	ARI/VACSERA	SPECTROPHOTOMETER	263-203- 8	($54,340.75)	3 4 7 11
		CENTRIFUGE			
		WASHER			
IFB - 1	ARI/VACSERA	ULTRAWASH II	263-203- 9	($18,910.00)	7 9
		READER			
		SAFE LIGHT			
		PLASTIC BATHS			
IFB - 1	ARI/VACSERA	CENTRIFUGE	263-203- 10	($80,616.00)	3 4
IFB - 1	ARI/VACSERA	STERLIZER	263-203- 11	($141,271.00)	1 2 3 4 5 11
		THERMOLYNE			
		TROLLEY			
		CHEMICALS			
IFB - 1	ARI/VACSERA	REFRIGERATOR	263-203- 12	($20,616.16)	11
		CAGES			
		BOTTLES/TUBES			
		CHEMICALS			
IFB - 1	ARI/VACSERA	MICE RACK	263-203- 13	($3,206.75)	3 4
IFB - 1	ARI/VACSERA	LAMINAR FLOW	263-203- 14	($29,060.00)	3 4 11
		BATTERY			
IFB - 1	ARI/VACSERA	CART	263-203- 15	($19,120.72)	3 4
		FILM DEVELOPER			
IFB - 1	ARI/VACSERA	CHEMICALS	263-203- 16	($4,085.65)	2 3 4
IFB- 1	ARI/VACSERA	CHEMICALS	263-203- 17	($2,295.00)	3 4
IFB - 1	ARI/VACSERA	LAB EQUIP.	263-203- 18	($4,024.50)	3 4
IFB - 1	ARI/BELBEISS	OTSCOPE	263-203- 19	($1,238.07)	3
		LAB EQUIP.			

		REFRIGERATOR			
RFQ - 12		FREEZER	263-203- 81	($10,825.98)	30
		LAB/INCUBATOR			
		ANAEROBIC JAR			
RFQ -13		LAB CHEMICALS	263-203- 82	($21,797.30)	30 31 32 33 35
RFQ - 15	ARI	LAB EQUIP.	263-203- 83	($4,718.20)	43 39 38 37
RFQ - 14	EPI/VACSERA	HEPITITIS B	263-203- 84	($5,952,850.00)	48 51 49 53 58 59 56
RFQ - 16	ARI	LAB EQUIIP.	263-203- 85	($3,494.37)	43 40 37
RFQ - 16B	ARI	LAB EQUIP.	263-203- 86	($8,563.39)	44
RFQ - 16B	ARI	CHEMICALS	263-203- 87	($5,521.39)	46 45 44
RFQ - 16B	ARI	LYOPHILIZER	263-203- 88	($9,495.00)	47
RFQ - 16B	ARI	CATHRA 3MM	263-203- 89	($955.00)	43
IFB - 3	CS	TRANSFILLING HSE	263-203- 90	($9,600.00)	47
RFQ - 16B	ARI	NEEDLES	263-203- 91	($1,041.66)	44
RFQ - 17	ARI	AMPOULES	263-203- 92	($3,536.00)	44
IFB - 5	EPI	COLD BOXES	263-203- 93	($194,600.00)	52 55
AID EMBLEMS				($857.50)	44
RFQ - 19	ARI	ANTISERAS	263-203- 94	($4,118.00)	44 50
RFQ - 20	ARI	02 CONCENTRATORS	263-203- 95	($24,975.75)	60
			95A	($9,391.56)	78 81
RFQ - 21	ARI	ANTISEAS	263-203- 96	($2,484.00)	54
RFQ - 22	ARI	LAB SUPPLIES	263-203- 97	($575.56)	61 60
RFQ - 22	ARI	LAB SUPPLIES	263-203- 98	($4,354.67)	64 62 60
RFQ - 22	ARI	LAB SUPPLIES	263-203- 99	($4,596.70)	63 60
IFB - 4	EPI	VACCINE CARRIERS	263-203- 100	($54,720.00)	66
IFB - 4	EPI	SOLAR REFRIGERATORS	263-203- 101	($95,400.00)	
			263-203- 101B	($3,636.90)	
IFB - 4	EPI	COLD ROOMS	263-203- 102	($70,122.05)	70
			263-203- 102A	($15,524.00)	84
IFB - 4	CSP	CARS SPARE PARTS	263-203- 103	($10,225.20)	66
IFB - 4	CSP	CARS SPARE PARTS	263-203- 105	($2,724.19)	66
IFB - 4	CSP	CARS SPARE PARTS	263-203- 106	($500.30)	60
IFB - 4	CSP	CARS SPARE PARTS	263-203- 107	($1,516.48)	66
IFB - 4	ARI	OXIMETERS	263-203- 108	($58,500.00)	70
IFB - 4	ARI	ADAPTER/NELLCOR	263-203- 108A	($1,578.90)	70 82
IFB - 4	ARI	POWER PACK / TESTER	263-203- 108B	($7,738.00)	
IFB - 4	ARI	CULTURE PLATES	263-203- 109	($150.00)	65
RFQ - 25	ARI	OXYGEN CONCENTRATORS	263-203- 110	($24,345.00)	68
			263-203- 110A	($17,263.43)	81 87
RFQ - 26	ARI	CULTURE PLATES	263-203- 111	($150.00)	67
RFQ - 27	ARI	CULTURE PLATES	263-203- 112	($300.00)	69

RFQ - 1	JHU-ARI	OXISENSORS	263-203- 48	($12,896.82)	13 14
		LAB EQUIP. & CHEM			
RFQ - 2	JHU-ARI	LAB EQUIP. & CHEM.	263-203- 49	($2,848.87)	15 + (HAND-CARRIED)
RFQ - 8	JHU-ARI	SLIDES	263-203- 50	($266.18)	HAND-CARRIED
RFQ - 5	ARI/BELBEISS	COMPUTERS	263-203- 51	($26,222.40)	20
RFQ - 6	ARI/BELBEISS	COMP. ACCS.	263-203- 52	($23,091.08)	20 42
RFQ - 7	ARI/BELBEISS	SOFTWARE	263-203- 53	($18,575.00)	20 + (HAND-CARRIED)
RFQ - 10	JHU-ARI	SLIDES/BOTTLES	263-203- 54	($467.38)	HAND-CARRIED & 63
IFB - 3	CS	PELVIS AND DOLL	263-203- 56	($173,500.00)	41 63
IFB - 3	CS	TRANSP. INCUBATORS	263-203- 57	($753,926.00)	24 63
IFB - 3	CS	SPARES FOR PO57	263-203- 57A	($20,676.60)	34 42
IFB - 3	CS	STERLIZER	263-203- 58	($260,290.00)	27 42 63
		BABY WEY SCALES			
IFB - 3	CS	SPARES FOR PO 58	263-203- 58A	($5,210.00)	34
IFB - 3	ARI	SCALES	263-203- 59	($182,675.00)	24 27
		HEMGLOBINOMETER			
		CENTRIFUGE			
IFB - 3	ARI	S.P. FOR PO 59	263-203- 59A	($22,936.25)	34
IFB - 3	NUTRITION	SCALES FOR G.UPS	263-203- 60	($210,980.00)	22
IFB - 3	NUTRITION	CALIPERS	263-203- 61	($1,500.50)	27 63
		ARM-TAPE			
IFB - 3	ARI/BELBEIS	LAB EQUIP.	263-203- 62	($10,386.10)	34 63
IFB - 3	ARI/BELBEISS	PIPET AID	263-203- 63	($20.50)	24
IFB - 3	ARI/BELBEISS	LAB EQUIP.	263-203- 64	($2,837.35)	34 40 63
IFB - 3	ARI/BELBEISS	LAB EQUIP.	263-203- 65	($843.00)	24 63
IFB - 3	ARI/BELBEISS	LAB EQUIP.	263-203- 66	($1,208.35)	24 34 63
IFB - 3	ARI/BELBEISS	LAB EQUIP.	263-203- 67	($140.32)	42
IFB - 3	ARI/BELBEISS	CRYOVIALS	263-203- 68	($1,100.00)	24 63
IFB - 3	ARI/BELBEISS	OPHT./OTOSCOPE	263-203- 69	($450.00)	24
IFB - 3	ARI	02 CONCEMTRATOR	263-203- 71	($58,500.00)	24
IFB - 3	ARI	SPARE PARTS P 71	263-203- 71A	($17,197.28)	60
IFB - 3	ARI	NEBULIZER	263-203- 72	($2,697.00)	24
IFB - 3	EPI	BOXES/ICE PACKS	263-203- 74	($101,800.00)	23 26
IFB - 3	EPI	VACCINE CARRIER	263-203- 75	($84,700.00)	27
RFQ - 9	ARI/BELBEISS	READER/WASHER	263-203- 76	($16,586.00)	27
IFB - 3	CS	INFANT INCUBATORS	263-203- 77	($806,690.00)	24 28 34
IFB - 3	CS	S.P. & ACCS PO 77	263-203- 77A	($52,724.80)	34
IFB - 3	CS	S.P. & CON. PO 77	263-203- 77B	($52,695.00)	34
RFQ - 11	ARI/BELBEISS		263--203- 78	($24,959.15)	24 27
IFB - 3	CS	STANDS INCUBATORS	263-203- 79	($290,560.00)	28 34
RFQ - 12		NUAIRE INCUBATOR	263-203- 80	($10,600.00)	35 36 43

PARTICIPANT NAME	COMP.	TYPE	COURSE	UNIVERSITY	DURATION
SOAD ABDEL MOHSEN	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
KHALED BADR	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
MAHER ABDEL ZAHER	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
ALAA TOULAN	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
ATEF HASSAN	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
FATMA ABDEL LATIF	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
GIHAN EL SAYED	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
MOHAMED NAGUIB	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
SALWA EISSA	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
WAFAA RABEI	CS	ST	EONATAL RESUSCITATION, STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	22/5-9/6,95
MAHMOUD ABUL NASR	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOSTAFA EL KASSASS	CS	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
AZZA EL HOSSEINY	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
NABIH SHALTOUT	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
KAMAL EL DIN HADAD	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
SAMIRA ABDEL MONEIM	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOHAMED BASSIONI	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOHAMED ZAKARIA	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
NABIL EL SHANAWANY	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
SAID SHALAN	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
FAYEK MOATAMED	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOHAMED SAMY	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
AHMED DARWISH	EPI	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
AHMED MARIEI	MOH	ST	SENIOR-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
NABIH ISMAIL	CSP	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
HAESHAM DARWISH	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
MOHAMED BARAKAT	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
SOAD MOUNIR	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
DEVY GAYED	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
HUSSEIN MONTASSIR	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
HAMDY EL SAKKA	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
BERLANTI NAGUIB	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95
ATEF ROSHDY	MOH	ST	MID-LEVEL TRAINING	G. WASH.UNIV.	7/8-1/9, 95

PARTICIPANT NAME	COMP.	TYPE	COURSE	UNIVERSITY	DURATION
SAMEH MOHAMED BEHEIRY	MCH	ST	LACTATION MANAGEMENT	WELLSTART-SAN DIEGO	FEB 14-MAR 11,94
SEHAM NAGY ABBAS	MCH	ST	LACTATION MANAGEMENT	WELLSTART-SAN DIEGO	FEB 14-MAR 11,94
KHALED AHMED NASR	MCH	ST	LACTATION MANAGEMENT	WELLSTART-SAN DIEGO	FEB 14-MAR 11,94
MAHASEN OTHMAN AHMED	MCH	ST	LACTATION MANAGEMENT	WELLSTART-SAN DIEGO	FEB 14-MAR 11,94
SOLIMAN MOHAMED SALEM	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
WAGDY TAWFIK WASSEF	PROJECT	ST	MANAGEMENT OF HEALTH SERVICES	CAU	25/1 -10/4/94
NADER EL SAYED	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
SALAH EL ROSS	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
MOHAMED OSAMA HUSSEIN	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
AHMED ABDEL MONEIM FATTAH	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
NEVINE HOSNY ELWAN	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
IHSAN IBRAHIM MOSTAFA	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
AHMED MHMOUD HASHEM	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
MOHAMED A. KADER ABDALLA	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
OSAMA EL SAYED AHSMAWY	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
OSAMA MOHAMED AL ADEL	CS	ST	NEONATAL RESUSCITATION,STABILIZATION&CAR	DARTMOUTH MEDICAL CEN	26/3-9/6,94
MOHAMED ABDALLAH EL NAGAAR	ARI	ST	MANAGEMENT SCIENCES FOR HEALTH	BOSTON UNIV	10/7-10/8/1994
MOHAMED HASSAN SERRY	ARI	ST	MANAGEMENT SCIENCES FOR HEALTH	BOSTON UNIV	10/7-10/8/1994
MOHAMED SALAH ELDINE SHEIR	ARI	ST	MANAGEMENT SCIENCES FOR HEALTH	BOSTON UNIV	10/7-10/8/1994
ALYAA SALAH ELDIN MAHMOUD	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
EMAN HASSAN ELZIND	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
FATHY ABDEL HALIM BATTAH	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
MOHAMED NABIL MOHAMED	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
MOHAMED SAYED ABDEL AZIZ	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
NABILA GIRGIS IBRAHIM	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
NADIA MOHAMED RAGAB	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
OSAMA MOHAMED SHALAAN	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
SHERIF SOBHY FAM	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
SOHEIR KHALLAF GINDI	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
WAHID SOLIMAN MOHAMED	PROJECT	ST	CHILD SURVIVAL&SAFE MOTHERHOOD	G.WASH.UNIV.	20/7 - 25/9/94
MOHAMED MAGDY EL NAGAAR	ARI	ST	PLANNING & DIRECTING MANAGEMENT INF.SYS.	MSH-BOSTON	11/7-29/7,94
MOHAMED HASSAN SERRY	ARI	ST	PLANNING & DIRECTING MANAGEMENT INF SYS.	MSH-BOSTON	11/7-29/7,94
MOHAMED SALAH ELDIN SHEIR	ARI	ST	PLANNING & DIRECTING MANAGEMENT INF.SYS.	MSH-BOSTON	11/7-29/7,94

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RFQ - 23	EPI	HEPATITIS B II	263-203- 113	($6,000,000.00)		
IFB - 2		TRANSPORT / STATIONARY	263-203- 114	($52,854.00)		
		INCUBATOR				
IFB - 2		SPRAE PARTS	263-203- 115	($131,647.50)	81	
RFQ			263-203- 116	($2,718.90)		
RFQ - 29		EQUIPMENT	263-203- 117	($12,350.00)	82 83	
RFQ - 30A			263-203- 118	($22,839.55)		
RFQ - 30B			263-203- 119	($148.00)		
RFQ - 31			263-203- 120	($2,868.00)		
IFB - 6		OTOSCOPE	263-203- 121	($241,421.00)	84	
IFB - 6		INCUBATOR ISOTEMP	263-203- 122	($9,150.10)	84	
IFB - 6		WATER DISTILLER	263-203- 123	($52,844.00)	84	
		LAMINAR FLOW CABINETS				
		THERMOLYN STIRRER				
IFB - 6		TOP LOADING BALANCE	263-203- 124	($13,335.00)	84	
		PHOTOCOPY LAMPS				
IFB - 6			263-203- 125	($6,120.00)	84	
IFB - 6		HEART RATE MONITOR	263-203- 126	($127,840.00)	84	
IFB - 6		LOW TEMPRATURE FREEZE	263-203- 127	($35,281.34)	84	
IFB - 7		CHEVROLET ASTRO VAN	263-203- 128	($543,318.00)	85 86	
IFB - 8	VACSERA	PERISTALTIC PUMP	263-203- 129	($990.00)	87	
IFB - 8	VACSERA	A/C FOR STERILE AREA		($11,997.00)	87	
IFB - 8	VACSERA	HVAC		($37,955.00)	87	
IFB - 8	VACSERA	400 LITER JACKETED PRESS		($69,225.00)	87	
IFB - 8	VACSERA	AUTOCLAVE PHARMACEUTI		($270,050.00)	87	
IFB - 8	VACSERA	VALIDATION INSTRUMENTS	263-203- 130	($47,700.00)	87	
IFB - 9		OXGEN CONCENTRATORS	263-203- 132	($310,500.00)	NOT YET RECEIVED	
IFB - 9		WALK IN COLD ROOMS	263-203- 133	($16,677.00)	NOT YET RECEIVED	
IFB - 9		WALK IN COLD ROOMS		($26,785.00)	NOT YET RECEIVED	
IFB - 9		CHEVROLET ASTRO VANS		($51,699.00)	NOT YET RECEIVED	
IFB - 9		OXIMETER	263-203- 134	($137,500.00)	NOT YET RECEIVED	
IFB - 9		GENERATORS	263-203- 135	($78,750.00)	NOT YET RECEIVED	
IFB - 9		HEART RATE MONITORS	263-203- 136	($184,100.00)	NOT YET RECEIVED	
IFB - 9		BLOOD GAS ANALYSER	263-203- 137	($179,868.00)	NOT YET RECEIVED	
IFB - 9		VACCINE CARRIERS	263-203- 138	($68,190.00)	NOT YET RECEIVED	
IFB - 9		NEONATAL VENTILATOR		($176,330.00)	NOT YET RECEIVED	
IFB - 9		INFANT SCALES	263-203- 139	($11,331.00)	NOT YET RECEIVED	
IFB - 9		INCUBATORS	263-203- 140	($302,995.00)	NOT YET RECEIVED	

TOTAL VALUE OF Above P.O.s ($21,408,448.24)
Estimated Shipping cost for IFBs 8 and 9 ($150,000.00)

TransCentury Associates

Balance of Fee due to TCA	($75,013.00)
	($21,633,461.24)

Note :

IFB 1 through 8 have been delivered to the project
IFB 9 has been finalized and two contracts require USAID approval awaiting delivery
RFQ- 33 placed and awaiting delivery
Rebiding for item 3 of IFB-9 (offers were received in the US of 3/25/96)
Awaiting USAID approval for the procurement of the additional incubators.
Above total does not include TCA fee, Freight cost and bank Charges

Annex 6

REPORTS, ARTICLES, AND PUBLICATIONS

Ministry of Health
Child Survival Project
Reports, Materials and Publications

A. CSP General and Cross-Cutting

1. Administrative

CSP Project Paper, USAID, 1985
CSP Project Paper Amendment #1, USAID, 1991
CAU Prime Contract through Amendment #11, CAU, 1994
CAU Contract Compliance Report, CAU, 1996
CSP Performance Indicators Report, MOH/CAU, 1996
CSP Technical Assistance Report, Consultants 1989-1996, CAU, 1996
GOE In-Kind Contributions Report, Dr. Helmy El Baramawy, 1992
Governorate Data Sheets, A. Baron, 1996
Commodity Procurement and Installation Report, MOH/CAU, 1996 (draft)
CSP Response to Mid-Term Evaluation Report, MOH/CAU, 1993
Sustainability Cost Study, USAID, 1993
Sustainability Issues Paper, P. Saleh, CAU, 1995
CSP Monthly Reports, MOH/CAU, 1989-1992
CSP Quarterly Reports, MOH/CAU, 1st Qtr 1993-1st Qtr 1996
CSP Annual Reports, MOH/CAU, 1991-1995
CSP Final Report, MOH/CAU, 1996 (Draft)
Financial audits, various
Mid-term Evaluation Financial Review, R. Billig and F. Reed, DATEX, 1992

CSP Component Worksheets for 1990, MOH/USAID, 1990
CAU 1990 Work Plan, CAU (draft)
CAU 1990 Work Plan, Volume II, IGS Tasks
CSP 1990 Work Plan Revised, J. Oki, 1990 (draft)
CSP Annual Workplan, MOH/CSP, 1991
" " " " " 1992
" " " " " 1993
" " " " " 1994-95
" " " " " 1995-96

2. Newsletters

CSP Newsletters, Issue #1(9/93) - Issue #6(3/94)
Doctors on Call, Issue #1(Spring 93) - Issue #2(Summer 93)

3. Training Materials

PHC Clinic Management Competency Based Training Manuals (4) and Modules(20), T. Coles, CAU/EP&A, 1995
Service Standards for PHC Clinics, MOH/CAU, 1995
IEC for Health Information Officers Competency Based Training Manuals (1) and Modules (8), S. Mehra, CAU, 1996

Decentralized Planning and Budgeting Competency Based Training Manuals (1) and Modules (8), T. Coles, CAU/EP&A, 1996
Decentralized Health Information System software, CAU/Arabsoft, 1996
Decentralized Health Information System Manuals, CAU/Arabsoft, 1996
Medical School Curriculum:
Child Survival, A Rational Approach, CSP, 1992
Medical School Curriculum, 3rd edition (in process)
Integrated Medical School Curriculum Modules (8), T. Coles CAU/EP&A, 1996

Note: Most of the manuals have gone through several or more editions. Only the most current is indicated above.

4. Plans

Health Education/Health Promotion Plan, F. Catron, L. Krieger, R. Warner-Rowe, CAU/PATH, 1992
Social Marketing Concept Plan, M. Favin, M. Griffiths, and S. Morch, CAU/Manoff, 1994
Decentralization Plan, R. Ainsworth and N. Marsh, CAU/EP&A, 1993
HIS System Development Plan, F. Fattah, P. Hoover, and L. de Madrigal, CAU/Chemonics, 1993
CSP Resource Center Plan, S. Mottram, CAU/(AHRTAG), 1994

5. Consultant Trip Reports and Recommendations

See: "MOH CSP Technical Assistance Report: Consultants, 1989-1996" CAU, 1996; Sections: Training and Short Courses, Health Education/Promotion, HIS/HMS, and Project Management.

6. Reports

Child Survival Project Mass Media/Communications Final Report, C.Groff, CAU, 1996
Child Survival Project Model Clinic Management Improvement Program Interim Report, A. Baron and Nabih Ismail, CSP/CAU, 1995
Decentralized Health Information System Program, June 1993-March 1996: Final Report, Arabic Software Engineering (Arabsoft), 1996
Report of Workshop on CSP-University Collaboration, January 6-8, 1993, CSP, January 1993
Report of Workshop on Mobilization of Health Education Officers for Child Survival Health Education and Promotion, CSP, December, 1993

7. Articles and International Presentations

Child Survival: The Egyptian Experience, Presentations at the American Public Health Association Annual Meeting, San Francisco, October 1993
Child Survival Project in Egypt, Presentation at the American Public Health Association Meeting, San Diego, November 1995

8. Evaluations

Child Survival Project, R. Langston, et al, CSP, Johns Hopkins University and American University in Cairo, 1992
Initial Report of 2-Governorate Study, R. Langston et al, CSP, Johns Hopkins University and American University in Cairo, 1996 (draft)
National Maternal Mortality Study, Study Committee, CSP/CAPMAS/(LSHTM), 1994
Estimation of Completeness and Accuracy of Under-Five Death Registration (Egypt), S. Becker et al, CSP/CAPMAS/JHU, 1995
Health Education Office Evaluation Report, L. Krieger, CAU, 1994
Synthesis of Mortality Data, S. Becker, CAU, 1996
Summary Findings of the Pretest KAP Survey, SPAAC, 1995
Child Survival Project, KAP Survey Baseline Findings Report, SPAAC, 1993
KAP II: Additional Analysis of Findings, SPAAC, 1995
KAP III: Analysis of Findings, SPAAC, 1996 (planned)

See also:
Egyptian Demographic Health Survey (1988)
Egyptian Demographic Health Survey (1992)
Egyptian Demographic Health Survey (1996) (preliminary draft)
The State of the Egyptian Children, CAPMAS/UNICEF, June 1988
The Situation of Egyptian Children in Upper Egypt, CAPMAS/UNICEF, November 1989
Cairo Demographic Center, 1993
Egyptian Maternal and Child Health Survey (PapChild, 1991), eds. Farouk Abdel-Azem et al, CAPMAS/Pan Arab Project for Child Development-Arab League, 1993

B. ARI Publications, 4/07/96

1. Newsletters

ARI News, Issue #1 (Winter, 1991) - Issue #13 (1996)
ARI Bulletin, Issue #1 (Feb., 1995) - Issue #5 (June, 1996)

2. Training Manuals

English
Control of Acute Respiratory Infections in Practice: A Manual for Physicians, revised edition, MOH/UNICEF/WHO-EMRO, 1994
Specialist course
Use and Maintenance of Oxygen Concentrators Manual, CSP, 1993
ARI Physicians Manual: Case Management of ARI in Children
National ARI Drug Policy Document, 1992

Arabic
ARI Nurses Manual: Case Management of ARI in Children

3. General Publications

ARI Control Program in Egypt: A Five Year Report, 1989-1994, N.Khallaf and A. Baron, CSP/CAU, June 1994
National Program of ARI, First International Meeting on ARI in Egypt, Conference Program and Abstracts, CSP/MOH, June 1994
National Program of ARI, First International Meeting on ARI in Egypt, Program Papers, CSP/MOH, 1994
Lessons Learned in Egyptian National ARI Control Program, N. Khallaf, CSP/ARI, 1996 (draft)
Report on Applied Research Program for ARI, April 1990-March 1996, R. Black, Johns Hopkins University, 1996
ARI Governorate Data Sheets, CAU/CSP, 1996
ARI Control Program, Annual Review-1993, N. Khallaf and A. Baron, CAU/CSP, 1994
ARI Control Program, Annual Review-1994, N. Khallaf and A. Baron, CAU/CSP, 1995
ARI Control Program, Annual Review-1995, N. Khallaf and A. Baron, CAU/CSP, 1996
Health Information Components of the National ARI Program, 1992

4. Plans

National Plan of Action, 1989, N. Khallaf, J. Sarn and A. Pio
A Proposed Program of Applied Research for the Egyptian ARI Control Program, R. Black, JHU, 1989
Mid-term Evaluation Appendix, 1992, A. Pio
ARI Control Program: 5-Year Plan: 1996-2000, N. Khallaf and A, Pio, CAU/CSP/ARI, 1995
ARI Health Education Plan, 1994

5. Consultant Trip Reports and Recommendations

See: "MOH CSP Technical Assistance Report: Consultants, 1989-1996, CAU, 1996; Sections: ARI and ARI/JHU Applied Research"

6. Research Reports and Surveys

Developing Strategies to Encourage Appropriate Care-Seeking for Children in ARI An Example from Egypt
Assessment of Respiratory Rate and Chest Indrawing in children with ARI by Primary Care Physicians in Egypt
An Instrument to Assess Acute Respiratory Infection Case Management in Egypt
Care and Treatment of Respiratory Infections in Rural Egypt Role of Training and Potential Role of the Media
ARI Control Program, Final Report, 1993 Sentinel Survey, CSP/ARI May 1994
Report of the Egypt Acute Respiratory Infections Control Program Five Governorate Health Facility Survey, Final Report, L. Harrison, JHU/UNICEF, 1992
ARI Control Program, Final Report, 1993/94 Health Facility Survey, CSP/ARI, 1994
ARI Control Program, Final Report, 1995 Health Facility Survey, CSP/ARI, 1996 (in process)
Symposium on ARI Research Reports and Studies, CSP/ARI, 1996
Household Survey for ARI and Diarrhea, WHO, 1995
ARI Control Program, Bilbeis ARI Research Project, CSP/NAMRU/MOH, 1992
ARI Control Program, Case Registration System, 1993-1994 Report, N. Khallaf and S. El Ansary, CSP/ARI, 1995
ARI Control Program, Case Registration System, 1995 Report, N. Khallaf and S. El Ansary, CSP/ARI, 1996 (in preparation)
The perception and treatment of acute respiratory symptoms in young Egyptian children, Final Report. E. Herman and S. Whaba, JHU, 1991
Comparison of ethnographic data from two research sites in Egypt, Final Report, E. Herman, JHU, no date
The signs and symptoms of acute respiratory infections in Egyptian children: Caretaker recognition of ARI signs and symptoms with pediatrician examination and pulse oximetry, Final Report, A. Gadomski, JHU, 1992
The signs and symptoms of acute respiratory infections in Egyptian children in correlation of caretaker report and pediatrician observation of ARI signs and symptoms with radiological diagnosis, Final Report, A. Gadomski, JHU, 1992
Impact of Malnutrition on the Severity of Lower Respiratory Infection, G. Osman, Ain Shams University, 1996 (draft)

7. International Publications

See JHU List (9)
Antibiotic Resistance Study, N. Khallaf and S. Ostroff et al, CSP/CDC, 1996 (published)
Reverse Cold Chain, J. Lloyd, CSP/WHO, 1996 (in preparation)
ARI unit
Bilbeis articles

8. International Presentations

Child Health 2000, Vanccouver, June 1995
International ARI Conference, Baltimore, 1993

9. Evaluations

Review of the Bilbeis ARI Research Program, J. Bennettt and B. Metchock, CAU/TFCS&D-Carter Center, 1992
Start-up Evaluation of the ARI Hospital Laboratory Program, S. Ostroff and S. Harrington, CDC/JHU, 1996 (draft)

10. Non-print and health education materials

15 minute video
CSP Mass Media Spots, # 3
MOH Mass Media Spots, # 1
Posters (see separate list)
Brochures (see separate list)
ARI Control Program in Egypt, 1994 (Brochure)
ARI Care Management (Brochure)

C. EPI Publications

1. Newsletters

EPI News, Issue #1 (July, 1995) - Issue # 4 (July 1996)

2. Training Materials

English
Immunization in Practice: A Manual for Health Workers, MOH/WHO/UNICEF, 1989
Poliomyelitis Eradication in Practice: A Manual for Health Workers, MOH/WHO/UNICEF, 1990
Viral Hepatitis: Health Worker's Guide, CSP, I.I. Zaghloul, CSP, 1992
Arabic

3. General Publications

EPI 10-Year Report, E. Mansour and A. Baron, MOH/CAU, 1995
Basic Data: Expanded Program on Immunization-1986, MOH/EPI 1987
Basic Data: Expanded Program on Immunization, CSP, 1988
Expanded Program on Immunization-1989, E. Mansour, EPI, 1989
Progress Report of the Expanded Program on Immunization in Egypt, E. Mansour, CSP/EPI, 1990
Expanded Program on Immunization-1991, E. Mansour, EPI, 1991 Technical Series:
Hepatitis Viruses, I.I. Zaghloul, 1994
EPI Disease Surveillance During 1991, 1992
1995 EPI Annual Report, CAU/CSP, 1996

4. Plans

National Plan of Action for the Eradication of Poliomyelitis from Egypt, MOH CDCD/CSP/EPI/UNICEF/WHO, 1989
Revised Plan of Action for the Eradication of Poliomyelitis from Egypt, MOH CDC/CSP/EPI, 1992
Proposed Plan of Action for the Control of Neonatal Tetanus, 1991-1992, M.S. El Sharkawy, et al, MOH/WHO, 1990
Measles Control Plan in Egypt, MOH, M.S. El-Sharkawy, E. Mansour, and A. Darwish, MOH, 1992
Measles Control Plan in Egypt, Revised, A. Darwish, 1996 Cold Chain/ J. Pott
Integration of Hepatitis B Vaccination into the Current EPI Schedule, I.I. Zaghloul, CSP/EPI, 1991
The Integration of Hepatitis B Immunization into EPI in Egypt, October 1991, J. Maynard, H. Margolis, and L. Krieger, Int. Task Force on Hepatitis B Immunization/CDC/PATH, 1991
High Risk Approach to NNT/E. Mansour, D. Galal and M. Laforce, 1992
Plan to Provide Immunization Services, 1989

5. Reports

Survey of Cold Chain-Egypt, 5 November-17 December 1989, J. Pott, MOH/WHO/EMRO/UNICEF, 1989
EPI Cold Chain, 3 February-31 March 1990, J. Pott, CAU/CSP, 1990
EPI Cold Chain, 5 May-5 November 1990, CSP, 1991
Final Report: EPI Cold Chain, 5 November 1990-5 May 1991, CAU/CSP, 1991
1993 Cold Chain Evaluation Retort, Office of Evaluation, CAU/CSP, 1994
Survey of EPI Cold Chain Equipment and Facilities at Governorate, District and Local Level, CSP, 1994 (draft) (Arabic)
Executive Summary, National Cluster Survey for Vaccination
Coverage for Egypt, 1990, MOH/UNICEF, 1990
Egypt Immunization Coverage, January-June 1992-Health Districts, CSP, 1992
Analysis of Results of the National Polio Cam[aign: March and April 1994, MOH/CSP, 1994
Final Report on the Active Surveillance of Poliomyelitis During the Period March 7, 1992-August 6, 1992 (In Alexandria and Beheira Governorates), Abdel-Rahman El-Sayed Tarek, UNICEF, 1992
Vaccine Coverage in Egypt by District-1992, CSP/EPI, 1993
Vaccine Coverage in Egypt by District-1993, CSP/EPI, 1994
Vaccine Coverage in Egypt by District-1994, CSP/EPI, 1995
Vaccine Coverage in Egypt by District-1995, CSP/EPI, 1996
NNT Program Review, Office of Evaluation, 1996
Hepatitis Viruses, I.I. Zaghloul, Technical Series February 1994, Issue No. 3, CSP, 1994

6. Consultant Reports and Recommendations

See: "MOH CSP Technical Assistance Report: Consultants, 1989-1996" CAU, 1996; Sections on EPI and EPI/VACSERA

7. Research Reports

Adverse Events Following BCG Immunization Among Infants in Kalyobia Governorate, CSP/EPI, Abd El-Rahman, et al, 1994
Pilot Study for Elimination of NNT in Sohag and Sharkia: April to August 1992, Nargis A. Labib, UNICEF, 1992
Sero-prevalence of Antibody to Polio Virus Following Three Doses of Standard Trivalent Oral Polio Vaccine, E. Mansour, PhD Dissertation, Cairo University, 1993
Missed Opportunities Study for Routine Immunization Among Infants and Female In Child Bearing Age, E. Mansour, et al, CSP, 1994
Final Report on the Active Surveillance of Poliomyelitis
During the Period March 7, 1992-August 6, 1992, UNICEF, 1992
Evaluation of House-to-House Versus Fixed Site Oral Poliovirus
Vaccine Delivery Strategies in a Mass Immunization Campaign in Egypt, R.W. Linkens, et al, EPI/CDC, 1994
Polio Reverse Cold Chain Study, E. Mansour, CSP/EPI, 1995
Assessment of Performance of EPI Personnel Using Autodestruct Syringes for Vaccinations in Egypt, j. Lloyd, et al, CSP/WHO, 1995

8. International Publications

Polio Eradication in Egypt, E. Mansour and B. Aylward (accepted)
Progress Toward Poliomyelitis Eradication-Egypt 1993/MMWR
NNT Program/MMWR, 1996
Lessons learned from polio for NNT Program, E. Mansour, B. Aylward, F. Cummings (submitted to Int. J. Epidemiology)
NNT Letter, Lancet, E. Mansour, B. Aylward, and F. Cummings, 1996
"Evaluation of House-to-House versus Fixed Site Oral Poliovirus Vaccine Delivery Strategies in a Mass Immunization Campaign in Egypt", E. Mansour, et al, 1992
"Progress Toward Poliomyelitis Eradication-Egypt, 1993", Morbidity and Mortality Weekly Report (April, 1994), 223-226 CDC
"The Accuracy of Mothers' Reports of Child Vaccination: Evidence from Rural Egypt," R.Langston and K. Hill, 1995

9. International Presentations

"The Expanded Program on Immunization in Egypt", E. Mansour, WHO Conference on EPI Plus, New Delhi, India, November 1993
"The Expended Program on Immunization in Egypt", E. Mansour, 11th International Meeting on the EPI, Tunis, Tunisia, June 1994
"The Expanded Program on Immunization in Egypt, E. Mansour PAHO TAG Meeting, Guatemala City, Guatemala, March 1993
"Active Surveillance for Poliomyelitis in Egypt," E. Mansour, FETP Managers Meeting, CDC, Atlanta, GA, 1996

10. Evaluations

Assessment of EPI Disease Surveillance and Control with Emphasis on Polio Eradication and Neonatal Tetanus, N. Ward, et al, WHO/MOH, Rotary International, 1993
Polio Program/WHO et al, 1995
Polio interim review, Dec. 1995
Cold Chain/UNICEF/J. Pott, 1992
"Hepatitis B Immunization Program in Egypt, F. Mahoney, CDC, 1994
Motorcycle Program Evaluation for the Child Survival Project: The National Neonatal Tetanus Program in 1991, CAU/CSP, A. Baron, 1991
National Cluster Survey for Vaccination Coverage in Egypt in 1990; Executive Report, MOH, 1990
Mid-term Evaluation of the Polio Eradication Program in Egypt, F. Rahman, CAU/CSP, 1992
Evaluation of Vaccine Delivery During OPV National Immunizations Days of 1994; 75 Household Survey, E. Mansour, et al, 1995
Evaluation of the 1995 NID, WHO/CDC, 1995 (draft)
Performance of EPI Personnel in Assessment of Tetanus Toxoid Protection; Using NT Calculator, A. Darwish, et al, CSP/EPI, 1995

See also:

EPI/PHC Program Review, WHO-EM/IMZ/36, WHO/UNICEF/MOH, 1984 NNT in Egypt, CDC/UNICEF, 1986

11. Non-print materials

MOH Mass Media Spots
CSP Mass Media Spot Posters (see separate list)
Brochures (see separate list)

12. VACSERA

Consultant Team Report: Joint Children's Vaccine Initiative Task Force Mission to Egypt, 29 November-4 December 1992, UNICEF-Cairo 1992
FDA trip reports
Management Studies (3)
Alexandria Workshop summary
VACSERA: A Study of Options fir Institutional Autonomy: Executive Summary, CSP, 1994 (draft)

D. CS/MCH Reports

1. Newsletters

Egyptian Neonatal Care System Newsletter, Issue #1 (Jan.-Feb., 1996) - Issue # 2 (Jun.-Jul., 1996)

2. Training Materials

English

Physicians Training Manual: MCH Practice, revised ed., CSP, 1993 Egyptian Neonatal Care Clinic Management Manual, G. Little et al, CAU/CSP/Dartmouth, 1996

Nurse-Midwifery Training Modules, G. Allison, CAU/ACNM, 1993

Arabic

Daya Training Manual

Nurse-Midwifery Training Manual

ENCS Clinic Manual for Nurses

3. General

1995 Annual Report of the CS/MCH Program, CAU/CSP, 1996

Technical Series, Issue 1: Neonatal Health, CSP, 1993

Report on National Neo-natal Conference, CSP, 1992

Child Survival Project and community Participation, A Report on the Workshop Held on 17 November 1990, CSP, 1991

Maternity Care at the First Referral Level, Technical Series Issue 2, CSP, 1994

4. Plans

5. Reports

Review of MCH Laboratory Up-Grading Program, M. Kassas, CSP, 1996

Program Review, Midwifery Training Program Implementation, Office of Evaluation, CAU, 1995

Interim Process Evaluation for the Child Survival Project: the Daya Program, Office of Evaluation, CAu, 1992

Program Review, Hospital Delivery Room Up-Grading Program, Office of Evaluation, CAU, 1995

Review of the Neonatal Care Program, G. Little, CAU/Dartmouth, 1996

Midwifery Training Program at Fayoum Governorate, Final Report, H. Aziz and Nawal El Menoufi, CSP, 1996

Midwifery Training Program at Giza Governorate, Final Report, H. Aziz and Nawal El Menoufi, CSP, 1996

Midwifery Training Program Final Report, April 1994-April 1996, H. Aziz and Nawal El Menoufi, CSP 1996

6. Consultants Reports and Recommendations

See: "MOH CSP Technical Assistance Reports: Consultants, 1989-1996" CAU, 1996; Section on CS/MCH

7. Research Reports and Surveys

National Maternal Mortality Study, Findings and Consultations, CSP, 1993
Pilot Low Birth Weight, Qualyobia Governorate, Egypt: Summary Report, CSP, 1995
Report on Anemia in Pregnancy and Lactation in Egypt, CSP, 1996 (in draft)

8. International Publications

Maternal Mortality in Egypt, M. Kassas, Int. J. Obstetrics and Gynecology, (1995)
Maternal Mortality in Egypt, M. Kassas and O. Campbell (draft)
The Daya Training Program in Egypt, A. Lofti and A. Richter (in draft)
Egyptian National Neonatal Care System, G. Little, et al, CSP/Dartmouth (in Press)

9. International Presentations

Maternal Mortality in Egypt, FIGO, Montreal, 1994
Maternal Mortality in Egypt, Dacca, 1994
Child Health 2000, Vancouver, June 1995

10. Evaluations

Daya Training Program Evaluation, A. Richter, CAU/ACNM, 1992
The Final Evaluation Report of the Child Survival Project's
Daya Training Program on Lower Egypt, A. Richter, CAU/ACNM, 1995
Nurse-Midwifery Training Program Evaluation, B. Kwast and K. Scanlon, CAU/ACNM, 1995
Nurse Training Program, A. Wahba, CAU, 1992
Start-up Evaluation of Neonatal Care Program, G. Little, CAU/Dartmouth, 1992

11. Non-Print Materials

MOH Mass Media Spots
CSP Mass Media Spots
Posters-breast feeding
nutrition
Magazine and newspaper articles

Annex 7

SPONSORED RESEARCH

Child Survival Project (CSP)

Applied Research and Surveys Carried Out, 1989-96

ARI:

1. **Child Survival in Rural Egypt** - This study, funded by CSP and the Diarrheal Disease Control Program, surveyed rural health including diarrheal disease and acute respiratory infection in 12 villages of rural Menoufia in 1990-1991. The study carried out by the Social Research Center, American University in Cairo with the Department of Population Dynamics, the Johns Hopkins University confirmed large declines in infant and child mortality during the 1980's, large declines in diarrheal mortality which however continued to be the leading cause of infant and child mortality. The study showed that children treated at MOH clinics are more likely to receive more correct standard case management than those treated by a private physician. The final report, *Child Survival in Rural Egypt,* became available in 1993. It was followed by a report in January 1994 on "*The Accuracy of Mothers' Reports of Child Vaccination - Evidence from Rural Egypt*".

2. **Respiratory Rate and Chest Indrawing Assessment by PHC Physicians In Egypt** - Research on use of respiratory rate timers and chest indrawing assessment by PHC physicians in Egypt, carried out by CSP in collaboration with the Johns Hopkins University School of Hygiene and Public Health (JHU) in 1990-91. The study confirmed the feasibility and usefulness of respiratory rate counting and appraisal of chest indrawing as diagnostic tools for PHC physicians and led to the decision to provide timers and a standard for counting respiratory rate for a full minute. A report, *Assessment of respiratory rate and chest indrawing by primary care physicians in Egypt*, was published in the Bulletin of the World Health Organization in 1993 (Bull WHO 71:523-527, 1993).

3. **Perception and Treatment of ARI Symptoms among Egyptian Young Children** - Ethnographic study conducted by CSP with the JHU in 1990-91. The final report appeared in 1992. A note on the assessment of the role of pharmacy workers in treating ARI symptoms among children was published in The Lancet (Lancet 388: 248, 1991).The results of the study were presented in May 1992 at the WHO meeting on use of ethnographic studies in ARI Control Programs. A manuscript, *Developing strategies to encourage appropriate care-seeding for children with acute respiratory infections: An example from Egypt*, was published in the International Journal of Health Planning and Management (Int J Health Planning and Management (9:235-243, 1994).

4. **Management of Wheeze in Infancy** - Research carried out by CSP and JHU in 1990-93 and published in January 1994 in the Journal of Pediatrics, *Oral Versus Nebulized Albuterol in the Management of Bronchiolitis in Egypt*.. (J. Pediatr 124:131-138, 1994). The research found that albuterol is most effective in relieving

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the respiratory distress of older children with recurrent wheezing and does not appear effective in relieving respiratory distress of first time wheezing infants presenting with the clinical syndrome of bronchiolitis.

5. **Clinical Signs and Symptoms Associated with Pneumonia and Hypoxia** Research carried out by CSP in collaboration with JHU in 1991-1992. It confirmed (i) validity of the entry criteria of cough and difficult breathing of the clinical protocol for treatment of pneumonia; ii) the fact that fast breathing is a sensitive sign of pneumonia; iii) that other signs such as nasal flaring and cyanosis were not sensitive and occurred too late in the course of the disease; and iv) that local Arabic terms describing fast breathing, *nahagan* and *nafas serie* , can be reliably used by health workers in eliciting history of pneumonia from caretakers and in promoting health seeking behavior by caretaker counseling and mass media education.

   The study was published in 1993 in the International Journal of Epidemiology: *Caretaker Recognition of Respiratory Signs in Children: Correlation with Physical Examination Findings, X-Ray Diagnosis and Pulse Oximetry.* (Int J Epidemiol 22: 1166-1173, 1993).

6. **Validation of Maternal Recording of Signs and Symptoms of Acute Respiratory Infections Among Egyptian Children** - Research carried out by CSP in collaboration with JHU in 1991. A manuscript, *Maternal reporting of the signs and symptoms of acute respiratory infections in Egypt two and four weeks after diagnosis* , was published (Int J Epidemiology 24:1058-1963, 1995).

7. **Community Based Study of ARI in Bilbeis** - Research funded by CSP, 1991-93, with technical assistance from NAMRU, to examine the incidence of ARI among children in two villages in Bilbeis district. The Study was closed out in 1993 without notable findings useful to the ARI Control Program.

8. **Acceptability and Compliance of Different Antibiotic Formulations** - Research carried out by CSP with JHU in 1991-92. The study examined caretaker compliance with different formulations of ARI antibiotics (tables, syrups, single dose packets of antibiotic powder) and found the compliance varies but is best with syrups. The final report appeared in 1993: *Caretaker Compliance With Different Antibiotic Formulations for Treatment of Child Hood Pneumonia..* Findings were published in the Journal of Tropical Pediatrics (J Trop Pediatrics 41:103-108, 1995).

9. **Epidemiological and Microbiological Methods for the Surveillance of Respiratory Bacterial Drug Resistance** - This research, initiated in 1992 by CSP with technical assistance provided by the U.S. Centers for Disease Control and JHU and completed in 1994, was designed to examine the proportion of isolates of Hemophilus influenza and of Streptococcus pneumonia susceptible to antibiotics used in the ARI Control Program. The research found isolates of both bacteria associated with childhood pneumonia remain susceptible to penicillin and cotrimoxazole but that resistance is present in vitro. The final report was completed. The research led to the

establishment of a bacterial drug resistance surveillance network in governorate hospitals starting in 1995. A manuscript, *Monovalent latex agglutination reagents for the diagnosis of non-meningitis pneumococcal infection,* is in press (Diagnostic Microbiology and Infectious Disease).

10. **ARI Health Facilities Surveys, (3)** - Research carried out in 1991 by CSP in collaboration with JHU and UNICEF. The final report covering sixty health facilities studied in five governorates appeared in July, 1992, *Report of the Egypt Acute Respiratory Infections Program - Five-Governorate Health Facility Survey.* Follow-on survey were carried out in 1993/94 (110 facilities) and in 1995-96(__ facilities) by the staff of the ARI Control Program. Findings: (i) installation of SCM has progressed to cover most PHC clinics and hospitals in Egypt; (ii) training has improved quality of service delivery by health providers in ARI control; (iii) ARI has become widely known and accepted in the medical community both by trained and untrained practitioners and iv) supervision is a critical element for quality control assurance in service delivery.

11. **Management of Children with Pharyngitis** - Research carried out by CSP with the School of Hygiene and Public Health, JHU, 1992-94. examined clinical characteristics of group A Beta hemolytic streptococcal throat infections in children. The study found revisions in criteria for the prescription of antibiotics in children with sore throats were needed as a preventive measure against rheumatic fever complications. As a result, MOH changed criteria for the diagnosis and treatment of children with sore throats. The manuscript for publication is in preparation.

12. **ARI Sentinel Diagnostic Survey, 1992-93** - Research covering 115 public health facilities in five governorates to determine the incidence of pneumonia and other acute respiratory infections among children referred to WHO outpatient clinics including primary health care facilities. The final report appeared in 1994: *Acute Respiratory Infections Sentinel Diagnostic Survey, 1993.* The survey data is being used as a standard to compare data collected by the ARI case registration system.

13. **Use and Effectiveness of Oxygen Concentrators in ARI Clinical Therapy** - Research initiated by CSP with WHO in 1992 to examine operational factors in the maintenance and use of oxygen concentrators for ARI therapy in small hospitals. The study is on-going. A preliminary report in 1995 found that oxygen concentrators if maintained are cost effective in providing oxygen for clinical therapy, and supplement valuable the use of oxygen cylinder sets, particularly in small hospitals where oxygen cylinder re-supply is often a logistics problem.

14. **Impact of Malnutrition on Severe Forms of Pneumonia in Young Children** - Research initiated in the fourth quarter of 1994 by CSP with Ain Shams University was completed in 1996. A report is in preparation. Preliminary finding: Nutritional deficiencies (vitamin A,. zinc) correlate positively with the incidence of serious ARI in children.

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CS/MCH:

1. **National Maternal Mortality Study, 1992-93** - This first national study of maternal mortality in Egypt was carried out by the Child Survival Project in 1992-93 with staff of Governorate Health Directorates and the Central Agency for Public Mobilization and Statistics. Technical assistance was provided by Clark Atlanta University and the London School of Hygiene and Tropical Medicine. A published report by MOH/CSP appeared in 1994: *National Maternal Mortality Study, Findings and Conclusions.*

   Findings include determination of the level of maternal mortality in Egypt, identification of main causes and avoidable causes of maternal death, and recommendations for preventive programs to reduce mortality and morbidity. A second printing with an Arabic translation of findings and recommendations is planned in 1996. Detailed recommendations in the report are being used to guide MOH planning for safe motherhood and reproductive health.

2. **Use of Low Birth Weight Scales by Traditional Practitioners** - Research carried out by the UCLA School of Public Health and the National Research Center, Cairo, on behalf of PATH (Program for Appropriate Technology in Health), in collaboration with the Child Survival Project. The final report was submitted to PATH in December 1992: *Field Evaluation of Three Scales for Identification of Low Birth Weight Infants by Traditional and Paraprofessional Practitioners in Egypt..* The study confirmed the usefulness of the scales procured by the Project for use with dayas.

3. **Pilot Low Birth Weight Study, 1994** - This research was carried out by CSP in two districts in Qalyubia in 1994 as a pilot study. The final report was published by CSP in 1995. The study found a LBW incidence of 15.7% in Qalyubia and a high risk factor for neonatal mortality associated with birth intervals under two years. Dayas were found to be effective collaborators.

4. **National Low Birth Study, 1995-96** - This study in 12 districts of 6 governorates was undertaken in 1995 to provide data on low birth weight incidence, to determine breast feeding status for neonates, and to assess pregnancy and perinatal outcomes. A report is in preparation. A preliminary finding: LBW in the six sampled districts ranged from 8 to 17% with an average of 12.8%.

5. **MCH Facility Survey, 1995-96** - This survey carried out in 1995 details the characteristics of MCH Centers, Urban Health Centers, Rural Health Centers, Rural Health Units and Rural Hospitals providing MCH services. Field work was carried out in all districts in 6 governorates selected to be representative of the national. The study provides a baseline from which to evaluate programs to improve MCH service during 1996-2000. A preliminary report was reviewed in February 1996. A final report is in preparation. The survey supports the conclusion that PHC facilities

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providing MCH services should be included in the CSP/MOH Clinic Management Improvement Program, especially the larger centers (MCH Centers, Urban Health Centers, Rural Health Centers and Rural Hospitals).

6. **Neonatal Care Center Facility Survey, 1996** - This survey carried out in the first quarter of 1996 in 80 first referral neonatal care centers was designed to define the existing status and characteristics of neonatal care in these centers. Preliminary findings: i)most centers need to follow more closely service standards, recently defined and introduced; ii) steps need to taken in many centers to insure adequate local funding for recurrent and operating costs; and iii) most centers are operating below capacity because of a weak referral system. The survey provides baseline data of which to evaluate a continuing effort to develop neonatal care facilities and care to all districts

7. **MCH Status in A District of Upper Egypt. 1995-96** - This research, carried out as a training exercise by the Field Epidemiology Training Unit, is based on cluster surveys carried out by FETU in the fourth quarter 1995 and the first quarter 1996. Among survey findings: a) 39% pregnant women during the past five years (n=495) had no ANC. Of the those women having had ANC, 65% was provided by a primary health care facility and 35% by a private clinic/doctor; b) TT2+ coverage amounted to 53% while knowledge of the benefits and safety of TT protection amounted to 76%. This study of maternal and child health related morbidity and mortality in a district was undertaken as an initial test for training field epidemiologists in the expectation that more such surveys would follow as the FETU program is continued and as graduated field epidemiologists are assigned to the field.

8. **Anemia in Pregnant and Lactating Women** - These two linked studies of anemia in women were initiated in three districts in Beheira Governorate in October 1994 and designed to provide base line data and information of which to base programming for improved MCH service for safe motherhood and perinatal care. Field work was completed in 1995. The study was carried out among 300 women seeking health care in primary health care facilities in Menoufia governorate. The study shows that iron deficiency anemia remains a serious concern for maternal health, and appears more of a concern for women attending PHC facilities than for the population of women at large. A report of findings is in preparation.

EPI:

1. **Seroprevalence of Antibody to Polio Virus Following Three Doses of Standard TOPV** - Research carried out by CSP during 1989-92. The final study appeared in 1994 (doc. diss. by E. Mansour). As a result the concentration of type 3 polio virus in trivalent oral polio vaccine (TOPV) was increased to improve vaccine efficacy.

2. **BCG Adverse Events** - Research carried out by CSP in 1992-93 in two communities, one urban, one rural in Qalyubia governorate, to determine the magnitude and character of adverse events following infant BCG vaccination. The final report became available in 1994.

3. **House to House Versus Fixed Site Polio Vaccine Delivery During Mass Campaigns** - This research was carried out by CSP with technical assistance from the U.S. Centers for Disease Control during the National Polio Campaign conducted December 1992 - January 1993. The research examined relative costs and effectiveness of house to house vs. fixed-site immunization. The final report was issued in 1993 and published in 1996.

4. **EPI Missed Opportunities, 75 household survey** - This research conducted in 1994 by CSP in two governorates examines missed opportunities in immunizing infants and women (for TT). The final report became available in 1994.

5. **Surveys to Assess Coverage Achieved During Polio Mass Campaigns** - EPI conducted cluster surveys in 1994, 1995 and 1996 to assess coverage achieved during the polio mass campaigns carried out in those years. The 1994 and 1996 assessments have used the WHO approach of 75 household surveys. Assessments have indicated where coverage achieved was less than targeted and less than reports based on service statistics. The 1995 survey carried out with the help of WHO and the U.S. CDC (final report pending) revealed deficiencies in public information about the campaign which led the MOH/EPI to increase national publicity and community mobilization for participation in the 1996 campaign.

6. **Polio Reverse Cold Chain Operation** - Operational research carried out by CSP to determine compliance with and results for shipping (through the reverse cold chain), analyzing and reporting back laboratory findings on specimens taken from suspected cases of poliomyelitis. An initial report became available in 1994; an updated study was prepared in 1995. Both reports indicate areas where additional training and supervision are needed to improve routine collection, processing and use of laboratory analyses of stool samples.

7. **OPV, HB and Measles Vaccine Efficacy** - This research initiated by CSP with the Universities of Cairo, Ain Shams and Assiut in 1993 examines the efficiency of

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childhood vaccines in raising immunity levels of children. Research is on-going. The final report is to become available in 1996.

8. **Polio Vaccine Potency Study** - This study carried out in 1995 examined the efficacy of the cold chain system in delivering polio vaccine safely to the immunization point. A report is in preparation. The study found the cold chain system was operating effectively.

9. **Feasibility of the Use of Self Destruct Syringes** - This study carried out in 1995 by EPI examined the feasibility of the use of auto-destruct syringes. A report is in preparation. Based on the study, EPI is now examining modalities to shift to procurement and nation wide use of the self-destruct syringe which should alleviate the problem of disposal of used syringes.

10. **Feasibility of the Use of the WHO Calculator Assessing TT Immunization Requirements** - This studied carried out by EPI in 1995 found that the WHO calculator was effective in improving determination by service providers, especially for nurses, of the need for additional TT immunizations. The calculator is being introduced nationally in 1996-97.

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Project-wide Surveys:

1. **KAP Surveys of the Child Survival Project (3)** - Three national surveys of women with children under 5 were carried out [winter, 1991/92 - sample size 3400 households, January 1995 and May 1996 (scheduled) - sample size 1360 households]. The studies carried out by a local survey firm (SPAAC) under contract with Clark Atlanta University, provide base line data on knowledge attitudes and behavior of families with children under 5 for the EPI, ARI and CS/MCH programs of the Child Survival Project. Data collected has been used to design and develop training programs of physicians and health educators and for the CSP mass media campaign. The survey information has been used to evaluate program outcomes and provide measures for CSP performance indicators.

2. **Completeness of Vital Registration Data on Infant and Child Deaths in Egypt** - This research was initiated in 1992 by CSP with the help of a specialist from JHU, a specialist from Suez Canal University, and staff of the Central Agency for Public Mobilization and Statistics. The final report became available in 1994: *Estimation of Completeness and Accuracy of Under-Five Death Registration (in Egypt).* Findings: i) over half infant death registrations proved incorrect with respect to registered cause of death, indicating the need to improve cause of death reporting or to determine cause of death trends from household surveys; ii) substantial under-registration of neonatal deaths occurs but that registration after 1 month is good. The report has been accepted for publication (Demography).

3. **CAPMAS Study of Infant and Child Mortality Rates in Egypt** - This study carried out by CAPMAS in 1995-96 up dates a previous CAPMAS study on *Infant and Child Mortality Rates in Egypt, 1980-87* through 1992. The study shows large declines in infant and child mortality in all regions of the country between 1987 and 1992.

4. **CSP Linkage (Impact) Study** - This study initiated in 1994 will be completed by the end of 1996. It is being carried out by CSP in collaboration with the governorates of Minya and Qalyubia and with technical assistance from American University in Cairo's Social Research Center and JHU. The study which aims to assess how changes in MOH survey delivery affected child survival and safe motherhood includes retrospective and prospective collection of data on maternal and child mortality and morbidity. A preliminary report provided in March 1995 indicates substantial reductions in infant and child mortality have occurred.

5. **Mortality Trends** - This synthesis of EDHS, Papchild and other studies by Dr. Stan Becker of JHU was done in 1996 to provide best estimates of neonatal, infant, and child mortality since the early 1980s with projections to the late 90s by important variables.

Annex 8

FETP Reports & Activities

Summary of FETP Field Work, April 1993--August 1996

To date, field work done by the FETP/FETU or planning and protocols have been completed in the following topics:

I. Surveillance -- Communicable Diseases
   A. Assessment of:
      1. Surveillance to support polio eradication (active surveillance competed in 26 of 27 governorates)
      2. Diphtheria surveillance (7 governorates)
      3. Measles surveillance (2 governorates)
      4. Neonatal tetanus surveillance

II. Maternal-child health
   A. District-level surveys of:
      1. Tetanus toxoid coverage in pregnant women (TT2+)
      2. Frequency and quality of antenatal care
      3. Causes of infant and child death in the community
      4. Birthing practices
      5. Infant and child vaccination status

III. Vaccine efficacy:
   A. Tetanus toxoid efficacy (Sohag governorate)

IV. Emerging and Reemerging Diseases:
   A. Surveillance of acute jaundice in sentinel hospitals:
      1. Testing for acute hepatitis A
      2. Testing for acute hepatitis B
      3. Testing for acute jaundice in hepatitis C
      4. Acute jaundice in hepatitis non A--C
      5. Establishing hepatitis E testing
   B. Antibiotic-resistant Tuberculosis
   C. Completeness of TB Therapy (2 governorates)
   C. Bacterial resistance to antibiotics
   D. Arbovirus: Multiple surveys & outbreak investigations (Rift Valley Fever, Aswan -- 1993)
   E. Investigate typhoid fever outbreaks in communities
   F. Review drug resistance in Salmonella typhi

V. Disaster Response
   A. Prompt investigations of natural or man-made disasters (similar to FETP studies of public health impact of flash floods in Assiut, 1994)

VI. Evaluate Health Worker Knowledge and Practices
   A. Health worker knowledge about poliomyelitis reporting

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(26 governorates)
B. Health worker about MOH childhood immunization policy (26 governorates)

VII. Cost-Effectiveness Analysis
A. Determine cost-related impact of public health decisions
1. Mosquito net use
2. Injury prevention
3. Tetanus toxoid vaccination

VIII. Ongoing Collaboration with MOH Departments
A. Epidemiologic support to Maternal Child Health (ongoing)
1. District-level surveys
2. Verbal autopsies -- cause of infant death
3. Maternal breastfeeding practices
4. Prevalence of injuries in children
B. Epidemiologic support--Tuberculosis Control Dept (ongoing)
1. Community surveys
2. Multi-drug resistant TB
C. Epidemiologic support to Communicable Diseases (ongoing)
1. Active polio surveillance (1993--1995)
2. Rift Valley Fever outbreak (1993)
3. Typhoid Fever outbreak (1995)
D. Epidemiologic support to Preventive Sector (ongoing)
1. Illness due to Zinc Phosphide exposure (Aswan 1996)
E. Epidemiologic support to Schistosomiasis (ongoing)
1. Community Survey (Aswan)
2. Data analysis support for Kafr el Sheikh governorate
F. Epidemiologic support to Fever Hospitals (ongoing)
1. Training of laboratory workers (ELISA methodology)
2. Sentinel surveillance--acute hepatitis (4 governorates)
3. Nosocomial infections

E. Environmental Health
1. Accidental poisonings
2. Inorganic lead toxicity in children
3. Pesticide exposures

F. Surveys
1. Maternal child health status
2. Causes of infant/child death (Komombo, 1995)
3. Tobacco smoking (adults in Cairo, 1994)
4. Injuries
5. Schistosomiasis

G. Disaster Response
1. 1994 Flash Floods and Displaced Families
2. Additional as needed

Project Implementation

- Classes Entering and Graduating from FETP

The number of epidemiologists trained since 1993 and plans for future classes are shown below:

YEAR	*New candidates enrolled*	*FETP Graduates*
1993	8 trainees	None (1st year of FETP)
1994	7 trainees	None (2nd year of FETP)
1995	6 trainees	6 Epidemiologists
1996	6 trainees	6 Epidemiologists
Planned:		
1997	8-10 trainees	8-10 Epidemiologists
1998	10-15 trainees	10-15 Epidemiologists

- FETP Presentations at International Scientific Meetings

1994 American Society of Tropical Medicine & Hygiene
Viral Epidemiology Section
Cincinnati, Ohio (October, 1994)

1. RIFT VALLEY FEVER OUTBREAK INVESTIGATION, ASWAN GOVERNORATE, EGYPT--1993. Khalifa MA, Abd El-Wahab MF, Ahmed AM, El-Sakka MH, Arthur RR, Rodier GR, Mansour E, Imam IZ, Mohamed FA, Sharkawy S, Own S, Hatch DL

2. EPIDEMIOLOGY AND RISK FACTORS FOR ACUTE RIFT VALLEY FEVER: RESULTS OF A STUDY IN ASWAN GOVERNORATE, EGYPT--1993. El Sakka MH, Khalifa M, Abd el Ghafar AM, Abdel Wahab FM, Imam IZ, Abdeen FM, Esmat E, Arthur RR, Rodier GR, Hatch DL

3. RISK FACTORS FOR ACUTE RIFT VALLEY FEVER VIRUS INFECTION IN A RURAL POPULATION IN ASWAN, EGYPT--1993. Abd El Ghafar AM, Abd el Wahab FM, Azab S, El Sakka MH, Khalifa M, Arthur RR, Sharkawy S, Mansour E, Hatch DL

FETP Annual Directors's Meeting
U.S. Centers for Disease Control and Prevention
Atlanta, Georgia (March 1995)

4. RISK FACTORS FOR NEONATAL TETANUS IN TWO DISTRICTS, SOHAG, EGYPT -- 1994. Azab S, Abd EL Ghafar AM, Khalifa M, Abu EL Khair A, Mansour E, Hanafi A, Imam IZ, Hatch DL.

5. RISK FACTORS FOR ACUTE HEPATITIS B-RELATED HOSPITALIZATIONS IN QENA AND LUXOR, EGYPT--1994. Abdel Wahab MF, El Sakka MH, Imam IZ, Mansour E, Abdeen F, Hatch DL

International Epidemiology Association Meeting
Eastern Mediterranean Region (EMRO)
Alexandria, Egypt (September 1-5, 1995)

6. MORBIDITY AND MORTALITY DUE TO FLASH FLOODS IN ASSUIT AND SOHAG GOVERNORATES, EGYPT -- NOVEMBER, 1994. Al Hennawy HAR, Abdel Ghafar AM, Youssef ZM, Mansour E, Abdeen F, Hatch DL.

7. SMEAR POSITIVE PULMONARY TUBERCULOSIS: RESULTS OF A STUDY IN ALEXANDRIA AND MENOUFIA, EGYPT-1993. MOUSA IF, TOLBA FM, Mansour E, Abdeen F, Hatch DL

8. GUILLAIN-BARRE SYNDROME SURVEILLANCE: RESULTS FROM A STUDY IN FOUR GOVERNORATES, EGYPT,1993-1994. Ahmed MF, Imam IZ, Abu Khair A, Abdeen FM, Hasona M, Hussein MH, Mansour E, Hatch DL.

9. ACTIVE POLIO SURVEILLANCE, SELECTED DISTRICTS, EGYPT, 1993-94. Ahmed MF, Abd el Wahab MF, Khalifa MA, Abd el Ghafar AM, El Sakka MH, Abd el Raahman SA, Barakat MH, Ghanem SA,Al Hennawy HAR,Mousa IF, Abd el Gwad IM, Saleh AS, Sharkawy MS, Imam IZ, Abdeen FM, Mansour E, Hatch DL

10. RIFT VALLEY FEVER OUTBREAK INVESTIGATION, ASWAN, EGYPT--1993. Khalifa MA, Abd El-Wahab MF, Abd El-Ghafar AM, El-Sakka MH, Arthur RR, RodierGR, Mansour E, Imam IZ, Abdeen FM, Sharkawy S, Hatch DL

11. EPIDEMIOLOGY AND RISK FACTORS FOR ACUTE RIFT VALLEY FEVER: RESULTS OF A STUDY IN ASWAN GOVERNORATE, EGYPT--1993. El Sakka MH, Khalifa M, Abd el Ghafar AM, Abdel Wahab FM, Imam IZ, Abdeen FM, Esmat E, Arthur RR, Rodier GR, Hatch DL

12. RISK FACTORS FOR ACUTE RIFT VALLEY FEVER VIRUS INFECTION IN A RURAL POPULATION IN ASWAN, EGYPT--1993. Abd El Ghafar AM, Abd el Wahab FM, Azab S, El Sakka MH, Khalifa M, Arthur RR, Sharkawy S, Mansour E, Hatch DL

13. RISK FACTORS FOR NEONATAL TETANUS IN TWO DISTRICTS, SOHAG, EGYPT -- 1994. Azab S, Abd EL Ghafar AM, Khalifa M, Abu EL Khair A, Mansour E, Hanafi A, Imam IZ, Hatch DL.

14. RISK FACTORS FOR ACUTE HEPATITIS B RELATED-HOSPITALIZATIONS IN QENA AND LUXOR CITY, EGYPT--1994. Abdel Wahab MF, El Sakka MH, Imam IZ, Mansour E, Abdeen F, Hatch DL

First International Meeting of Fever and Environment
Cairo, Egypt--October 1995

15. VISUAL IMPAIRMENT ASSOCIATED WITH DIABETES DURING AN OUTBREAK OF RIFT VALLEY FEVER, ASWAN, EGYPT -- 1993. El Sakka MH, Khalifa M, Abd el Ghafar AM, Abdel Wahab FM, Imam IZ, Abdeen FM, Mansour E, Arthur RR, Rodier GR, Hatch DL.

16. RISK FACTORS FOR ACUTE HEPATITIS B RELATED-HOSPITALIZATIONS IN QENA AND LUXOR CITY, EGYPT--1994. Abdel Wahab MF, El Sakka MH, Imam IZ, Mansour E, Abdeen F, Hatch DL

International Conference on Emerging Infectious Diseases Conference
Cairo, Egypt (November 26--27, 1995)

17. OUTBREAK INVESTIGATIONS AND APPLIED EPIDEMIOLOGY: PERSPECTIVE FROM THE FIELD AND IMPLICATIONS FOR FUTURE WORK, Hatch DL, Imam IZ

International Epidemiology Association (IEA) &
FETP/INCLEN Meeting
Victoria Falls, Zimbabwe (January 1996)

18. SMEAR POSITIVE PULMONARY TUBERCULOSIS: PRELIMINARY RESULTS OF A STUDY IN ALEXANDRIA AND MENOUFIA, EGYPT-1993. MOUSA IF, TOLBA FM, Mansour E, Abdeen F, Hatch DL

19. RIFT VALLEY FEVER OUTBREAK INVESTIGATION, ASWAN, EGYPT--1993. Khalifa MA, Abd El-Wahab MF, Abd El-Ghafar AM, El-Sakka MH, Arthur RR, Rodier GR, Mansour E, Imam IZ, Abdeen FM, Sharkawy S, Hatch DL.

20. VISUAL IMPAIRMENT ASSOCIATED WITH DIABETES DURING AN OUTBREAK OF RIFT VALLEY FEVER, ASWAN, EGYPT -- 1993. El Sakka MH, Khalifa M, Abd el Ghafar AM, Abdel Wahab FM, Imam IZ, Abdeen FM, Mansour E, Arthur RR, Rodier GR, Hatch DL.

21. RISK FACTORS FOR ACUTE RIFT VALLEY FEVER VIRUS INFECTION IN A RURAL POPULATION IN ASWAN, EGYPT--1993. Abd El Ghafar AM, Abd el Wahab FM, Azab S, El Sakka MH, Khalifa M, Arthur RR, Sharkawy S, Mansour E, Hatch DL

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22. RISK FACTORS FOR NEONATAL TETANUS IN TWO DISTRICTS, SOHAG, EGYPT -- 1994. Azab S, Abd EL Ghafar AM, Khalifa M, Abu EL Khair A, Mansour E, Hanafi A, Imam IZ, Hatch DL.

MEETING: Annual FETP Directors' Meeting
U.S. Centers for Disease Control and Prevention
Atlanta, GA (April 1996)

23. MATERNAL AND CHILD HEALTH STATUS: PRELIMINARY RESULTS OF A CLUSTER SURVEY, KOMOMBO DISTRICT, ASWAN, EGYPT--1995. Khalifa MA, Abdel Ghafar AM, Fathy MA, Abdel Rahman SA, Barakat MH, EL Henawy HA, Abdel Gawad EA, Hammam HM, Mansour E, Abdeen FM, Nasir N, EL Hady BM, Hatch DL

24. PUBLIC HEALTH IMPACT OF FLASH FLOODS IN ASSUIT AND SOHAG GOVERNORATES, EGYPT--NOVEMBER, 1994. Al Hennawy HAR, AM Abd el Ghafar, ZM Youssef, E Mansour, FM Abdeen, DL Hatch.

25. SENTINEL HOSPITAL SURVEILLANCE FOR VIRAL HEPATITIS, EGYPT--1995. Hammam El Sakka, Abdel Ghafar AM, Imam IZ, Abu el Naser M, Mansour E, Abdeen FM, Nasir N, Mahoney F, Hatch DL.

26. DIPHTHERIA IN EGYPT; RESULTS OF SURVEILLANCE IN SEVEN GOVERNORATES, 1990--1995, MH Barakat, MR Ahmed, E Mansour, DL Hatch, AA Darwish

Annex 9

Offshore Procurement

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	ARI		
RFQ-1	OXIMETERS & TRANSDUCERS	38	$20,511.84
RFQ-1	OXISENSORS , LAB EQUIPMENT & CHEMICALS	48	$12,896.82
RFQ-2	LAB EQUIP. & CHEMICALS	49	$2,848.87
RFQ-8	SLIDES	50	$266.18
RFQ10	SLIDES / BOTTLES	54	$467.38
IFB-3	CENTRIFUGE	59	$11,600.00
IFB-3	S.P. FOR P.O. 59	59A	$22,936.25
IFB-3	OXYGEN CONCENTRATORS	71	$58,500.00
IFB-3	S.P. FOR P.O.71	71A	$17,197.28
IFB-3	NEBULIZERS	72	$2,697.00
RFQ-11	OTOSCOPES	78	$23,769.20
RFQ-12	NUAIRE INCUBATORS & REFREGERATORS	80	$10,600.00
RFQ-12	FREEZER, LAB INCUBATOR & ANAEROBIC JAR	81	$10,825.98
RFQ-13	LAB CHEMICALS	82	$21,797.30
RFQ-15	LAB EQUIPMENT	83	$4,718.20
RFQ-19	ANTISERAS	94	$4,118.00
RFQ-20	O2 CONCENTRATORS	95	$24,975.75
RFQ-20	S.P. FOR P.O. 95	95A	$9,391.56
RFQ-21	ANTISERAS	96	$2,484.00
IFB-4	OXIMETERS	108	$58,500.00
IFB-4	ADAPTER	108A	$1,578.90
IFB-4	POWER PACK	108B	$7,738.00
IFB-4	CULTURE PLATES	109	$150.00
RFQ-25	OXYGEN CONCENTRATORS	110	$24,345.00
RFQ-25	S.P. FOR P.O.110	110A	$17,263.43
RFQ-26	CULTURE PLATES	111	$150.00
RFQ-27	CULTURE PLATES	112	$300.00
IFB-6	OTOSCOPE	121	$241,421.00
IFB-6	INCUBATOR ISOTEMP.	122	$9,150.10
IFB-6	WATER DIST., LAMINAR FLOW CABINET & THERMOLYNE STIRRERS	123	$52,844.00
IFB-6	TOP LOADING BALANCE	124	$8,790.00
IFB-6	PH METER	125	$6,120.00
IFB-9	OXYGEN CONCENTRATORS	132	$310,500.00
	TOTAL ARI		**$1,001,452.04**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	ARI, BELBISS		
RFQ-D	SCANTRON	1	$5,455.00
IFB-1	OTOSCOPE & LAB EQUIPMENT	19	$1,238.07
IFB-1	LAB. EQUIPMENT & CHEMICALS	20	$35,078.95
IFB-1	CHEMICALS	21	$1,380.00
IFB-1	LAB EQUIPMENT	22	$4,046.85
IFB-1	SAFETY CABINET	23	$6,906.00
IFB-1	LAB EQUIPMENT	24	$94,284.00
IFB-1	LAB EQUIPMENT	25	$71,434.10
IFB-1	MICROSCOPE	26	$5,413.00
IFB-1	LAB EQUIPMENT	27	$13,421.25
IFB-1	RADIOFILMS	28	$4,813.66
IFB-1	OPHTHALMOSCOPE, BLOOD PRESS KIT, STIRRER & MICROSCOPE	29	$4,195.00
IFB-1	BALANCE TOP LOADING & S.P.	30 ,A&B	$3,250.00
IFB-1	LAB EQUIP. & CHEMICALS	31	$5,094.40
IFB-1	COMPUTERS & CENTRIFUGE	32	$54,376.20
IFB-1	SPARES INCUBATOR	32A	$3,543.00
IFB-1	LAB EQUIPMENT	33	$2,056.62
IFB-1	LAB EQUIPMENT	34	$4,043.50
IFB-1	LAB EQUIPMENT	36	$34,964.12
IFB-1	SCANTRON FORMS	37	$16,999.84
RFQ-2	ANTI-HUMAN MOUSE & SAFETY CABINET	44	$13,958.83
RFQ-2	CHEMICALS & READER	45	$12,755.00
RFQ-2	CHEMICALS	46	$3,700.00
RFQ-2	CHEMICALS	47	$1,687.10
RFQ-5	COMPUTERS	51	$26,222.40
RFQ-6	COMPUTER ACCS.	52	$23,091.08
RFQ-7	SOFTWARE	53	$18,575.00
IFB-3	LAB EQUIPMENT	62	$10,386.10
IFB-3	PIPET AID	63	$20.50
IFB-3	LAB EQUIPMENT	64	$2,837.35
IFB-3	LAB EQUIPMENT	65	$843.00
IFB-3	LAB EQUIPMENT	66	$1,208.35
IFB-3	LAB EQUIPMENT	67	$140.32
IFB-3	CRYOVIALS	68	$1,100.00
IFB-3	OPHTHALMOSCOPE/OTOSCOPE	69	$450.00
RFQ-9	READER / WASHER	76	$16,586.00
RFQ-11	CENTRIFUGE	78	$1,189.95
	TOTAL ARI, BELBIS		**$506,744.54**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	ARI, VACSERA		
RFQ-A	WESTFALIA	2	$122,621.00
RFQ-A	INSTALLATION	3	$10,335.01
RFQ-B	BDH CHEMICALS	4	$2,628.14
RFQ-C	DIFCO CHEMICALS	5	$935.40
IFB-1	CO2 INCUBATORS	6	$12,324.00
IFB-1	FREEZER/DRIER	7	$15,933.00
IFB-1	SPECTROPHOTOMETER , CENTRIFUGE &WASHER	8	$54,340.75
IFB-1	ULTRAWASH II, READER, SAFE LIGHT & PLASTIC BATH	9	$18,910.00
IFB-1	CENTRIFUGE	10	$80,616.00
IFB-1	STERILIZER, THERMOLYNE, TROLLEY& CHEMICALS	11	$141,271.00
IFB-1	REFREGERATOR, CAGES, CHEMICALS &BOTTLES/TUBES	12	$20,616.16
IFB-1	MICE PACK	13	$3,206.75
IFB-1	LAMINAR FLOW & BATTERY	14	$29,060.00
IFB-1	CART & FILM DEVELOPER	15	$19,120.72
IFB-1	CHEMICALS	16	$4,085.65
IFB-1	CHEMICALS	17	$2,295.00
IFB-1	LAB EQUIPMENT	18	$4,024.50
RFQ-16	LAB EQUIPMENT	85	$3,494.37
RFQ-16B	LAB EQUIPMENT	86	$8,563.39
RFQ-16B	CHEMICALS	87	$5,521.39
RFQ-16B	LYPHOLIZER	88	$9,495.00
RFQ-16B	CATHRA 3MM	89	$955.00
IFB-3	TRANSFILLING HOSE	90	$9,600.00
RFQ-16B	NEEDLES	91	$1,041.66
RFQ-17	AMPOULES	92	$3,536.00
RFQ-22	LAB SUPPLIES	97	$575.56
RFQ-22	LAB SUPPLIES	98	$4,354.67
RFQ-22	LAB SUPPLIES	99	$4,596.70
	TOTAL ARI, VACSERA		**$594,056.82**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	CS		
IFB-3	PELVIS & DOLL	56	$173,500.00
IFB-3	TRANSPORT INCUBATORS	57	$753,926.00
IFB-3	SPARES FOR P.O. 57	57A	$20,676.60
IFB-3	STERILIZERS & BABY SCALES	58	$260,290.00
IFB-3	SPARES FOR P.O.58	58A	$5,210.00
IFB-3	HEMOGLOBINOMETER	59	$51,975.00
IFB-3	SCALES	59	$119,100.00
IFB-3	SCALES FOR G.UPS	60	$210,980.00
IFB-3	ARM TAPE & CALIPERS	61	$1,500.50
IFB-3	INFANT INCUBATORS	77	$806,690.00
IFB-3	S.P. & ACCES.FOR P.O. 77	77A	$52,724.80
IFB-3	S.P. &CON. FOR P.O. 77	77B	$52,695.00
IFB-3	STANDS FOR INCUBATORS	79	$290,560.00
IFB-2	TRANSPORT/STATIONARY INCUB.	114	$52,854.00
IFB-2	SPARE PARTS	115	$131,647.50
RFQ	BOOKS	116	$2,718.90
RFQ-29	RESUSC. BOX & LARYNGOSCOPES	117	$12,350.00
RFQ-30A	MASKS & FEEDING TUBES	118	$22,839.55
RFQ-30B	ORAL AIRWAYS	119	$148.00
RFQ-31	RESUSCITATION DOLLS	120	$2,868.00
IFB-6	PHOTOTHERAPY LAMPS	124	$4,545.00
IFB-6	HEART RATE MONITOR	126	$127,840.00
IFB-9	OXIMETERS	134	$137,500.00
IFB-9	HEART RATE MONITORS	136	$184,100.00
IFB-9	BLOOD GAS ANALYZER	137	$179,868.00
IFB-9	NEONATAL VENTILATORS	138	$176,330.00
IFB-9	INFANT INCUBATORS	140	$302,995.00
	TOTAL CS		**$4,138,431.85**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	EPI		
IFB-2	REFREGIRATED TRUCKS	39	$986,165.06
IFB-2	S.P. FOR REF. TRUCKS	39A	$131,075.05
IFB-2	S.P. FOR REF. TRUCKS	39B	$126,663.80
IFB-2	FAN / THERMOMETER	40	$1,091.75
IFB-2	DEFROSTER	41	$4,430.00
IFB-2	RECORDER	42	$6,493.69
IFB-3	BOXES / ICE PACKS	74	$101,800.00
IFB-3	VACCINE CARRIERS	75	$84,700.00
IFB-5	COLD BOXES	93	$194,600.00
IFB-4	VACCINE CARRIERS	100	$54,720.00
IFB-4	SOLAR REFREGERATORS	101	$95,400.00
IFB-4	S.P. FOR P.O.101	101B	$3,636.90
IFB-9	WALK IN COLD ROOMS	133	$26,785.00
IFB-9	GENERATORS	135	$78,750.00
IFB-9	VACCINE CARRIERS	138	$68,190.00
	TOTAL EPI		**$1,964,501.25**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	EPI, VACSERA		
IFB-2	WALK IN ROOMS	43	$62,346.00
RFQ-14	HEPATITIS B	84	$5,952,850.00
IFB-4	COLD ROOMS	102	$70,122.05
IFB-4	S.P. FOR P.O.102	102A	$15,524.00
RFQ-23	HEPATITIS B II	113	$6,000,000.00
IFB-6	LOW TEMP. FREEZER	127	$35,281.34
IFB-8	PERISTALTIC PUMP	129	$990.00
IFB-8	A/C FOR STERILE AREA	129	$11,997.00
IFB-8	HVAC	129	$37,955.00
IFB-8	400 LITER JACKETED PRESSURE	129	$69,225.00
IFB-8	AUTOCLAVE PHARMACEUTICAL	129	$270,050.00
IFB-8	VALIDATION INSTRUMENTS	130	$47,700.00
IFB-9	WALK IN COLD ROOMS	133	$16,677.00
	TOTAL EPI, VACSERA		**$12,590,717.39**
	TOTAL		**$21,418,075.56**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Description	P.O. #	P.O. Value
	CSP		
IFB-4	CARS SPARE PARTS	103	$10,225.20
IFB-4	CARS SPARE PARTS	105	$2,724.19
IFB-4	CARS SPARE PARTS	106	$500.30
IFB-4	CARS SPARE PARTS	107	$1,516.48
IFB-7	CHEVROLET ASTRO VANS	128	$543,318.00
IFB-9	CHEVROLET ASTRO VANS	133	$51,699.00
	AID IMBLEMS		$857.50
	TOTAL CSP		**$610,840.67**
	GDDDC		
IFB-9	INFANT SCALES	263-203-	$11,331.00
	TOTAL GDDDC		**$11,331.00**

CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Component or Entity	Description	P.O.	Value of the order	Destination
RFQ-D	ARI, BELBISS	SCANTRON	263-203- 1	$5,455.00	BELBIS
RFQ-A	ARI, VACSERA	WESTFALIA	263-203- 2	$122,621.00	VACSERA
RFQ-A	ARI, VACSERA	INSTALLATION	263-203- 3	$10,335.01	VACSERA
RFQ-B	ARI, VACSERA	BDH CHEMICALS	263-203- 4	$2,628.14	VACSERA
RFQ-C	ARI, VACSERA	DIFCO CHEMICALS	263-203- 5	$935.40	VACSERA
IFB-1	ARI, VACSERA	CO2 INCUBATORS	263-203- 6	$12,324.00	VACSERA
IFB-1	ARI, VACSERA	FREEZER/DRIER	263-203- 7	$15,933.00	VACSERA
IFB-1	ARI, VACSERA	SPECTROPHOTOMETER , CENTRIFUGE &WASHER	263-203- 8	$54,340.75	VACSERA
IFB-1	ARI, VACSERA	ULTRAWASH II, READER, SAFE LIGHT & PLASTIC BATH	263-203- 9	$18,910.00	VACSERA
IFB-1	ARI, VACSERA	CENTRIFUGE	263-203- 10	$80,616.00	VACSERA
IFB-1	ARI, VACSERA	STERILIZER, THERMOLYNE, TROLLEY& CHEMICALS	263-203- 11	$141,271.00	VACSERA
IFB-1	ARI, VACSERA	REFREGERATOR, CAGES, CHEMICALS &BOTTLES/TUBES	263-203- 12	$20,616.16	VACSERA
IFB-1	ARI, VACSERA	MICE PACK	263-203- 13	$3,206.75	VACSERA
IFB-1	ARI, VACSERA	LAMINAR FLOW & BATTERY	263-203- 14	$29,060.00	VACSERA
IFB-1	ARI, VACSERA	CART & FILM DEVELOPER	263-203- 15	$19,120.72	VACSERA
IFB-1	ARI, VACSERA	CHEMICALS	263-203- 16	$4,085.65	VACSERA
IFB-1	ARI, VACSERA	CHEMICALS	263-203- 17	$2,295.00	VACSERA
IFB-1	ARI, VACSERA	LAB EQUIPMENT	263-203- 18	$4,024.50	VACSERA
IFB-1	ARI, BELBISS	OTOSCOPE & LAB EQUIPMENT	263-203- 19	$1,238.07	BELBISS
IFB-1	ARI, BELBISS	LAB. EQUIPMENT & CHEMICALS	263-203- 20	$35,078.95	BELBISS
IFB-1	ARI, BELBISS	CHEMICALS	263-203- 21	$1,380.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 22	$4,046.85	BELBISS
IFB-1	ARI, BELBISS	SAFETY CABINET	263-203- 23	$6,906.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 24	$94,284.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 25	$71,434.10	BELBISS
IFB-1	ARI, BELBISS	MICROSCOPE	263-203- 26	$5,413.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 27	$13,421.25	BELBISS
IFB-1	ARI, BELBISS	RADIOFILMS	263-203- 28	$4,813.66	BELBISS
IFB-1	ARI, BELBISS	OPHTHALMOSCOPE, BLOOD PRESS KIT, STIRRER & MICROSCOPE	263-203- 29	$4,195.00	BELBISS
IFB-1	ARI, BELBISS	BALANCE TOP LOADING & S.P.	263-203- 30 ,A&B	$3,250.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIP. & CHEMICALS	263-203- 31	$5,094.40	BELBISS
IFB-1	ARI, BELBISS	COMPUTERS & CENTRIFUGE	263-203- 32	$54,376.20	BELBISS
IFB-1	ARI, BELBISS	SPARES INCUBATOR	263-203- 32A	$3,543.00	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 33	$2,056.62	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 34	$4,043.50	BELBISS
IFB-1	ARI, BELBISS	LAB EQUIPMENT	263-203- 36	$34,964.12	BELBISS
IFB-1	ARI, BELBISS	SCANTRON FORMS	263-203- 37	$16,999.84	BELBISS
RFQ-1	ARI	OXIMETERS & TRANSDUCERS	263-203- 38	$20,511.84	ATTACHED
IFB-2	EPI	REFREGIRATED TRUCKS	263-203- 39	$986,165.06	ATTACHED
IFB-2	EPI	S.P. FOR REF. TRUCKS	263-203- 39A	$131,075.05	STORES
IFB-2	EPI	S.P. FOR REF. TRUCKS	263-203- 39B	$126,663.80	STORES
IFB-2	EPI	FAN / THERMOMETER	263-203- 40	$1,091.75	STORES
IFB-2	EPI	DEFROSTER	263-203- 41	$4,430.00	STORES
IFB-2	EPI	RECORDER	263-203- 42	$6,493.69	STORES
IFB-2	EPI, VACSERA	WALK IN ROOMS	263-203- 43	$62,346.00	VACSERA
RFQ-2	ARI, BELBISS	ANTI-HUMAN MOUSE & SAFETY CABINET	263-203- 44	$13,958.83	BELBISS
RFQ-2	ARI, BELBISS	CHEMICALS	263-203- 45	$12,755.00	BELBISS
RFQ-2	ARI, BELBISS	READER	263-203- 45		BELBISS
RFQ-2	ARI, BELBISS	CHEMICALS	263-203- 46	$3,700.00	BELBISS
RFQ-2	ARI, BELBISS	CHEMICALS	263-203- 47	$1,687.10	BELBISS

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CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Component or Entity	Description	P.O.	Value of the order	Destination
RFQ-1	ARI	OXISENSORS , LAB EQUIPMENT & CHEMICALS	263-203- 48	$12,896.82	BELBISS
RFQ-2	ARI	LAB EQUIP. & CHEMICALS	263-203- 49	$2,848.87	BELBISS
RFQ-8	ARI	SLIDES	263-203- 50	$266.18	BELBISS
RFQ-5	ARI, BELBISS	COMPUTERS	263-203- 51	$26,222.40	BELBISS
RFQ-6	ARI, BELBISS	COMPUTER ACCS.	263-203- 52	$23,091.08	BELBISS
RFQ-7	ARI, BELBISS	SOFTWARE	263-203- 53	$18,575.00	BELBISS
RFQ10	ARI	SLIDES / BOTTLES	263-203- 54	$467.38	
IFB-3	CS	PELVIS & DOLL	263-203- 56	$173,500.00	ATTACHED
IFB-3	CS	TRANSPORT INCUBATORS	263-203- 57	$753,926.00	ATTACHED
IFB-3	CS	SPARES FOR P.O. 57	263-203- 57A	$20,676.60	STORES
IFB-3	CS	STERILIZERS & BABY SCALES	263-203- 58	$260,290.00	ATTACHED
IFB-3	CS	SPARES FOR P.O.58	263-203- 58A	$5,210.00	STORES
IFB-3	ARI	CENTRIFUGE	263-203- 59	$11,600.00	
IFB-3	CS	HEMOGLOBINOMETER	263-203- 59	$51,975.00	ATTACHED
IFB-3	CS	SCALES	263-203- 59	$119,100.00	
IFB-3	ARI	S.P. FOR P.O. 59	263-203- 59A	$22,936.25	STORES
IFB-3	NUTRITION	SCALES FOR G.UPS	263-203- 60	$210,980.00	
IFB-3	NUTRITION	ARM TAPE & CALIPERS	263-203- 61	$1,500.50	
IFB-3	ARI, BELBISS	LAB EQUIPMENT	263-203- 62	$10,386.10	BELBISS
IFB-3	ARI, BELBISS	PIPET AID	263-203- 63	$20.50	BELBISS
IFB-3	ARI, BELBISS	LAB EQUIPMENT	263-203- 64	$2,837.35	BELBISS
IFB-3	ARI, BELBISS	LAB EQUIPMENT	263-203- 65	$843.00	BELBISS
IFB-3	ARI, BELBISS	LAB EQUIPMENT	263-203- 66	$1,208.35	BELBISS
IFB-3	ARI, BELBISS	LAB EQUIPMENT	263-203- 67	$140.32	BELBISS
IFB-3	ARI, BELBISS	CRYOVIALS	263-203- 68	$1,100.00	BELBISS
IFB-3	ARI, BELBISS	OPHTHALMOSCOPE/OTOSCOPE	263-203- 69	$450.00	BELBISS
IFB-3	ARI	OXYGEN CONCENTRATORS	263-203- 71	$58,500.00	ATTACHED
IFB-3	ARI	S.P. FOR P.O.71	263-203- 71A	$17,197.28	STORES
IFB-3	ARI	NEBULIZERS	263-203- 72	$2,697.00	ATTACHED
IFB-3	EPI	BOXES / ICE PACKS	263-203- 74	$101,800.00	ATTACHED
IFB-3	EPI	VACCINE CARRIERS	263-203- 75	$84,700.00	ATTACHED
RFQ-9	ARI, BELBISS	READER / WASHER	263-203- 76	$16,586.00	BELBISS
IFB-3	CS	INFANT INCUBATORS	263-203- 77	$806,690.00	ATTACHED
IFB-3	CS	S.P. & ACCES.FOR P.O. 77	263-203- 77A	$52,724.80	STORES
IFB-3	CS	S.P. &CON. FOR P.O. 77	263-203- 77B	$52,695.00	STORES
RFQ-11	ARI, BELBISS	CENTRIFUGE	263-203- 78	$24,959.15	BELBISS
IFB-3	CS	STANDS FOR INCUBATORS	263-203- 79	$290,560.00	ATTACHED
RFQ-12	ARI	NUAIRE INCUBATORS & REFREGERATORS	263-203- 80	$10,600.00	VACSERA, ABBASIA FEVE HSP.
RFQ-12	ARI	FREEZER, LAB INCUBATOR & ANAEROBIC JAR	263-203- 81	$10,825.98	VACSERA, ABBASIA FEVE HSP.
RFQ-13	ARI	LAB CHEMICALS	263-203- 82	$21,797.30	VACSERA, ABBASIA & IMBABA FEVER HSP.
RFQ-15	ARI	LAB EQUIPMENT	263-203- 83	$4,718.20	ABBASIA & IMBABA FEVER HSP.
RFQ-14	EPI, VACSERA	HEPATITIS B	263-203- 84	$5,952,850.00	VACSERA
RFQ-16	ARI	LAB EQUIPMENT	263-203- 85	$3,494.37	VACSERA
RFQ-16B	ARI	LAB EQUIPMENT	263-203- 86	$8,563.39	VACSERA
RFQ-16B	ARI	CHEMICALS	263-203- 87	$5,521.39	VACSERA
RFQ-16B	ARI	LYPHOLIZER	263-203- 88	$9,495.00	VACSERA
RFQ-16B	ARI	CATHRA 3MM	263-203- 89	$955.00	VACSERA

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CHILD SURVIVAL PROJECT
OFF-SHORE PROCUREMENT

Request Number	Component or Entity	Description	P.O.	Value of the order	Destination
IFB-3	ARI	TRANSFILLING HOSE	263-203- 90	$9,600.00	VACSERA
RFQ-16B	ARI	NEEDLES	263-203- 91	$1,041.66	VACSERA
RFQ-17	ARI	AMPOULES	263-203- 92	$3,536.00	VACSERA
IFB-5	EPI	COLD BOXES	263-203- 93	$194,600.00	ATTACHED
	CSP	AID IMBLEMS		$857.50	CSP
RFQ-19	ARI	ANTISERAS	263-203- 94	$4,118.00	VACSERA
RFQ-20	ARI	O2 CONCENTRATORS	263-203- 95	$24,975.75	ATTACHED
RFQ-20	ARI	S.P. FOR P.O. 95	263-203- 95A	$9,391.56	STORES
RFQ-21	ARI	ANTISERAS	263-203- 96	$2,484.00	IMBABA & ABBSIA FEVER HSP.
RFQ-22	ARI	LAB SUPPLIES	263-203- 97	$575.56	VACSERA
RFQ-22	ARI	LAB SUPPLIES	263-203- 98	$4,354.67	VACSERA
RFQ-22	ARI	LAB SUPPLIES	263-203- 99	$4,596.70	VACSERA
IFB-4	EPI	VACCINE CARRIERS	263-203- 100	$54,720.00	ATTACHED
IFB-4	EPI	SOLAR REFREGERATORS	263-203- 101	$95,400.00	ATTACHED
IFB-4	EPI	S.P. FOR P.O.101	263-203- 101B	$3,636.90	STORES
IFB-4	EPI, VACSERA	COLD ROOMS	263-203- 102	$70,122.05	VACSERA
IFB-4	EPI, VACSERA	S.P. FOR P.O.102	263-203- 102A	$15,524.00	VACSERA
IFB-4	CSP	CARS SPARE PARTS	263-203- 103	$10,225.20	STORES
IFB-4	CSP	CARS SPARE PARTS	263-203- 105	$2,724.19	STORES
IFB-4	CSP	CARS SPARE PARTS	263-203- 106	$500.30	STORES
IFB-4	CSP	CARS SPARE PARTS	263-203- 107	$1,516.48	STORES
IFB-4	ARI	OXIMETERS	263-203- 108	$58,500.00	ATTACHED
IFB-4	ARI	ADAPTER	263-203- 108A	$1,578.90	ATTACHED
IFB-4	ARI	POWER PACK	263-203- 108B	$7,738.00	ATTACHED
IFB-4	ARI	CULTURE PLATES	263-203- 109	$150.00	CSP
RFQ-25	ARI	OXYGEN CONCENTRATORS	263-203- 110	$24,345.00	ATTACHED
RFQ-25	ARI	S.P. FOR P.O.110	263-203- 110A	$17,263.43	STORES
RFQ-26	ARI	CULTURE PLATES	263-203- 111	$150.00	CSP
RFQ-27	ARI	CULTURE PLATES	263-203- 112	$300.00	CSP
RFQ-23	EPI, VACSERA	HEPATITIS B II	263-203- 113	$6,000,000.00	VACSERA
IFB-2	CS	TRANSPORT/STATIONARY INCUB.	263-203- 114	$52,854.00	MAINTENANCE CONTRACT
IFB-2	CS	SPARE PARTS	263-203- 115	$131,647.50	STORES
RFQ	CS	BOOKS	263-203- 116	$2,718.90	CSP
RFQ-29	CS	RESUSC. BOX & LARYNGOSCOPES	263-203- 117	$12,350.00	ATTACHED
RFQ-30A	CS	MASKS & FEEDING TUBES	263-203- 118	$22,839.55	ATTACHED
RFQ-30B	CS	ORAL AIRWAYS	263-203- 119	$148.00	ATTACHED
RFQ-31	CS	RESUSCITATION DOLLS	263-203- 120	$2,868.00	CSP
IFB-6	ARI	OTOSCOPE	263-203- 121	$241,421.00	ATTACHED
IFB-6	ARI	INCUBATOR ISOTEMP.	263-203- 122	$9,150.10	ATTACHED
IFB-6	ARI	WATER DISTILLER, LAMINAR FLOW CABINET & THERMOLYNE STIRRERS	263-203- 123	$52,844.00	ATTACHED
IFB-6	ARI	TOP LOADING BALANCE	263-203- 124	$8,790.00	ATTACHED
IFB-6	CS	PHOTOTHERAPY LAMPS	263-203- 124	$4,545.00	ATTACHED
IFB-6	ARI	PH METER	263-203- 125	$6,120.00	ATTACHED
IFB-6	CS	HEART RATE MONITOR	263-203- 126	$127,840.00	ATTACHED
IFB-6	EPI, VACSERA	LOW TEMP. FREEZER	263-203- 127	$35,281.34	VACSERA
IFB-7	CSP	CHEVROLET ASTRO VANS	263-203- 128	$543,318.00	ATTACHED
IFB-8	EPI, VACSERA	PERISTALTIC PUMP	263-203- 129	$990.00	VACSERA
IFB-8	EPI, VACSERA	A/C FOR STERILE AREA	263-203- 129	$11,997.00	VACSERA
IFB-8	EPI, VACSERA	HVAC	263-203- 129	$37,955.00	VACSERA
IFB-8	EPI, VACSERA	400 LITER JACKETED PRESSURE	263-203- 129	$69,225.00	VACSERA
IFB-8	EPI, VACSERA	AUTOCLAVE PHARMACEUTICAL	263-203- 129	$270,050.00	VACSERA
IFB-8	EPI, VACSERA	VALIDATION INSTRUMENTS	263-203- 130	$47,700.00	VACSERA

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CHILD SURVIVAL PROJECT

OFF-SHORE PROCUREMENT

Request Number	Component or Entity	Description	P.O.	Value of the order	Destination
IFB-9	ARI	OXYGEN CONCENTRATORS	263-203- 132	$310,500.00	NOT YET DELIV.
IFB-9	EPI, VACSERA	WALK IN COLD ROOMS	263-203- 133	$16,677.00	NOT YET DELIV.
IFB-9	EPI	WALK IN COLD ROOMS	263-203- 133	$26,785.00	NOT YET DELIV.
IFB-9	CSP	CHEVROLET ASTRO VANS	263-203- 133	$51,699.00	NOT YET DELIV.
IFB-9	CS	OXIMETERS	263-203- 134	$137,500.00	NOT YET DELIV.
IFB-9	EPI	GENERATORS	263-203- 135	$78,750.00	NOT YET DELIV.
IFB-9	CS	HEART RATE MONITORS	263-203- 136	$184,100.00	NOT YET DELIV.
IFB-9	CS	BLOOD GAS ANALYZER	263-203- 137	$179,868.00	NOT YET DELIV.
IFB-9	EPI	VACCINE CARRIERS	263-203- 138	$68,190.00	NOT YET DELIV.
IFB-9	CS	NEONATAL VENTILATORS	263-203- 138	$176,330.00	NOT YET DELIV.
IFB-9	GDDDC	INFANT SCALES	263-203- 139	$11,331.00	NOT YET DELIV.
IFB-9	CS	INFANT INCUBATORS	263-203- 140	$302,995.00	NOT YET DELIV.
		TOTAL		***$21,418,075.56***	

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ARI COMPONENT
PULSE OXIMETERS DISTRIBUTION LIST

GOVERNORATE	HOSPITAL NAME	Qty
CAIRO	AZHAR UNIVERSITY (SAID GALAL)	1
GIZA	BOULAK EL-DAKROUR	1
ALEXANDRIA	AL-RAML PEDIATRIC HSP.	1
	EL-SHATBY UNIVERSITY	1
DUMMIATT	DUMMIAT GEN. HSP.	1
DAKAHLIA	AL-MANSOURA GENERAL HSP.	1
KAFR EL-SHEIKH	KAFR EL-SHEIKH GEN. HSP.	1
BEHEIRA	KAFR EL-DAWAR GEN. HSP.	1
RED SEA	HURGHADA GEN. HSP.	1
NEW VALLEY	EL-KHARGA DISTRICT HSP.	1
SOUTH SAINAI	EL-TOUR GEN. HSP.	1
PORT SAID	AL-NASR GEN. HSP.	1
SUIZ	SUIZ GEN. HSP.	1
ISMAILIA	SUIZ CANAL UNIVERSITY	1
MATROUH	MARSA MATROUH GEN. HSP.	1
NORTH SAINAI	EL-ARISH GENERAL HSP.	1
QALIOBIA	BANHA EDUCATIONAL HSP.	1
SHARKIA	ZAGAZIG GEN. HSP.	1
GHARBIA	EL-MENSHAWI GEN. HSP.	1
MENOUFIA	SHEBIN EL-KOM EDUCATIONAL	1
FAYOUM	FAYOUM GEN. HSP.	1
BANI SWEEF	BANI SWEEF GEN. HSP.	1
MENYA	MENIA GEN. HSP.	1
ASSUIT	ASSUIT GEN. HSP.	1
	ASSUIT UNIVERSITY	1
SOHAG	SOHAG GEN. HSP.	1
QENA	QENA GEN. HSP.	1
LUXOR	LUXOR GENERAL HSP.	1
ASWAN	ASWAN GEN. HSP.	1
	EDFO DISTRICT HSP.	1
TOTAL QTY DISTRIBUTED		30
REMAINING AT STORES		5
TOTAL		35

Refregerated Trucks Distribution List

Governorate	Destination	Qty
Cairo	Vaccera	3
	Cairo Health Directorate	1
Alexandria	Alex.Health Directorate	1
Port Said	Port Said Health Directorate	1
Suiz	Suis Health Directorate	1
Ismailia	Ismailia Health Directorate	1
Dumiatt	Dumiatt Health Directorate	1
Dakahlia	Dakahlia Health Directorate	1
Sharkia	Sharkia Health Directorate	1
Qaliobia	Qaliobia Health Directorate	1
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	1
Gharbia	Gharbia Health Directorate	1
Menoufia	Menoufia Health Directorate	1
Beheira	Beheira Health Directorate	1
Giza	Giza Health Directorate	1
Bani Sweef	Bani Sweef Health Directorate	1
Fayoum	Fayoum Health Directorate	1
Menya	Menya Health Directorate	1
Assuit	Assuit Health Directorate	1
Sohag	Sohag Health Directorate	1
Qena	Qena Health Directorate	1
Aswan	Aswan Health Directorate	1
Matrouh	Matrouh Health Directorate	1
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	1
Red Sea	Red Sea Health Directorate	1
North Sainai	North Sainai Health Directorate	1
South Sainai	South Sainai Health Directorate	1
Remaining At Stores		0
Total Qty		29

Pelvis & Doll Distribution List

Governorate	Destination	Qty
Cairo	Cairo Health Directorate	57
	Mataria Educational	3
	Child Survival Project	1
Alexandria	Alex.Health Directorate	32
Port Said	Port Said Health Directorate	4
Suiz	Suis Health Directorate	5
Ismailia	Ismailia Health Directorate	20
Dumiatt	Dumiatt Health Directorate	4
Dakahlia	Dakahlia Health Directorate	50
Sharkia	Sharkia Health Directorate	40
Qaliobia	Qaliobia Health Directorate	40
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	30
Gharbia	Gharbia Health Directorate	50
Menoufia	Menoufia Health Directorate	40
Beheira	Beheira Health Directorate	25
Giza	Giza Health Directorate	30
Bani Sweef	Bani Sweef Health Directorate	12
Fayoum	Fayoum Health Directorate	9
Menya	Menya Health Directorate	18
Assuit	Assuit Health Directorate	5
Sohag	Sohag Health Directorate	5
Qena	Qena Health Directorate	5
Aswan	Aswan Health Directorate	5
Matrouh	Matrouh Health Directorate	2
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	2
Red Sea	Red Sea Health Directorate	2
North Sainai	North Sainai Health Directorate	2
South Sainai	South Sainai Health Directorate	2
Remaining At Stores		0
Total Qty		500

DISTRIBUTION LIST OF NEONATAL INCUBATORS

	GOVERNORATE	HOSPITAL	C200	C100	TI100
1	CAIRO	EL-MATARIA EDUCATIONAL HSP.	0	2	1
2		EL-SAHEL EDUCATIONAL HSP.	2	0	0
3		DAR EL-SALAM GENERAL HSP.	5	0	2
4		EL-HOSSEIN UNIVERSITY HSP.	0	1	1
5		EL-MONIRA GENERAL HSP.	4	0	2
6		EL-KHALIFA GENERAL HSP.	0	0	3
7		EL-SALAM GENERAL HSP.	2	0	1
8		MANSHEIT EL-BAKERY GEN. HSP.	4	1	2
9		HELWAN GENERAL HSP.	2	1	1
10		SHOBRA GENERAL HSP.	0	2	0
11	GIZA	BULAK EL-DAKROUR GEN. HSP.	2	0	4
12		EL-SAF DISTRICT HSP.	0	1	1
13		EL-HAWAMDIA GENERAL HSP.	3	0	3
14		IMBABA GENERAL HSP.	2	0	2
15		OM EL-MASREIEN GENERAL HSP.	1	1	3
16	ALEXANDRIA	EL-RAML GENERAL HSP.	1	0	1
17		DAR ISMAIL GENERAL HSP.	3	0	3
18		EL-GOMHORIA GENERAL HSP.	2	1	2
19		EL-ANFOUSHI GENERAL HSP.	4	0	2
20		FAWZI MOAZ GENERAL HSP.	1	1	1
21	EL-BEHEIRA	ABOU HOMMOS DISTRICT HSP.	1	0	1
22		DAMANHOUR GENERAL HSP.	3	0	2
23		KAFR EL-DAWAR GENERAL HSP.	3	1	2
24		KOM HAMADA DISTRICT HSP.	0	0	1
25		SHABRAKHEIT DISTRICT HSP.	3	0	2
26	EL-GHARBIA	EL-MENSHAWI GENERAL HSP.	4	1	2
27		TANTA UNIVERSITY HSP.	0	2	1
28		EL-MAHALLA GENERAL HSP.	3	0	3
29		ZEFTA DISTRICT HSP.	3	0	3
30	KAFR EL-SHEIKH	KAFR EL-SHEIKH GENERAL HSP.	4	1	3
31		QUELLIN DISTRICT HSP.	2	0	2
32	EL-DAKAHLIA	BELKAS DISTRICT HSP.	1	0	1
33		EL-MATARIA DISTRICT HSP.	0	0	2
34		EL-SEMBELLAWEEN DISTRICT	0	0	1
35		MEIT GHAMR GENERAL HSP.	2	0	2
36		EL-MANSOURA GENERAL HSP.	4	1	2
37		EL-MANSOURA UNIVERSITY HSP.	0	1	1
38	EL-SHARKIA	DIERB NEGM DISTRICT HSP.	1	0	1
39		BELBIS GENERAL HSP.	0	0	2
40		FACOUS DISTRICT HSP.	2	0	2
41		ZAGAZIG GENERAL HSP.	3	0	3
42		EL-HESSANIA DISTRICT HSP.	2	0	0
43	DUMIATT	DUMIATT GENERAL HSP.	4	0	2
44		EL-ZARKA DISTRICT HSP.	3	0	2

DISTRIBUTION LIST OF NEONATAL INCUBATORS

	GOVERNORATE	HOSPITAL	C200	C100	TI100
45		FARASKOUR DISTRICT HSP.	3	0	2
46	EL-MENOUFIA	ASHMOUN DISTRICT HSP.	2	0	0
47		BERKEIT EL-SABIE DISTRICT HSP.	3	0	2
48		MENOUF DISTRICT HSP.	3	0	2
49		QUISNA DISTRICT HSP.	2	0	2
50		SHEBIN EL-KOM GENERAL HSP.	3	0	3
51	KALUBIA	NASSER GENERAL HSP.	4	0	2
52	MATROUH	MARSA MATROUH GENERAL HSP.	2	0	2
53	PORT SAID	EL-NASR GENERAL HSP.	5	0	3
54		PORT SAID GENERAL HSP.	0	0	2
55	ISMAILIA	FAYED DISTRICT HSP.	0	0	2
56		ISMAILIA GENERAL HSP.	4	0	0
57	SUIZ	SUIZ GENERAL HSP.	4	1	3
58	NORTH SAINAI	EL-ARISH GENERAL HSP.	2	0	0
59		RAFAH GENERAL HSP.	2	0	1
60		EL-SHEIKH ZOAYED DISTRICT HSP.	0	0	2
61	SOUTH SAINAI	EL-TOUR GENERAL HSP.	0	0	2
62	RED SEA	HURGADA GENERAL HSP.	2	0	2
63	FAYOUM	EBSHOWAI DISTRICT HSP.	4	0	2
64		FAYOUM GENERAL HSP.	3	0	3
65	BANI SWEIF	BANI SWEIF GENERAL HSP.	3	0	5
67	MENYA	BANI MAZAR GENERAL HSP.	0	0	2
68		MAGHAGHA GENERAL HSP.	2	0	1
69		EL-MENYA GENERAL HSP.	6	0	2
70	ASSUIT	ASSUIT GENERAL HSP.	4	0	1
71		ASSUIT UNIVERSITY HSP.	2	0	3
72		EL-BADARY DISTRICT HSP.	3	0	1
73		EL-IMAN GENERAL HSP.	2	0	2
74		DAIROUT DISTRICT HSP.	3	0	2
75		SEDFA DISTRICT HSP.	0	0	1
76	SOHAG	SOHAG GENERAL HSP.	4	1	5
78	QENA	NAGA HAMMADY GENERAL HSP.	0	0	3
79		QENA GENERAL HSP.	4	0	4
80	LUXOR	LUXOR GENERAL HSP.	3	0	0
81	ASWAN	ASWAN GENERAL HSP.	4	0	4
82		KOMOMBO DISTRICT HOSPITAL	0	0	3
83		EFFO DISTRICT HOSPITAL	2	0	0
84	NEW VALEY	EL-KHARGA GENERAL HSP.	2	0	3
85		EL-DAKHLA GENERAL HSP.	2	0	3
		STILL ON STORE	0	0	0
		TOTAL	180	20	160

STERILIZERS DISTRIBUTION LIST

Governorate	Destination	Qty
Cairo	Cairo Health Directorate	26
	Mataria Educational Hsp.	1
Alexandria	Alex.Health Directorate	32
Port Said	Port Said Health Directorate	10
Suiz	Suis Health Directorate	5
Ismailia	Ismailia Health Directorate	18
Dumiatt	Dumiatt Health Directorate	15
Dakahlia	Dakahlia Health Directorate	68
Sharkia	Sharkia Health Directorate	65
Qaliobia	Qaliobia Health Directorate	25
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	68
Gharbia	Gharbia Health Directorate	100
	Menshawi General Hsp.	1
Menoufia	Menoufia Health Directorate	91
Beheira	Beheira Health Directorate	120
Giza	Giza Health Directorate	41
Bani Sweef	Bani Sweef Health Directorate	34
Fayoum	Fayoum Health Directorate	50
Menya	Menya Health Directorate	50
Assuit	Assuit Health Directorate	30
Sohag	Sohag Health Directorate	25
Qena	Qena Health Directorate	26
Aswan	Aswan Health Directorate	30
Matrouh	Matrouh Health Directorate	18
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	9
Red Sea	Red Sea Health Directorate	3
North Sainai	North Sainai Health Directorate	5
South Sainai	South Sainai Health Directorate	5
Luxor	Luxor Health Directorate	5
Remaining At Stores		24
Total Qty		1000

HEAMGLOBINOMETER DISTRIBUTION LIST

Governorate	Destination	Qty
Cairo	Ain Shams University Hsp.	1
	Mataria Educational Hsp.	1
Alexandria	Alex.Health Directorate	5
Port Said	Port Said Health Directorate	0
Suiz	Suis Health Directorate	0
Ismailia	Ismailia Health Directorate	0
Dumiatt	Dumiatt Health Directorate	8
Dakahlia	Dakahlia Health Directorate	40
Sharkia	Sharkia Health Directorate	40
Qaliobia	Qaliobia Health Directorate	15
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	20
Gharbia	Gharbia Health Directorate	35
Menoufia	Menoufia Health Directorate	39
Beheira	Beheira Health Directorate	40
	Abu Hommos MCH	1
	Shabrakheit MCH	1
Giza	Giza Health Directorate	19
Bani Sweef	Bani Sweef Health Directorate	24
Fayoum	Fayoum Health Directorate	18
Menya	Menya Health Directorate	46
Assuit	Assuit Health Directorate	30
Sohag	Sohag Health Directorate	35
Qena	Qena Health Directorate	38
Aswan	Aswan Health Directorate	17
Matrouh	Matrouh Health Directorate	5
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	2
Red Sea	Red Sea Health Directorate	5
North Sainai	North Sainai Health Directorate	5
South Sainai	South Sainai Health Directorate	2
Luxor	Luxor Health Directorate	0
Remaining At Stores		8
Total Qty		500

ARI COMPONENT

OXYGEN CONCENTRATORS DISTRIBUTION LIST

GOVERNORATE	HOSPITAL NAME	ALPINE	HEALTHDYNE
CAIRO	MANSHEIT EL-BAKERY GEN. HSP	1	0
	DAR EL-SALAM GEN. HSP.	1	0
	AL-MONIRA GEN. HSP.	1	0
	AL-KHALIFA GEN. HSP.	1	0
	SHOBRA GEN. HSP.	1	0
	BOULAK GEN. HSP.	1	0
	HELWAN GEN. HSP.	1	0
	AL-SALAM GEN. HSP.	1	0
	AL-TEBBIN GEN. HSP.	1	0
	15 MAY GEN. HSP.	1	0
	EL KHAZENDAR GEN. HSP.	1	0
	ABBSIA FEVER HSP.	1	0
	HELWAN FEVER HSP.	1	0
	SAID GALAL UNIVERSITY	2	0
	ABU EL-RISH PEDIATRIC HSP.	3	0
GIZA	BOULAK EL-DAKROUR	1	0
	OM EL-MASRIEEN GEN. HSP.	1	0
	IMBABA GEN. HSP.	1	0
	IMBABA FEVER HSP.	1	0
	EL-HAWAMDIA GEN. HSP.	1	0
	EL-SAF DISTRICT HSP.	1	0
	EL-SAF FEVER HSP.	1	0
	6 OCTOBER GENERAL HSP.	1	0
	OSEIM DISTRICT HSP.	1	0
ALEXANDRIA	AL-RAML PEDIATRIC HSP.	2	0
	EL-ANFOUSHI GEN. HSP.	2	0
	AL-GOMHOURIA GEN. HSP.	2	0
	AL-KABBARY GEN. HSP.	2	0
	FAWZI MOAZ DISTRICT HSP.	2	0
	EL-SHATBY GEN. HSP.	2	0
DAKAHLIA	AL-MANSOURA GENERAL HSP.	2	0
	MIET GHAMR DISTRICT HSP.	1	0
KAFR EL-SHEIKH	KAFR EL-SHEIKH GEN. HSP.	1	0
BEHEIRA	DAMANHOUR GEN. HSP.	1	0
	KAFR EL-DAWAR GEN. HSP.	1	0
	ABU HOMMOS	1	0
RED SEA	HURGHADA GEN. HSP.	2	0
NEW VALLEY	EL-DAKHLA GEN. HSP.	1	0
	EL-KHARGA DISTRICT HSP.	1	0
SOUTH SAINAI	EL-TOUR GEN. HSP.	1	0
PORT SAID	PORT SAID GEN. HSP.	1	0
	AL-NASR GEN. HSP.	1	0
SUIZ	SUIZ GEN. HSP.	2	0
MATROUH	MARSA MATROUH GEN. HSP.	2	0
NORTH SAINAI	EL-ARISH GENERAL HSP.	2	0
QALIOBIA	BANHA EDUCATIONAL HSP.	2	0

PO#71
PO#95
PO#110

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ARI COMPONENT

OXYGEN CONCENTRATORS DISTRIBUTION LIST

GOVERNORATE	HOSPITAL NAME	ALPINE	HEALTHDYNE
	NASER GEN. HSP.	2	0
	QALIOB DIST. HSP.	2	0
MENOUFIA	MENOUF GENERAL HSP.	1	0
FAYOUM	FAYOUM GEN. HSP.	1	0
ASSUIT	ASSUIT GEN. HSP.	2	0
	EL-IMAN GENERAL HSP.	1	0
	DAIROUT DISTRICT HSP.	1	0
	SEDFA DISTRICT HSP.	1	0
	AL-BADARY DISTRICT HSP.	1	0
	PEDIATRIC UNIVERSITY	2	0
SOHAG	SOHAG GEN. HSP.	0	4
	EL-MENSHAH DISTRICT HSP.	0	2
	DAR EL-SALAM DISTRICT HSP.	0	2
	GERGA DIST HSP.	0	0
	EL-BALIANA DIST. HSP.	0	0
QENA	QENA GEN. HSP.	0	4
	NAJ HAMMADY DISTRICT HSP.	0	2
	DESHNA DISTRICT HSP.	0	1
	FARSHOUT DISTRICT HSP.	0	1
	ABU TESHT DISTRICT HSP.	0	1
LUXOR	LUXOR GENERAL HSP.	0	3
ASWAN	ASWAN GEN. HSP.	0	4
	EDFO DISTRICT HSP.	0	2
	KOMOMBO DISTRICT HSP.	0	3
TOTAL QTY DISTRIBUTED		75	29
REMAINING AT STORES		1	0
TOTAL		76	29

PO#71
PO#95
PO#110

Nebulizers Distribution List

Governorate	Destination	Qty
Cairo	Cairo Health Directorate	90
Dumiatt	Dumiatt Health Directorate	1
Sharkia	Sharkia Health Directorate	4
Giza	Giza Health Directorate	91
Remaining At Stores		0
Total Qty		186

COLD CHAIN EQUIPMENT DISTRIBUTION LIST

Governorate	Destination	S.R. Cold Box	Ice Packs	Vaccin Car.	L.R. Cold Box
Cairo	Cairo Health Directorate	104	2060	150	36
	Child Survival Project	0	0	5	4
	Health Insurance	0	0	4	0
Alexandria	Alex.Health Directorate	45	900	50	17
Port Said	Port Said Health Directorate	10	200	41	2
Suiz	Suis Health Directorate	14	290	42	12
Ismailia	Ismailia Health Directorate	33	660	40	10
Dumiatt	Dumiatt Health Directorate	66	1360	62	10
Dakahlia	Dakahlia Health Directorate	299	5960	185	26
Sharkia	Sharkia Health Directorate	235	4700	26	30
Qaliobia	Qaliobia Health Directorate	51	1020	111	21
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	157	3340	82	24
Gharbia	Gharbia Health Directorate	107	3740	222	20
Menoufia	Menoufia Health Directorate	139	2790	241	22
Beheira	Beheira Health Directorate	239	4760	388	34
Giza	Giza Health Directorate	51	1029	30	32
Bani Sweef	Bani Sweef Health Directorate	126	2500	127	17
Fayoum	Fayoum Health Directorate	55	1300	139	15
Menya	Menya Health Directorate	191	3620	52	22
Assuit	Assuit Health Directorate	111	2220	217	26
Sohag	Sohag Health Directorate	203	4060	150	26
Qena	Qena Health Directorate	176	3520	190	39
Aswan	Aswan Health Directorate	100	2000	82	12
Matrouh	Matrouh Health Directorate	22	440	22	12
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	24	490	42	6
Red Sea	Red Sea Health Directorate	10	200	43	9
North Sainai	North Sainai Health Directorate	30	600	40	14
South Sainai	South Sainai Health Directorate	11	220	2	2
Luxor	Luxor Health Directorate	0	0	15	0
Remaining At Stores		891	6021	550	0
Total Qty		3500	60000	3350	500

PO # 74
PO # 75

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Vans Distribution List

Governorate	Destination	Qty
Cairo	Cairo Health Directorate	1
	Child Survival Project	5
	GDDDC	1
Alexandria	Alex.Health Directorate	1
Dumiatt	Dumiatt Health Directorate	1
Dakahlia	Dakahlia Health Directorate	1
Sharkia	Sharkia Health Directorate	1
Qaliobia	Qaliobia Health Directorate	1
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	1
Gharbia	Gharbia Health Directorate	1
Menoufia	Menoufia Health Directorate	1
Beheira	Beheira Health Directorate	1
Giza	Giza Health Directorate	1
Bani Sweef	Bani Sweef Health Directorate	1
Fayoum	Fayoum Health Directorate	1
Menya	Menya Health Directorate	1
Assuit	Assuit Health Directorate	1
Sohag	Sohag Health Directorate	1
Qena	Qena Health Directorate	1
Aswan	Aswan Health Directorate	1
Matrouh	Matrouh Health Directorate	1
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	1
North Sainai	North Sainai Health Directorate	1
South Sainai	South Sainai Health Directorate	1
Luxor	Luxor Health Directorate	1
Remaining At Stores		0
Total Qty		29

ResuscitationBox & Ambubag Distribution List

GOVERNORATE	HOSPITAL	Resuscitation Box	Ambubag
CAIRO	EL-MATARIA EDUCATIONAL HSP.	1	1
	EL-HOSEIN UNIVERSITY	1	1
	EL-SAHEL EDUCATIONAL HSP.	1	1
	DAR EL-SALAM GENERAL HSP.	1	1
	EL-MONIRA GENERAL HSP.	1	1
	EL-KHALIFA GENERAL HSP.	1	1
	EL-SALAM GENERAL HSP.	1	1
	MANSHEIT EL-BAKERY GENERAL HSP	1	1
	NEW HELWAN GENERAL HSP.	1	0
	SAID GALLAL UNIVERSITY	1	1
	EL-ZAWEYA GENERAL HSP.	1	1
	SHOBRA GENERAL HSP.	1	1
GIZA	BULAK EL-DAKROUR GENERAL HSP.	1	1
	EL-HAWAMDIA GENERAL HSP.	1	0
	IMBABA GENERAL HSP.	1	1
	OM EL-MASREIEN GENERAL HSP.	1	1
	TAHRIR GENERAL HSP.	1	1
ALEXANDRIA	EL-RAML GENERAL HSP.	1	1
	DAR ISMAIL GENERAL HSP.	1	0
	EL-GOMHORIA GENERAL HSP.	0	1
	EL-ANFOUSHI GENERAL HSP.	1	1
	FAWZI MOAZ GENERAL HSP.	1	1
	EL-SHATBY UNIVERSITY HSP.	1	1
EL-BEHEIRA	ABOU HOMMOS DISTRICT HSP.	1	0
	DAMANHOUR EDUCATIONAL HSP.	1	1
	KAFR EL-DAWAR GENERAL HSP.	1	2
	SHABRAKHEIT DISTRICT HSP.	1	1
EL-GHARBIA	EL-MENSHAWI GENERAL HSP.	1	1
	EL-MAHALLA GENERAL HSP.	1	1
	ZEFTA DISTRICT HSP.	1	1
	QOTOUR DISTRICT HSP.	1	1
KAFR EL-SHEIKH	KAFR EL-SHEIKH GENERAL HSP.	1	1
	QELLIN DISTRICT HSP.	1	0
EL-DAKAHLIA	BELKAS DISTRICT HSP.	1	0
	EL-MATARIA DISTRICT HSP.	1	1
	EL-SEMBELLAWEEN DISTRICT HSP.	1	1
	MEIT GHAMR GENERAL HSP.	2	1
	EL-MANSOURA GENERAL HSP.	1	1
	EL-MANSOURA UNIVERSITY	1	1
EL-SHARKIA	BELBIS GENERAL HSP.	1	0
	DIERB NEGM DISTRICT HSP.	1	1
	FACOUS DISTRICT HSP.	1	0
	ZAGAZIG GENERAL HSP.	1	1
	MASHTOOL EL-SOOK DISTRICT HSP.	1	0
DUMIATT	DUMIATT GENERAL HSP.	1	1
	FARASKOUR DISTRICT HSP.	1	1

PO#117
PO#118
PO#119

Solar Refregerators Distribution List

Governorate	Destination	Qty
Alexandria	Alex.Health Directorate	1
Beheira	Beheira Health Directorate	2
Menya	Menya Health Directorate	1
Assuit	Assuit Health Directorate	1
Qena	Qena Health Directorate	2
Aswan	Aswan Health Directorate	2
Matrouh	Matrouh Health Directorate	2
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	1
Red Sea	Red Sea Health Directorate	1
North Sainai	North Sainai Health Directorate	1
South Sainai	South Sainai Health Directorate	1
Remaining At Stores		0
Total Qty		15

Heart Rate Monitors Distribution List

GOVERNORATE	HOSPITAL	Qty
CAIRO	EL-SAHEL EDUCATIONAL HSP.	1
	DAR EL-SALAM GENERAL HSP.	1
	EL-MONIRA GENERAL HSP.	1
	EL-SALAM GENERAL HSP.	1
	MANSHEIT EL-BAKERY GENERAL HSP.	3
	HELWAN GENERAL HSP.	1
	CSP	1
GIZA	BULAK EL-DAKROUR GENERAL HSP.	1
	IMBABA GENERAL HSP.	1
	OM EL-MASREIEN GENERAL HSP.	1
	TAHRIR GENERAL HSP.	1
ALEXANDRIA	EL-GOMHORIA GENERAL HSP.	1
	FAWZI MOAZ GENERAL HSP.	1
BEHEIRA	ABOU HOMMOS DISTRICT HSP.	1
	DAMANHOUR EDUCATIONAL HSP.	1
	KAFR EL-DAWAR GENERAL HSP.	1
GHARBIA	EL-MENSHAWI GENERAL HSP.	1
	ZEFTA DISTRICT HSP.	1
	QOTOUR DISTRICT HSP.	1
KAFR EL-SHEIKH	KAFR EL-SHEIKH GENERAL HSP.	1
DAKAHLIA	MEIT GHAMR GENERAL HSP.	2
	EL-MANSOURA GENERAL HSP.	0
	EL-MANSOURA UNIVERSITY	1
	AGA DISTRICT HSP.	1
SHARKIA	FACOUS DISTRICT HSP.	1
	ZAGAZIG GENERAL HSP.	1
	MASHTOOL EL-SOOK DISTRICT HSP.	1
DUMIATT	DUMIATT GENERAL HSP.	1
	FARASKOUR DISTRICT HSP.	1
MENOUFIA	BERKEIT EL-SABIE DISTRICT HSP.	1
	MENOUF GENERAL HSP.	1
	QUISNA DISTRICT HSP.	1
	SHEBIN EL-KOM EDUCATIONAL HSP.	1
QALIOBIA	NASER GENERAL HSP.	1
MATROUH	MATROUH GENERAL HSP.	1
PORT SAID	EL-NASR GENERAL HSP.	1
ISMAILIA	ISMAILIA GENERAL HSP.	1
	ISMAILIA HSP.	2
FAYOUM	EBSHOWAI DISTRICT HSP.	1
	FAYOUM GENERAL HSP.	1
BANI SWEIF	BANI SWEIF GENERAL HSP.	1
MENYA	MAGHAGHA GENERAL HSP.	1
	EL-MENYA GENERAL HSP.	1
ASSUIT	ASSUIT GENERAL HSP.	1

ARI Bacteriologylab Distribution List

Governorate	Hospital Name	Lab Incubator	Top Loading Balance	PH Meter	Binocular Microscope	Water Distiller	Magnetic Stirrer
Cairo	Central Labs	2	1	1	2	1	2
	Abbasia Fever Hsp.	0	0	0	0	0	1
Alexandria	Alex. Fever Hsp.	0	0	0	0	0	1
Menoufia	Shebin El-Kom Fever Hs	1	1	1	1	1	1
Beheira	Damanhour Educational	1	1	1	1	1	1
North Sinai	Arish General Hsp.	1	1	1	0	1	1
Fayoum	Fayoum General Hsp.	1	1	1	1	1	1
Sohag	Sohag General Hsp.	1	1	1	1	1	1
Luxor	Luxor General Hsp.	0	0	1	0	1	1
Aswan	Aswan General Hsp.	1	1	0	0	1	1
Remaining on stores		2	3	3	4	2	9
Total Qty		10	10	10	10	10	20

P.O.#122
P.O.#123
P.O.#124
P.O.#125

Pneumatic Otoscope

Governorate	Destination	Qty
Cairo	Cairo Health Directorate	500
	Abbasia Chest Hsp.	3
	CSP	10
Alexandria	Alex.Health Directorate	400
Port Said	Port Said Health Directorate	95
Suiz	Suis Health Directorate	95
Ismailia	Ismailia Health Directorate	95
Dumiatt	Dumiatt Health Directorate	190
Dakahlia	Dakahlia Health Directorate	190
Sharkia	Sharkia Health Directorate	250
Qaliobia	Qaliobia Health Directorate	190
Kafr El-Sheikh	Kafr El-Sheikh Health Directorate	145
Gharbia	Gharbia Health Directorate	200
Menoufia	Menoufia Health Directorate	220
Beheira	Beheira Health Directorate	235
Giza	Giza Health Directorate	400
Bani Sweef	Bani Sweef Health Directorate	150
Fayoum	Fayoum Health Directorate	125
Menya	Menya Health Directorate	160
	Menya University Hsp.	10
Assuit	Assuit Health Directorate	220
Sohag	Sohag Health Directorate	200
Qena	Qena Health Directorate	220
Aswan	Aswan Health Directorate	190
Matrouh	Matrouh Health Directorate	125
El-Wadi El-Gedid	El-Wadi El-Gedid Health Directorate	95
Red Sea	Red Sea Health Directorate	95
North Sainai	North Sainai Health Directorate	95
South Sainai	South Sainai Health Directorate	95
Luxor	Luxor Health Directorate	125
Remaining At Stores		277
Total Qty		5400

ResuscitationBox & Ambubag Distribution List

GOVERNORATE	HOSPITAL	Resuscitation Box	Ambubag
EL-MENOUFIA	BERKEIT EL-SABIE DISTRICT HSP.	1	1
	MENOUF GENERAL HSP.	1	1
	QUISNA DISTRICT HSP.	1	1
	ASHMOUN DISTRICT HSP.	1	0
	SHEBIN EL-KOM EDUCATIONAL HSP.	1	0
MATROUH	MARSA MATROUH GENERAL HSP.	1	1
PORT SAID	EL-NASR GENERAL HSP.	1	1
	PORT SAID GENERAL HSP.	1	1
	PORT FOAD DISTRICT HSP.	1	1
ISMAILIA	ISMAILIA GENERAL HSP.	1	0
	ISMAILIA HSP.	3	3
SUIZ	SUIZ GENERAL HSP.	1	1
RED SEA	HURGADA GENERAL HSP.	1	1
NORTH SAINAI	EL-ARISH GENERAL HSP.	1	0
SOUTH SAINAI	EL-TOUR GENERAL HSP.	1	1
FAYOUM	EBSHOWAI DISTRICT HSP.	1	0
	FAYOUM GENERAL HSP.	1	0
BANI SWEIF	BANI SWEIF GENERAL HSP.	1	1
	EL-FASHN DISTRICT HSP.	1	1
MENYA	BANI MAZAR GENERAL HSP.	1	1
	MAGHAGHA GENERAL HSP.	1	1
	EL-MENYA GENERAL HSP.	1	1
ASSUIT	ASSUIT GENERAL HSP.	1	1
	ASSUIT UNIVERSITY HSP.	1	1
	EL-BADARY DISTRICT HSP.	1	1
	EL-IMAN GENERAL HSP.	1	1
	SEDFA DISTRICT HSP.	1	1
	DAIROUT DISTRICT HSP.	1	1
SOHAG	SOHAG GENERAL HSP.	1	1
QENA	NAGA HAMMADY GENERAL HSP.	1	1
	QENA GENERAL HSP.	1	1
LUXOR	LUXOR GENERAL HSP.	1	1
ASWAN	ASWAN GENERAL HSP.	1	1
	KOMOMBO DISTRICT HOSPITAL	1	1
	EDFO DISTRICT HSP.	1	1
EL-WADI EL-GEDID	EL-KHARGA GENERAL HSP.	1	1
	EL-DAKHLA GENERAL HSP.	1	1
REMAINING AT CSP STORES		15	34
TOTAL QTY		100	105

PO#117
PO#118
PO#119

ARI Bacteriologylab Distribution List

Governorate	Hospital Name	Lab Incubator	Top Loading Balance	PH Meter	Binocular Microscope	Water Distiller	Magnetic Stirrer
Cairo	Central Labs	2	1	1	2	1	2
	Abbasia Fever Hsp.	0	0	0	0	0	1
Alexandria	Alex. Fever Hsp.	0	0	0	0	0	1
Menoufia	Shebin El-Kom Fever Hsp.	1	1	1	1	1	1
Beheira	Damanhour Educational Hsp.	1	1	1	1	1	1
North Sinai	Arish General Hsp.	1	1	1	0	1	1
Fayoum	Fayoum General Hsp.	1	1	1	1	1	1
Sohag	Sohag General Hsp.	1	1	1	1	1	1
Luxor	Luxor General Hsp.	0	0	1	0	1	1
Aswan	Aswan General Hsp.	1	1	0	0	1	1
Remaining on stores		2	3	3	4	2	9
Total Qty		10	10	10	10	10	20

P.O.#122
P.O.#123
P.O.#124
P.O.#125

Heart Rate Monitors Distribution List

GOVERNORATE	HOSPITAL	Qty
	EL-BADARY DISTRICT HSP.	1
	EL-IMAN GENERAL HSP.	1
	DAIROUT DISTRICT HSP.	1
	QENA GENERAL HSP.	1
ASWAN	ASWAN GENERAL HSP.	1
REMAINING AT STORES		28
TOTAL QTY		80

Annex 10

LOCAL PROCUREMENT

"EPI" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
COOLING & FREEZING		**Refrigerators / Freezers/Ice**					
283.00	2	DEEP FREEZER, 200 LTR	20.00	783.000	15,660.00	INTL CO. FOR COOLING (ALASKA)	EPI
450.00	1	DEEP FREEZER, BRAND ALASKA, 200 LTR	30.00	830.000	24,900.00	OMAR AFANDI	EPI
8.00	1	REFREGERATOR, 8", WHITE	2,000.00	320.000	640,000.00	DELTA INDUSTRIAL CO. (IDEAL)	EPI
82.00	1	REFREGERATOR, 8"	500.00	645.000	322,500.00	DELTA INDUSTRIAL CO. (IDEAL)	EPI
283.00	1	REFREGIRATOR, 8', 220 V., MODEL ALASKA	40.00	558.000	22,320.00	INTL CO. FOR COOLING (ALASKA)	EPI
449.00	1	REGRIGERATOR 8", 225 LTR	200.00	628.000	125,600.00	DELTA INDUSTRIAL CO. (IDEAL)	EPI
		Total **Refrigerators / Freezers/Ice**	=		**1,150,980.00** LE		
COOLING & FREEZING		**Motors**					
203.00	1	MOTOR, 220 V., 1/5 HP	5.00	332.000	1,660.00	INTL EST. FOR TRADING	EPI
	2	MOTOR, 220 V., 1/6 HP	35.00	290.000	10,150.00	INTL EST. FOR TRADING	EPI
204.00	1	MOTOR, 220 V., 1/3 HP	5.00	383.000	1,915.00	AL GOMHOURIA CO. FOR MECH.	EPI
	2	MOTOR, 220 V., 1/4 HP	5.00	353.000	1,765.00	AL GOMHOURIA CO. FOR MECH.	EPI
	3	MOTOR, 220 V., 1/8 HP	50.00	285.000	14,250.00	AL GOMHOURIA CO. FOR MECH.	EPI
267.00	1	MOTOR, 220 V., 1/8 HP	50.00	313.500	15,675.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
	2	MOTOR, 220 V., 1/3 HP	5.00	421.300	2,106.50	ABDEL GAWWAD M.M. OFF. FOR	EPI
	3	MOTOR, 220 V., 1/5 HP	5.00	365.200	1,826.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
	4	MOTOR, 220 V., 1/6 HP	35.00	321.400	11,249.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
363.00	1	MOTOR, 220 V., 1/8 HP	110.00	326.000	35,860.00	INTL CO. FOR GENERAL TRADING	EPI
	2	MOTOR, 220 V., 1/6 HP	110.00	326.000	35,860.00	INTL CO. FOR GENERAL TRADING	EPI
	3	MOTOR, 220 V., 1/5 HP	20.00	390.000	7,800.00	INTL CO. FOR GENERAL TRADING	EPI
	4	MOTOR, 220 V., 1/3 HP	30.00	390.000	11,700.00	INTL CO. FOR GENERAL TRADING	EPI
558.50	1	MOTOR 1/8 HP	40.00	330.000	13,200.00	HERISTICK EGYPT	EPI
	2	MOTOR 1/6 HP	30.00	327.000	9,810.00	HERISTICK EGYPT	EPI
		Total **Motors**	=		**174,826.50** LE		
COOLING & FREEZING		**Others**					
267.00	7	CHARGER FOR REFREGIRATORS, COMPLETE WITH HOSES	2.00	181.500	363.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
282.00	1	COLMAN, OLYMPIC, 5 LTR	500.00	56.000	28,000.00	AL NOUR SUPPLIES OFFICE	EPI
47.00	1	FREON CYLINDER	1.00	175.000	175.00	AL BASHA STORES	EPI

U.AID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**TVs**					
50.00	1	TV 16", COLOUR, MULTISYSTEMS, SAMSUNG	39.00	837.000	32,643.00	OMAR AFANDI	ARI
		Total **TVs**	=		**32,643.00** LE		
AUDIO VISUAL AIDS		**VCRs**					
	2	VIDEO 5 SYSTEMS, TOSHIBA	39.00	2124.700	82,863.30	OMAR AFANDI	ARI
		Total **VCRs**	=		**82,863.30** LE		
AUDIO VISUAL AIDS		**Projectors**					
85.00	1	OVERHEAD PROJECTOR, MOBILE, MODE ELITE A B VICTOR	1.00	4950.000	4,950.00	SOLE AGENT	ARI
90.00	1	OVERHEAD PROJECTOR MODEL 1222	10.00	2500.000	25,000.00	MISR FATRAMO	ARI
	2	OVERHEAD PROJECTOR MODEL 1225	10.00	2700.000	27,000.00	MISR FATRAMO	ARI
52.00	1	SLIDE PROJECTOR, KODAK 1010 (5 X 5 CM SLIDES)	10.00	965.000	9,650.00	CAIRO PHOTO STORES	ARI
		Total **Projectors**	=		**66,600.00** LE		
AUDIO VISUAL AIDS		**Others**					
50.00	3	CASSETT RECORDER, PHILIPS (2 SPEAKERS, 2 TAPES)	5.00	489.000	2,445.00	OMAR AFANDI	ARI
89.00	2	FLIP CHART + ACCECCORIES (PENS, PAPER,...)	20.00	1180.000	23,600.00	CAIRO PHOTO STORES	ARI
	1	SCREEN FOR OVERHEAD PROJECTOR	20.00	289.000	5,780.00	CAIRO PHOTO STORES	ARI
		Total **Others**	=		**31,825.00** LE		
		Total **AUDIO VISUAL AIDS**	=		**213,931.30** LE		

Total Value in LE ***842,210.80***

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
COOLING & FREEZING		**Others**					
61.00	1	FREON CYLINDER	1.00	176.000	176.00	MAHMOUD HASSAN ENG'G EST.	EPI
68.00	2	FREON CYLINDER, 13.5 KG	26.00	194.000	5,044.00	MAHMOUD HASSAN ENG'G EST.	EPI
101.00	1	FREON CYLINDER, 2.5 KG	2.00	210.000	420.00	COOLING CENTER	EPI
204.00	4	FREON CYLINDER	20.00	283.000	5,660.00	AL GOMHOURIA CO. FOR MECH.	EPI
267.00	6	FREON CYLINDER, 13.5 KG.	7.00	311.300	2,179.10	ABDEL GAWWAD M.M. OFF. FOR	EPI
356.00	5	FREON CYLINDER, 13.5 KG	40.00	245.000	9,800.00	HERISTICK EGYPT	EPI
129.00	1	FUEL PUMP FOR REFREGIRATED TRUCKS	5.00	850.000	4,250.00	ABDEL NABI FARAG	EPI
289.00	1	FUEL PUMP FOR REFREGIRATED TRUCKS, COMPLETE	23.00	1080.000	24,840.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
68.00	1	VACUUM PUMP	7.00	1350.000	9,450.00	MAHMOUD HASSAN ENG'G EST.	EPI
267.00	9	VACUUM PUMP, 220 V, (1/4 - 1/3 HP)	2.00	1836.000	3,672.00	ABDEL GAWWAD M.M. OFF. FOR	EPI
		Total **Others**	=		**94,029.10** LE		
		Total **COOLING & FREEZING**	=		**1,419,835.60** LE		

04/13/96

"EPI" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**Others**					
505.50	1	CAMERA, RICHO RZ900 COMPLETE E/FLASH AND ZOOM 38-90	1.00	1840.000	1,840.00	AL TAMIMI STORES	EPI
78.00	1	SCREEN 175 x 175 CM	1.00	545.000	545.00	CAIRO PHOTO STORES	EPI
		Total **Others**	=		**2,385.00**	LE	
		Total **AUDIO VISUAL AIDS**	=		**2,385.00**	LE	

Total Value in *LE* **1,422,220.60**

340

"ADMIN." LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**TVs**					
58.00	1	TV 16", COLOUR, MULTISYSTEMS, SAMSUNG	12.00	897.680	10,772.16	OMAR AFANDI	ADMIN
208.00	1	TV 16", COLOURS, SAMSONG	12.00	1194.000	14,328.00	OMAR AFANDI	ADMIN
11.70	1	TV, 20", NATIONAL	2.00	1400.000	2,800.00	BAGHDAD EST. FOR TRADE	ADMIN
		Total **TVs**	=		**27,900.16** LE		
AUDIO VISUAL AIDS		**VCRs**					
11.00	1	VIDEO, NATIONAL G15, 3 SYSTEMS	3.00	3000.000	9,000.00	CITY CENTER	ADMIN
58.00	2	VIDEO 5 SYSTEMS, TOSHIBA	12.00	2155.020	25,860.24	OMAR AFANDI	ADMIN
208.00	2	VIDEO, PLAY BACK ONLY, AKAI	15.00	1275.000	19,125.00	OMAR AFANDI	ADMIN
		Total **VCRs**	=		**53,985.24** LE		
AUDIO VISUAL AIDS		**Projectors**					
28.00	1	OVERHEAD PROJECTOR	1.00	3140.000	3,140.00	CAIRO PHOTO STORES	ADMIN
55.00	1	OVERHEAD PROJECTOR	4.00	1200.000	4,800.00	AL BASHA STORES	ADMIN
210.00	1	OVERHEAD PROJECTOR, 3R70007	9.00	1810.000	16,290.00	XEROX EGYPT	ADMIN
221.00	1	OVERHEAD PROJECTOR, 3R70007	5.00	1810.000	9,050.00	XEROX EGYPT	ADMIN
464.00	1	OVERHEAD PROJECTOR, MODEL DALIT G100	4.00	1700.000	6,800.00	CAIRO PHOTO STORES	ADMIN
56.00	1	SLIDE PROJECTOR, KODAK 1010 (5 X 5 CM SLIDES)	3.00	965.000	2,895.00	CAIRO PHOTO STORES	ADMIN
		Total **Projectors**	=		**42,975.00** LE		
AUDIO VISUAL AIDS		**Others**					
58.00	3	ANTENNA FOR TV	1.00	52.850	52.85	OMAR AFANDI	ADMIN
560.00	2	BATTERIES, FOR PANASONIC M3000 VIDEO CAMERA	6.00	210.000	1,260.00	OMAR AFANDI	ADMIN
60.50	1	BULLETIN BOARD	1.00	170.000	170.00	MEDITERRANEAN INTL TRADING	ADMIN
61.50	1	BULLETIN BOARD, 100 x 120 CM	5.00	172.000	860.00	MEDITERRANEAN INTL TRADING	ADMIN
83.50	1	BULLETIN BOARD	54.00	160.000	8,640.00	MEDITERRANEAN INTL TRADING	ADMIN
2.50	1	CAMERA, YASHCA, AUTOFOCUS	1.00	355.000	355.00	LUCKY STORES	ADMIN
11.30	1	CAMERA VIDEO, NATIONAL M5	1.00	5500.000	5,500.00	EGPTN CO. FOR ELECTRIC EQUIP.	ADMIN
33.00	1	CAMERA 35MM, NIKON	1.00	1365.000	1,365.00	OPTOCA	ADMIN
11.70	2	CASSETTE, SONY	1.00	455.000	455.00	BAGHDAD EST. FOR TRADE	ADMIN

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**Others**					
24.00	1	SCREEN 150 x 150 CM	1.00	275.000	275.00	AL SHERIF CO.	CS
237.00	1	SCREEN 178 X 178 CM	2.00	565.250	1,130.50	CAIRO PHOTO STORES	CS
		Total **Others**	=		**1,405.50** LE		
		Total **AUDIO VISUAL AIDS**	=		**1,405.50** LE		

Total Value in LE ***8,188,285.63***

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
MEDICAL EQUIPMENT		**Lab. Equipment**					
84.00	1	CO2 CYLINDERS (7 LTRS - 50KGS)	5.00	800.000	4,000.00	AMAR EGYPT	ARI
	2	CO2 CYLINDER REGULATOR	2.00	350.000	700.00	AMAR EGYPT	ARI
69.30	1	DEIONIZER TYPE C2	1.00	265.000	265.00	AL GOMHOURIA CO.	ARI
94.50	1	GENERATOR, ELECTRIC, MODEL EBK3600	4.00	5235.000	20,940.00	TRIDCO AL-SAYYAD	ARI
	2	GENERATOR, ELECTRIC, MODEL EBK2000	4.00	3250.000	13,000.00	TRIDCO AL-SAYYAD	ARI
509.50	1	HOT AIR OVEN, 50 LTRS	20.00	1750.000	35,000.00	ARABIAN MEDICAL CO.	ARI
257.00	1	LAB. INCUBATOR	10.00	6800.000	68,000.00	ARAB CONSTULTANTS ENGINEERS	ARI
33.50	1	MICROSCOPE, FLOURESCENCE, MODEL BX 300, SERIAL NO. 609745	1.00	7312.500	7,312.50	AL GOMHOURIA CO.	ARI
247.00	1	MICROSCOPE, DUAL HEAD, MODEL GALLANT 3	10.00	4200.000	42,000.00	TECHNOCITE CO.	ARI
	3	P.H. METER, DIGITAL, MODEL 420A	10.00	2600.000	26,000.00	TECHNOCITE CO.	ARI
246.00	1	STEAM STERILIZER, STAINLESS STEEL, 80 L.	10.00	3500.000	35,000.00	M.A.MEDICAL	ARI
69.30	2	STOP WATCH	1.00	63.000	63.00	AL GOMHOURIA CO.	ARI
257.00	2	TOP LOADING BALANCE	10.00	3000.000	30,000.00	ARAB CONSTULTANTS ENGINEERS	ARI
94.00	1	VOLTAGE STABILIZER, 380V-10KW	2.00	4950.000	9,900.00	MEDITERRANEAN INTL TRADING	ARI
69.70	1	VORTEX MIXER	1.00	450.000	450.00	AL GHARBI PHARMACY	ARI
247.00	4	VORTEX MIXER	10.00	600.000	6,000.00	TECHNOCITE CO.	ARI
	2	WATER DISTILLER, WALL MOUNTING, MODEL A.I.O.I.3	10.00	19000.000	190,000.00	TECHNOCITE CO.	ARI
		Total **Lab. Equipment**	=		**488,630.50** LE		
MEDICAL EQUIPMENT		**Acute Respiratory Infections**					
265.00	1	NEBULIZER	100.00	420.000	42,000.00	TECHNOLOGY DEVELOPMENT CO.	ARI
366.00	1	NEBULIZER	190.00	410.000	77,900.00	HI MED EGYPT CO.	ARI
		Total **Acute Respiratory Infections**	=		**119,900.00** LE		
MEDICAL EQUIPMENT		**Others**					
80.00	1	SAMPLES READING LANTERN	1.00	300.000	300.00	AL MARWA MEDICAL	ARI
71.70	1	WATER COLEMAN	1.00	99.000	99.00	TRIDCO AL-SAYYAD	ARI
		Total **Others**	=		**399.00** LE		
		Total **MEDICAL EQUIPMENT**	=		**608,929.50** LE		

04/13/96

"ARI" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
COOLING & FREEZING		**Refrigerators / Freezers/Ice**					
323.00	1	REFRIGERATOR, 8"	30.00	645.000	19,350.00	DELTA INDUSTRIAL CO. (IDEAL)	ARI
		Total **Refrigerators / Freezers/Ice** =			**19,350.00** LE		
		Total **COOLING & FREEZING** =			**19,350.00** LE		

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USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**Projectors**					
237.50	1	OVERHEAD PROJECTOR	10.00	2950.000	29,500.00	CAIRO PHOTO STORES	GDDDC
		Total **Projectors**	=		**29,500.00** LE		
		Total **AUDIO VISUAL AIDS**	=		**29,500.00** LE		

Total Value in LE ***29,500.00***

04/13/96

"P/WIDE" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
OFFICE EQUIPMENT		**Fax Machines**					
17.00	1	FAX MACHINE MODEL 7020	32.00	12470.000	399,040.00	XEROX EGYPT	P/WIDE
		Total **Fax Machines**	=		**399,040.00** LE		
OFFICE EQUIPMENT		**Computers**					
238.50	1	COMPUTER, IBM PS/VP-MVO , COMPLETE WITH PRINTER, UPS & SOFTWARES	36.00	20800.000	748,800.00	EGPTN CO. FOR COMPUTER	P/WIDE
		Total **Computers**	=		**748,800.00** LE		
		Total **OFFICE EQUIPMENT**	=		**1,147,840.00** LE		

Total Value in LE *1,147,840.00*

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USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
MEDICAL EQUIPMENT		**NeoNatal Care**					
218.00	1	SYRINGE PUMP	80.00	6900.000	552,000.00	AMAR EGYPT	CS
		Total **NeoNatal Care**	=		**2,905,930.00** LE		
MEDICAL EQUIPMENT		**Daya Kits**					
7.50	1	ALUMINUM DAYA KITS	2,000.00	117.700	235,400.00	AL SOOSI CO.	CS
73.50	1	ALUMINUM DAYA KITS	2,000.00	133.500	267,000.00	BECRON CO.	CS
121.00	1	ALUMINUM DAYA KITS	4,000.00	177.500	710,000.00	BECRON CO.	CS
337.00	1	ALUMINUM DAYA KITS	3,000.00	173.500	520,500.00	CAIRO YECRON CO.	CS
		Total **Daya Kits**	=		**1,732,900.00** LE		
MEDICAL EQUIPMENT		**Delivery Rooms**					
217.00	1	AUTOCLAVE, 36 LTR	60.00	530.000	31,800.00	MEDICA LAB SCIENTIFIC OFFICE	CS
372.00	2	BACKLESS CHAIR	130.00	160.000	20,800.00	AL GOMHOURIA CO.	CS
214.00	1	DELIVERY TABLE	60.00	1580.000	94,800.00	SAMCO ENGINEERING AGENCIES	CS
372.00	1	DELIVERY TABLE	130.00	910.000	118,300.00	AL GOMHOURIA CO.	CS
373.00	1	HOT AIR OVEN	130.00	1350.000	175,500.00	EGPTN MEDICAL CO.	CS
216.00	2	MOBILE CHAIR ON WHEELS	60.00	350.000	21,000.00	RAMAD CO.	CS
371.00	1	MOBILE CHAIR ON WHEELS	130.00	445.000	57,850.00	KAMEL OFFICE FOR FURNITURE	CS
216.00	3	OPERATING SPOT LIGHT	60.00	149.000	8,940.00	RAMAD CO.	CS
372.00	3	OPERATING SPOT LIGHT	130.00	160.000	20,800.00	AL GOMHOURIA CO.	CS
213.00	1	RESUSCITATOR FOR DELIVERY ROOM	60.00	2000.000	120,000.00	SAMCO ENGINEERING AGENCIES	CS
370.00	1	RESUSCITATOR FOR DELIVERY ROOM	130.00	3000.000	390,000.00	SAMCO ENGINEERING AGENCIES	CS
216.00	1	TABLE FOR OPERATING TOOLS	60.00	115.000	6,900.00	RAMAD CO.	CS
373.00	2	TABLE FOR OPERATING TOOLS	130.00	135.000	17,550.00	EGPTN MEDICAL CO.	CS
		Total **Delivery Rooms**	=		**1,084,240.00** LE		
MEDICAL EQUIPMENT		**Others**					
63.00	1	EDUCATIONAL KITCHEN	14.00	1068.000	14,952.00	OMAR AFANDI	CS
	2	EDUCATIONAL KITCHEN	22.00	1068.000	23,496.00	OMAR AFANDI	CS
	3	EDUCATIONAL KITCHEN	149.00	1068.000	159,132.00	OMAR AFANDI	CS

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"CS" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
MEDICAL EQUIPMENT		**Others**					
63.00	4	EDUCATIONAL KITCHEN	18.00	1068.000	19,224.00	OMAR AFANDI	CS
	5	EDUCATIONAL KITCHEN	9.00	1068.000	9,612.00	OMAR AFANDI	CS
	6	EDUCATIONAL KITCHEN	15.00	991.750	14,876.25	OMAR AFANDI	CS
	7	EDUCATIONAL KITCHEN	5.00	738.500	3,692.50	OMAR AFANDI	CS
	8	EDUCATIONAL KITCHEN	2.00	738.500	1,477.00	OMAR AFANDI	CS
	9	EDUCATIONAL KITCHEN	3.00	738.500	2,215.50	OMAR AFANDI	CS
	10	EDUCATIONAL KITCHEN	15.00	994.880	14,923.20	OMAR AFANDI	CS
	11	EDUCATIONAL KITCHEN, COMPLETION OF ALREADY EXISTING ONE	47.00	600.000	28,200.00	OMAR AFANDI	CS
	12	EDUCATIONAL KITCHEN, COMPLETION OF ALREADY EXISTING ONE	25.00	835.300	20,882.50	OMAR AFANDI	CS
	13	EDUCATIONAL KITCHEN, COMPLETION OF ALREADY EXISTING ONE	10.00	600.000	6,000.00	OMAR AFANDI	CS
	14	EDUCATIONAL KITCHEN, COMPLETION OF ALREADY EXISTING ONE	36.00	501.880	18,067.68	OMAR AFANDI	CS
47.90	1	MEASUREMENT OF SKIN THICKNESS	2.00	120.000	240.00	AL GOMHOURIA CO.	CS
113.50	1	SCALE, FOR BABY	100.00	49.900	4,990.00	SAMCO ENGINEERING AGENCIES	CS
		Total **Others**	=		**341,980.63**	LE	
		Total **MEDICAL EQUIPMENT**	=		**8,186,880.13**	LE	

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
		Total Printers	=		206,911.00 LE		
OFFICE EQUIPMENT		Scanners					
106.00	5	SCANNER, APPLE ONE	1.00	6700.000	6,700.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
242.00	4	SCANNER,COLOR FOR APPLE (MICROTEK-1200 DPI)	1.00	8700.000	8,700.00	APPLE LINE	ADMIN
299.00	2	SCANNER, HP COLOUR	1.00	4200.000	4,200.00	EGPTN CO. FOR COMPUTER	ADMIN
		Total Scanners	=		19,600.00 LE		
OFFICE EQUIPMENT		Computer SoftWare					
106.00	11	AL-NASHER A- MAKTABI (ARABIC DESK TOP PUBLISHING SOFTWARE)	1.00	2300.000	2,300.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
31.00	4	ARAB WORD	1.00	800.000	800.00	METRA COMPUTER	ADMIN
109.00	8	ARABIZATION SOFTWARE (MIE) REEM	2.00	300.000	600.00	COMPUTEC	ADMIN
31.00	5	CARD, 3 COM. NETWORK	6.00	1800.000	10,800.00	METRA COMPUTER	ADMIN
421.00	1	DATA BASE IV FOR DOS	1.00	595.000	595.00	APPLE LINE	ADMIN
60.00	4	MAC PAINT (PAINTING SOFTWARE)	1.00	400.000	400.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
106.00	13	MAC PROJECT (PROJECT MANAGEMENT SOFTWARE)	1.00	3200.000	3,200.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
587.00	1	MICROSOFT OFFICE PROFESSIONAL W/ARABIC SUPPORT	1.00	3650.000	3,650.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
	2	MICROSOFT WINDOWS FOR WORK GROUPS VER. 3.1	1.00	865.000	865.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
106.00	6	MS EXCEL 4.0	1.00	1700.000	1,700.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
124.00	1	MS EXCEL 4.0 FOR WINDOWS(ARABIC SUPPORT)	1.00	1200.000	1,200.00	METRA COMPUTER	ADMIN
60.00	3	MS FILE (DATA MANAGEMENT SOFTWARE)	1.00	300.000	300.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
106.00	9	MS POWER POINT (PRESENTATION SOFTWARE)	1.00	1200.000	1,200.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
	7	MS WORD 5.0	1.00	1953.000	1,953.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
31.00	6	NETWORK SOFTWARE	1.00	3850.000	3,850.00	METRA COMPUTER	ADMIN
106.00	8	NISUS (ARABIC WORD PROCESSING SOFTWARE)	1.00	1400.000	1,400.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
544.00	1	OCR FOR SCANNER W/ ARABIC SUPPORT	1.00	3700.000	3,700.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
106.00	14	OMNI PAGE (TEXT SCANNING SOFTWARE)	1.00	5040.000	5,040.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
	10	PAGE MAKER (ENGLISH DESK TOP PUBLISHING SOFTWARE)	1.00	3000.000	3,000.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
242.00	5	POWER POINT	1.00	2240.000	2,240.00	APPLE LINE	ADMIN
429.00	5	SOFT WARE, APPLE STYLE WRITER II	1.00	0.000	0.00	APPLE LINE	ADMIN
106.00	12	STAT VIEW (STATISTICAL SOFTWARE)	1.00	2700.000	2,700.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
544.00	2	USTAZ FOR WINDOWS W/ ARABIC SUPPORT	1.00	700.000	700.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN

"ADMIN." LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
OFFICE EQUIPMENT		**Computer SoftWare**					
587.00	3	VISUAL FOXPRO UPGRADE, UNDER WINDOWS, VER 3	1.00	1385.000	1,385.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
440.00	1	WINTEXT PROGRAM	2.00	695.000	1,390.00	APPLE LINE	ADMIN
109.00	7	WORD STAR VER. 7.0	2.00	1560.000	3,120.00	COMPUTEC	ADMIN
		Total **Computer SoftWare**	=		**58,088.00** LE		
OFFICE EQUIPMENT		**Computer Accessories**					
542.00	1	EXTERNAL MODEM, MOTOROLA, V.34, 28,800 BPS, COMPLETE W/COMMUNICATION SOFTWARE	4.00	1650.000	6,600.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
587.00	5	HARD DISK UPGRADE, 1 GEGABITE	1.00	1135.000	1,135.00	AL ALAMIAH FOR INFO. & TRADING	ADMIN
109.00	4	INFOCUS 1600 LC	1.00	10000.000	10,000.00	COMPUTEC	ADMIN
		Total **Computer Accessories**	=		**17,735.00** LE		
OFFICE EQUIPMENT		**Others**					
466.00	1	AUTOMATIC DATA SWITCH	4.00	800.000	3,200.00	INTL GROUP FOR DATA &	ADMIN
4.50	1	BINDING MACHINE, ABECO	1.00	4925.000	4,925.00	EGPTN CO. FOR PAPER	ADMIN
278.00	1	BINDING MACHINE	1.00	1030.000	1,030.00	TAHRIR STATIONERY	ADMIN
408.50	1	BINDING MACHINE	2.00	820.000	1,640.00	SANTA FOR MARKETING & TRADE	ADMIN
15.00	1	CALCULATOR	2.00	349.000	698.00	TAHRIR STATIONERY	ADMIN
39.00	1	CALCULATOR	2.00	408.000	816.00	CAIRO TRADING	ADMIN
71.00	1	CALCULATOR, CASIO W/SCREEN & PRINTER	2.00	547.000	1,094.00	TAHRIR STATIONERY	ADMIN
79.00	1	CALCULATOR, SHARP	2.00	355.000	710.00	TAHRIR STATIONERY	ADMIN
117.00	1	CALCULATOR, CASIO, W/PRINTER	6.00	690.000	4,140.00	AL AMANA ENG'G STATIONERY	ADMIN
23.00	1	LAMNATION MACHINE	1.00	390.400	390.40	EGPTN CO. FOR PAPER	ADMIN
278.00	2	LAMNATION MACHINE	1.00	700.000	700.00	TAHRIR STATIONERY	ADMIN
491.00	1	SAFE	1.00	430.000	430.00	UNITED ARAB CO.	ADMIN
62.00	1	SHREDDING MACHINE	1.00	790.000	790.00	STANDARD STATIONERY	ADMIN
		Total **Others**	=		**20,563.40** LE		
		Total **OFFICE EQUIPMENT**	=		**1,019,555.90** LE		

Total Value in *LE* **1,179,154.15**

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
OFFICE EQUIPMENT		**TypeWriters**					
107.00	1	TYPEWRITER, MODEL 6001, SERIAL NO. 2990023703	1.00	3100.000	3,100.00	XEROX EGYPT	ADMIN
232.00	3	TYPEWRITER, ENGLISH/ARABIC, MODEL 6019, SERIAL NOs.1577702 & 1578105	2.00	3800.000	7,600.00	XEROX EGYPT	ADMIN
		Total **TypeWriters**	=		**39,750.00** LE		
OFFICE EQUIPMENT		**Telephones**					
18.50	2	AUTOMATIC PANEL, 10 LINES	1.00	82.500	82.50	AL SWIDI CO.	ADMIN
73.00	1	ELECTRONIC CARD FOR FOR THE SWITCHBOARD, (FOR 16 EXT.)	1.00	5600.000	5,600.00	BALSAM	ADMIN
64.20	1	INTERCOM, ORIG.+ 3 LINES	1.00	125.000	125.00	HELIOPOLIS EST. FOR ELECTRONIC	ADMIN
4.00	1	TELEPHONE SWICHBOARD, ELECTRONIC NATIONAL PANASONIC, (4/16 LINES)	1.00	4600.000	4,600.00	HAMDI ENG'G EST.	ADMIN
	2	TELEPHONE SET MODEL KX-T2325	1.00	280.000	280.00	HAMDI ENG'G EST.	ADMIN
22.50	1	TELEPHONE SET	1.00	85.000	85.00	SALAMA HAMDI ENGINEERING CO.	ADMIN
27.00	1	TELEPHONE SWICHBOARD, ELECTRONIC MODEL XS-50. (8/56 LINES)	1.00	29000.000	29,000.00	BALSAM	ADMIN
	2	TELEPHONE SET, PUSH BUTTONS	20.00	130.000	2,600.00	BALSAM	ADMIN
30.50	1	TELEPHONE SET	1.00	90.000	90.00	HAMDI ENG'G EST.	ADMIN
55.50	1	TELEPHONE SET, RED	5.00	139.000	695.00	BALSAM	ADMIN
62.50	1	TELEPHONE SET	3.00	130.000	390.00	BALSAM	ADMIN
71.50	1	TELEPHONE SET, PUSH BUTTONS	4.00	150.000	600.00	BALSAM	ADMIN
76.50	1	TELEPHONE SET, WITH MEMORY	1.00	131.000	131.00	SALAMA CO. FOR TRADING	ADMIN
106.50	1	TELEPHONE SET, PUSH BUTTONS	4.00	150.000	600.00	BALSAM	ADMIN
111.90	1	TELEPHONE SET	3.00	87.000	261.00	BEYOUT AL-AZYA'A AL-RAQIA	ADMIN
226.00	1	TELEPHONE SET, PUSH BUTTONS	5.00	150.000	750.00	BALSAM	ADMIN
530.00	1	TELEPHONE SET, VETAP, 16 PUSH BUTTONS, PULSE/TONE	15.00	70.000	1,050.00	NONE	ADMIN
		Total **Telephones**	=		**46,939.50** LE		
OFFICE EQUIPMENT		**Computers**					
31.00	1	COMPUTER, TANDY 4000	6.00	10500.000	63,000.00	METRA COMPUTER	ADMIN
60.00	1	COMPUTER, APPLE MACINTOSH, CLASSIC 2/40	4.00	5828.000	23,312.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
106.00	1	COMPUTER, APPLE MACINTOSH SE 30 4/40	2.00	8500.000	17,000.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
	2	COMPUTER, APPLE MACINTOSH CLASSIC II 4/40	5.00	6750.000	33,750.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN

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"ADMIN." LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
OFFICE EQUIPMENT		**Computers**					
106.00	3	COMPUTER, POWER BOOK 140 4/40	5.00	12500.000	62,500.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
109.00	1	COMPUTER, DELL 486DX, 33MHZ	1.00	10175.000	10,175.00	COMPUTEC	ADMIN
	2	COMPUTER, DELL 386SX, 25MHZ	2.00	6625.000	13,250.00	COMPUTEC	ADMIN
113.00	1	COMPUTER, APPLE MACINTOSH	1.00	6750.000	6,750.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
114.00	1	COMPUTER, APPLE MACINTOSH	1.00	6935.000	6,935.00	APPLE LINE	ADMIN
136.00	1	COMPUTER IBM MODEL 493, SERIAL NO. 8123687	1.00	14280.000	14,280.00	EGPTN CO. FOR COMPUTER	ADMIN
407.00	1	COMPUTER IBM	1.00	7800.000	7,800.00	EGPTN CO. FOR COMPUTER	ADMIN
429.00	3	COMPUTER APPLE MAC QUADRO 605	2.00	7900.000	15,800.00	APPLE LINE	ADMIN
		Total **Computers**	=		**274,552.00** LE		
OFFICE EQUIPMENT		**Printers**					
543.00	3	APPLE PERSONAL WRITER 360	1.00	6700.000	6,700.00	APPLE LINE	ADMIN
31.00	2	DOT MATRIX PRINTER, STAR NB-15	1.00	1650.000	1,650.00	METRA COMPUTER	ADMIN
	3	LASER PRINTER, TANDY LP 1000	1.00	5900.000	5,900.00	METRA COMPUTER	ADMIN
106.00	4	LASER PRINTER, APPLE LASER WRITER II F	1.00	17100.000	17,100.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
109.00	3	LASER PRINTER, HPIII	1.00	10000.000	10,000.00	COMPUTEC	ADMIN
114.00	2	LASER PRINTER HP JET 4	3.00	8490.000	25,470.00	APPLE LINE	ADMIN
	3	LASER PRINTER HP JET 4M	2.00	11000.000	22,000.00	APPLE LINE	ADMIN
60.00	2	PRINTER, APPLE IMAGE WRITER II	4.00	2674.000	10,696.00	CAIRO INFO. TECH.& ENGG (CITE)	ADMIN
67.00	1	PRINTER	1.00	1990.000	1,990.00	METRA COMPUTER	ADMIN
112.00	1	PRINTER, FUJI TSV	1.00	1905.000	1,905.00	METRA COMPUTER	ADMIN
242.00	1	PRINTER, HP, INKJET, COLORE, 550C FOR APPLE	1.00	5530.000	5,530.00	APPLE LINE	ADMIN
	2	PRINTER, HP, INKJET, COLORE, 550C FOR IBM	1.00	5530.000	5,530.00	APPLE LINE	ADMIN
	3	PRINTER, HP, LASER, COLOR, (QMS-210)	1.00	25650.000	25,650.00	APPLE LINE	ADMIN
299.00	1	PRINTER, HP LASER JET 4L	1.00	3000.000	3,000.00	EGPTN CO. FOR COMPUTER	ADMIN
380.00	1	PRINTER TEXAS MICRO LASER PRO PS 23	1.00	6450.000	6,450.00	EMS CO.	ADMIN
407.00	2	PRINTER, LASER	1.00	7450.000	7,450.00	EGPTN CO. FOR COMPUTER	ADMIN
429.00	2	PRINTER, HP, LASER JET 4+	1.00	7600.000	7,600.00	APPLE LINE	ADMIN
	4	PRINTER, APPLE PERSONAL LASER WRITER (320 (4 MB RAM)	2.00	4540.000	9,080.00	APPLE LINE	ADMIN
465.00	1	PRINTER, HP LASER JET 4+, 8 MB RAM	1.00	7475.000	7,475.00	APPLE LINE	ADMIN
	2	PRINTER, HP LASER JET, COLOR, 8 MB RAM	1.00	25735.000	25,735.00	APPLE LINE	ADMIN

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
AUDIO VISUAL AIDS		**Others**					
53.00	1	CASSETT RECORDER, PHILIPS (2SPEAKERS, 2 TAPES)	5.00	489.000	2,445.00	OMAR AFANDI	ADMIN
209.00	1	FLIP CHART W/HOLDER	7.00	250.000	1,750.00	TAHRIR STATIONERY	ADMIN
115.00	2	FLOMASTER BOARD, 122 x 144 CM	1.00	400.000	400.00	TAHRIR STATIONERY	ADMIN
560.00	4	MICROPHONE, WIRELESS FOR THE PANASONIC M3000 VIDEO CAMERA	1.00	1500.000	1,500.00	OMAR AFANDI	ADMIN
11.30	2	RADIO CASSETTE, NATIONAL 5155	2.00	275.000	550.00	EGPTN CO. FOR ELECTRIC EQUIP.	ADMIN
19.50	1	SCREEN 150 x 150 CM	2.00	275.000	550.00	AL SHERIF CO.	ADMIN
120.00	1	SCREEN 175 x 175 CM	1.00	885.000	885.00	CAIRO PHOTO STORES	ADMIN
33.00	2	STAND FOR THE CAMERA	1.00	300.000	300.00	OPTOCA	ADMIN
560.00	3	STAND FOR THE PANASONIC M3000 VIDEO CAMERA	1.00	1600.000	1,600.00	OMAR AFANDI	ADMIN
	1	VIDEO CAMERA, PANASONIC M3000, COMPLETE W/ACCESSORIES	1.00	6100.000	6,100.00	OMAR AFANDI	ADMIN
		Total **Others**	=		**34,737.85**	LE	
		Total **AUDIO VISUAL AIDS**	=		**159,598.25**	LE	

04/13/96

"ADMIN." LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
OFFICE EQUIPMENT		**Photocopiers**					
1.00	1	PHOTOCOPIER, MODEL 1025, SERIAL NO. 2110183634	1.00	4425.000	4,425.00	XEROX EGYPT	ADMIN
2.00	1	PHOTOCOPIER, MODEL 1020, SERIAL NO. 2108028060	1.00	4405.000	4,405.00	XEROX EGYPT	ADMIN
6.00	2	PHOTOCOPIER, MODEL 5046, SERIAL NO. 3349100	1.00	33265.000	33,265.00	XEROX EGYPT	ADMIN
32.00	1	PHOTOCOPIER, MODEL 1028 SERIAL NO. 17499	1.00	15215.000	15,215.00	XEROX EGYPT	ADMIN
44.50	1	PHOTOCOPIER MODEL 1025, SERIAL NO. 211044458	1.00	15215.000	15,215.00	XEROX EGYPT	ADMIN
59.00	1	PHOTOCOPIER, MODEL 1028, SERIAL NO. 2520144199	1.00	16740.000	16,740.00	XEROX EGYPT	ADMIN
70.00	1	PHOTOCOPIER, MODEL 1025Z, SERIAL NOs. 147864 & 147945	2.00	19350.000	38,700.00	XEROX EGYPT	ADMIN
110.00	1	PHOTOCOPIER, MODEL 5065, SERIAL NO. 2404627	1.00	88200.000	88,200.00	XEROX EGYPT	ADMIN
	2	PHOTOCOPIER, MODEL 5030, SERIAL NOs. 613971 & 608781	2.00	32301.000	64,602.00	XEROX EGYPT	ADMIN
232.00	2	PHOTOCOPIER, MODEL 1025, SERIAL NO. 177720	1.00	19000.000	19,000.00	XEROX EGYPT	ADMIN
		Total **Photocopiers**	=		**299,767.00** LE		
OFFICE EQUIPMENT		**Fax Machines**					
7.00	1	FAX MACHINE, MODEL 7010, SERIAL NO. 3204486939	1.00	7550.000	7,550.00	XEROX EGYPT	ADMIN
93.00	1	FAX MACHINE, MODEL 7033, SERIAL NO. 8368511	1.00	16200.000	16,200.00	XEROX EGYPT	ADMIN
232.00	1	FAX MACHINE MODEL 7024, SEIAL NO. 155189	1.00	11900.000	11,900.00	XEROX EGYPT	ADMIN
		Total **Fax Machines**	=		**35,650.00** LE		
OFFICE EQUIPMENT		**TypeWriters**					
5.00	1	TYPEWRITER, ARABIC, SERIAL NO. 32003	1.00	1435.000	1,435.00	PIROGRAPHIX	ADMIN
6.00	1	TYPEWRITER, ENGLISH, MODEL 6018	1.00	2350.000	2,350.00	XEROX EGYPT	ADMIN
14.00	1	TYPEWRITER, ENGLISH, SERIAL NO. 2405656771	1.00	2780.000	2,780.00	PIROGRAPHIX	ADMIN
22.00	1	TYPEWRITER, ARABIC	2.00	1500.000	3,000.00	PIROGRAPHIX	ADMIN
	2	TYPEWRITER, ENGLISH	2.00	2800.000	5,600.00	PIROGRAPHIX	ADMIN
34.00	1	TYPEWRITER, ARABIC/ENGLISH, MODEL , SERIAL NO. 51559725	1.00	2200.000	2,200.00	XEROX EGYPT	ADMIN
42.00	1	TYPEWRITER, ENGLISH/ARABIC, SERIAL NO. 51574105	1.00	1995.000	1,995.00	XEROX EGYPT	ADMIN
44.00	1	TYPEWRITER, ENGLISH/ARABIC, SERIAL NO. 51576475	1.00	1995.000	1,995.00	XEROX EGYPT	ADMIN
44.50	2	TYPEWRITER, ENGLISH/ARABIC,(FREE). MODEL 6001, SERIAL NO. 51575586	1.00	1995.000	1,995.00	XEROX EGYPT	ADMIN
86.00	1	TYPEWRITER, ARABIC/ENGLISH, MODEL 6001, SERIAL NOs. 51615959 & 6218247	2.00	2850.000	5,700.00	XEROX EGYPT	ADMIN

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USAID FUNDED

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
MEDICAL EQUIPMENT		**Lab. Equipment**					
34.50	2	ALARM CLOCK	67.00	22.000	1,474.00	MEDICA LAB SCIENTIFIC OFFICE	CS
250.00	1	ALARM CLOCK	50.00	85.000	4,250.00	DESK GROUP	CS
393.00	2	ALARM CLOCK	50.00	48.000	2,400.00	ALKAN	CS
248.00	3	BUNZEN BURNER	49.00	9.000	441.00	BECRON CO.	CS
391.00	2	BUNZEN BURNER	50.00	13.750	687.50	BECRON CO.	CS
29.00	1	CENTRIFUGE	30.00	800.000	24,000.00	MEDICA LAB SCIENTIFIC OFFICE	CS
36.00	2	CENTRIFUGE	37.00	800.000	29,600.00	MEDICA LAB SCIENTIFIC OFFICE	CS
49.00	1	CENTRIFUGE	7.00	800.000	5,600.00	MEDICA LAB SCIENTIFIC OFFICE	CS
108.00	1	CENTRIFUGE, BRAND FISHER, MODEL 228	22.00	3600.000	79,200.00	UNITED CO. FOR SNTFC EQUIPMENT	CS
302.00	1	CENTRIFUGE, MODEL JOUUN BBVV BENCH TOP	50.00	3050.000	152,500.00	ALKAN	CS
393.00	3	CENTRIFUGE	25.00	3050.000	76,250.00	ALKAN	CS
35.00	1	COLORIMETER	50.00	1400.000	70,000.00	ALKAN	CS
35.50	1	COLORIMETER	17.00	1400.000	23,800.00	ALKAN	CS
29.00	2	ELECTRIC OVEN	17.00	800.000	13,600.00	MEDICA LAB SCIENTIFIC OFFICE	CS
36.00	3	ELECTRIC OVEN	50.00	800.000	40,000.00	MEDICA LAB SCIENTIFIC OFFICE	CS
29.00	4	HOLDER FOR R B C's RATE	67.00	55.000	3,685.00	MEDICA LAB SCIENTIFIC OFFICE	CS
101.50	1	HOLDER FOR SEDEMINTATION RATE, STAINLESS STEEL	48.00	60.000	2,880.00	MEDICA LAB SCIENTIFIC OFFICE	CS
102.00	1	HOT AIR OVEN, 80 LTRS	45.00	880.000	39,600.00	SERVOTEC	CS
252.00	2	HOT AIR OVEN	49.00	990.000	48,510.00	MEDICA LAB SCIENTIFIC OFFICE	CS
397.00	2	HOT AIR OVEN, 80 LTRS	25.00	1100.000	27,500.00	MEDICA LAB SCIENTIFIC OFFICE	CS
18.00	1	MICROSCOPE, BINOCULAR	1.00	2640.000	2,640.00	AL GOMHOURIA CO.	CS
26.50	1	MICROSCOPE, MEDICAL	67.00	2640.000	176,880.00	AL GOMHOURIA CO.	CS
104.00	1	MICROSCOPE, BINOCULAR	47.00	3270.000	153,690.00	MISR FATRAMO	CS
252.00	1	MICROSCOPE, BINOCULAR	49.00	1900.000	93,100.00	MEDICA LAB SCIENTIFIC OFFICE	CS
398.00	1	MICROSCOPE, BINOCULAR	25.00	1750.000	43,750.00	MISR FATRAMO	CS
253.00	1	ORDINARY BALANCE	43.00	134.000	5,762.00	MISR FATRAMO	CS
88.50	1	SCALE,SENSETIVE PHARMACY BALANCE W/GLASS CASE	30.00	150.000	4,500.00	MEDITERRANEAN INTL TRADING	CS
391.00	1	SEDEMENTATION RATE RACK	50.00	45.000	2,250.00	BECRON CO.	CS
248.00	2	SEDIMENTATION RATE RACK W/ 10 GRADUATED PIPETTES	48.00	54.000	2,592.00	BECRON CO.	CS
509.00	1	SENSITIVE SCALE	25.00	100.000	2,500.00	MEDICA LAB SCIENTIFIC OFFICE	CS
83.00	1	SPECTROPHOTOMETER, DIGITAL SINGLE BEAM, MODEL SP 20 D	44.00	5937.500	261,250.00	TACO CO.	CS

"CS" LOCAL PROCUREMENT BY CATEGORY

USAID FUNDED

LPO02

PO#	Line	Item	Qty	U.Price	T.Price	Supplier	Comp.
MEDICAL EQUIPMENT		**Lab. Equipment**					
303.00	1	SPECTROPHOTOMETER, MILTON ROY, SPECTRONIC 20 D	50.00	6015.000	300,750.00	TACO CO.	CS
399.00	1	SPECTROPHOTOMETER, MILTON ROY, SPECTRONIC 20 D	25.00	5454.000	136,350.00	TACO CO.	CS
34.50	1	STOP WATCH	67.00	19.000	1,273.00	MEDICA LAB SCIENTIFIC OFFICE	CS
38.50	1	TOP LOADING BALANCE	67.00	180.000	12,060.00	MEDICA LAB SCIENTIFIC OFFICE	CS
252.00	3	URINOMETER	50.00	7.500	375.00	MEDICA LAB SCIENTIFIC OFFICE	CS
389.00	3	URINOMETER	50.00	7.000	350.00	AL REDA EGPTN CO.	CS
29.00	3	WATER BATH	15.00	700.000	10,500.00	MEDICA LAB SCIENTIFIC OFFICE	CS
36.00	1	WATER DISTILLER	67.00	850.000	56,950.00	MEDICA LAB SCIENTIFIC OFFICE	CS
	4	WATER BATH	52.00	700.000	36,400.00	MEDICA LAB SCIENTIFIC OFFICE	CS
102.00	2	WATER BATH	47.00	600.000	28,200.00	SERVOTEC	CS
103.00	1	WATER DISTILLER 1.9 L/HR MODEL 1007A	22.00	4250.000	93,500.00	TECHNOCITE CO.	CS
248.00	1	WATER BATH, W/ 2 STAINLESS STEEL RACKS & A THERMOMETER	49.00	770.000	37,730.00	BECRON CO.	CS
397.00	3	WATER BATH, 6 LTRS	25.00	500.000	12,500.00	MEDICA LAB SCIENTIFIC OFFICE	CS
		Total **Lab. Equipment**	=		**2,121,829.50** LE		
MEDICAL EQUIPMENT		**NeoNatal Care**					
76.00	1	AMBUBAG, BRAND: NEW CROSS	80.00	400.000	32,000.00	MEDITERRANEAN INTL TRADING	CS
300.00	1	BILIRUBIN STAT. ANALYZER, ADVANCED, MODEL BR2 A	80.00	13431.000	1,074,480.00	SSC TRADING & SERVICES	CS
219.00	1	BLOOD SUGAR ANALYZER	80.00	450.000	36,000.00	ALKAN	CS
333.00	1	CENTRIFUGE	80.00	2900.000	232,000.00	ALKAN	CS
441.00	1	FEATOSCOPE	250.00	4.000	1,000.00	COMMERCIAL TRADING OFFICE	CS
75.00	1	LARYNGSCOPE	20.00	242.000	4,840.00	AL GOMHOURIA CO.	CS
90.50	1	LARYNGSCOPE	50.00	92.000	4,600.00	TONY MEDICO	CS
572.00	1	MANOMETER	40.00	27.000	1,080.00	AL FATEMIYA CO. FOR TRADE & DS	CS
18.00	2	PELVIC & DOLL MODEL	10.00	755.000	7,550.00	AL GOMHOURIA CO.	CS
96.00	1	PHOTOTHERAPY UNIT	70.00	2350.000	164,500.00	SAMCO ENGINEERING AGENCIES	CS
234.00	1	PHOTOTHERAPY UNIT	70.00	1100.000	77,000.00	SAMCO ENGINEERING AGENCIES	CS
111.00	1	RESUSCITATOR FOR NEONATAL	10.00	5800.000	58,000.00	SAMCO ENGINEERING AGENCIES	CS
234.00	2	RESUSCITATOR FOR NEONATAL	70.00	6750.000	472,500.00	SAMCO ENGINEERING AGENCIES	CS
571.00	1	STETHOSCOPE	40.00	9.500	380.00	AL ANWAR CO. FOR MED.	CS
212.00	1	SUCTION MACHINE FOR NEONATAL CARE	80.00	2350.000	188,000.00	SAMCO ENGINEERING AGENCIES	CS

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Local Procurement Summary for the Project Components

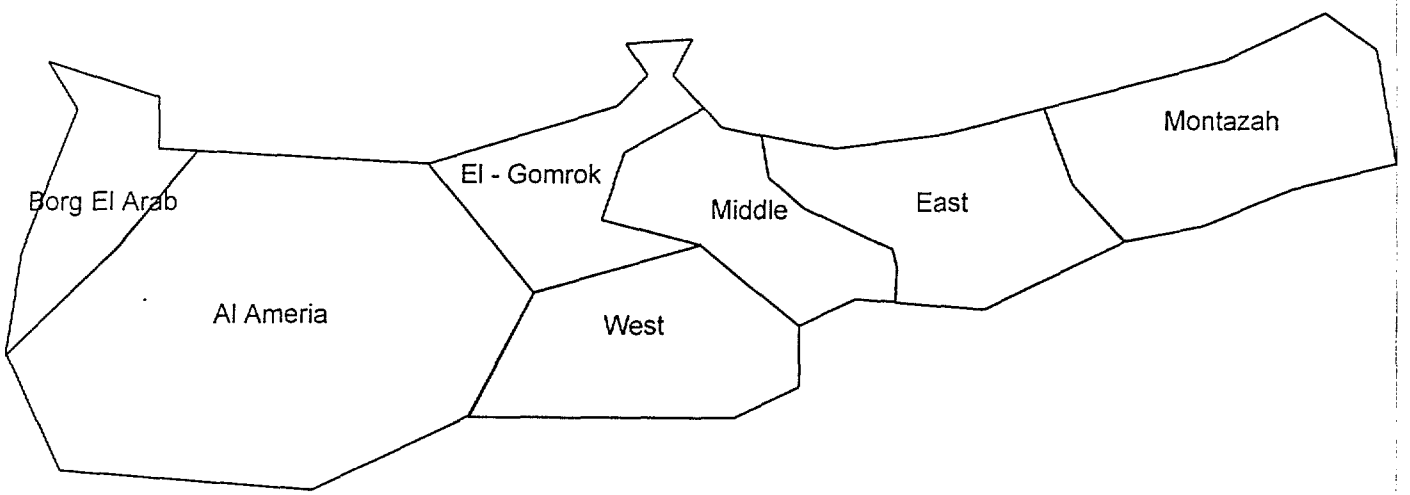
Egyptian Pounds (£E)

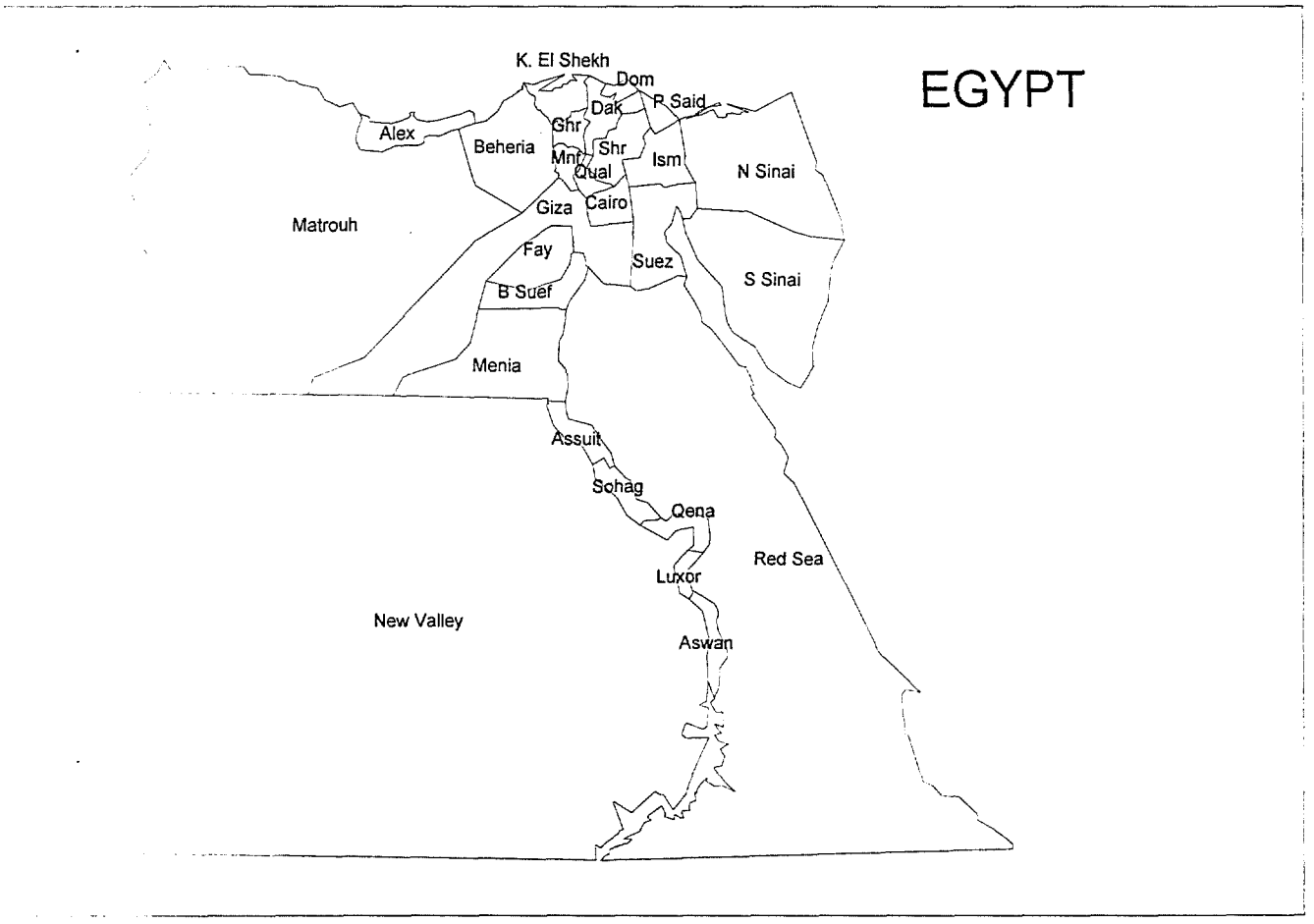
Category	ARI	EPI	CS	GDDDC	CSP	Totals
Plastic Syringes		12,018,417				12,018,417
Medical Equipment	813,930		8,983,405			9,797,335
Medical Supplies	535,394	76,300	1,396,990	170,309		2,178,993
Cold Chain	19,350	1,518,395				1,537,745
Audiovisual Aids	231,931	2,385		29,500	159,598	423,415
Office Equipment					2,205,040	2,205,040
Office Furniture					379,744	424,434
Office Supplies				44,690	449,038	460,453
Tools (Repair/Maintenance/Safety)	33,635	11,664		11,415	43,230	88,528
Totals	1,634,240	13,627,161	10,380,395	255,914	3,236,650	29,134,360

Annex 11

GOVERNORATE DATA SHEETS

Alexandria




EGYPT
K. El Shekh
Dom
P Said
Dak
Ghr
Alex
Beheria
Shr
Mnf
Qual
Ism
N Sinai
Cairo
Giza
Matrouh
Fay
Suez
S Sinai
B Suef
Menia
Assuit
Sohag
Qena
Red Sea
Luxor
New Valley
Aswan

4. TT Immunization Trends (of Pregnant Women) in Alexandria

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	
1987*			11.6
1990*			73.4
1993#	na	na	60
1994#	24,903	22,237	102
1995#	31,236	27,309	77

*Cluster surveys - TT2 coverage among mothers of children 0-11 mos. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Alexandria

	1991	1992	1993	1994	1995
Polio Cases	21	13	6	4	2
NNT Cases*	81	42	44	25	30

*Two districts failed to achieve NNT elimination (<1 case per 1000 live births) in 1995

6. Polio and NNT Cases and Immunization Coverage by Health Zones

	Births 1995	1995 Cases of Polio	NNT	- - Immunization Coverage Attained in 1995- - - BCG	Measles	HB3	OPV3	DPT3	TT2+
Montazah	15979	1	4	108	107	105	106	105	71
Sharq	16040	1	5	103	100	101	103	101	66
Wasat	15879	0	2	76	70	70	70	69	55
Gomrok	4972	0	0	80	81	87	87	87	76
Gharb	11303	0	3	109	79	79	79	78	124
Amreya	11245	0	14*	101	96	95	95	91	79
Borg	1190	0	2*	144	148	132	132	132	100
Total	76608	2	30	98	91	91	91	90	76

* NNT Incidence exceeds 1 per 1000 live births ;(goal is <1 per 1000 live births.).

C. ARI Control Program in Alexandria Governorate

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI program in Alexandria was initiated in 1989 and is established in all health districts and most MOH health facilities in the Governorate.

1. Status of the Program - End 1995

- Public access to standard case management is estimated at 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 77%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-9950) 57,054

*pneumonia, severe pneumonia, and very severe disease- Min. no. expected cases annually:38,000)

6. Distribution of Health Facilities by Health Zones

Health Zones (7)	Population* (1993)	Hospitals and Primary Health Care Facilities#							
		GH	DH	FH	PH	MCH	UHC	RHC	RHU
Montazah	713,738	1	1	0	1	2	1	0	4
Shark(East)	867,612	0	0	0	0	1	3	1	0
Wasat	728.419	0	0	1	0	2	0	1	2
El Gomrak,	254,987	1	0	0	1	2	0	0	0
Gharb(West)	572,292	2	0	0	1	1	1	0	0
El Amreya	267,717	1	1	0	0	1	1	0	13
El Burg El Arab	26,474	0	0	0	0	0	1	0	11
Total	3,431,239	5	2	1	3	9	7	2	30

*Population data from EPI Basic Data Book, August 1994. #Compiled in the ARI Data Base: GH-General Hospital; DH-District Hospital; FH-Fever Hospital; and . PH-Pediatric Hospital.

B. Expanded Program of Immunization in Alexandria

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

- No. of vaccination units as of December 1995 — 79
- No. Cold Chain deep freezers (13) and refrigerators(159) April 1995 — 172
- Central Governorate Vaccination Storage Facility — 1
- District vaccination storage facilities — 7
- Cold chain repair and maintenance work shop — 1

2. EPI Training - 1989-95

PHC Physicians	1003
PHC Nurses	870
Sanitarians	210
Clerks	170
Total	2353

*Including health managers

3. Infant Immunization Coverage Trends in Alexandria Governorate

	BCG	Measles	HB	OPV3	DPT3
1987*	98	95.5	0	97	97
1990*	98	95.2	0	97	97
1993#	92	87	69	85	85
1994#	95	94	92	91	91
1995#	98	91	91	91	90

*Cluster Surveys - vaccination coverage of infants, 12-23 months #EPI Service Statistics

May 1996

ASSIUT Governorate - Health and Child Survival Data

Covering EPI, ARI, CS/MCH and Cross Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan 1995 est. by CAPMAS) - 28% urban.....2,843,000
1994 Births/Women needing maternal services.....94,712
Women of Reproductive age (22% of 1994 pop.).....625,000
No. of children under 5 years of age [1994 est.].....450,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Assiut	18923*	10396	10084		17	2
Manfalout	12052	12673	12126	1	7	1
El Kousya	10425	10687	9743		10	1
Dairot	2833	12761	12886	2	20	4
Abu Tig	7295	7362	7299	1	9	1
Sedfa	4199	4379	3849			
Abnoub	8666	8561	8452	2	14	3
El Fath	6199	6348	6312	3	13	4
Sahel Selim	3750	3766	3742		1	
El Badari	6008	5798	5797		13	
El Ghaneiem	2907	3206	2863		1	1
Assiut Gharb	*	6024	6402		1	
Assiut Sharq	*	2751	2640			
Total	93,257	94,712	92,195	9	106	17

* Assiut Gharb and Assiut Shark were included with Assiut District in 1993.

3. Mortality Data

	1987*	1992*	1995#	Change 87-92	---All Egypt-- 1992	1995
Infant Mortality(adjusted data)	93.0	63.0	na	- 32%	41.0	32.0
Child (1 thru 4) mortality	9.1	6.7	na	- 26%	4.0	3.2

CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children # CSP estimate

4. Health Facilities

Health Bureau (Vital Statistics/Vaccination)	15
MCHs - 13 and UHCs - 5	18
RHCs - 13, rural hospitals - 22 and RHUs - 114	149
General (2), district(9) and fever (6)hospitals	17
University Hospitals	1
Health education offices	11

5. MOH Health Agents

No. of PHC physicians.....471
No. of MOH nurses.....1730
No. of hospital based pediatricians.....28
No of Health Education staff.....18

6. Distribution of Health Facilities by Health Districts

Districts (13):	Population*	------Hospitals and Primary Health Care Facilities in Assiut#---							
		GH	DH	FH	MCH	UHC	RH	RHC	RHU
1. Assiut Center	210,554	2	0	1	0	0	3	3	18
2. Assiut Gharb	73,833	0	0	0	2	1	0	0	0
3. Assiut Sharq	140,101	0	0	0	3	1	0	0	0
4. Manfalout	201,684	0	1	1	1	0	3	1	13
5. El Kousya	274,798	0	1	1	1	0	1	2	18
6. Dairot	240,717	0	1	1	1	1	1	2	16
7. Abu Tig	223,987	0	1	0	1	0	0	5	6
8. Sefta	127,272	0	1	1	1	0	0	3	5
9. Abnoub	237,033	0	1	0	1	0	2	0	10
10. El Fath	182,192	0	0	0	0	1	1	3	7
11. Sahel Selim	113,266	0	1	1	1	0	0	1	11
12. El Badari	169,829	0	1	0	1	0	2	1	6
13. El Ghaneiem	98,028	0	1	0	0	1	0	1	4
Total	2,393,294*	2	9	6	13	5	13	22	114

* Source: August 1994 EPI Basic Data Book. # Source: Assiut Governorate
GH-General Hospital; DH-District Hospital; FH-Fever Hospital

B. Expanded Program of Immunization in Assiut

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

- No. of Vaccination Centers as of December 1995 — 178
- No. of Deep Freezers (19) and refrigerators(549) as of December 1995 — 568
- Central Governorate Vaccination Storage Facility — 1
- District Vaccination Storage Faculties — 7
- Cold Chain Repair and Maintenance Work Shop — 1

2. EPI Training - 1989-95

	Total
PHC Physicians	1178
PHC Nurses	1132
Sanitarians	625
Clerks	163
Total	1098

*Including health managers

at the Montaza Model Clinic. ARI conducted a seminar on ARI Control for staff of the High Institute of Nursing.CSP has initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 37 teaching staff in 11 secondary schools and provided reference materials for teaching in these schools during 1994. ARI trained 20 teaching staff in 3 secondary schools and provided teaching reference materials for teaching.

E. Project-Wide Child Survival Interventions in Alexandria

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management. A five day workshop on planning, budgeting and management for child survival was conducted out in the governorate in 1994.

2. Decentralized Health Information System in Alexandria

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1994-95. Installation of the system included the supply of hardware and software, and training for governorate staff. Alexandria put the system into effect starting in 1995.

3. Clinic Management Improvement Program:

- Initiated by establishment in 1994 of a model clinic in Montaza UHC.
- 1996-97 Plan: - Provide practical training in primary health care organization, management and service delivery for medical and High Institute of Nursing students

  - Extend clinic management improvement program to all maternal child health care and urban health centers

4. Mobilization of Health Education Offices

- Training of 6 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- Training of 41 health education officers and physicians in key messages for the ARI Control Program during 1994 and 1995.
- Distribution of health education materials prepared by CSP (videos, posters, CSP Flip Chart) in 1996.
- An important asset to health education offices that has been developed is the availablility of trained dayas as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6.. Pre-Service Training for Medical and High Institute of Nursing Students

CSP and the Governorate have made provision for training medical students and interns and High Institute of Nursing students in primary health care organization and service delivery

May 1996

Alexandria -Health and Child Survival Programs Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (1994) - urban governorate	3,431,000
Births/Women needing maternal services (1994)	75,810
Women of Reproductive age (22% of 1994 pop.)	754,000
Children under 5 years of age (1994 est.)	375,000

2. Births by Health Zones(1993, 1994, 1995)

	1993 Births	1994 Births	1995 Births	P	T	AFP
• Montaza Zone:	15789	15978	15979	1	4	2
• Shark Zone:	15909	15863	16040	1	5	5
• Wasat Zone:	16212	15852	15879		2	2
• Gomrok Zone:	5781	5087	4972			
• Gharb Zone:	11413	11431	11303		3	1
• El Amreya Zone:	9814	10569	11245		14	4
• El Borg Zone*:	1048	1030	1190		2	1
Total	75,360	75,810	76,608	2	30	15

*El Borg, previously a part of Matrouh governorate, was included as in Alexandria in 1993.

3. Mortality Data

	1987*	1992*	1995#	Decline 1987-95	------All Egypt------ 1987	1992	1995
Infant Mortality(adjusted data)	41.0	26.0	27.0	- 34%	60	41	32
Child (1 thru 4) mortality	3.3	0.9	0.76	- 77%	7.4	4.0	3.2

CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP Estimate.

4. Health Facilities

Health Bureau (Vital Statistics/Vaccination)	31
MCHs - 16 and UHCs - 7	23
RHCs - 2, rural hospitals - 0 and RHUs - 30	32
General, district and fever hospitals	8
Health education offices	6

5. MOH Health Agents

No. of PHC physicians.....900
No. of MOH nurses.....600
No. of hospital based pediatricians.....110
No health education staff.....50

May 1996

CSP Data Sheet on Alexandria Governorate

Population	Total (Jan 1995 CAPMAS est.) - urban governorate	3,431,000
	Births/Women needing maternal services (1994)	75,810
	Births/Women needing maternal services (1995)	76,608
	Women of Reproductive age (22% of pop.)	754,000
	Est. no. of children under 5 years of age (1994 est.)	375,000
Health Facilities	No. of Health Bureaux (Vital Statistics/Vaccination)	31
	No. of MCHs - 9 / UHCs/MCHs - 7	16
	No. of RHCs - 2, rural hospitals - 0 and RHUs - 30	32
	No. of general hospitals(5), district(2) and fever (1) hospitals	8
	No. health education offices	6

7 Zones/Births (1993, 1994, 1995) • Montaza (15789/15978/15979), Shark (15909/15863/16040), Wasat (16212/15852/15879), Gomrok (5781/5087/4972), Gharb (11413/11,431/11303), El Amreya (9814/10569/11245), El Borg (1048/1030/1190) • Wasat failed to attain 80% vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....900
No. of MOH nurses.....600
No. of hospital based pediatricians.....110
No health education staff.....50

Mortality Data

	1987*	1992*	1995#	Change 87-95	---All Egypt-- 1992	1995
Infant Mortality(adjusted data)	41.0	26.0	27.0	- 34%	41.0	32.0
Child (1 thru 4) mortality	3.3	0.9	0.76	- 77%	4.0	3.2

*Capmas estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program: Initiated with establishment in 1994 of a model clinic in Montaza UHC.

Expanded Program of Immunization

No. of vaccination units.....79
No. of Cold Chain deep freezers (13) and refrigerators(159) - April 1995.....172
No. of PHC staff trained in EPI, 1989-1995.....2,352
Pregnant women routinely immunized TT2 in 1994.....24,903
Pregant women routinely immunized TT2 in 1995.....31,236
Pregnant women routinely immunized TT3/4/5 in 1994.....22,237
Pregnant women routinely immunized TT3/4/5 in 1995.....22,582

1993/94/95 Infant Vaccination Coverage (%): BCG-92/95/98 DPT3-85/91/90
TT2+-60/63/77 Measles-87/94/91 HB3- 69/92/91 OPV3-85/91/91

Polio Cases	1991- 21	1992- 13	1993- 6	1994 - 4	1995 - 2
NNT Cases*	1991- 81	1992- 42	1993- 44	1994 -25	1995 - 3

* All zones except Borg and El Amreya achieved NNT elimination (<1 case per 1000 live births) in 1995.

ARI Program • Initiated in 1991 • 1915 health agents trained (126 pediatricians, 1094 physicians, 540 nurses, 155 other) • 57,054 children aged <5 years treated for severe ARI in MOH outpatient facilities in 1995 (9950 cases in 1994) • Compliance in ARI case registration - 77% • ARI Public Access>90%.

MCH Program • 887 PHC physicians trained, 1991-95. • 280 dayas trained, 1991-95 - 89 physicians and nurses trained as daya trainers and supervisors • 138 nurses trained, 1992 • 675 physicians and 600 nurses and dieticians trained in nutrition, 1990-91 • 14 MCH laboratories up-graded by CSP in 1992; 44 lab technicians trained • Governorate training program for midwives on-going • 13 UHC centers up-graded under previous USAID funded Urban Health Project • Pregnant women receiving antenatal care (first visit) in MOH facilities in 1992-13,754=19% - 14,091 new and 30,004 repeat ANC visits in 1993 • 6 neonatal care centers developed - 57 physicians and 22 nurses trained - 962 neonates treated in 1995. • 48 physicians and 40 nurses trained in neonatal resuscitation, 1995. • Baby Friendly Program initiated in 1993 with UNICEF • Maternal mortality assessment carried out in 1992/93-MMR-281 (90% confidence range (216-366) - National MMR-174. • 4 delivery rooms being up-graded - 20 obstetricians trained, 1994.• Proportion of deliveries managed by a physician or trained birth attendant - 85% (1993 estimate).

8. ARI Training Facilities Established in Alexandria

- For pediatricians: -Alexandria University El Shatbi University Hospital Center
- For PHC staff: -El Raml Pediatric Hospital Center
  -El Enfoshi Hospital Center

9. ARI Training Accomplished in Alexandria

	Thru 1992	In 1993	In 1994	In 1995	Total 1989-95
Managers	5	4	0	0	9
Specialists	73	0	53	0	126
PHC Physicians	840	58	160	36	1094
Nurses	60	320	160	0	540
Pharmacists	0	0	57	0	57
Model Clinic Training	0	0	38	10	48
Nursing School Teachers	0	0	0	20	20
Health Education Officers	0	0	0	41	41
	978	362	468	107	1915

10. ARI Cases Registered

	1993:	1994	1995	Percentage 1993	1994	1995	Sentinel
Very Severe Disease	107	579)		0.35	0.59)		0.70
Severe Pneumonia	285	993)	57054	0.94	1.02)	21.88	1.70
Pneumonia	2885	8378)		6.19	8.60)		7.80
Otitis Media	2289	9380		7.51	9.63		8.30
Pharyngitis	10525	38767		34.55	39.81		26.20
Cough/Cold/Bronchitis	15374	39293		50.46	40.35		50.00
Total	30465	97390	260729	100.00	100.00	100.00.	100.00

D. The Child Spacing and MCH Program in Alexandria

The overall target for the Child Spacing and MCH Program was to develop and expanded and improved MCH system reaching pregnant women and providing for neonatal care in order to reduced maternal and child mortality and morbidity.

1. Facilities Development

. Districts Developed To Establish and Sustain the Daya Program

- 89 physicians and nurses were trained to monitor, supervise and train dayas in 4 of the districts: Wasat, Gomrok, Sharq and Montaza.

The 280 dayas trained in these districts provide for an extension of primary health outreach for mother and infant health in the urban communities of Alexandria, as well as the safer deliveries by trained birth attendants.[1] Alexandria Governorate received 300 delivery kits for use in the daya program.

[1]The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant is estimated at.

2. Health Facilities With ARI Standard Case Management Installed (estimated as of December 1995)

- Primary Health Care Facilities (Total, all - 48) 44 (est. 90%)
- Hospitals (Total targeted - 14) 12 (est. 85%)

3. Equipment Supplied for Health Facilities

- 378 respiration timers
  10 oxygen concentrators
  16 oxygen cylinder sets
  19 nebulizers
  1 oximeter
  400 otoscopes

4. ARI Drugs Supplied to Alexandria by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	18000	47400	44400	74276	57028
of which Amox 125 ml	--	(12100)	(16600)	(13196)	(18238)
Paracetamol 120 cm	6000	13800	16300	7800	7800
Expectorant	6000	13100	--	--	--
LA Penicillin	2000	--	--	6200	4133
Salbutamol Syrup	-	--	--	--	7800

5. ARI Hospitals Targeted

14 hospitals have been and are being targeted for installation of ARI standard care management (listed below). Inputs have included training equipment and monitoring/advisory visits. The ARI program thorugh the Child Survival Project is providing additional ARI equipment for hospitals in 1996.

ARI Hospitals Targeted in Alexandria

1. Rambley Pediatric Hospital
2. An Foshi Pediatric H. (El Gomrak District)
3. Fawzi Mohaz Pediatric Hospital
4. Jumhuriat General H. 9Gharb District)
5. Shark El Medina General H.(Montaza District.)
6. El Kaberi General Hospital.(Gharb District)
7. Dar Ismailia Hospital
8. Abu Keer District Hospita l(Montaza District)
9. El Ramel Children's Hospital (Shark District.)
10. Alexandria Fever Hospital (Wasat D.)
11. Ras El Teen General Hospital (El Gomrok District)-
12. El Amreya District Hospital (El Amreya D)
13. El Agmy General ? Hospital (El Amreya District) ?
14. Mamura Chest Hospital

6. ARI Up-graded Laboratory Facility

The laboratory in Alexandria's Fever Hospital has been up-graded and is scheduled to become part of a national ARI microbial resistance surveillance network.

7 ARI Health Education

Being developed by the ARI Control Program with the Health Directorate and its Health Education Offices.

1992	73707)	1957)		24.5	588	1.86b
1993	75362)	2186b)			520	
1994	75221) 75731a	1694)	1940a	25.6a	456	
1995	76610)	1941)		25.3	470	1.56b
Change from 1992 to 1995				+ 3.2%		- 16.2%

a-three year average b calculated by dividing deaths in the year by birth in the year and in the preceding three years. e-estimated by averaging

ALEXANDRIA

Table 1

Trends in Registered and Adjusted Infant Mortality Rates (IMR) and Child Mortality Rates For Alexandria Governorate

	1987*	1992*	% Change 1987-92	1995**	% Change 1987-95
Registered IMR(a)	38	26	- 32%	27	- 29%
Adjusted IMR (a)	41	26	- 37%	27	- 32%
CMR (b)	3.3	0.9	- 73%	0.75	- 77%

*CAPMAS Published Data
** Estimated by MOH/CSP based on Governorate Vital Statistics
a) Infant deaths per 1000 live births; adjusted IMR adjusts for under reporting of deaths
b) Child deaths (aged 1 thru 4) per 1000 children aged 1 thru 4.

Table 2 Infant and Child Mortality in ALEXANDRIA

	Number of Live Births	Number of. Infant Deaths	Avg	IMR	No of 1 thru 4 Deaths	Avg	CMR or index
CAPMAS Published Data on Registered Births, Deaths, IMR and CMR							
1985	95260	3254		34	888		3.3
1986	90688	3485		38	947		3.4
1987	97374	3673		38	951		3.3
1988	91331epi			32			2.5
1989	84670epi			26			2.3
87-89 average				32.0e			2.70e
1990	80672epi			25			2.1
1991	78083epi			26			1.3
1992				26	586		0.9
1990-92 average				25.7e			1.43e
1995 (MOH/CSP estimate)				26.8			0.75

Vital Statistics From Alexandria Health Directorate

Year	Births	Infant Deaths		Reg'd IMR	Child Deaths	Crude Index of CMR (b)
1987	92684	3194)			827	
1988	92420	2934)	2819a		775	
1989	84112	2329)			721	
1990	80777)	2096			687	

C. ARI Control Program in Assiut

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1990 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 85%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 90%
- Children Treated For Severe ARI* - in 1995 (number in 1994-30831) _____

*pneumonia, severe pneumonia, and very severe disease- Min. no. expected cases annually: 38.000)

2. Assiut Health Facilities With ARI Standard Case Management Installed (estimated as of Dec 1995)

- Primary Health Care Facilities (Total targeted - 167) 150 (est. 90%)
- Targeted Hospitals (Total targeted - 17) 14 (est. 82%)

3. ARI Equipment Supplied (Through 1995)

- 899 respiration timers
- 10 oxygen concentrators
- 16 oxygen cylinder sets, 12 nebulizers, and 220 otoscopes

4. ARI Drugs Supplied to Assiut by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250 and 125 ml)	17500	37900	46300	75452	56331
[of which Amox 125 ml]	(0)	(9500)	(17300)	(13164)	(17419)
Paracetamol 120 cm	3500	14600	17000	8200	8200
Expectorant	3000	12900	0	0	0
LA Penicillin	0	0	0	6500	4333
Salbutamol Syrup	0	0	0	0	8200

5. Up-graded ARI Laboratory Facility

The laboratory in Imam General Hospital has been up-graded and is scheduled to come part of a national ARI microbial resistance surveillance network.

6. ARI Health Education

The ARI program is working with the Health Directorate to intensify public health education for control of ARI.

7. ARI Hospitals Target

8. ARI Training Facilities Established in Assiut

- For pediatricians: -Assiut University Hospital Center
- For PHC staff: -El Imam General Hospital Center

3. Infant Immunization Coverage Attained in Assiut

	BCG	Measles	HB	OPV3	DPT3
1987*	58,2	76.6	na	84.1	81.1
1990*	67.8	79.0	na	79.5	78.1
1993#	101	97	83	97	97
1994#	100	95	95	96	96
1995#	99	97	97	97	97

*Cluster Surveys # EPI Service Statistics

4. TT Immunization (of Pregnant Women) Attained in Assiut

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5/	(Percent)
1987*			34.2
1990*			65.1
1993#	27,932	na	63
1994#	26,515	32,334	62
1995#	27,236	38,119	70

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Assiut

	1991	1992	1993	1994	1995
Polio Cases:	53	80	26	16	9
NNT Cases*	439	287	194	132	95

*Seven districts (of 13) have achieved NNT elimination (<1 case per 1000 live births).

6. Polio and NNT Cases and Immunization Coverage by District-1995

	Births	Cases of		- - Immunization Coverage Attained in 1995- - -					
		Polio	NNT	BCG	Measles	HB3	OPV3	DPT3	TT2
Assiut	10084	0	17*	102	100	98	98	98	74
Manfalout	12126	1	7	95	91	95	95	95	63
El Kousya	9743	0	10*	93	97	92	92	92	79
Dairot	12886	2	9	99	100	99	99	96	66
Abu Tig	7299	1	9*	95	93	92	92	91	65
Sefta	3849	0	0	103	99	98	98	98	83
Abnoub	8452	2	14*	91	93	95	95	95	69
El Fath	6312	3	13*	113	103	100	100	100	80
Sahel Selim	3742	0	1	98	92	96	96	96	70
El Badari	5797	0	13*	97	91	93	93	94	77
El Ghaneiem	2863	0	1	96	96	99	99	99	78
Assiut Gharb	6402	0	1	113	105	110	110	110	56
Assiut Sharq	2640	0	0	108	112	114	111	115	92
Total	92,195	9	95	99	97	97	97	97	70

* NNT Incidence exceeds 1 per 1000; goal is <1 per 1000 live births.

May 1996

CSP Data Sheet on Assiut Governorate

Population

Total (Jan 1995 CAPMAS est.) - 28% urban.....1,843,000
1994 Births/Women needing maternal services.....94,712
1995 Births/Women needing maternal services.....92,195
Women of Reproductive age (22% of 1994 pop.).....625,000
No. of children under 5 years of age [1994 est.].....450,000

Health Facilities

No. of Health Bureaux.....15
No. of MCHs-13/ Urban Health Centers-5.....18
No. of RHCs-13, rural hospital - 22, RHUs - 114.....149
No. of general hospitals(2), district (9) and fever (6) hospitals.....17
No. of Universities Hospitals.....1
No. of Health Offices.....11

Districts(13)/Births(1993/94/95) • Assiut (18923*/10396/10084), Manfalout (12052/12673/12126), El-Kousya (10425/10687/9743), Dairot (12833/12761/12886), Abu Tig (7295/7362/7299), Sedfa (4199/4379/3849), Abnoub (8666/8561/8452), El-Fath (6199/6348/6312), Sahel Selim (3750/3766/3742), El-Badari (6008/5798/5797), El-Ghaneiem (2907/3206/2863), Assiut Gharb(na/6024/6402), and Assiut Sharq (na/2751/2640).
*Includes Assiut Gharb and Assiut Shark.

MOH Health Agents

No. of PHC physicians.....471
No. of MOH nurses.....1730
No. of hospital based pediatricians.....28
No of Health Education staff.....18

Mortality Data

	1987*	1992*	1995#	Change 87-92	-------All Egypt------ 1987	1992	1995
Infant Mortality(adjusted data)	93.0	63.0	na	- 32%	60.0	41.0	32.0
Child (1 thru 4) mortality	9.1	6.7	na	- 26%	7.4	4.0	3.2

*Capmas estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program: Initiated in 1995/96 with establishment of a model clinic at Moubarak UHC

Expanded Program of Immunization

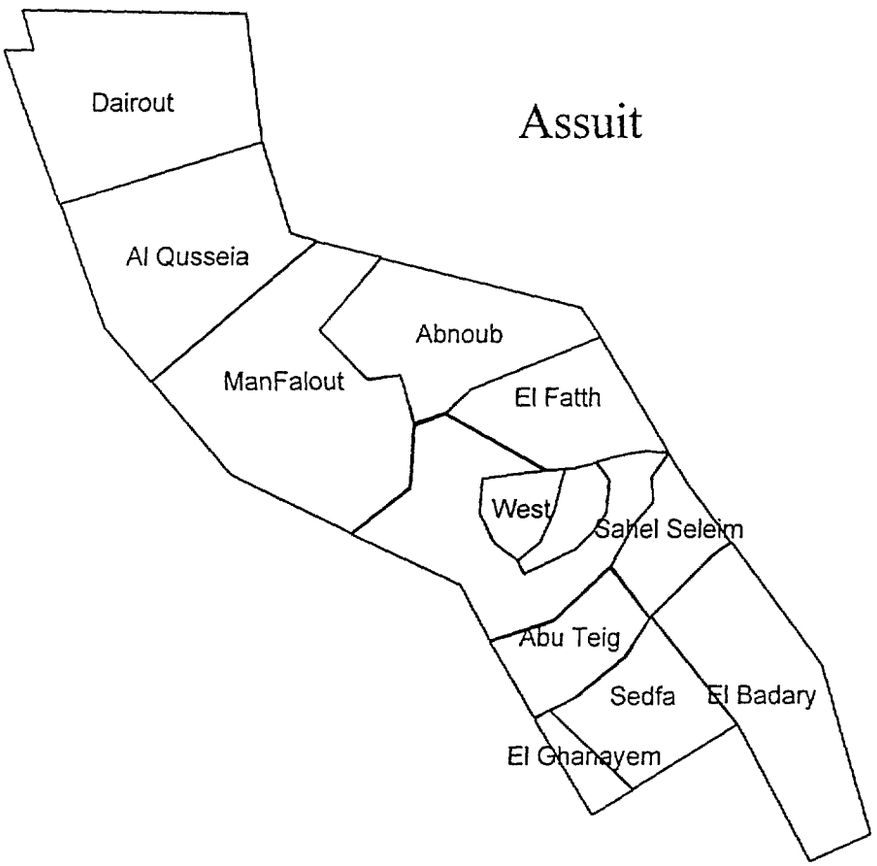
No. Vaccination units.....178
No. Deep freezers (23) and refrigerators (555)-April 1995 588
No. of PHC Staff Trained in EPI, 1989-95.....2,098
Infant/Child immunizations routinely in 1993 (vacc. rate 95%).....1,242,889
Women immunized TT2 in 1994 (27,932 in 1993).....26,516
Women immunized TT2 in 1995.....27,236
Women immunized TT3/4/5 in 1994.....32,334
Women immunized TT3/4/5 in 1995..... 38,119

Vaccination coverage: 1993/1994/1995 (%): BCG - 101/100/99 OPV - 97/96/97
TT2+-63/88/71 Measles - 97/95/97 HB3- 83/95/97 DPT3-97/96/97

Polio Cases: 1991 - 53 1992 - 80 1993- 26 1994- 16 1995- 9
NNT Cases*: 1991 - 439 1992 - 287 1993-194 1994-132 .....1995 - 95
*Seven districts (of 13) achieved NNT elimination (<1 case per 1000 live births) in 1995.

ARI Program • Initiated 1990 • 1381 health agents trained (57 pediatricians, 878 PHC physicians, 260 nurses, 186 others) • 21,996 cases of severe ARI in children <5 treated in MOH outpatient clinics in 1994 (30,831 cases in 1994) • Pop. access to SCM (est) > 85% •

CS/MCH Program • 151 PHC physicians trained in CS/MCH, 1991-96 • 1048 dayas trained (MOH/UNICEF)• 135 physicians and 261 nurses and dieticians trained in nutrition, 1989-91 • 14 MCH laboratories upgraded-36 laboratory technicians trained • Number/proportion pregnant women seeking ANC in MOH facilities not available • 5 neonatal intensive care centers established (19 incubators)-31 physicians and 15 nurses trained in neonatal care - 911 neonates treated in 1995 • 50 physicians trained in neonatal resuscitation, 1995.• UNICEF/MOH has introduced the Baby Friendly program • Maternal mortality assessment carried out in 1992/93 - MMR-543 (95% confidence interval, 409 to 720) - National MMR-174 • 11 first referral level delivery rooms being upgraded (in hospitals) - 15 obstetricians trained, 1995. • Proportion of deliveries managed by a doctor, nurse or trained daya > 90% (1993 est).


Assuit
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Sahel Seleim
Abu Teig
Sedfa
El Badary
El Ghanayem

b. MCH Laboratory Up-Grading Program

Fourteen laboratories in MCH centers in ten districts were up-graded by the provision of equipment and supplies, and training of laboratory staff:

1. Shirkit MCH	Assiut District
2. Gharb El Assiut MCH	Gharb Assiut District
3. El Walidia MCH	Assiut Gharb District
4. El Hamra MCH	Assiut District
5. Kadwani MCH	Assiut District
6. Dairot MCH	Dairot District
7. El Kolta MCH	Assiut District
8. Manfalout MCH	Manfalout District
9. Abou Tig MCH	Abu Tig District
10. Sefta MCH	Sedfa District
11. Abnoub MCH	Abnoub District
12. El Baderi MCH	Baderi District
13. Sahel Salem MCH	Sahel Salem District
14 El Ghaneiem MCH	El Ghaneiem District

c. Neonatal Care Program

Five first referral neonatal care centers were established and developed during 1991-95 in 4 of the 13 districts. Inputs including training, advisory services, development of service standards* and supplies and equipment.[1]

In 1995 the centers in Assiut provided first referral care for 917 neonates of whom 60% were referred. Admissions in 1995 covered about 16% of the estimated need of first referral care for 3100 infants in the four districts.[2] The number of LBW infants in the governorate in 1995 is estimated in the range 10,000-14000. The Health Directorate needs to develop the neonatal referral system further, support further establishment of additionsal district neonatal care centers and develop systematic use of standards to assure quality control in service delivery.

Neonatal Care Centers Established in Assiut Governorate, 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admissions in 1995
1. Assiut General	Assiut/10084	5	295
2. El Imam General	Assiut	4	171
3. Dairot District	Dairot/12886	5	269
4. El Badari District H.	El Baderi/5797	4	127
5. Sedfa District H.	Sedfa/3849	1	49
	4 Districts/32616	19	911

[1]Equipment included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.
[2]Need based on estimated proportion of LBW infants among births.

9. Training Accomplished in Assiut : 1990-95

	Thru 1991	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	na	5	14	0	0	19
Specialists	0	9	48	0	0	57
PHC Physicians	299	424	18	101	52	894
Nurses	0	0	80	120	132	332
Pharmacists	0	0	0	· 34	38	72
Secondary Nursing School Staff	0	0	0	0	23	23
Private physicians	0	0	0	0	29	29
Model Clinic Training	0	0	0	0	19	19
Health Education Officers	0	0	0	0	24	24
Laboratory specialists	0	0	0	0	4	4
Totals	299	438	160	255	297	1,449

10. ARI Cases Registered

	1993	1994	1995	----------Percentages----------			
	(number of cases)			1993	1994	1995	Sentinel
Very Severe Disease	)	542		)	.56		1.10
Severe Pneumonia	)24,352	2703		)31.1	2.77		4.60
Pneumonia	)	27586		)	28.30		13.10
Otitis Media	12,843	16288		16.48	16.27		8.80
Pharyngitis	16,354	19973		20.98	20.50		18.10
Cough/Cold/Bronchitis	24,495	30355		31.43	31.16		50.10
Total	77,944	97429		100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program in Assiut

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care.

1. Facilities Development

a. . Districts Developed To Establish the Daya Program

The MOH with UNICEF assistance trained physicians and nurses to monitor, supervise and train dayas in most districts of Assiut. The more than 1000 dayas trained in these districts provide for an extension of primary health outreach for mother and infant health in the urban communities, as well as the safer deliveries by trained birth attendants.The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant is estimated at. 90% (1993 estimate).

E Project-Wide Child Survival Interventions in Assiut

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, and training for governorate staff. Assiut is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Initiated in 1995-96 with establishment of a model clinic at Moubarak UHC.

- 1996-97 Plan: - Provide practical training in primary health care organization, management and service delivery for medical and High Institute of Nursing students

  - Extend clinic management improvement program to other MCH centers, urban health centers, rural hospitals and rural health centers.

4. Mobilization of Health Education Offices

- Training of _7_ officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.

- Training of 24 health education officers and physicians in key messages for the ARI Control Program during 1995.

- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP and the Governorate have made provision for training medical students and interns and High Institute of Nursing students in primary health care organization and service delivery at the Montaza Model Clinic CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 47 teaching staff in the 10 secondary schools, provided reference materials for teaching in these schools and helped train graduating nurses during 1993-1995. ARI trained 23 teaching staff in 10 secondary schools and provided teaching reference materials for teaching.

Delivery Rooms Up-graded

Eleven delivery rooms were up graded in 11 districts. Inputs have included renovation, supply of equipment, training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El Imam General Hospital	Assiut District
2. El Ghaneiem District Hospital	Ghaneiem District
3. Manfalout District Hospital	Manfalout District
4. Sahel Selim District Hospital	Sahel Selim District
5. Abnoub District Hospital	Abnoub District
6. Abu Tig District Hospital	Abu Tig Hospital
7. El Baderi District Hospital	El Baderi District
8. Sedfa District Hospital	Sedfa District
9. Dairot District Hospital	Dairot District
10. El Kousya Hospital	El Kousya District
11 Assiut General Hospital	Assiut District

Further work is requested in training delivery room staff and in development and use of performance stabdards to ensure high quality of emergency and routine obstetrical services and neonatal resuscitation procedures.

2. Training for MCH Care

- 151 physicians were trained in child spacing and MCH care
- 1048 dayas trained were trained in safe delivery procedures and in MCH counseling and referral procedures (MOH/UNICEF)
- 36 Laboratory technicians were trained in MCH laboratory analysis
- 46 physicians and nurses were trained in a ten day course in neonatal care
- 50 physicians trained in neonatal resuscitation in 1995.
- 16 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality

3. Assiut Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Alexandria.[3] The committee reviewed 349 cases of female deaths and identified 51 as maternal deaths, leading to an estimate of maternal mortality ratio of 544 (per 100,000 live births), with a 90% confidence interval of 409-720. The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. This implies a target for Assiut of reducing maternal mortality to 272 deaths per 100,000 births by year 2000.

[3]Members of the Committee were Dr. Dr. Magda El-Sherbini, Dr. Mansour Youssef Ali, Dr. Farag Mohammed Moftah, Dr. Saad El-Din Mohammed Ibrahim and Dr. Gala El-Moaayid. .

May 1996

CSP Data Sheet For Aswan Governorate

Population

Total (Jan 95 - CAPMAS) - 40% urban.....1,042,000
1994 Births/Women needing maternal services.....27,599
1995 Births/Women needing maternal services.....26,937
Women of Reproductive age (22% of pop.)..... 229,000
Est. Number of children under 5 years of age.....135,000

Health Facilities

No. of Health Bureaux.....7
No. of MCHs - 5/ Urban Health Centers - 3.....8
No. of RHCs - 12, rural hospitals - 6, RHUs - 81.....99
No. of general hospitals(1) district(4) and fever(4) hospitals.....9
No. of Health Education Offices.....2

Districts(5)/Births(1993/94/95): • Aswan (6856/6675/6924), Draao (2410/2326/2214), Kom Ombo (7739/8059/7423), Edfo (8645/8517/8323) and Nasr (2059/2022/2053). • 2 districts (underlined) failed to attain 80+ % infant vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....219
No. of MOH nurses (Mid Term Eval. Est.).....na
No. of MOH pediatricians.....15
No. of MOH Health Education Staff.....3

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	89	48	33	- 63%	60	41	32
Child (1 thru 4) mortality	10.5	5.6	4.9	- 54%	7.4	4.0	3.2

CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....112
No. Cold Chain deep freezers (24) and refrigerators (389)- April 1995 413
No. of PHC staff trained, 1989-95.....677
Routine infant/child immunizations provided in 1993 (77% coverage).....301,910
Women immunized TT2 in 1994 (11,266 in 1993).....9,101
Women Immunized TT2 in 1995.....14,344
Women immunized TT3, TT4 and TT5 in 1994.....2,576
Women immunized TT3/4/5 in 1995.....9,223

Key Vaccination Coverage Rates (1993, 94, 95) (%): BCG - 86/95/88 OPV3 - 81/89/87
TT2+ - 71/42/87 Measles - 77/89/87 HB3 - 62/88/87 DPT3- 81/89/87

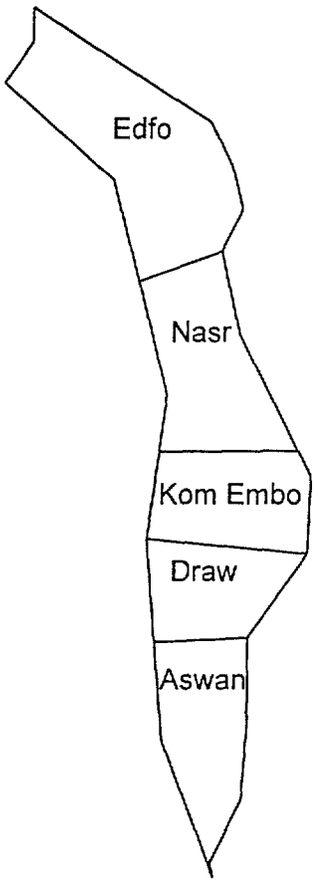
Polio Cases:	1991 - 11	1992 - 5	1993 - 2	1994 - 1	1995 - 2
NNT Cases*:	1991 - 16	1992 - 21	1993 - 8	1994 - 6	1995 - 4

• All districts maintained NNT elimination in 1995 (< 1 NNT case per 1000 live births).

ARI Program • Initiated in 1992 • 938 health agents trained in SCM (12 pediatricians, 453 PHC physicians, 449 nurses, 24 others) • 5,531 cases of severe ARI in children <5 years old treated in MOH out-patient facilities in 1995 (8,518 cases in 1994) • 70% compliance in registering ARI cases in 1995 • Est. Pop. Access to SCM - 90%.

CS/MCH Program • 160 PHC physicians trained in CS/MCH, 1992 and 1994. • 389 dayas trained (MOH/ UNICEF) • 4 MCH laboratories upgraded in 1994-95 - 15 laboratory technicians trained • 4 neonatal intensive care centers established in Aswan, Kom Ombo, Edfo and Abu Simbel hospitals (13 incubators).- 16 physicians and 4 nurses trained in neonatal care - 263 neonates treated in 1995. • Maternal mortality survey carried out in 1992/93. MMR-136 (95% confidence interval, 73-242). National MMR-174 • First referral delivery rooms being up-graded in Kom Ombo, Nasr and Draoo district hospitals and in Aswan General Hospital - 30 obstetricians trained, 1995.• Proportion of deliveries managed by a physician or trained birth attendant = 90% (1993 estimate).

Aswan



6. Distribution of Health Facilities by Health Districts*

Districts (5):	1993 Population*		----------Hospitals and Primary Health Care Facilities#							
	Total	of which Urban	GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Aswan	276,602	216,703	1	0	1	3	2	2	0	14
2. Draao	85,807	30,914	0	1	0	1	1	2	0	6
3. Kom Ombo	241,846	67,463	0	1	1	1	0	1	3	16
4. Edfo	304,153	51,914	0	1	1	1	0	5	1	32
5. Nasr	72,014	5,758	0	1	1	1		2	2	13
Total	980,422	372,752	1	4	4	5	3	12	6	81

*Source: Governorate Health Directorate
GH-General Hospital; DH-District Hospital; FH-Fever Hospital

B. Expanded Program of Immunization in Aswan

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Centers as of December 1995	112
• No. of Deep Freezers (24) and refrigerators(389) as of December 1995	413
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	5
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

	Total
PHC Physicians	276
PHC Nurses	135
Sanitarians	150
Clerks	116
Total	677

*Including health managers

3. Infant Immunization Coverage Attained in Aswan

	BCG	Measles	HB	OPV3	DPT3
1987*	63.2	82.6	na	85.1	83.7
1990*	78.6	83.8	na	84.9	84.5
1993#	86	77	62	81	81
1994#	95	89	88	89	89
1995#	88	87	87	87	87

*Cluster Surveys # EPI Service Statistics

May 1996

ASWAN Governorate - Health and Child Survival Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est. - CAPMAS) - 40% urban.....1,042,000
1994 Births/Women needing maternal services.....26,937
Women of Reproductive age (22% of 1995 pop.).....229,000
No. of children under 5 years of age [est.].....135,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Aswan	6856	6675	6924	1		2
Draao	2410	2326	2214			
Kom Ombo	7739	8059	7423	1	2	2
Edfo	8645	8517	8323		2	
Nasr	2059	2022	2053			
Total	27,709	27,599	26,937	2	4	4

3. Mortality Data

	1987*	1992*	1995#	Change 87-95	----All Egypt---- 1987	1992	1995
Infant Mortality(adjusted data)	89	48	33	- 63%	60	41	32
Child (1 thru 4) mortality	9.1	6.7	4.9	- 54%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux(Vital Statistics/Vaccination) 7
No. of MCHs - 5/Urban Health Centers - 38
No. of RHCs - 12, rural hospitals - 6, RHUs - 8199
No. of general (1) district(4) and fever(4) hospitals 9
No. of University Hospitals 1
No. of Health Education Offices 2

5. MOH Health Agents

No. of PHC physicians.....219
No. of MOH nurses (Mid Term Eval. Est.).....na
No. of MOH pediatricians.....15
No. of MOH Health Education Staff.....3

4. TT Immunization (of Pregnant Women) Attained in Damietta

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			6.0
1990*			64.2
1993#	7,393	na	77%
1994#	4,284	4,139	36%
1995#	4,142	4,647	38%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	4	2	1	1	0
NNT Cases*	9	7	9	2	4

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Damietta	9869	0	0	2	95	99	97	98	97	31
Kafr Saad	5932	0	0	1	98	103	89	89	89	49
Faraskour	4490	0	1	1	98	93	91	92	93	36
aEl Zarka	2642	0	0	0	98	103	97	97	96	45
Total	22933	0	1	4	97	99	94	95	94	38

C. ARI Control Program in Damietta

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 85%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 64%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-1607) 3740

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually: 10,000

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (All 77 PHC facilities are targeted) 67 (est. 87%)
- Hospitals (Total targeted, 9) 7 (est. 78%)

3 Hospital Laboratory Upgrading

Damietta Fever hospital was upgraded for diagnosis of ARI and for bacterial resistance testing in 1995-96.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 442 respiratory timers,
- 1 oxygen concentrators
- 5 oxygen cylinder sets
- 6 nebulizers
- 1 oximeter
- 190 otoscopes

5. Drugs Supplied to Damietta by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250 and 125 ml	0	0	5600	9644	7984
[of which Amox 125 ml]	0	0	(2100)	(1728)	(2119)
Paracetamol 120 cm	0	0	2300	1100	1100
Expectorant	0	0	0	0	0
Long Acting Penicillin	0	0	1000	900	600
Salbutamol Syrup	0	0	0	0	1100

6. ARI Targeted Hospitals - Damietta

9 Hospitals in Damietta are targeted for in patient and out patient care of ARI according to Standard Case Management. Inputs include the provision of training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Some hospitals still require staff training.

ARI Targeted Hospital

Damietta District
1. Damietta General Hospital
2. Damietta Fever Hospital
3. Esbet El Bourg H (Damietta District)
4. El Rowda .(Damietta District)
5. Ras El Bar (Damietta District

Kafr Saad District
6. Kafr Saad Hospital

El-Zerka District
7. El Zerka Hospital

Faraskour District
8. Faraskour D. Hospital
9. Faraskour Fever Hospital..

May 1996

Damietta - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	898,000
1995 Births/Women needing maternal services	22,933
Women of Reproductive age (22% of 1995 pop.).....	197,000
No. of children under 5 years of age [est.1994].....	105,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Damietta	9284	9677	9869		2	
Kafr Saad	5932	6380	5932		1	
Faraskour	4318	4473	4490	1	1	
El Zarka	2667	2676	2642			
Total	22201	23206	22933	0	4	1

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	34	35	25	- 26%	60	41	32
Child (1 thru 4) mortality	3.3	2.5	2.5	- 24%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	7
No. of MCHs - 8/ UHCs - 7	15
No. of RHCs -6, rural hospitals - 3 and RHUs - 48	57
No. of general (2), district (4) and fever (2) hospitals	7
No. of health education offices	1

5. MOH Health Agents

No. of PHC physicians	135
No. of nurses	395
No. of hospital based pediatricians(1993 data).	33
No. of health education staff	1

6. Distribution of Health Facilities in Damietta by District

Districts (4) :	Population* (1993)	------Distribution of ARI Targeted Hospitals and PHC Facilities#----							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
Damietta	390,702	2	1	1	5	6	0	1	13
Kafr Saad	213.752	0	1	0	1	1	5	1	11
Faraskour	175,302	0	1	1	1	0	1	1	17
El Zarka.	96,309	0	1	0	1	0	0	0	7
Total	876,065*	2	4	2	8	7	6	3	48

*Source: Population - EPI Basic Facts Book, August 1994.
Source, Facilities Data - According to the 1995 ARI Case Registration Data Base.

B. Expanded Program of Immunization in Damietta

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

- No. of vaccination units 86
- No. of Cold Chain deep freezers (10) and refrigerators (151)-April 1995 161
- Central Governorate Vaccination Storage Facility 1
- District Vaccination Storage Facilities 4
- Cold Chain Repair and Maintenance Work Shop 1

2. EPI Training - 1989-95

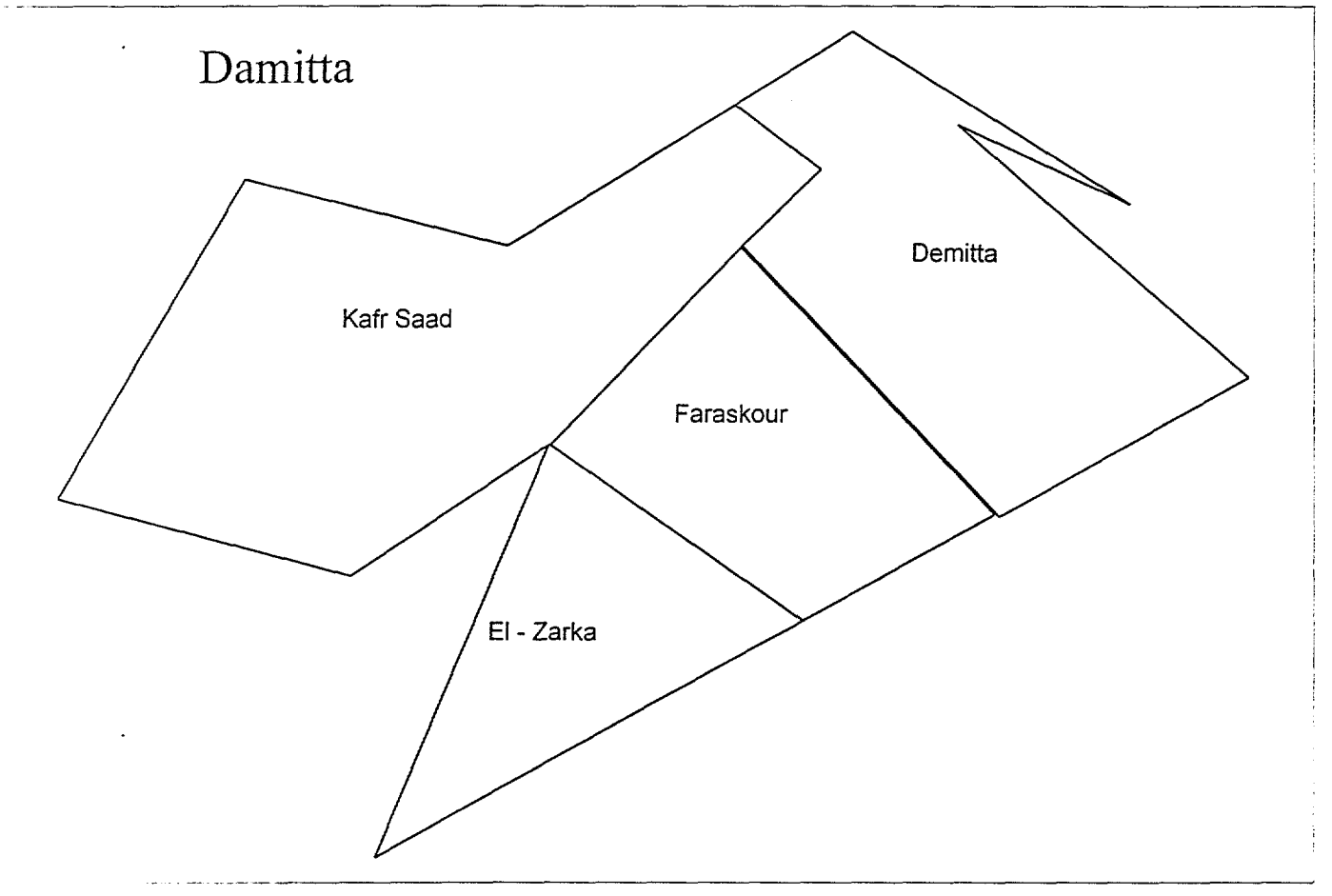
PHC Physicians*	216
PHC Nurses*	303
Sanitarians*	160
Clerks	62
Total	741

*Including health managers

3. Infant Immunization Coverage Attained in Damietta

	BCG	Measles	HB	OPV3	DPT3
1987*	70.1	77.1	0	88.3	86.0
1990*	95.3	94.3	0	93.4	93.4
1993#	95	90	84	91	91
1994#	94	89	89	89	89
1995#	97	99	94	95	94

*Cluster surveys - vaccination rates for children 12-23 months #EPI Service Statistics


Damitta
Demitta
Kafr Saad
Faraskour
El - Zarka

May 1996

CSP Data Sheet For Damietta Governorate

Population

Total (Jan 1995 CAPMAS est.) 898,000
1994 Births/Women needing maternal services 23,206
1995 Births/Women needing maternal services.....22,933
Women of Reproductive age (22% of pop.- 1994).....198,000
Children Under 5 (est.).....105,000

Health Infrastructure

No. of Health Bureaux.....7
No. of MCHs - 8; Urban Health Centers - 7.....15
No. of RHCs - 6, RHs (rural hospitals) - 3, RHUs - 48.....57
No. of general (2), district (4) and fever (2) hospitals.....8
No. of health education offices.....1

Districts(4)/births(1993/94/95) •Damietta (9284/9677/9868), Kafr Saad (5932/6380/5932), Faraskour (4318/4473/4490), and El Zarka (2667/2676/2642) • All districts achieved 80% infant vaccination coverage in 1995

MOH Health Agents:

No. of PHC physicians.....135
No. of PHC nurses.....395
No. of hospital based pediatricians.....33
No. of health education staff.....1

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	34	35	25	- 26%	60	41	32
Child (1 thru 4) mortality	3.3	2.5	2.5	- 24%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....86
No. Cold Chain deep freezers (10) and refrigerators (151) - April 1995.....161
No. of PHC staff trained in EPI, 1989-95.....741
Routine infant immunizations in 1993 (91% vac. coverage).....281,561
Women immunized TT2 in 1994 (7,392 in 1993).....4,283
Women immunized TT2 in 1995.....4,142
Women immunized TT3/4/5 in 1994.....4,139
Women immunized TT3/4/5 in 1995.....4,657

Key vaccination coverage rates in 1993/94/95(%): BCG - 95/94/97 OPV3 - 91/89/95
TT2+ - 77/36/38 Measles - 90/89/99 HB3 - 84/89/94 DPT3 - 91/89/94

Polio Cases:	1991 - 4	1992 - 2	1993 - 1	1994 - 1	1995 - 0
NNT Cases*:	1991 - 9	1992 - 7	1993 - 9	1994 - 2	1996 - 4

*All districts sustained NNT elimination (<1 NNT case per 1000 live births).in 1995.

ARI Program • Initiated 1993 • 714 health agents trained (16 pediatricians, 207 PHC physicians, 400 nurses, 91 others) • 1995 cases of severe ARI in children<5 treated in MOH outpatient facilities in 1994 (1607 cases in 1994) • 65% compliance in ARI case registration in 1995 • Est. Pop. Access to SCM - 85%.

CS/MCH Program • 79 PHC physicians trained in MCH service delivery,.1992 • 75 food inspectors trained in nutrition,1989-91 • Over 300 PHC nurses trained (MOH/Dutch program (1988-92) • 51 dayas trained (MOH/Dutch program) • Home visiting program developed with Dutch assistance (by 1993) reportedly covers 90% rural population • Number/proportion of women receiving antenatal care in MOH facilities - not available.• 7 MCH laboratories upgraded - 7 laboratory technicians trained,1994 • 3 neonatal intensive care centers established in (16 incubators) - 16 physicians and 4 nurses trained in neonatal care - 450 neonates treated in 1995 • Baby Friendly (Breast feeding) program initiated in 1995 (Damietta General Hospital and Damietta MCH) - 68 physicians and 50 nurses trained • Maternal mortality survey completed in 1992/93. MMR-146 (95% confidence interval, 85-247). National MMR-174 • 4 first-referral level delivery rooms being upgraded in 1995-96 - 22 obstetricians trained, 1995. • Proportion of deliveries managed by a doctor or a trained birth attendant - 87% [est. 1993).

May 1996

CSP Data Sheet on Fayoum Governorate

Population

Total (Jan 1995 CAPMAS est.) - 23% urban.....1,995,000
1994 Births/Women needing maternal services.....63,496
1995 Births/Women needing maternal services.....63,457
Est. No. of Children Under 5(1992).....290,000
Women of Reproductive Age (1994 est - 22%).....439,000

Health Infrastructure:

No. of Health Bureaux.....9
No. of MCHs-7/UHCs - 11.....18
No. of RHCs - 4, RHUs - 81, Rural Hospitals - 4.....89
No. of general(1), district (5) and fever hospitals(1).....6
No. of health education offices.....5

Districts(6)/Births(1993/94/95) • Bandr El Fayoum (6296/6279/6720), Markaz Fayoum (9577/9941/10101), Abshawaai (14815/15469/14211), Etsaa (12990/1363921488/13573), Senoures (10535/ 10441/10618), Tammaiaih (7095/7727/8234) • All districts achieved 80% infant vaccination coverage for every antigen in 1995.

MOH Health Agents

No. of PHC physicians.....287
No. of nurses.....426
No. of hospital based pediatricians.....20
No. of health education staff.....9

Mortality Data

	1987*	1992*	1995#	Change 87-92	------All Egypt------ 1987	1992	1995
Infant Mortality(adjusted data)	84	54	na	- 36%	60	41	32
Child (1 thru 4) mortality	10.9	5.9	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units (1994).....123
No. Cold Chain deep freezers(12) and refrigerators(329)-April 1995.....341
No. of PHC staff trained in EPI, 1989-95.....1,628
Routine infant vaccinations in 1993 (99% vacc. rate).....852,565
Women immunized TT-2 in 1994 (36,123 in 1993).....18,653
Women immunized TT-2 in 1995.....13,772
Women immunized TT-3/4/5 in 1994.....17,474
Women immunized TT-3,4,5 in 1995.....11,986

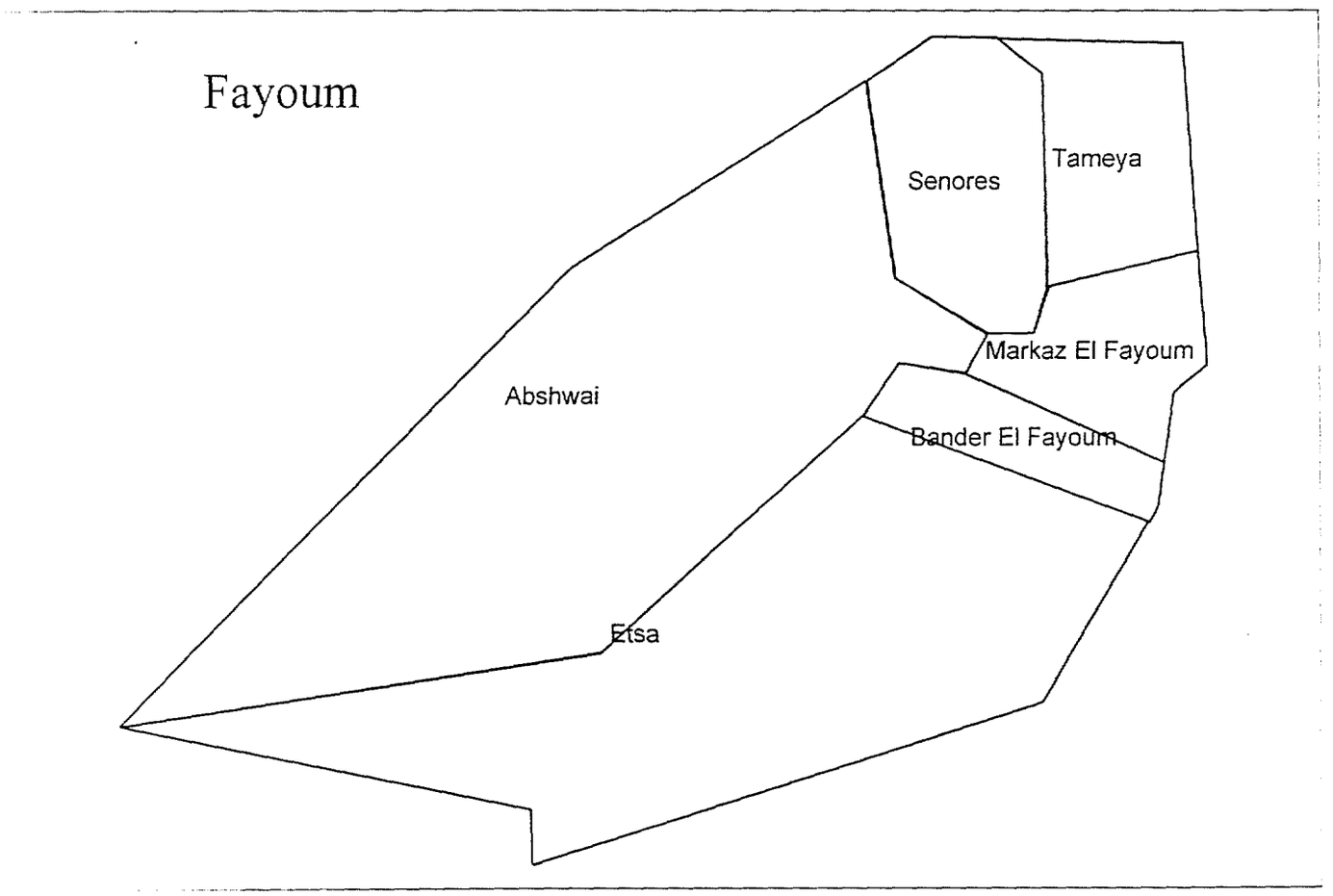
Key vaccination coverages in 1993/94/94 (%): BCG - 109/100/93 DPT3.- 99/92/90
TT2+ - 110/57/68 Measles - 111/92/87 HB3 - 74/91/90 OPV3-104/92/89

Polio Cases:	1991 - 31	1992 - 29	1993 - 13	1994 - 6	1995 - 5
NNT Cases*:	1991 - 84	1992 - 72	1993 - 52	1994 - 35	1995 - 33

*All districts sustained NNT elimination (less that 1 NNT case per 1000 live births) in 1994 and 1995.

ARI Program • Initiated 1993 • 419 health agents trained (19 pediatricians, 191 PHC physicians, 228 nurses, 19 other) • 3,110 cases of severe ARI in children <5 years were treated in MOH outpatient facilities in 1995 (3,003 cases in 1994). • Compliance rate of 32% in ARI case registration in 1995.• Est. Pop. Access - 70%.

CS/MCH Program • 259 PHC physicians trained in CS/MCH, 1991-95.• 365 nurses and dieticians trained in maternal-child nutrition, 1989-91 • 105 food inspectors trained in nutrtion, 1989-91.• 5 MCH laboratories upgraded - 20 laboratory technicians trained. • Governorate reports 29,770 women received antenatal care in MOH facilities in 1992 - 48% • Daya training scheduled for 1996-97 (MOH/UNICEF) • 2 neonatal intensive care centers (12 incubators) established - 25 physicians and 13 nurses trained in neonatal care, 1991-94 - 419 neonates treated in 1995. • Baby Friendly program introduced by UNICEF/MOH • Maternal mortality survey completed in 1992/93. MMR-147 (95% confidence interval, 98-218). National MMR-174 • 5 first referral level delivery rooms being upgraded • Nurse-midwife training program piloted - 20 nurse midwives trained, 1995 • Deliveries managed by a doctor or a trained birth attendant >30% (1993 est.).


Fayoum
Senores
Tameya
Markaz El Fayoum
Abshwai
Bander El Fayoum
Etsa

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of reducting mother-child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish the Daya Program (MOH/UNICEF)

The MOH with UNICEF assistance initiated the daya program in 1995/96[1].It is expected that all districts will be organized with trained staff to sustain the daya program.

MCH Laboratory Up-Grading Program

Five MCH laboratories were up-graded in three districts. Inputs included the provision of equipment and supplies, training of laboratory staff and monitoring.:

1. SenouresDistrict MCH
2. Etsaa District MCH
3. El Fayoum 1, Fayoum District
4. El Hadka MCH, Fayoum District
5. Es Soufi MCH, Fayoum District

Neonatal Care Program

Two first referral neonatal care centers were established and developed during 1991-95 in 2 of the 7 districts. Inputs including training, advisory services, development of service standards[2] and supplies and equipment.[3]

In 1995, the two centers provided care for 419 neonates, of which about 70% were referrals from outside the hospital centers.El Fayoum GH centers has a catchment area of two district (Bandra El Fayoum and Markez Fayoum), while Ebshawaai's catchment area is its district. The admittances covered about 13.5% of the estimated need (est. 3100 neonates in the 3 districts[4] The number of LBW infants in the governorate in 1995 is estimated in the range 6000-9000.

Neonatal care in Fayoum requires further development of capacity and facilities during 1996-2000 and development of the neonatal referral systems in all districts.

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[1]The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant was estimated in 1993 at 30-40%, well below the national average.

[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Equipment included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors,centrifuges,suction machines and jaundice meters.

[4]Need based on estimated proportion of LBW infants among births.

• Fayoum Nursing School Center
• El Fayoum General Hospital Center.

8. ARI Training Accomplished in Fayoum

	In 1993	In 1994	In 1995	Total
Managers	7	0	0	7
Pediatricians	7	12	0	19
PHC Physicians	32	109	50	191
PHC Nurses	124	40	64	228
Pharmacists	0	0	18	18
Nursing School Teachers	0	0	0	0(p)
Health Education Officers	0	0	0	0(p)
Laboratory Specialists	0	0	2	2
Totals	**170**	**161**	**134**	**465**

*p-planned in 1996

9. Up-graded ARI Laboratory Facility

The laboratory in Fayoum General Hospital has been up-graded for ARI bacterial identification and resistance testing.

10. ARI Cases Registered

	1994	1995	---Percentage Distribution---		
	-----(number)----		1994	1995	Sentinel
Very Severe Disease	44	)	0.52	)	1.10
Severe Pneumonia	329	) 3110	4.03	) 52.37	4.60
Pneumonia	2629	)	32.22	)	13.10
Otitis Media	1364		16.72		8.80
Pharyngitis	1453		17.81		18.10
Cough/Cold	2340		28.68		50.10
Total	8159	5939	100.00	100.00	100.00

6. Distribution of Health Facilities by Health Districts*

Districts (6): in Fayoum	Population* 1993	----------Hospitals and Primary Health Care Facilities#---------- GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Bandr El Fayoum	249800	)1	0	1	3	3	6	1	20
2. Markaz Fayoum	293000	)							
3. Abshawaai	44370	0	1	0	1	0	5	1	24
4. Etsaa	382600	0	1	0	1	6	1	0	17
5. Senoures	325600	0	2	0	1	1	3	0	11
6. Tammaiaih.	235600	0	1	0	1	6	1	0	17
Total	1,930,300*	1	5	1	7	11	4	4	81

*Source: August 1994 EPI Basic Data Book. # Source Facilities - 1995 ARI Data Base.

B. Expanded Program of Immunization in Fayoum

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

- No. of vaccination unitss 123
- No. of Cold Chain deep freezers (12) and refrigerators(329) 341
- Central Governorate Vaccination Storage Facility 1
- District Vaccination Storage Facilities 6
- Cold Chain Repair and Maintenance Work Shop 1

2. EPI Training - 1989-95

PHC Physicians	455
PHC Nurses	756
Sanitarians	335
Clerks	81
Total	1627

*Including health managers

3. Infant Immunization Coverage Attained in Fayoum

	BCG	Measles	HB	OPV3	DPT3
1987*	40.0	52.0	0	64.3	52.4
1990*	92.1	85.5	0	88.2	87.3
1993#	109	111	74	104	99
1994#	100	92	91	92	92
1995#	93	87	90	90	89

May 1996

FAYOUM- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 40% urban.....1,995,000
1995 Births/Women needing maternal services.....63,457
Women of Reproductive age (22% of 1995 pop.).....439,000
No. of children under 5 years of age [est.].....295,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Bandr El Fayoum	6296	6279	6720		2	
Markaz Fayoum	9577	9941	10101	1	2	3
Abshawaai	14815	15469	14211	1	9	1
Etsaa	12990	13639	13573	1	13	9
Senoures	10535	10441	10618	1	3	1
Tammaiaih	7095	7727	8234	1	3	1
	61308	63496	63457	5	33	16

3. Mortality Data

	1987*	1992*	1994#	Change 87-92	-----All Egypt---- 1987	1992	1995
Infant Mortality(adjusted data)	84	54	na	- 36%	60	41	32
Child (1 thru 4) mortality	10.9	5.9	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux 9
No. of MCHs-7/UHCs - 11 18
No. of RHCs - 4, RHUs - 81, Rural Hospitals - 4.....89
No. of general(1), district (5) and fever (4) hospitals.....
No. of health education offices.....5

5. MOH Health Agents

No. of PHC physicians 287
No. of MOH nurses 426
No. of MOH pediatricians 20
No. of MOH Health Education Staff 9

- Primary Health Care Facilities(All 107 targeted) 80 (est. 75%)
- Hospitals (Total tarteted - 7) 5 (est. 71%)

3. Drugs Supplied to Fayoum by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250 and125 ml)	0	700	15000	28924	19017
[of which Amox 125 ml]	0	(200)	(5600)	(4388)	(5802)
Paracetamol 120 cm	0	200	5600	2700	2700
Expectorant	0	100	--	--	--
LA Penicillin	0	--	2000	2300	1533
Salbutamol Syrup	-	--	--	--	2700

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995

- 604 respiration timers
- 4 oxygen concentrators
- 6 oxygen cylinder sets
- 6 nebulizers
- 1 oximeter
- 125 otoscopes

5. ARI Targeted Hospitals

7 hospitals have been and are targeted for in patient and out patient care of ARI. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

1. Fayoum General Hospital
2. Fayoum Fever Hospital
3. Senoures District Hospital.
4. Abshawaai District Hospital
5. Fiedmeen H. (Abshawaai District.)
6. Tammaiaih District Hospital
7. Etsaa District Hospital

6. ARI Health Education

The ARI Control Program is working with the Fayoum Health Directorate to increase public health education for ARI control.

7. ARI Training Centers

Two training centers were established in 1993:

4. TT Immunization (of Pregnant Women) Attained in Fayoum

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			7.7
1990*			44.0
1993#	na	na	na
1994#	18,653	17,465	57%
1995#	13,772	11,986	68%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	31	29	13	6	5
NNT Cases*	84	72	52	35	33

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	----Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Bandr El Fayoum	6720	0	0	2	91	90	88	88	88	59
Markaz Fayoum	10101	1	2	2	102	99	101	101	98	53
Abshawaai	14211	1	0	9	91	85	89	89	89	40
Etsaa	13573	1	8	13	91	86	89	90	89	53
Senoures	10618	1	1	4	95	85	90	90	90	44
Tammaiaih	8234	1	0	1	85	77	81	81	81	23
Total	63457	5	11	33	93	87	90	90	89	68

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 70%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 47%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-3003) 3110

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:29,000)

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

The Daya program in Damietta should be extended to the remaining two districts during 1996-1997. Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, certfy dayas (as having been trained), and provide for refresher training. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Inititally two MCH laboratories were selected by the Dakahlia Health Directorate for up-grading during the period 1992-93. A review of program in 1994 found the two laboratories were not operative and that other MCH centers needed laboratory up-grading. CSP and the Health Directorate undertook to up-grade the seven laboratories listed during 1995. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits. A follow up visit in 1995 found the seven laboratories operating successful.

MCH Laboratories Up-Graded in Damietta

1. Damietta 1 (MCH)	Damietta District
2. Damietta 2 (MCH)	Damietta District
3. Damietta 3 (MCH)	Damietta District
4. New Damietta (MCH)	Damietta District
5. El-Borg MCH	Damietta District
6. Faraskour MCH	Faraskour District
7. El-Zarka MCH	Zarka District

Neonatal Care Facilities in Damietta

Three first referral neonatal care centers were established and developed during 1991-95 in 6 of the 15 districts of Damietta.. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

Neonatal Care Centers Established in Damietta 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admittances 1995
1. Damietta G. Hospital	Damietta/9868	6	267
2. El-Zarka Hospital	Zarka/2642	5	92
3. Faraskour Hospital	Faraskour/4490	5	91
	3 Districts/16820	17	450

In 1995, the three centers provided care for 450 neonates,of whom 73%% were referrals of neonates from outside the hospital. The number of admittances is equivalent to about 26% % of the indicated need for first referral care for about 1700 infants in the three districts[2] The number of LBW infants in the governorate in 1995 is estimated in the range 2,000 - 3,000.

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[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on estimated proportion of LBW infants among births.

7. ARI Health Education:

Being developed with the Health Education Department of the governorate and with district health offices.

8. ARI Training Facilities

An ARI training center for PHC staff was established in 1992 in:

- Damietta Fever Fever Hospital.

9. ARI Training Accomplished in Damietta

	In 1993	In 1994	In 1995	Total
Managers	7	0	1	8
Specialists	7	4	5	16
PHC Physicians	94	45	68	207
Nurses	240	80	80	400
Pharmacists	0	29	0	29
Private Physicians	0	0	0	0
Nursing School Teachers	0	0	24	24
Health Education Officers	0	0	30	30
Total	348	158	208	714

10. ARI Cases Registered

	1993	1994	1995	-------Percentage Distribution			
	---------- number----------			1993	1994	1995	Sentinel
Very Severe Disease	0	14	)	0.00	0.05	)	0.80
Severe Pneumonia	40	47	) 3740	0.84	0.17	)10.11	2.40
Pneumonia	476	1546	)	10.02	5.61	)	8.60
Otitis Media	873	2248		18.38	8.16		12.50
Pharyngitis	2063	8488		43.44	30.81		24.20
Cough/Cold	1297	15209		27.31	55.20		46.40
Total	4749	27552	32072	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program in Damietta

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Dutch Rural Health Project worked with the Damietta Health Directorate 1988-91-1995 to train physicians and nurses to monitor, supervise and train dayas in 2 districts of Dakahlia . The 51 dayas trained in these districts provide an extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in Damietta, as well as assurances of safer deliveries.

DAMIETTA

Annex 1

Trends in Infant and Child Mortality in Damietta Governorate

	1987*	1992*	% Change 1987-92	1995#	% Change 1987-95
Registered IMR	26	26	- 0%	17	- 35%
Adjusted IMR	34	35	+ 3%	25	- 26%
Child Mortality Rate	3.3	2.5	- 24%	2.5	- 24%

Further development of district level neonatal care capacity and facilities is required during 1996-2000, by addition of facilities in Kafr Saad district, improving the referral system, and supporting high quality service delivery in the three existing centers. .

Delivery Rooms Up-graded

Four delivery rooms in the four districts were selected by the Damietta Health Direcotrate to be up-graded. Inputs have included renovation, supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1.Damiettat General Hospital
2. Kafr Saad District Hospital
3. Farashour District Hospital
4. El-Zarka District Hospital

Futher work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care

- 79 physicians were trained in MCH service delivery (1992 and 1995)
- 51 dayas trained (MOH-Dutch Cooperation)
- 75 food inspectors 1990-1991
- 300 nurses trained in mother-child care (MOH-Dutch Cooperation)
- 7 laboratory technicians trained in MCH laboratory analysis
- 16 physicians and 4 nurses trained during 1992-95 in neonatal care
- 22 obstetricians trained for delivery room service upgrading
- 68 physicians/50 nurses trained for the breast feeding-baby friendly program.

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Damietta.[4] The committee reviewed 162 cases of female deaths and identified 15 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **146** maternal deaths per 100,000 live births, with a 90% confidence interval of 86-144.The national MMR was found to be 174.

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Damietta by year 2000 to **72** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

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[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[4]Members of the Committee were: Dr. Mohammed Nabil Abdel-Rahman, Dr. Insherah Mohammed Nadi, Dr.MOhammed El-Sayed, and Dr. Abdel Rahzek Mohammed El-Geddawi..

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (3)..Dakahlia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program

This program has been developed and initiated in 13 governorates during 1993-95. It is anticipated that the MOH will work with the Damietta Health Directorate to initiate the program in Damietta during 1996-1997.

4. Mobilization of Health Education Offices

- Training of 2 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of 25 health education officers and and other health agents in Dakahlia in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility of 50 trained dayas in 2 districts as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students are to be provided opportunities to observe organization and management of primary health care services in El Galaa and New Noza model health clinics starting in the 1996-97 school year..

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 18 teaching staff in the 5 secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI trained 24 teaching staff for the 5 secondary nursing schools and provided reference teaching materials during 1994-1995.

Annex 2 Data on Infant and Child Mortality in Damietta

	Number of Live Births	Number of. Infant Deaths	Avg	IMR	No of 1 thru 4 Deaths	Avg	CMR or index
CAPMAS Published Data on Registered Births, Deaths, IMR and CMR							
1985	27460	803		29	176		5,0
1986	27151	758		28	103		3.1
1987	32053	849		26	92		3.3
1988	28175epi			27			3.1
1989	24392epi			21			3.4
87-89 average				24.7e			3.27e
1990	23434epi			25			2.6
1991	23877epi			22			2.5
1992	22360epi			24	204		2.5
1990-92 average				28.3e			2.53e
1995 (MOH/CSP Estimate)				17.0			2.5
Vital Statistics From Damietta Health Directorate							
Year	Births	Infant Deaths		Reg'd IMR	Children Death		Index of CRM(b)
1989	24551	639)		26.1	898)		
1990	23581	577)			827)		
1991	23919	542)	529a	22.0a	709)	692	
1992	22187	487)		21.9	546)		5.79 ..
1993	22391	427)			598)		
1994	23465	407)	398	17.3	528)	551	
1995	23200	359)		15.5	528		5.78
Change from 1992 to 1995				- 29.2			0.2%

Source: Vital Statistics provided by CAPMAS and the Governorate Health Directorate ; e-estimated by averaging. a) 3-year average. b)calculated by dividing the number of deaths in the year by the births in the year and in the 3 preceding years.

E Project-Wide Child Survival Interventions in Damietta

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT	Immunization Coverage Attained in 1995					
		Polio	Non Polio		BCG	Measles	HB2	OPV3	DPT3	TT2
Masr El Gedida	7719	0	1	0	71	63	68	69	68	20
Shark	21142	0	2	2	94	88	88	88	82	40
El-Zeitoun	7762	0	1	1	79	82	78	78	78	13
Shoubra	2241	0	0	0	77	79	75	75	75	36
Sharabia/Zawia	12417	1	0	2	87	82	79	81	82	35
Rod El Farag	3897	0	0	0	87	84	84	87	87	46
El Sahel	9140	0	0	0	92	88	85	85	85	31
Wasat	7619	0	0	0	60	61	63	66	66	23
Waily	5214	0	0	0	66	70	68	71	71	21
Gharb	3357	0	0	0	67	58	61	61	61	24
Abdeen	2103	0	0	0	97	118	102	102	102	56
Ganoub	9002	1	1	0	83	85	83	85	84	36
Masr El Kadima	6940	0	0	0	78	73	71	72	72	30
Helwaan	13106	1	0	2	92	84	84	85	83	40
El Maadi	5155	0	0	1	78	78	82	82	82	24
15 May	2482	1	0	1	91	99	92	93	93	33
M.Nasr	6974	1	0	1	51	45	48	48	48	17
M. El Salam	5861	0	0	1	108	98	98	100	100	61
El Marg	6573	0	0	0	93	84	87	88	87	46
Hadaek El Koba	8449	0	0	0	62	61	63	63	63	21
Manshaett Naser	3822	0	1	3	105	107	101	101	101	28
El Basatin	10376	0	0	0	98	91	96	95	94	20
Total	161351	5	6	11	83	80	80	81	80	32

C. ARI Control Program in Cairo Governorate

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) >90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 70%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-11433) 24209

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:38,000)

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 94 targeted) 85 (est. 90%)
- Hospitals (16 targeted) 16 (est. 100%)

1. Immunization Facilities - Cairo Governorate

• No. of vaccination unitss	126
• No. of Cold Chain deep freezers (34) and refrigerators (323)	357
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	18?
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	3186
PHC Nurses*	2350
Sanitarians*	812
Clerks	265
Other	170
Total	6983

*Including health managers

3. Infant Immunization Coverage Attained in Cairo

	BCG	Measles	HB	OPV3	DPT3
1987*	93.0	89.2	0	96.7	96.2
1990*	95.5	89.1	0	91.4	91.9
1993#	92	88	70	88	88
1994#	85	82	81	82	82
1995#	83	81	80	81	80

*Cluster surveys - Vaccination coverage children 12-23 months. #EPI Service Statistics

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)\
1987*	na	na	5.5
1990*	na	na	56.5
1993#	41,028	na	44%
1994#	31,110	20,430	33%
1995#	30,221	20,685	32%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Cairo

	1991	1992	1993	1994	1995
Polio Cases:	34	33	6	4	5
NNT Cases*	51	38	25	25	12

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. ARI Targeted Hospitals in Cairo Governorate

16 hospitals in Cairo have been and are targeted for in patient and out patient care of ARI according to Standard Case Management. These include general and fever hospitals and one chest hospital. Inputs have included training for staff - pediatricians, residents, nurses - and supply of diagnostic and therapeutic equipment. The ARI program is providing additional equipment for use in hospitals in 1996.

ARI Targeted Hospitals - Cairo

1. Manshiyet El Bakry General Hospital
2. El Monira General Hospital.
3. El Khasindar General Hospital
4. Shobra General hospital pediatricians trained in December 1995
5. El Salam General hospital
6. El Khalif General hospital
7. Dar Es Salam General Hospital
8. 15th of May General Hospital
9. Boolak General Hospital
10. Helwaan General Hospital
11. Abassia Fever hospital
12. Imbaba Fever hospital
13. El Zawia district hospital
14. Abassyia Chest hospital -
15. Tebbin hospital
16. Helwan Fever Hospital

7. ARI Health Education:

Being developed with the health education officers of the Cairo Health Education Department and District/Zonal health offices.

8. ARI Training Facilities

Five ARI training centers were established

- Manshiet El Bakry Nursing School Center (1990)
- Manshiet El Bakry GH Center (1990)
- El Moniro General Hospital Center (1990)
- Bab El Shearia University Hospital Center (1991)
- Cairo University Abu El Riesh Hospital Center (1992).

3 Hospital Laboratory Upgrading

Three hospital laboratories were up-graded in 1995-96 for ARI diagnosis and bacterial resistance studies:

- Helwan General Hospital
- Helwan Fever Hospital
- Abassyia Fever Hospital.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 770 respiratory timers,
- 14 oxygen concentrators
- 15 oxygen cylinder sets
- 17 nebulizers
- 1 oximeter
- 590 otoscopes

5. Drugs Supplied to Cairo Governorate by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250&125 ml)	24200	82200	104300	162996	107446
(of which Amox 125 ml)	--	(24400)	(39100)	(29332)	(34486)
Paracetamol 120 cm	7400	27000	39600	18800	16800
Expectorant	6500	24200	0	0	0
LA Penicillin	2500	0	0	14500	10000
Salbutamol Syrup	0	0	0	0	16800

of LBW infants in the governorate in 1995 is estimated in the range 15000-22,000. Further development of neonatal care capacity and facilities is required in Cairo during 1996-2000.

Neonatal Care Centers Established in Cairo 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admittances 1995
1.Mansheyet El-Bakry Hospital.	Masr El Gedida/7719	5	221
2.Sahel General Hospital	El Sahel/9140	2	140
3.Shobra General Hospital	Shobra/2241	3	21
4.El-Kalifa General Hospital	Ganoub/9002	6	86
5.El-Monira General Hospital	Ganoub/9002	4	255
6.Dar El-Salam Hospital	Masr El Kedima/6940	7	149
7 Helwan General Hospital	Helwan/13106	6	68
8.Madinet El-Salam General H.	M. El Salam/5861	2	68
Total	7 Districts/54009	36	1008

Delivery Rooms Up-graded

Eleven delivery rooms in eleven districts were up-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Abu Hommos Hospital	Abu Hommos District
2. Kafe El Dawaar Hospital	Kafr El Dawaar District
3. Shobrakhit Hospital	Shobrakhit District
4. Kom Hamada Hospital	Kom Hamada District
5. Etail El Baroud Hospital	Etai El Baroud District
6. El Delengat Hospital	El Delengat District
7. Mahmoudia Hospital	Mahmoudia District
8. Edco Hospital	Edco District
9. Kafr El Dawaar Hospital	Kafr El Dawaar District
10.Rashed Hospital	Rashed District
11 El Rahmania Hospital	El Rahmania District

Further work is needed in the governorates to train delivery room staff and to develop the systematic use of performance standards to ensure high quality of emergency and routine obstetrical services, including neonatal resuscitation procedures.

2. Training for MCH Care

- 2934 physicians were trained in child spacing and MCH care 1989-1995
- 2280 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- 442 physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 1200 physicians trained in mother child nutrition, 1990-1991
- 920 nurses trained in mother-child nutrition, 1990-1991
- 150 food inspectors trained in family nutrition, 1990-1991.
- 63 laboratory technicians trained in MCH laboratory analysis
- 47 physicians and 27 nurses were trained during 1992-95 in neonatal care
- 60 physicians and nurses trained in neonatal resuscitation

[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

the equipment supplied and are staffed with at least one trained laboratory technicians, if not a chemist, and are in general being resupplied by the Governorate.

MCH Laboratories Up-Graded in Cairo

1. Dar El SalamMCH
2. El-Kalaa UHC
3. El-Galaa UHC
4. El-Garbarty (Manshaat Nasr) UHC
5. 15 May Mogawra 19 UHC
6. Atlas (Helwan)UHC
7. El-Monira Hospital
8. Mokatom UHC
9. El-Mataria 2 MCH/Mataria
10. El-Abd UHC
11. El-ObourUHC
12. Delta UHC/
13. El-Salam 2 UHC/
14. El-Tera El Bolakia UHC
15. El-Set El Khadra UHC (Helwan D)
16. El-Masaken MCH (Helwan D)
17. El-Sayeda Zeinab MCH
18. Darb El-Onsia UHC
19. El-Darb El-Ahmar UHC
20. Ramlet Boulak UHC
21 El Dowika UHC
22 Al-Azab UHC
23 Mashmasha UHC
24 Baab El-Shaaria UHC
25. El-Daher MCH
26. El Nahda UHC
27 Mataria 1 MCH*
28. El-Tebbin MCH*
29. Hadaiek El-Kobba UHC*
30. El-Kattamia UHC*
31. Old Tounsy UHC*
32 Gezoret Badran UHC*

*Training scheduled in 1996

Neonatal Care Program in Cairo

Eight first referral neonatal care centers were established and developed during 1991-95 in 7 of the 22 districts of Cairo. Inputs including training, monitoring, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the eight centers provided care for 1000 neonates, covering about 19% of the estimated need for first referral care for about 5400 infants in the seven districts[3] The number

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[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Need estimated based on minimum proportion of LBW infants among births.

1. Facilities Development

Districts Developed To Establish the Daya Program

The Child Survival Project worked with the Cairo Health Directorate 1991-1996 to train physicians and nurses to monitor, supervise and train dayas in the following districts of Cairo.

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained (Basic Course)
• Wasat	35	280
• Gharb	32	230
• Sharq*	39	280
• Ganoub	29	160
• Shobra*	37	150
• El-Sahel	30	130
• Helwan*	28	120
• Maady*	30	180
• Masri Kadima	23	90
• Waily	20	70
• El-Salam	26	240
• Manshit Nasr	18	40
• Abdiin	23	100
• El-Sharaby	42	230
• El-Zaitoun*	30	100
Total	442	2400

* Covers portions of new zones

The 2400 dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Cairo, particular for slum and other low income areas, as well as assurances of safer deliveries for Cairo women.[1]

The Daya program in Cairo should be extended to all districts. Arrangements made by the Health Directorate to have health zone offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training. The program will require training for new PHC staff assiged towork on the Daya Program.

MCH Laboratory Up-Grading Program

32 MCH laboratories have been up-graded for the Cairo Health Directorate. Inputs include the provision of equipment and supplies, training of laboratory staff (including training for seven laboratories scheduled in 1996) and field monitoring.visits (List of Laboratories below). In general the up-graded laboratories in Cairo have good physical facilties, are using

[1]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

9. ARI Training Accomplished in Cairo

	Thru 1991	In 1992	In 1993	In 1994	In 1995	Total
Managers	0	7*	19	--	7	33
Specialists	#	73#	91	44	55	263
PHC Physicians	1106	968	474	410	124	3082
Nurses	0	358 322	292	0	972	
Pharmacists	0	0	0	35	0	35
Private Physicians	0	0	0	40	33	73
Model Clinic Training	0	0	36	0	10	46
Nursing School Instructors	-	0	0	0	36	36
Health Education Officers	-	0	0	0	83	83
Lab Technicians	-	0	0	0	3	3
Total	1106	1406	906	856	351	4625

*including training carried out in 1991. #including training of trainers in 1991 and in 1992

10. ARI Cases Registered

ARI Cases Registered in 1993 and 1994

	1993	1994	1995	1993	1994	1995	Sentinel
	----------number----------			----------Percentages----------			
Very Severe Disease	115	683	)	0.54	0.61	)	0.70
Severe Pneumonia	223	791	) 24209	1.10	0.71	)17.80	1.70
Pneumonia	2249	9959	)	10.64	8.90	)	7.80
Otitis Media	1499	9798		7.09	8.75		8.30
Pharyngitis	7326	38122		34.65	34.07		26.20
Cough/Cold	9721	52551		45.98	46.96		50.00
Total	21143	111904	136040	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program in Cairo Governorate

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

3. **Clinic Management Improvement Program:**
Initiated with the selection and development of two model clinics in 1995:

- El Galaa UHC — Gharb District
- New Noza UHC — Masr El-Gediida District

During 1996-97, it is the intention of the MOH to work with the Governorate to extend this program to other MCH and urban health centers.

4. **Mobilization of Health Education Offices**

- Training of 13 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled.

- Training of 18 health education officers and and other health agents in Cairo in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

5. **Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages**
Mass media transmission of 12 key messages by TV and radio during 1996.

6. **Pre-Service Training for Medical and High Institute of Nursing Students**

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students are to be provided opportunities to observe organization and management of primary health care services in El Galaa and New Noza model health clinics starting in the 1996-97 school year..

7. **Pre-Service Training in Secondary Schools of Nursing**
EPI trained 188 teaching staff in 23 secondary schools of nursing in Cairo, and provided reference materials for teaching in these schools during 1993. ARI trained 36 teaching staff for 19 secondary nursing schools in Cairo in 1994-1995.

CAIRO

Annex 1

TRENDS IN REGISTERED IMR AND ADJUSTED IMR AND IN CMR (1 thru 4) IN CAIRO GOVERNORATE

	1987	1992 1987-92	% Change	1995	% Change 1987-95
Registered IMR	47	33	- 30%	27	- 43%
Adjusted IMR	47	33	- 33%	27	- 43%
CMR (1 thru 4)	3.8	2.0	- 47%	1.8	- 53%

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates.Two committees established under the authority of the Under Secretary for Health was responsible for conducting the study in Cairo[5] The committee reviewed 1214 cases of female deaths and identified 68 as maternal deaths, leading to an estimate of maternal mortality ratio of **200** maternal deaths per 100,000 live births, with a 90% confidence interval of 156- 255..The national MMR was found to be 174.

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Cario by year 2000 to **100** maternal deaths per 100,000 births through a program of safe motherhood aimed at reduction of maternal mortality and morbidity.

4. Cairo Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 in Qalyubia indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW.

Based on the pilot study a national low birth study has been carried out to: i)estimate the magnitude and distribution of LBW nationally l ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and ib) determine birth weight specific mortality and morbidity. Field work for this study was completed in 1995-96 in six governorates.

Cairo Governorate participated in the national study with 1605 deliveries monitored. A preliminary result is the wide variance noted in LBW incidence among participating governorates ranging from under 10 to over 17 per 100 live births with Cairo registering high in the proportion of LBW to total live births. A report of the results of the study in preparation.

E Project-Wide Child Survival Interventions in Cairo

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (15)..Cairo is putting the system into effect starting in 1996.

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[5]Members of the Committee #1 were Dr. Kamal El-Din Haddad, Dr. Dr. Gamal Abdou El-Gendi, Prof. Dr. Ezzat Salr, Prof Dr. Ali Alyan, Dr. Said Helal and Dr. Ahmed Moustafa. Committee #2 included: Dr. Kamal El-Din Haddad, Dr. Gamal Abdou El-Gendi, Dr. Abdalla Fahmi Kaddan, Dr. Deyaa Sarrhan, and Dr. Abdel-Moneim Mohammad Farag.

Annex 2
Infant and Child Mortality Data - Cairo Governorate

	Number of Live Births	Number of Infant Deaths	IMR	Average IMR (1 thru 4)	No of Child Deaths	CMR	Average CMR
CAPMAS DATA*							
1985	194,224	10,668	55	)	2,882	4.7	
1986	185,685	9,664	52	) 51,3	2,443	4.1	
1987	177,723	8,357	47	)	2,258	3.8)	
1988			45			3.6)	3.5
1989			37			3.1)	
87-89	avg		43			3.5	
1990			40			2,5)	
1991			35			2.2)	2.2
1992			33			2.0)	
1995 (MOH/CSP Estimate)			27			1.76	
Change 1987 to 1995			- 43%			- 54%	

EPI Data on Births in Cairo

1987	178,654
1988	188,000
1989	171,983
1990	160,235
1991	147,022

Vital Statistics Reported by Cairo Health Directorate, Dec 1995

Year	Births	Infant Deaths	Reg'd IMR	Children Deaths	Index of CMR (a)
1990	162,386	6,922	43	1864	
1991	153.682	9,392(6393?)	61 (42)	1428	
1992	148,785	6,113	41.09	1634	2.67
1993	152,839	. 6,068	40	..1580	
1994	157,651	5,462	35	1538	
1995**	158,922	5,344	33.6	1438	2.33
1995#	132,435	4,453	33.6	1198	
Change 1992 to 1995			- 18.2%		- 13%

* CAPMAS, ~Infant and Child Mortality Rates in Egypt, 1980-87 & 1980-92, Cairo: 1988 & 1996
**Data annualized #Data for January-October 1995.
a) Calculated by dividing number of children deaths in the year by the number of births in that year and the preceding three years.

May 1996

CSP Data Sheet For Dakahlia Governorate

Population

Total (Jan. 1995 CAPMAS est.) - 26 % urban.....4,226,000
1994 Births/Women needing maternal services.....109,843
1995 Births/Women needing maternal services.....110,684
Women of Reproductive age (22% of pop..).....930,000
Children Under 5 (1994 est.).....510,000

Health Infrastructure

No. of Health Bureaux.....20
No. of MCHs - 16; Urban Health Centers - 2.....18
No. of RHCs-48, RHUs - 225, rural hospitals-15 288
No. of general (1), district (16) and fever (6) hospitals.....23
University Hospital.....1
No. of health education offices.....4

16 Districts/Births(1993/94/95) • Mansura (18123/19707/19525), Talkha (11478/10588/10693), Sherbin (7055/7123/7088), Aga (8187/88764/8701), Senbellawin (12048/9847/9355), Meet Ghamr (12,814/13876/13995), Dekernes (8451/8891/8562), Manzalah (7784/6455/5982), Matareyah (2624/2813/2867), Menia El Nasr (4856/5217/5006), Belkaas (9187/9606/9267), Gamalia(na/2538/4318), Nabrawah(na/1019/882), El Amdid (na/2422/3196), Meet Salseel (na/970/1297), Gamasa (na/na/4) .

MOH Health Agents

No. of MOH physicians 1070
No. of MOH nurses.....1742
No. of hospital based pediatricians.....83
No. of MOH health education staff.....14

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	36	31	18	- 50%	60	41	32
Child (1 thru 4) mortality	4.3	2.9	2.0	- 53%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program-Initiated in 1995 with establishment of a model clinic in Shell MCH in Mansura District.

Expanded Program of Immunization

No. vaccination units.....314
No. Cold Chain deep freezers (23) and refrigerators (566) - as of April 1995.....589
No. of PHC staff trained in EPI, 1989-95.....2,173
Number of routine infant Immunizations in 1993 (91% coverage).....1,305,903
Women immunized TT2 in 1994(35,943 in 1993).....24,443
Women immunized TT2 in 1995.....26,535
Women immunized TT3/4/5 in 1994.....18,410
Women immunized TT3/4/5/ in 1995.....22,050

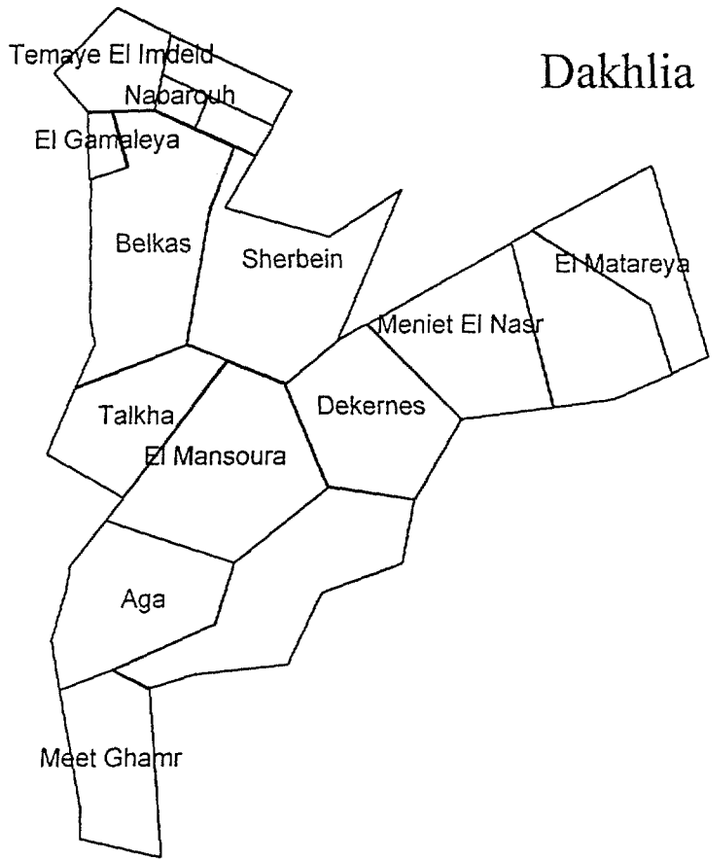
Vaccination attained in 1993/94/95 (%) BCG - 98/92/91 OPV3 - 92/90/87
TT2+ - 51/39r/44/4 Measles - 90/89 HB3 - 76/87/85 DPT3 - 92/89/85

Polio Cases:	1991 - 8	1992 - 38	1993 - 4	1994- 0	1995 - 0
NNT Cases*:	1991 - 62	1992 - 37	1993 - 25	1994- 34	1995 - 27

*All districts maintained NNT elimination in 1995.

ARI Program• Initiated 1992 • 1,293 health agents trained (54 pediatricians, 750 PHC physicians, 409 nurses, 80 other) •18,946 cases of severe ARI in children <5 years treated in MOH facilities in 1995 (33,766 cases in 1994) • 64% compliance in ARI case registration in 1995 • Pop access to SCM > 85%.

CS/MCH Program • 654 PHC physicians trained in MCH care, 1991-94 • 30 PHC nurses trained in MCH care, 1992 • 1140 dayas trained in 12 districts, 1991-95 - 45 days given refresher training, 1995.• 95 physicians trained in nutrition, 1990-91 • 7 MCH laboratories up graded - 50 MCH laboratory technicians trained, 1994• 6215 women received antenatal care in MOH facilities in 1992-6% • 5 neonatal intensive care centers established (16 incubators) - 49 physicians and 22 nurses trained in neonatal care - 763 neonates treated, 1995. • 48 physicians and 45 nurses trained in neonatal resuscitation, 1995 • Baby Friendly - program initiated in 1995 (Talkha General Hospital and Talkha MCH) -108 physicians and 49 nurses trained, 1995 • Maternal mortality survey carried out, 1992/93 - MMR of 112 (95% confidence interval, 86-144) - National MMR-184 • 12 first referral level delivery rooms in hospitals being up-graded - 35 obstetricians trained, 1994 • Nurse midwifery training program piloted, 1995 - 20 nurse midwives trained. • Proportion of deliveries by a doctore or trained birth attendant >70% (1993 est.).


Dakhlia
Temaye El Imdeid
Nabarouh
El Gamaleya
Belkas
Sherbein
El Matareya
Meniet El Nasr
Dekernes
Talkha
El Mansoura
Aga
Meet Ghamr

5. MOH Health Agents

No. of PHC physicians	1070
No. of nurses	1742
No. of hospital based pediatricians(1993 data).	83
No. of health education staff	14

6. Distribution of Health Facilities in Dakahlia by District

Districts (15) in Dakahlia	Population 1993*	ARI Targeted Hospitals and Primary Health Care Facilities							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. El Mansoura**		1	1	1	2	1	6	3	28
2. Talkha**	429,912	0	2	0	2	1	5	2	19
3. Sherbin	214,398	0	1	1	1	0	5	1	21
4. Agga	338,245	0	1	0	2	0	6	0	23
5. Senbellawin	48,005	0	1	1	1	0	6	0	24
6. Meet Ghamar**	414,651	0	1	1	2	0	7	1	26
7. Dekernes	322,758	0	1	1	1	0	4	0	20
8. El Manzalah**	265,209	0	1	1	2	0	0	2	10
9. El Matareyah	105,055	0	1	0	0	0	1	0	1
10.Menyet El Nasr*		0	1	0	1	0	3	1	11
11. Belkaas**	253,698	0	1	1	1	0	2	3	24
12. El Gammalia	656,479	0	1	0	0	0	0	0	4
13. Nabrawah		0	1	0	1	0	0	0	0
14. Tamy El Emdid		0	1	0	0	0	2	2	9
15. Meet Salseel		0	1	0	0	0	1	0	5
Total	3,999,000**	1	16	6	16	2	48	15	225

*District populations from EPI Basic Data Book, June 1994 Total population, 1993, from CAPMAS.

B. Expanded Program of Immunization in Dakahlia

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of vaccination units	314
• No. of Cold Chain deep freezers (23) and refrigerators (566)	589
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	15
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

	Total
PHC Physicians*	617
PHC Nurses*	779
Sanitarians*	428
Clerks	349
Total	2183

*Including health managers

May 1996

Dakahlia- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban.....4,226,000
1995 Births/Women needing maternal services.....110,684
Women of Reproductive age (22% of 1995 pop.)..... 930,000
No. of children under 5 years of age [est.1994].....525,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Mansura	18123	19707	19525		2	1
Talkha	11478	10588	10693		4	
Sherbin	7055	7123	7088		3	
Aga	8187	88764	8701			
Senbellawin	12048	9847	9355		4	
Meet Ghamr	12814	13876	13995		5	
Dekernes	8451	8891	8562			
Manzalah	7784	6455	5982		2	
Matareyah	2624	2813	2867		2	
Menia El Nasr	4856	5217	5006			
Belkaas	9187	9606	9267		3	
Gamalia	na	2538	4318			
Nabrawah	na	1019	882			
El Amdid	na	2422	3196		1	
Meet Salseel	na	970	1297			
Gamasa	na	na	4			
	102607	109843	110684	0	29	1

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	36	31	18	- 50%	60	41	32
Child (1 thru 4) mortality	4.3	2.9	2.0	- 53%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	20
No. of MCHs - 10/ UHCs - 10	18
No. of RHCs -33, rural hospitals - 7 and RHUs - 137	288
No. of general (1), district (10) and fever (6) hospitals	23
University Hospital	1
No. of health education offices	4

ARI Targeted Hospitals - Dakahlia

1.El Mansoura General Hospital
2.El Mansoura Fever Hospital
3.El Mansoura District Hospital

4. Agga District Hospital

5. Belkas District Hospital
6. Belkas Fever Hospital

7. Dekernes District Hospital
8. Dekernes Fever Hospital

9. El Gammalia District Hospital

10. El Mansalah District Hospital*
11. El Mansalah Fever Hospital

12. Matareyah District Hospital

13. Meet Ghamar District Hospital
14. Meet Ghamar Fever Hospital.

15. Meet Salsel District Hospital

16. Menyet El Nasr District H.

17. El Senballawim District H.

18. Sherbin District Hospital
19. Sherbin Fever Hospital

20. Talkha District Hospital- 1
21. Talkha District Hospital- 2

22. Tamy El Emded D. Hospital

23. Nabrawah District Hospital

9. ARI Health Education:

Being developed with the Health Education Department of the governorate and with district health education officers.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 1490 respiratory timers,
- 6 oxygen concentrators
- 8 oxygen cylinder sets
- 9 nebulizers
- 1 oximeter
- 190 otoscopes

5. Drugs Supplied to Dakahlia by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	--	60600	44400	74844	57392
of which Amox 125 ml	--	(18600)	(16900)	(13196)	(17556)
Paracetamol 120 cm	--	12000	17000	8000	8000
Expectorant	--	7300	0	0	0
LA Penicillin	--	0	0	6500	4333
Salbutamol Syrup	--	0	0	0	8000

6. ARI Targeted Hospitals

23 Hospitals in Dakahlia have been and are targeted for in patient and out patient care of ARI according to Standard Case Management (see following list). Inputs include the provision of training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. As of the end of 1995, all district hospitals and general hospitals had trained staff. Fever hospitals still required staff training.

7. ARI Training Facilities

An ARI training center for PHC staff was established in

- El Mansura Fever hospital in 1992.

8. ARI Training Accomplished in Dakahlia

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	2	11	0	0	13
Specialists	3	14	27	0	54
PHC Physicians	198	235	281	36	750
Nurses	0	169	197	43	409
Pharmacists	0	0	0	29	29
Nursing School Teachers	0	0	0	22	22
Health Education Officers	0	0	0	26	26
Total	203	429	505	156	1293

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Mansura	19525	0	1	2	83	82	79	80	80	32
Talkha	10693	0	0	4	96	96	96	93	93	43
Sherbin	7088	0	0	3	104	97	93	93	89	45
Aga	8701	0	0	0	92	93	85	86	80	38
Senbellawin	9355	0	0	4	88	76	83	85	81	47
Meet Ghamr	13995	0	0	5	100	85	82	83	81	41
Dekernes	8562	0	0	3	89	85	89	89	87	53
Manzalah	5982	0	0	2	110	108	100	101	101	52
Matareyah	2867	0	0	2	97	88	93	93	91	50
Menia El Nasr	5006	0	0	0	106	106	101	106	106	106
Belkaas	9267	0	0	3	73	79	90	89	89	52
Gamaliaa	4318	0	0	0	50	46	45	45	45	26
Nabrawah	882	0	0	0	80	84	84	84	84	44
El Amdid	3196	0	0	1	85	83	76	78	81	48
Meet Salseel	1297	0	0	0	124	121	132	132	132	69
Gamasa	4	0	0	0	125	250	150	150	150	325
Total	110684	0	1	29	91	87	86	87	85	44

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 85%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 64%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-33,766) 18,046

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually:51,000

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities 264 (est. 86%)
- Targeted Hospitals (total in Patient and Out Patient - 23) 17 (est. 74%)

3 Hospital Laboratory Upgrading

The laboratory in Mansoura fever hospital is being up-graded in 1995 for diagnosis of acutre respriatory infections and tests of ARI microbial drug resistance.

3. Infant Immunization Coverage Attained in Dakahlia

	BCG	Measles	HB	OPV3	DPT3
1987*	61.2	71.3	0	89.0	85.2
1990*	82.3	82.8	0	80.0	79.5
1993#	98	90	76	92	92
1994#	92	89	87	90	89
1995#	91	87	86	87	85

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			8.6
1990*			63.8
1993#	35,943	na	51%
1994#	24,443	18,410	39%
1995#	26,535	22,050	44%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	8	38	4	0	0
NNT Cases*	62	37	25	34	27

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

The 1,140 dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Dakahlia,as well as assurances of safer deliveries for Dakahlian women. [2]

The Daya program in Dakahlia should be extended to the remaining three districts during 1996-1997. Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Seven MCH laboratories were selected by the Dakahlia Health Directorate for up-grading during the period 1992-94.(following list) Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in Dakahlia

1. Talkha MCH	Tallka District
2. El Mansura 1 (MCH)	Mansura District
3. Aga MCH	Aga District
4. Mit Ghamr 1 (MCH)	Mit Ghamr D
5. Menia El Nasr MCH	Menia El Nasr District
6. El Manzalah MCH	Manzalah District
7. Dekernes MCH	Dekernes District

Field Monitoring visits carried out in 1994-1995 found problems in the operation and maintenance of these laboratory facilities. Problems of limited use, lack of regular supervision and regular provision of laboratory supplies.

Neonatal Care Facilities in Dakahlia

Six first referral neonatal care centers were established and developed during 1991-95 in 6 of the 15 districts of Daqahlia.. Inputs including training, advisory services, development of service standards[3] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the six centers provided care for 763 neonates,of whom 80% were referrals of neonates from outside the hospital. The number of admittances is equivalent to slighltly over 10% of the indicated need for first referral care for about 7000 infants in the six districts[4] The number of LBW infants in the governorate in 1995 is estimated in the range 10,000 - 15,000. Further development of district level neonatal care capacity and facilities, and neonatal referral systems is required in during 1996-2000.

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[2]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

[3]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[4]Need based on estimated proportion of LBW infants among births.

10. ARI Cases Registered

ARI Cases Registered in 1993 and 1994

	1993	1994	1995	Percentage Distribution 1993	1994	1995	Sentinel
	----------number--------						
Very Severe Disease	75	484		0.33	0.28		0.80
Severe Pneumonia	300	2185		1.33	1.29		2.40
Pneumonia	3370	31097		14.94	18.31		8.60
Otitis Media	2556	22830		11.33	13.44		12.50
Pharyngitis	6657	44476		29.52	26.19		24.20
Cough/Cold/Bronchitis	9595	68765		42.54	40.49		46.40
Total	22553	169838		100.00	100.00		100.00

D. The Child Spacing and MCH Program in Dakahlia

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Daqahlia Health Directorate 1991-1995 to train physicians and nurses to monitor, supervise and train dayas in the following 12 districts of Dakahlia

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
•		
•		
•		
•		
•		
•		
•		
•		
•		
•		
•		

[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Dakahlia.[6] The committee reviewed 680 cases of female deaths and identified 68 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **112** maternal deaths per 100,000 live births, with a 90% confidence interval of 86-144..The national MMR was found to be 174. Dakahlia was found to register the second lowest governorate in Egypt in maternal mortality (after Kafr El Sheikh) which registered a MMR of 96 within a confidence interval of 65-140.

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Dakahlia by year 2000 to **56** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

4. Dakahlia Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 in Qalyubia indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW.

Based on the pilot study a national low birth study has been carried out to: i)estimate the magnitude and distribution of LBW nationally l ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and ib) determine birth weight specific mortality and morbidity. Field work for this study was completed in 1995-96 in six governorates.

Dakahlia Governorate participated with 1,282 deliveries monitored. A preliminary result is the wide variance noted in LBW incidence among participating governorates ranging from under 10 to over 17 per 100 live births. A report of the results of the study in preparation.

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[6]Members of the Committee were Dr. Afaf Hassan Mohammed, Dr. Tawfik Mohammed El-Sherbini, Dr.Abdel-Megeed Fathi, Dr. Mahmoud Shawr and Dr. Mohammed Hamid Mowafi.

Neonatal Care Centers Established in Dakahlia 1991-95

Hospital	District/Births in the District - 1995	Incubators Supplied*	Admittances 1995
1. Mansura General Hospital	Mansura/19529	7	209
2. El-Mateareyya General Hospital	Matareyyah/2867	2	284
3. El-Senbellawin Hospital	Senbellawin/9355	1	27
4. Aga Hospital	Aga/8701	1	18
5. BelkasHospital	Belkas/9267	2	98
6. Mit Ghamr Hospital	Mit Ghamr/19955	4	127
	6 Districts/69674	17	763

Delivery Rooms Up-graded

Twelve delivery rooms in eleven districts were selected by the Health Directorate to be up-graded. Inputs have included renovation, supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Sembellawin Hospital	Sembellawin District
2. Sherbin Hospital	Sherbin District
3. El Manzala Hospital	Mansala District
4. Belkas Hospital	Belkas District
5. Menia El Nasr Hospital	Menya El Nasr District
6. Nabrawah Hospital	Nabrawah District
7. El-Gamalia Hospital	Gamalia District
8. Talkha Hospital	Talkha District
9. Dekernes Hospital	Dekernes District
10.El Mansur GeneralHospital	El Mansura District
11 Mit Ghamr Hospital	Met Ghamr District
12. Aga Hospital	Aga District

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care

- 654 physicians were trained in child spacing and MCH care (1989-1995)
- 1140 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 95 physicians trained in mother child nutrition, 1990-1991
- 30 nurses trained in mother-child care.
- 50 laboratory technicians trained in MCH laboratory analysis
- 71 physicians and nurses were trained during 1992-95 in neonatal care
- 30 obstetricians trained for delivery room service upgrading
- 93 physicians and nurses trained in neonatal resuscitation
- 157 physicians and nurses trained for the breast feeding - baby friendly program.
- 20 nurses trained in nurse-midwifery.

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[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2). Cairo, March 1994.

Annex 2 Infant and Child Mortality Data For DAKAHLIA

	Number of Live Births	Number of. Deaths	Infant Avg	IMR	No of 1 thru 4 Deaths	CMR
CAPMAS Published Data on Registered IMR and CMR*						
1985				29		6.0
1986				28		.....4.2
1987				26		4.3
1988				31		5.2
1989				26		4.7
87-89 average				27.7		4.7
1990				24		3.7
1991				22		3.1
1992				23		2.9
90/92 average				23		3.2
1995 (MOH/CSP Estimate))				16.5		2.0

Vital Statistics From Health Directorate

Year	Births	Infant Deaths		Reg;d CMR	Children Deaths	Index of CMR(b)
1987	133772	3724)			1829	
1988	132665	3762)	3511a	27.4a	2038	
1989	118676	3046)			1904	
1990	117028	2605)			1561	
1991	114956	2705)	2577a	22.8a	1516	
1992	107291	2421)		22.6	1485	3.24
1993	102607	1966			1649	
1994	109843	1784		16.2	959	2.20
1995						
Change from 1992 to 1994:				**- 28.3%**		**- 32.1**

*Source-CAPMAS, *Infant and Mortality Rates in Egypt, 1980-87* and *1980-92*. Cairo, 1989 and 1996.
Source: Vital Statistics - Governorate Health Directorate a) 3-year average b) calculated by dividing deaths in the year by births in the year and in the 3 preceding years.

DAKAHLIA

Annex 1
TRENDS IN REGISTERED IMR AND ADJUSTED IMR AND IN CMR (1 thru 4) IN DAKAHLIA

	1987*	1992*	% Change 1987-92	1994**	% Change 1987-95
Registered IMR	26	23	- 12%	17	35%
Adjusted IMR	36	31	- 9%	22	39%
CMR (1 thru 4)	4.3	2.9	- 33%	2.0	53%

*CAMPAS published data.
*CSP Estimate based on vital statistics reported by Governorate Health Directorate.

May 1996

CAIRO- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cros-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 100% urban	6,955,000
1995 Births/Women needing maternal services	157,198
Women of Reproductive age (22% of 1995 pop.)	1,530,000
No. of children under 5 years of age [est.]	730,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Masr El Gedida	7369	7562	7719			1
Shark	25369	20872	21142		2	2
El Zaitoun	14931	15203	7762		1	1
Shoubra	2846	2500	2241			
Sharabia & Zawia	12637	12840	12417	1	2	1
Rod El Farag	3907	4297	3897			
El Sahel	8947	8993	9140			
Wasat	7445	7206	7619			
Waily	9331	8762	5214			
Gharb	3579	2978	3357			
Abdiin	2413	2236	2103			
Ganoub	8610	8716	9002	1		2
Masr El Kadima	12545	12549	6940			
Helwaan	12544	12972	13106	1	2	1
El Maadi	9258	9456	5155		1	
15 May	2385	2437	2482	1	1	1
M.Nasr	5788	6406	6974	1	1	1
M. El Salam	5180	11213	5861		1	
El Marg	na	na	6573			
Hadaek El Koba	na	na	8449			
Manshaett Naser	na	na	3822		3	1
El Basatin	na	na	10376			
	155085	157198	161351	5	14	11

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	47	33	27	- 43%	60	41	32
Child (1 thru 4) mortality	3.8	2.0	1.8	- 47%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

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4. Health Facilities

No. of Health Bureaux	56
No. of MCHs - 24/ UHCs - 54	76
No. of RHCs - 2, rural hospitals - 0 and RHUs - 1	3
No. of general (13), district (0) and fever (2) hospitals	13
No. of University Hospitals	2
No. of health education offices	14

5. MOH Health Agents

No. of PHC physicians	3000
No. of nurses	2753
No. of hospital based pediatricians(1993 data).	134
No. of health education staff	42

6. Distribution of Cairo Health Facilities by District*

Districts (18):	Population*	Targeted Hospitals# and Primary Health Care Centers#					
		Hospitals	MCH	UHC	RHCs	RHU	Total
1. Masr El Gedida	200,000	1	1	3		0	4
2. Shark (East)	724,233	0	2	2	1	0	5
3. El Zaitoun	740,270	0	3	6		0	9
4. Shobra	119,500	3	2	0		0	2
5. Sharabia & Zawia	652,800	1	2	3		0	5
6. Rod El Farag	272,000	0	2	1			3
7. El Sahel	450,000	1	2	0		0	2
8. Wasat	306,672	0	1	2		0	3
9. El Wally (Wayeli)	372,200	0	2	3		0	5
10. Gharb (West)	171,600	2	1	0	1	0	2
11. Abdiin	157,684	0	1	1		0	2
12. Ganoub (South)	1,084,882	3	4	5		0	9
13. Masr El Kadima	288,300	1	0	5		0	5
14. Helwaan	677,211	3	1	7		0	8
15. El Maadi	585,800	0	2	5		0	7
16. 15 of May	114,178	3	0	2		1	3
17. Maden. Nasr	179,700	1	0	1		0	1
18. M. El Salam	464,526	1	0	9		0	9
19.Mondsha Nasr##							
20.Marg##							
21 Basaten & Dar Es Salam##							
22. Hadayek El Kobba ##(							
Total	7,561,556	15###	24	54	2	1	86

*Population in 1993, reported by August 1994 EPI Basic Data Book. # Source: Reported by ARI Field Implementing Officer. ## New health districts/zones. The number of health zones/districts is planned to increase to 25. ###Source: ARI Data Base - 13 general hospitals and 2 fever hospitals

B. Expanded Program of Immunization in Cairo Governorate

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

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4. TT Immunization (of Pregnant Women) in Aswan

	Number of Women Immunized TT2	TT3/4/5	TT2+ Coverage (Percent)
1987*			7.4
1990*			44.0
1993#	11,266	na	71
1994#	9,101	2,576	42
1995#	3,719	4,240	30

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	11	5	2	1	2
NNT Cases*	16	21	8	6	4

* All districts achieved NNT elimination (<1 case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	Cases of AFP Polio	Non Polio	Cases NNT	BCG	--Immunization Coverage Attained in 1995--- Measles	HB3	OPV3	DPT3	TT2+
Aswan	6924	1	1	0	86	83	83	78	83	42
Draao	2214	0	0	0	88	85	89	89	89	47
Kom Ombo	7423	1	1	2	97	101	92	96	96	247?
Edfo	8323	0	0	2	81	79	84	84	83	4
Nasr	2053	0	0	0	88	92	87	88	88	43
Total	26,937	2	2	4	88	88	86	87	87	25

C. ARI Control Program in Aswan

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 70%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-8518) 5531

*pneumonia, severe pneumonia, and very severe disease- Minimum no. expected cases annually-13,000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (Total, all, targeted - 105) 98 (est. 90%)
- Hospitals (Total targeted - 9) 7 (est. 77%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 543 respiration timers
- 9 oxygen concentrators
- 4 oxygen cylinder sets
- 8 nebulizers
- 1 oximeter
- 190 otoscopes

4. Drugs Provided to ARI-targeted Health Facilities

	1991	1992	1993	1994	1995
Amoxicillin (250 and 125 ml)	0	15400	23800	39556	29924
[of which Amox 125 ml]	0	(3900)	(8800)	(6852)	(9106)
Paracetamol 120 cm	0	2100	8800	4200	4200
Expectorant	0	1000	0	0	0
LA Penicillin	0	0	0	3000	2267
Salbutamall Syrup	0	0	0	0	4200

5. Up-graded ARI Laboratory Facility

The laboratory in Aswan General Hospital has been up-graded for bacterial identification and resistance testing and is scheduled to come part of a national ARI microbial resistance surveillance network.

6. ARI Hospitals Targeted

Hospitals in Aswan have been and are being targeted for installation of ARI standard care management (listed below). Inputs have included training equipment and monitoring/advisory visits. Additional equipment is being provided in 1996. Additional staff training is needed.

ARI Hospitals Targeted in Aswan

1. Aswan General Hospital:
2. Aswan Fever Hospital

3. Kom Ombo District Hospital.
4. Kom Ombo Fever Hospital;

5. Nasr Fever Hospital
6. Nasr District Hospital

7. Edfu District Hospital
8. Edfu Fever Hospital

9. Draao District Hospital

D. The Child Spacing and MCH Program in Aswan

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care.

1. Facilities Development

Districts Developed To Establish the Daya Program (MOH/UNICEF)

The MOH with UNICEF assistance trained physicians and nurses to monitor, supervise and train dayas in most districts of Aswan. The 389 dayas trained in these districts provide for an extension of primary health outreach for mother and infant health in the urban communities, as well as the safer deliveries by trained birth attendants.[1]

MCH Laboratory Up-Grading Program

Four laboratories in MCH centers in three districts were up-graded by the provision of equipment and supplies, and training of laboratory staff:

1. Aswan 1MCH	Aswan District
2. El NafakUHC	Aswan District
3. DraaoMCH	Draao District
4. Kom OmboMCH	Kom Ombo district

Neonatal Care Program

Three first referral neonatal care centers were established and developed during 1991-95 in 3 of the 5 districts. Inputs including training, advisory services, development of service standards[2] and supplies and equipment.[3]

Neonatal Care Centers Established in Assiut Governorate, 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admissions in 1995
1. Aswan General H..	Aswan/6924	6	263
2. Adfo District H.	Adfo/8323	3	na
3. Kom Ombo District H.	Kom Ombo/7423	2	na
Total	3 Districts/22670	11	na

In 1995 the center in Aswan District provided first referral care for 263 neonates of which 38% were referrals from outside the hospital. These admissions equaled about 40% of the estimated need of 700 first referral care for infants in the district.[4] The number of LBW infants in the governorate in 1995 is estimated in the range 2700-4000. A requirement is developement of the referral system for neonates needing first referral care..

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[1]The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant rose to an estimated 90% (1993 estimate

[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Equipment included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

[4]Need based on estimated proportion of LBW infants among births.

7. ARI Health Education

The ARI program is working with the Health Directorate to intensify public health education for control of ARI.

8. ARI Training Centers:

Five Centers were established in 1992 with UNICEF Assistance, one per district:

- Aswan General Hospital
- Draoo District Hospital
- Edfo District Hospital
- Kom Ombo District Hospital,
- Nasr District Hospital.

9. Training Accomplished in Aswan : 1992-95

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	6	3	0	0	9
Specialists	0	4	8	0	12
PHC Physicians	139	245	69r	0	453
Nurses	146	268	35r	0	449
Training Staff, Nursing Schools	0	0	0	0	(p)
Health Educators	0	0	0	0	(p)
Pharmacists	0	0	0	15	15
Total	291	520	112r	15	938

r-revised to include 27 PHC physicians and 35 nurses trained locally. p - planned

10. ARI Cases Registered

	1993	1994	1995	-------Percentage Distribution------			
	(number of cases)			1993	1994	1995	Sentinel
Very Severe Disease	470	434)		1.68	. 89)		1.10
Severe ARI (Pneumonia)	809	1336)	5531	2.89	2.75)	8.28	4.60
Pneumonia	4879	6748)		17.42	13.87)		13.10
Otitis Media	1556	3739		5.56	7.68		8.80
Pharyngitis	3175	6075		11.34	12.48		18.10
Cough/Cold	17115	30332		61.12	62.33		50.10
Total	28,004	48,664	66759	100.00	100.00	100.00	100.00

E Project-Wide Child Survival Interventions in Dakahlia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (15)..Dakahlia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

The governorate has opted to collaborate in the MOH Clinic Management Improvement Program and initated the proram with the selection of Shell MCH in Mansura District as a model clinic which undergoing renovation. Initial training of the Clinic Management Team in use of performance service standards is scheduled to be completed in 1996. The aim is to extend the program to most health centers during following years.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of 21 health education officers and and other health agents in Dakahlia in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility of over 1100 trained dayas in 12 districts as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools Dakahlia

EPI trained 69 teaching staff in the 10 secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI trained 22 teaching staff for the 10 secondary nursing schools and provided reference teaching materials in 1994-1995.

May 1996

CSP Program Data Sheet for Cairo Governorate

Population

Total (Jan 1995 CAPMAS estimate).....6,955,000
1994 Births/Women needing maternal services.....157,198
1995 Births/Women needing maternal servives.....161,351
Women of Reproductive age (22% of pop).....1,530,000
Children Under 5 (1994 est.) 730,000

Health Facilities

No. of Districts (1995: 18 in 1994).....22
No. of Health Bureaux.....56
No. of MCHs - 24/ UHCs - 54.....76
No. of RHCs - 2), rural hospitals - 0 and RHUs - 1.....3
No. of general (11), district (0) and fever (2) hospitals.....13
No. of University hospitals.....3
No. of Health Education Centers.....14

Districts (22)*/Births (1993/94/95): •Masr El Gedida (7369/7562/7719) •Shark (25369/20872/21142) • El Zaitoun (14931/15203/7762) •Shoubra (2846/2500/2241) •Sharabia & Zawia (12637/1284012417) •Rod El Farag (3907/42973897) • El Sahel (8947/8993/9140) • Wasat (7445/7206/7619) •Waily (9331/8762/5214) •Gharb (3579/2978/3357) •Abdiin (2413/2236/2103) •Ganoub 8610/8716/9002] •Masr El Kadima (12545/125496940) •Helwaan (12544/12972/13106) •El Maadi (9258/9456/5155) •15 May (2385/2437/2482) •M.Nasr (5788/6406/6974) •M. El Salam (5180/11213/5861) •El Marg (na/na/6573) •Hadaek El Koba (na/na/8449) •Manshaett Naser(na/na/3822) •El Basatin (na/na/10376). 10 districts missed 80% infant vaccination coverage in 1995

MOH Health Agents

No. of PHC physicians.....3000
No. of MOH nurses.....2753
No. of hospital based pediatricians.....134
No. of MOH Health Education Staff.....42

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	47	33	27	- 43%	60	41	32
Child (1 thru 4) mortality	3.8	2.0	1.8	- 47%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program: Initiated with 2 model clinics, in 1995.

Expanded Program of Immunization

No. vaccination units.....126
No. Cold Chain deep freezers (34) and refrigerators (323)-April 1995.....357
No. of PHC staff trained in EPI, 1989-1995.....6,973
Routine infant/child immunizations in 1993 (vacc rate -85%).....1,843,162
Women immunized TT2 in 1994, (41,028 in 1993).....31,110
Women immunized TT2 in 1995.....30,221
Women immunized TT3/4/5 in 1994.....20,430
Women immunized TT3/4/5 in 1995.....20,685

Key vaccination coverage rates in 1993/1994 (%) BCG - 92/85/83 OPV3 - 88/82/81
TT2+ - 44/33/32 Measles - 84/90/80 HB3 - 70/81/80 DPT3 - 86/82/80

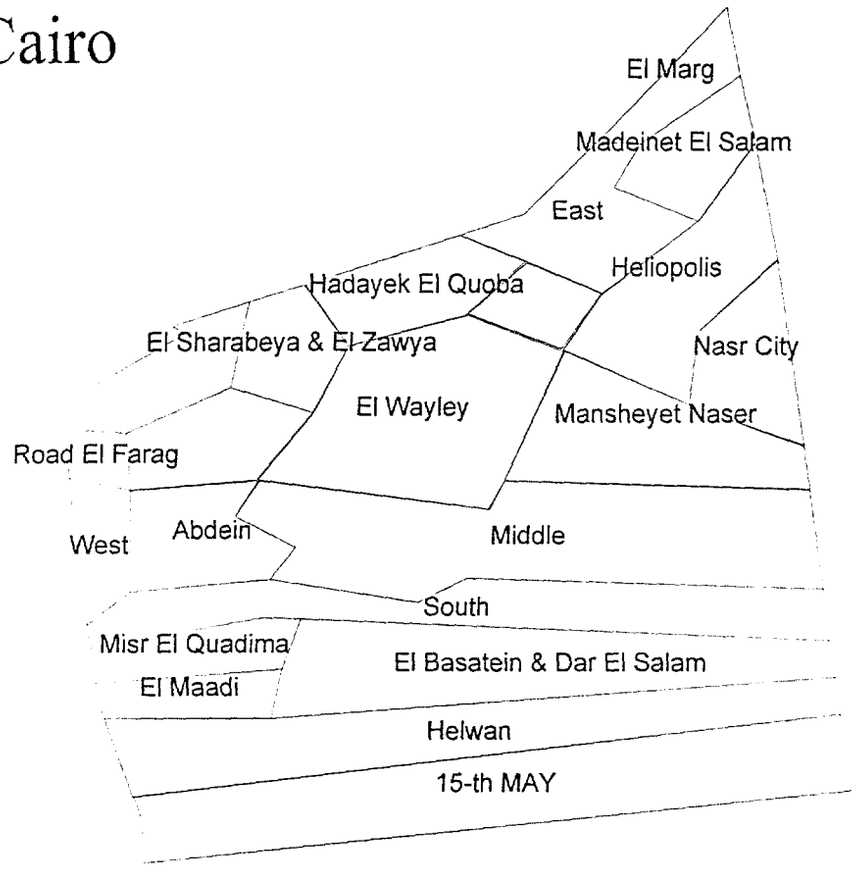
Polio Cases:	1991 - 34	1992 - 33	1993 - 6	1994 - 4	1995 - 5
NNT Cases*:	1991 -51	1992 - 38r	1993 - 25	1994 - 25	1995 - 12

* All districts achieved<1 NNT case per 1000 live births in 1995.

ARI Program • Initiated in 1990 • 4625 health agents trained (263 pediatricians, 3082 PHC physicians, 972 nurses, 273 other) • 24,209 cases of severe ARI in children <5 treated in MOH outpatient facilities in 1995 (11,433 cases in 1994) • 70% compliance in ARI case registration in 1995.• Pop. Access to SCM >90 %.

CS/MCH Program • 2,934 PHC physicians trained in MCH, 1989-95 • 1200 physicians and 920 nurses and dieticians trained in nutrition, 1989-91 • 150 food inspectors trained in nutrtion, 1989-91 • 32 MCH laboratories upgraded - 63 lab technicians trained. • 2,280 dayas trained,1990-95 - 180 dayas given refresher training in 1995.• 32,637 women provided antenatal care (first visit) in MOH facilities in 1992 = 22% • 8 neonatal care centers established (34 incubators) - 47 physicians and 27 nurses trained in neonatal care, 1991-94 - 1009 neonates treated in 1995.• 60 physicians trained in neonatal resuscitation, 1995. • Baby Friendly Program started (MOH/UNICEF) in 1993 • Maternal mortality survey carried out in 1992/93 - MMR-200 (95% confidence interval, 156-255) - . National MMR-174 • 8 first referral level hospital delivery rooms being up-graded • Deliveries managed by a trained birth attendant (doctor, nurse, trained daya) > 90% (1993 estimate).

Cairo


El Marg
Madeinet El Salam
East
Heliopolis
Hadayek El Quoba
El Sharabeya & El Zawya
Nasr City
El Wayley
Mansheyet Naser
Road El Farag
West
Abdein
Middle
South
Misr El Quadima
El Maadi
El Basatein & Dar El Salam
Helwan
15-th MAY

E Project-Wide Child Survival Interventions in Beni Suef

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, and training for governorate staff. Beni Suef and field monitoring visits (2) are putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Being pilot ed in 13 other governorates.

4. Mobilization of Health Education Offices

- Training of 5 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- Training of health education officers and physicians in key messages for the ARI Control Program is scheduled to be conducted in 1996.
- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 28 teaching staff in 5 secondary schools, provided reference materials for teaching in these schools and helped train graduating nurses during 1993-1995. ARI trained 20 teaching staff in 5 secondary schools in 1996 and provided teaching reference materials for teaching.

Annex 2 Infant and Child Morality Data - Beni Suef

	Number of Live Births	Number of. Deaths	Infant Avg	Crude IMR	No of 1 thru 4 Deaths	Avg	CMR or Index of CMR(a)
CAPMAS Published Data *							
1983	57043	4158		73	3048		17.3
1984	63421	5123		81	2849		16.3
1985	64665	4398		68	2791		15.6
1986	69091	3898		56	2032		11.2
1987	73942	4037		55	2352		12.7
1988				67			13.0
1989				54			10.0
87-89 Average				59			12.3
1990				49			7.9
1991				54			7.8
1992				49	1791		8.0
90-92 Average				51			7.9
1994 (MOH/CSP Estimate				38			5.9
EPI Statistics on Births							
1987	67809						
1988	66763						
1989	61597						
1990	61029						
1991	64009						
1992	58067						
Vital Statistics From Beni Suef Health Directorate							
1987	67021	3620)			1931)		
1988	68248	4044)	5739a	55.4	2070)	1944a	
1989	60982	3201)			1832)		
1990	61870	2936)			1508)		
1991	58045	2976)	2979a	50.2a	1428)	1523a	
1992	58067#	3024)		52.1	1634)		6.84
1993	60447	2589			1421		
1994	61211	2450		40.0	1191		5.01
1995							
Change from 1992 to 1994				- 23.2%			- 26.8%

Source: CAPMAS . Infant and Child Mortality Rates in Egypt, 1980-87 and 1980-92, Cairo: 1989 and 1996..and Governorate vital statistics. # adjusted (from 53,045 reported by the governorate- apparently an error) by using EPI data on births in Beni Suef in 1992.). a) average b) calculated by dividing number of deaths in the year by the number of births in the year and in the preceding three years. .

3. Beni Suef Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Beni Suef.[6] The committee reviewed 199 cases of female deaths and identified 17 as maternal deaths, leading to an estimate of maternal mortality ratio of 151 (per 100,000 live births), with a 90% confidence interval of 91 - 247. The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This implies a target for Beni Suef of 75 maternal deaths/100,000 live births. This target will require implementation by the governorate of a safe motherhood program aimed at reduction of maternal mortality and based on the recommendations of the national study.

BENI SUEF

Annex 1

Trends in Infant and Child Mortality in Beni Suef Governorate.

	1987*	1992*	% Change 1987-92	1994#	% Change 1987-95
Registered IMR	55	49	- 11%	39	- 31%
Adjusted IMR	98	59	- 40%	45	- 54%
Child Mortality Rate	12.7	8.0	- 23%	5.0	- 61%

*CAPMAS published data
Estimated by MOH/CSP based on vital statistics provided by the governorate.

[6]Members of the Committee were Dr. Saad Hamsa Mohammed, Dr. Saad Fouad Hendawi, Dr.Ibrahim Sherif Hegab, Dr. Abdel-Wahab Hassan, Dr. Sayed Sayed Hozaym and Dr. Mohammad Ragaa Shatla. .

In 1995 the center in Beni Suef General Hospital provided first referral care for 410 neonates, of which 44% were referrals from outside the hospital.The admittances in 1995 covered 36% of the estimated need of 1100 first referral care for infants in Beni Suef districts[4] The number of LBW infants in the governorate in 1995 is estimated in the range 6000-9000.

Neonatal care in Beni Suef requires further development of capacity and facilities during 1996-2000 and imnproved organization of the neonatal referral system at the district level.

Neonatal Care Centers Established in Beni-Suef, 1991-95

Hospital	District/Births	Incubators Supplied	Admissions in 1995
1.Beni Suef General H..	Beni Suef/11327	6	410
2.El FashnDistrict H.	El Fashn/9568	2	na
Total	2 Districts/20895	8	na

Delivery Rooms Up-graded

Delivery rooms were selected by the Health Director to be up-graded in six districts. Inputs have included renovation, supply of equipment, development of standards,[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El Wasta Hospital	El Wasta District
2. Somosta District Hospital	SomostaDistrict
3. Beba District Hospital	Beba District
4. AhnasiaDistrict Hospital	Ahnasia District
5. El Fashn District Hospital	El Fashn District
6. Beni Suef General Hospital	Beni Suef District

Further work is required in training delivery room staff, and in the development of use of performance services to ensure high quality of emergency and routine obstetrical services, including neonatal resuscitation procedure.

2. Training for MCH Care

- 305 physicians were trained in child spacing and MCH care (235 in 1991 and 1992 and 70 in 1995/96
- 50 dayas trained (MOH/Finn Cooperation)
- 5 laboratory technicians are scheduled for training in June 1996
- 44 physicians and 23 nurses were trained during 1992-95 in neonatal care
- 18 physicians and nurses were trained as trainers in breast feed and for the baby Friendly Initiative, 1994.
- 31 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality

---

[4]Need based on estimated proportion of LBW infants among births.

[5]MOH/CSP and USAID. *Maternity Care at the First Referral Level.*. (Prepared by Child Spacing Executive Director. Dr. M. Kassas in Child Spacing Technical Series. Issue #2). Cairo. March 1994.

10. ARI Cases Registered

	1993	1994	1995	----------Percentages----------			
	----------number---------			1993	1994	1995	Sentinel
Very Severe Disease	6	343	)	1.20	1.57	)	1,10
Severe Pneumonia	28	771	)9915	5.61	3.54	)43.24	4.60
Pneumonia	58	3738	)	11.62	17.15	)	13.10
Otitis Media	45	2806		9.02	12.87		8.80
Pharyngitis	102	6070		20.44	27.85		18.10
Cough, Cold	260	8069		52.10	37.02		50.10
Total	499	21797	22926	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care.

1. Facilities Development

Districts Developed To Establish the Daya Program (MOH/Finns/UNICEF)

The MOH with UNICEF assistance initiated the daya program in 1996..Previously, the MOH/Finnish rural health program trained 60 dayas in Beba district.[1]

MCH Laboratory Up-Grading Program

Two laboratories, one in each of two districts are in process of being up-graded in 1995/96 by the provision of equipment and supplies, and training of laboratory staff:

1.El Fashn MCH	El Fashn District
2.Beni Suef MCH	Beni Suef District

Neonatal Care Program

Two first referral neonatal care centers were established and developed during 1991-95 in 2of the 7 districts. Inputs including training, advisory services, development of service standards[2] and supplies and equipment.[3]

---

[1]The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant was estimated at 35% (1993 estimate).

[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Equipment included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors,centrifuges,suction machines and jaundice meters.

ARI-Targeted Hospitals in Beni Suef

1. Beni Suef General H.
2. Beni Suef Fever Hospital

3. Beba District Hospital

4. Naser District Hospital

5. Somosta District Hospital
6. Somosta Fever Hospital

7. Ehnasi District Hospital

8. El Wasta District Hospital
9. El Wasta Fever Hospital

10. El Fashn District Hospital
11. El Fashn Fever Hospital

8. ARI Training Center

A training center was established in Beni Suef General Hospital in 1993.

9. ARI Training Accomplished in Beni Suef

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	0	8	0	1	9
Specialists	4	17	16	0	37
PHC Physicians	51	69	116	76	315
Nurses	0	79	298	20	397
Pharmacists	0	0	24	0	24
Nursing School Teachers	0	0	0	20	20
Health Education Officers	0	0	0	0	0
Total	55	173	454	117	797

1 Status of the Program - End 1995

- Public access to standard case management is estimated at >80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 47%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-4852) 9915

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:30,000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 133 targeted) 106 (est. 80%)
- Hospitals (11 targeted) 8 (est. 72%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995

- 689 respiration timers
- 5 oxygen concentrators
- 6 oxygen cylinder sets
- 6 nebulizers
- 1 oximeter
- 125 otoscopes

4. Drugs Provided to ARI-targeted Health Facilities

	1992	1993	1994	1995
Amoxicillin (250 and 125 ml)	17200	34500	57532	42980
of which Amox 125 ml	(5400)	(12800)	(10156)	(13307)
Paracetamol 120 cm	3000	12800	6100	6100
Expectorant	1400	0	0	0
LA Penicillin	0	1000	4900	3267
Salbutamol Syrup	0	0	0	6100

5. Up-graded ARI Laboratory Facility

The laboratory in Beni Suef Fever Hospital has been up-graded for bacterial identification and resistance testing.

6. ARI Health Education:

Being developed with the Health Education Department of the governorate and with district health offices.

7. ARI Targeted Hospitals

11 hospitals in Beni Suef have been and are targeted for in patient and out patient care of ARI according to Standard Case Management. Inputs include the provision of training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Some hospitals still require staff training.

4. TT Immunization (of Pregnant Women) Attained in Beni Suef

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			19.8
1990*			55.3
1993#	42,238	na	70
1994#	13,704	7,465	35
1995#	30,195	39,192	114

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	45	42	24	8	10
NNT Cases*	166	117	78	55	64

*Seven districts (of 13) have achieved NNT elimination (<1 case per 1000 live births).

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	----Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Beni Suef	11327	0	3	14*	88	80	80	80	79	40
Nasr	6933	1	1	7*	102	91	91	94	93	440
El Wasta	10017	2	2	7	94	95	95	90	91	31
Beba	9067	2	1	15*	93	78	78	83	83	193
Ahnasia	8109	2	5	6	105	97	97	101	100	37
Somosta	5552	1	1	9*	88	85	85	77	77	44
El Fashn	9568	2	3	10*	94	88	88	91	91	100
Total	60623	10	16	64	95	88	88	88	88	114

*Five of seven districts fail to achieve NNT elimination (<1 case per 1000 live births)

C. ARI Control Program in Beni Suef

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Beni Suef was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

6. Distribution of Health Facilities by Health Districts*

Districts (7):	Population* (1994)	-------Hospitals and Primary Health Care Facilities------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Beni Suef	410,646	1	0	1	4	1	3	2	13
2. Naser	215,955	0	1	0	2	1	1	2	11
3. El Wasta	274,048	0	1	1	1	0	5	0	11
4. Beba	253,694	0	1	0	0	1	2	2	15
5. Ehnasi	206,886	0	1	0	1	0	5	0	15
6. Somosta	144,469	0	1	1	1	0	3	0	8
7. El Fashn	252,140	0	1	1	1	0	3	1	17
Total	1,757,838*	1	6	4	10	3	22	7	90

*Rural population-1,313,472. Source: Population Data provided by Beni Suef Health Directorate, December 1994. RuralNumbers and locations of PHC facilities from ARI Data Base. GH-General Hospital; DH-District Hospital; FH-Fever Hospital.

B. Expanded Program of Immunization

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Centers	143
• No. of Deep Freezers (6) and refrigerators(401) as of December 1995	407
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	7
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

	Total
PHC Physicians	664
PHC Nurses	1219
Sanitarians	408
Clerks	143
Others*	0
Total	2434

*Including health managers

3. Infant Immunization Coverage Attained in Beni Suef

	BCG	Measles	HB	OPV3	DPT3
1987*	73.7	74.3	0	90.7	90.7
1990*	74.4	73.4	0	75.8	72.1
1993#	88	84	67	79	79
1994#	91	81	82	80	80
1995#	95	88	88	88	88

*Cluster Surveys #Service Statistics

May 1996

BENI SUEF- Health and Child Survival Program Data

Covering EPI, ARI. CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.-CAPMAS) - 40% urban	1,836000
1995 Births/Women needing maternal services	60,623
Women of Reproductive age (22% of 1995 pop.)	404,000
No. of children under 5 years of age [est.]	295,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Beni Suef	11081	11411	11327		14	3
Nasr	7138	6833	6933	1	7	2
El Wasta	9394	10248	10017	2	7	4
Beba	8898	9291	9067	2	6	7
Ahnasia	8305	7694	8109			
Somosta	5628	5938	5552	1	9	2
El Fashn	9696	9580	9568	2	10	5
Total	60140	60995	60623	10	68	26
Total	27,709	27,599	26,937			

3. Mortality Data

	1987*	1992*	1994#	Change 87-95	-----All Egypt---- 1987	1992	1995
Infant Mortality(adjusted data)	98	59	45	- 54%	60	41	32
Child (1 thru 4) mortality	12.7	8.0	5.0	- 61%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	10
No. of MCHs-11/UHCs -3	14
No. of RHCs - 22, RHUs - 90, Rural Hospitals -	7119
No. of general(1), district (6) and fever (4) hospitals	11
No. of health education offices	7

5. MOH Health Agents

No. of PHC physicians	219
No. of MOH nurses (Mid Term Eval. Est.)	na
No. of MOH pediatricians	15
No. of MOH Health Education Staff	3

May 1996

CSP Data Sheet on Beni Suef Governorate

Population

Total (Jan 1995 CAPMAS est.) - 25% urban.....1,836,000
1994 Births/Women needing matrnal services.....60,995
1995 Births/Women needing maternal services.....60,623
Women of Reproductive age (22% of pop).....404,000
Est. No. of Children Under 5 years of age (1994 est.).....295,000

Health Infrastructure

No. of Health Bureaux.....10
No. of MCHs-11/UHCs - 3.....14
No. of RHCs - 22, RHUs - 90, Rural Hospitals - 7.....119
No. of general(1), district (6) and fever (4) hospitals.....11
No. of health education offices.....7

Districts(7)/Births(1993,94,95) • Beni Suef (11081/11411/11327), Naser (7138/6833/6933), El-Wasta (9394/10248/10017), Beba (8898/9291/9067), Ahnasia (8305/7694/8109), Somosta (5628/5938/5552), and El-Fashn (9696/9580/9568) • Beni Suef and Somosta districts missed 80% infant vaccination coverage in 1994 •

MOH Health Agents

No. of MOH-PHC physicians (Mid term eval. est.).....231
No. of nurses.....1399
No. of hospital based pediatricians.....27
No. of health education staff.....9

Mortality Data

	1987*	1992*	1995#	Change 87-95	------All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	98	59	45	- 54%	60	41	32
Child (1 thru 4) mortality	12.7	8.0	5.0	- 61%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....143
No. Cold Chain deep freezers (8) and refrigerators (402)-April 1995.....410
No. of PHC staff trained in EPI, 1989-95.....2,434
Infant routine vaccinations in 1993 (coverage = 81%; same in 1992).....681,960
Women immunized TT2 in 1993.(32000 in 1992).....42,238
Women immunized TT2 in 1994.....13,704
Women immunized TT2 in 1995.....30,195
Women immunized TT3/4/5 in 1994.....7,465
Women immunized TT3/4/5 in 1995.....39,192

Key Vaccination rates (1993,94, 95) (%): BCG-88/91/95 DPT3-79/80/88
TT2+ - 70/35/114 Measles-84/81/88 HB3- 67/82/88 OPV3-79/82/88

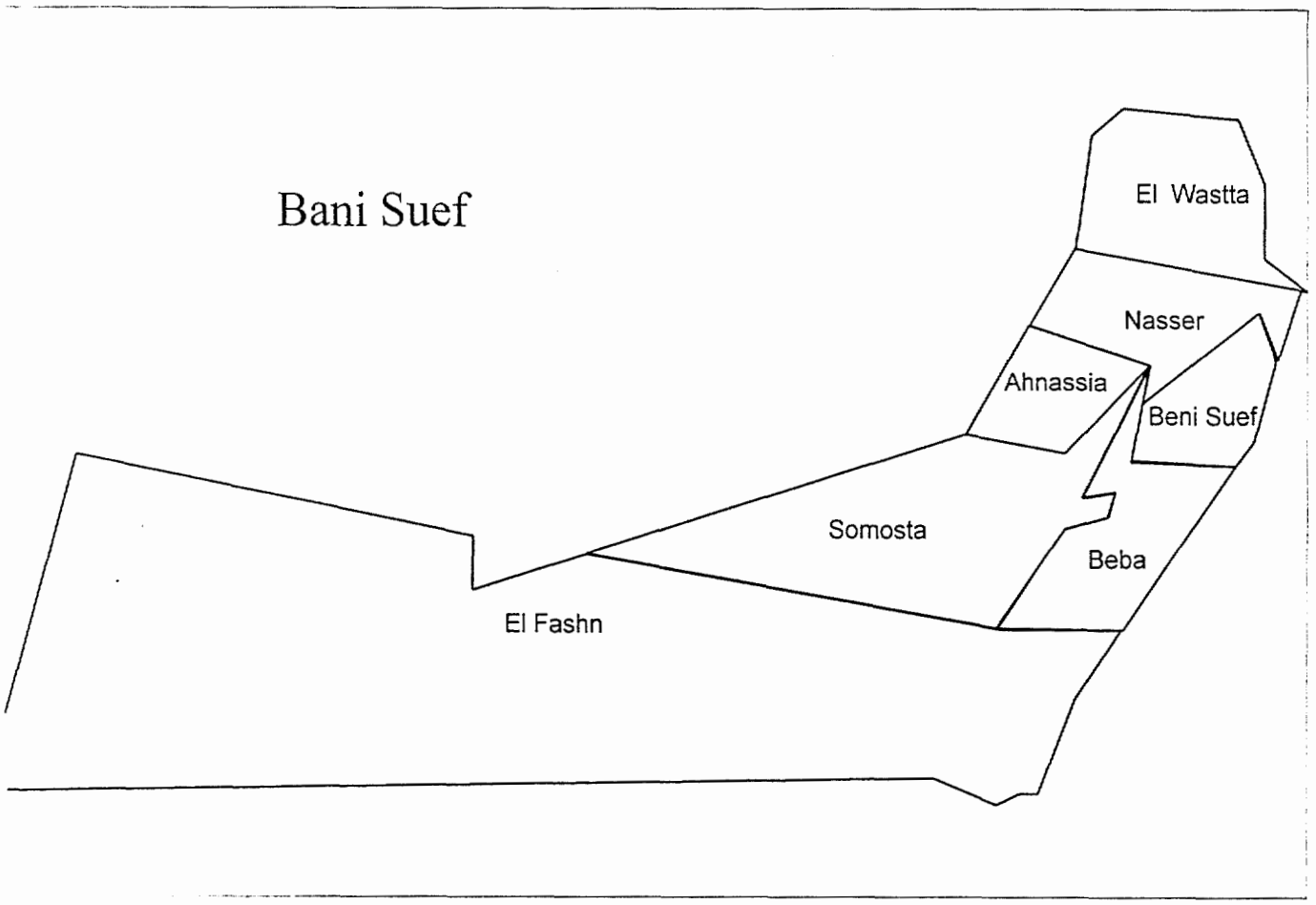
Polio Cases:	1991 - 45	1992 - 42	1993 - 24	1994 - 8	1995-10
NNT Cases*:	1991 - 166	1992 - 117	1993 - 78	1994 -55	1995-64

* Five districts did not sustain NNT elimination (<less 1 NNT case /1000 live births) in 1995.

ARI Program • Initiated in 1992 • 737 health agents trained [37 pediatricians, 272 PHC physicians, 377 nurses, 51 other). • 9,915 cases of severe ARI in children <5 treated in MOH out-patient facilities in 1995 (4,852 cases in 1994) • 47% compliance rate in ARI case registration in 1995 • Population access to SCM>80%.

CS/MCH Program • 305 PHC physicians trained in CS/MCH (235 in 1990-91 and 70 in 1995) • 164 doctors and 604 nurses and dieticians trained in maternal-child nutrition (1989-91) • 128 food inspectors trained in nutrition, 1989-91 • 2 MCH laboratories programmed to be upgraded in 1996.• 50 dayas trained in Beba district (Finnish program) - Daya training scheduled by UNICEF in 1995/96 • 2 neonatal intensive care center (8 incubators) established - 44 physicians and 23 nurses trained - 410 neonates treated in 1995.• Baby Friendly program initiated in 1995 in Beni Suef General Hospital and Beni Suef MCH - TOT for 10 physicians and 8 nurses in BF, 1995 • Program to assess maternal mortality completed in 1993. MMR-151 (95% confidence interval: 91-246).- National MMR-174 • 6 first referral level hospital delivery rooms being up-graded - 31 obstetricians trained, 1995. • Proportion of deliveries managed by a doctor or a trained birth attendant - 35% (estimated in 1993).

444


Bani Suef
El Wastta
Nasser
Ahnassia
Beni Suef
Somosta
Beba
El Fashn

E. Project-Wide Child Survival Interventions in Beheira

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (15).. Beheira is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program has been initiated in 13 other governorates.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled to take place in 1996..

- Training of 19 health education officers and other health agents in public health messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 79 teaching staff in 9 secondary schools, provided reference materials for teaching in these schools during 1993. ARI trained 25 teaching staff for 9 secondary nursing schools in 1995.

2. Training for MCH Care

- 1368 physicians were trained in child spacing and MCH care (1991-1995)
- 88 nurses trained in MCH care (1992)
- 380 dayas trained in safe motherhood, MCH referrals and counseling, 1994-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 325 physicians trained in mother child nutrition, 1990-1991
- 1450 nurses and dietitians trained in mother child nutrition, 1990-1991
- 580 food inspectors trained in family nutrition, 1990-1991
- 62 laboratory technicians trained in MCH laboratory analysis
- 41 physicians and 34 nurses were trained during 1992-95 in neonatal care
- 50 physicians and 45 nurses trained in neonatal resuscitation
- 54 obstetricians participated in workshops on improving delivery room service and reducing maternal mortality (1994-1995)
- 17 nurses trained as nurse midwifery trainers (1995)
- 21 nurses trained in nurse midwifery in 1995.

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Beheira [5] The committee reviewed 630 cases of female deaths and identified 53 as maternal deaths, leading to an estimate of maternal mortality ratio of **171** maternal deaths per 100,000 live births, with a 90% confidence interval of 130- 226..The national MMR was found to be 174.

The national maternal mortality the study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Beirut by year 2000 to **87** maternal deaths per 100,000 births through a program of safe motherhood aimed at reduction of maternal mortality and morbidity.

4. Beheira Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 in Qalyubia indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW.

Based on the pilot study a national low birth study has been carried out to:)estimate the magnitude and distribution of LBW nationally l ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and is) determine birth weight specific mortality and morbidity. Field work for this study was completed in 1995-96 in six governorates.

Beheira Governorate participated with 972 deliveries monitored. A preliminary result of the national study is the wide variance noted in LBW incidence among participating governorates ranging from under 10 to over 17 per 100 live births. A report of the results of the study in preparation.

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[5]Members of the Committee were Dr. Nabih Youssef Shaltot. Dr. Sami Mohammed El Ashwah. Dr.Hassan Abou El-Nour. Dr.Mohammed Kamal Bakr and , and Dr. Abdel-Raoof El-Sayed Arafat.

Neonatal Care Program

Five first referral neonatal care centers were established and developed during 1991-95 in 5 of the 15 districts. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the five centers provided care for 1021 neonates, covering about 18% of the estimated need for first referral care for about 5700 infants in the five districts[3] The number of LBW infants in the governorate in 1995 is estimated in the range 10000-15000. Neonatal care in Beheira requires further development of neonatal care capacity and facilities during 1996-2000 and improved organization of a neonatal referral system

Neonatal Care Centers Established in Beheira 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admissions 1995
1. Damenhour Teaching H.	Damenhour/15794	5	504
2. Abu Hommos General H	Abu Hommos/10128	4	95
3. Kafr El Dawaar Hospital	Kafr El Dawaar/18484	6	216
4. Shobrakhit Hospital	Shobrakhit/4804	5	113
5. Kom Hamada Hospital	Kom Hamada/8107	2	93
Total	5 Districts/57317	22	1021

Delivery Rooms Up-graded

Eleven delivery rooms in eleven districts were selected by the Health Direcotrate to beup-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Abu Hommos Hospital	Abu Hommos District
2. Kafr El Dawaar Hospital	Kafr El Dawaar District
3. Shobrakhit Hospital	Shobrakhit District
4. Kom Hamada Hospital	Kom Hamada District
5. Etail El Baroud Hospital	Etai El Baroud District
6. El Delengat Hospital	El Delengat District
7. Mahmoudia Hospital	Mahmoudia District
8. Edco Hospital	Edco District
9. Kafr El Dawaar Hospital	Kafr El Dawaar District
10. Rashed Hospital	Rashed District
11 El Rahmania Hospital	El Rahmania District

Further work is required in training delivery room staff, and in the development of use of performance services to ensure high quality of emergency and routine obstetrical services, including neonatal resuscitation procedure.

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[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Need based on estimated proportion of LBW infants among births.

[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level.*, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care.

1. Facilities Development

Districts Developed To Establish the Daya Program

The Child Survival Project worked with the Beheria Health Directorate in 1994-1995 to train physicians and nurses to monitor, supervise and train dayas in four districts of Beheira:

District	Number of PHC Physicians and Nurses Trained as Dayas Trainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
•		
•		
•		
•		
Total		390

The 390 dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Beheira.

The Daya program should be extended to all districts of Beheira.

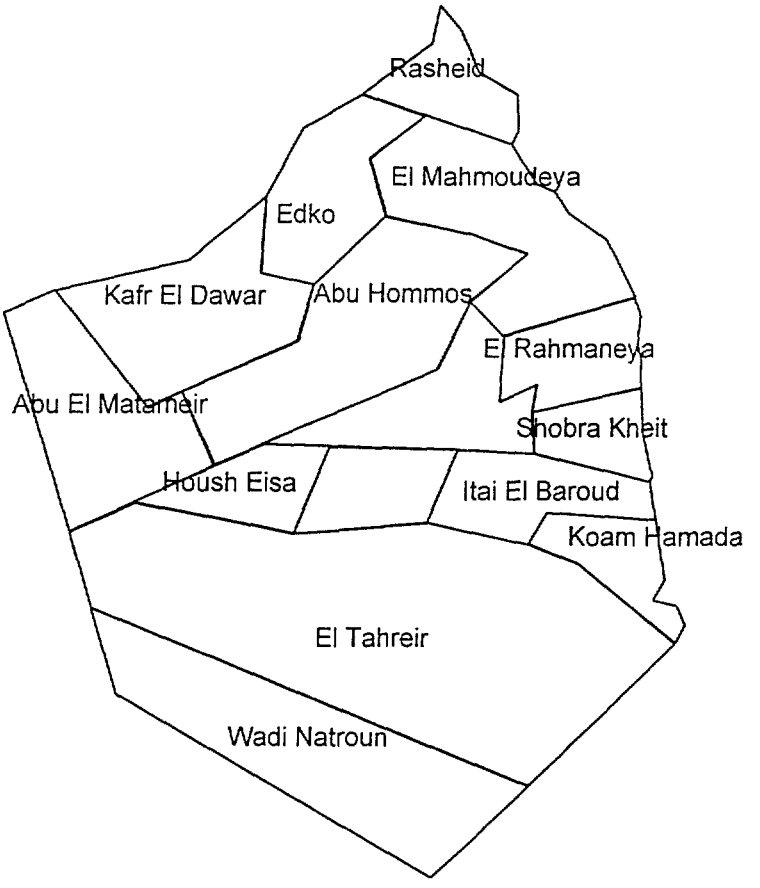
MCH Laboratory Up-Grading Program

13 MCH laboratories have been up-graded 12 districts. Inputs include the provision of equipment and supplies, training of staff of 13 laboratories (including training for two laboratories scheduled in 1996) and field monitoring visits.

1. Etay El Baroud MCH	Etai El Baroud District
2. El Delengat MCH	Delengat District
3. Abou Hommos MCH	Abou Homous District.
4. Shoubra Khet MCH	Shoubrakhit District.
5. Nasr Damenhour MCH	Nasr District.
6. Badr MCH	Tahrir District
7. Mahmoudia MCH	Mahmoudia District
8. Edco MCH	Edco District.
9. Hosh Eisa MCH	Hosh Eisa District
10. Damenhour New (UHC)	Damenhour District
11. Kafr El Dawaar MCH	Kafr El Dawaar District
12. El Toud Rural Hospital	Kom Homada District
13. El Nebira Rural Hospital	Itai El Baroud

[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

Behera


Rasheid
El Mahmoudeya
Edko
Kafr El Dawar
Abu Hommos
El Rahmaneya
Abu El Matameir
Shobra Kheit
Housh Eisa
Itai El Baroud
Koam Hamada
El Tahreir
Wadi Natroun

May 1996

BEHEIRA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 40% urban.....3,937,000
1995 Births/Women needing maternal services.....102,653
Women of Reproductive age (22% of 1995 pop.)..... 874,000
No. of children under 5 years of age [est.].....525,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Damanhour	15610	16274	15794		8	1
Abu Homous	10228	11022	10128		11	2
Kafr El Dewar	18819	19718	18484		15	3
Edco	3609	3690	3661		4	
Rashed	4312	4451	4272	1	1	2
El Mahmodiah	5313	5337	5328		2	
El Rahmania	2919	2608	2768			
Shobrakhit	5341	4758	4804			
Itai El Baroud	8389	8505	8014		1	
El Delengat	6487	6274	5549		4	
Kom Hamada	8934	8303	8107		1	3
Hosh Eissa	4177	4375	4169		5	1
Abo El Matamir	8056	8557	8805		5	3
El Tahrir	2148	2224	1931			
Wady El Natroun	804	802	840			
Total	105138	106898	102654	1	56	15

3. Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	50	25	na	- 50%	60	41	32
Child (1 thru 4) mortality	5.7	3.0	na	- 47%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux.....12
No. of MCHs - 10/ UHCs - 10.....20
No. of RHCs -33, rural hospitals - 7 and RHUs - 137.....177
No. of general (1), district (10) and fever (6) hospitals.....16
No. of health education offices.....8

5. MOH Health Agents

No. of PHC physicians.....541
No. of nurses.....267
No. of hospital based pediatricians(1993 data)..... 23
No. of health education staff.....12

6. Distribution of Beheira Health Facilities by District*

Districts:	Population*	----------Hospitals and Primary Health Care Facilities#----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Damanhour	590,282	0	0	1	3	2	6	0	17
2. Abu Homous	352,771	1	1	0	1	0	4	0	12
3. Kafr El Dewar	678,687	1	1	1	3	0	6	0	23
4. Rashed	165,404	0	1	1	2	1	1	0	9
5. El Mahmodiah	198,350	0	1	0	1	1	2	0	9
6. El Rahmania	112,456	0	1	0	1	0	0	1	8
7. Shobrakhit	202,225	0	1	1	1	0	3	0	12
8. Etai El Baroud	336,128	1	1	1	1	0	8	1	16
9. El Delengat	229,469	0	1	1	1	0	4	0	16
10. Kom Hamada	}509,180	0	1	1	1	0	4	1	19
11. El Tahrir	} ##	0	1	0	1	0	0	0	20
12. Hosh Eissat	156,015	0	1	0	1	1	0	1	13
13. Abo El Matamir	254,037	0	1	1	1	0	1	1	30
14. Wady Natroun	26,681	0	1	1	1	0	0	0	1
15. Adco	120,089	0	1	0	1	0	0	0	5
Total	3,931,774	3	14	9	20	5	39	5	210

*1993. Population data from the EPI Basic Data Book, August 1994. #Source: ARI Data Base, 1995.
##Included in Kom Hamada.

B. Expanded Program of Immunization

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities - Beheira

- No. of Vaccination Centers 278
- No. of Deep Freezers (23) and refrigerators(556) 604
- Central Governorate Vaccination Storage Facility 1
- District Vaccination Storage Faculties 7
- Cold Chain Repair and Maintenance Work Shop 1

2. EPI Training - 1989-95

	Total
PHC Physicians*	791
PHC Nurses*	1106
Sanitarians*	858
Clerks	262
Total	2118

*Including health managers

3. Infant Immunization Coverage Attained in Beheira

	BCG	Measles	HB	OPV3	DPT3
1987*	93.0	90.3	0	96.9	93.8
1990*	93.8	89.6	0	87.2	87.2
1993#	91	88	66	87	87
1994#	84	80	80	81	81
1995#	87	81	83	84	83

4. TT Immunization (of Pregnant Women) Attained in Beheira

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			27.1
1990*			71.7
1993#	62,864	na	58%
1994#	78,421	31,106	102%
1995#	28,322	31,375	58%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Beheira

	1991	1992	1993	1994	1995
Polio Cases:	64	26	3	9	1
NNT Cases*	293	171	74	74	56

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	----Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Damanhour	15794	0	1	8	87	85	87	88	88	49
Abu Homous	10128	0	2	11*	94	74	84	84	81	44
Kafr El Dewar	18484	0	3	15*	90	82	82	87	82	26
Edco	3661	0	0	4*	89	80	78	78	78	91
Rashed	4272	1	1	1	91	82	88	88	88	57
El Mahmodiah	5328	0	0	2	86	76	73	70	73	78
El Rahmania	2768	0	0	0	87	85	86	86	86	106
Shobrakhit	4804	0	0	0	89	85	83	83	83	95
Etai El Baroud	8014	0	0	1	86	82	84	83	84	78
El Delengat	5549	0	0	4*	97	90	96	96	96	57
Kom Hamada	8107	0	3	1	85	80	82	82	81	73
Hosh Eissa	4169	0	1	5*	87	88	87	89	89	89
Abo El Matamir	8805	0	3	5	71	73	69	69	68	67
El Tahrir	1931	0	0	0	85	83	83	84	83	110
Wady El Natroun	840	0	0	0	91	80	86	86	86	114
Total	102654	1	14	56	87	81	83	84	83	58

D. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 45%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-24539) 9050

*pneumonia, severe pneumonia, and very severe disease- Minimum. no. expected cases annually-52,000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (total - 279) 223 (est. 80%)
- Targeted Hospitals (total - 26) 18 (est. 70%)

3 Hospital Lab Upgrading

The Damenhour Fever Hospital Laboratory has been up-graded in to become part of a national ARI microbial resistance surveillance network.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 1353 respiratory timers,
- 6 oxygen concentrators
- 10 oxygen cylinder sets
- 5 nebulizers
- 1 oximeter
- 235 otoscopes

5. Drugs Supplied to Beheria by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	0	41,000	97,200	83,524	111,831
of which Amox 125 ml	0	(12,000)	(36,500)	(10,140)	(30,256)
Paracetamol 120 cm	0	6,000	36,800	0	7,000
Expectorant	0	2,000	0	0	0
LA Penicillin	0	0	0	2,300	4,000
Salbutamol Syrup	0	0	0	0	7,500

6. ARI Hospitals Targeted

26 hospitals in Beheira have been and are being targeted for installation of ARI standard care management (listed below). Inputs have included training equipment and monitoring/advisory visits. Additional equipment is being provided in 1996. Additional staff training is needed.

7. ARI Health Education:

Being developed with the Health Education Department of the Beheira Health Directorate and with District Health Education officers.

ARI Targeted Hospitals - Beheira

1. Damanhour Fever Hospital

2. Kafr El Dawar General Hospital
3. Kafr El Dawar Fever Hospital
4. Kafr El Dawar District Hospital

5. Itai El Baroud General Hospital
6. Itai El Baroud District Hospital
7. Itai El Baroud Fever Hospital

8. Abo Homous General Hospital
9. Abo Homous District Hospital
10 El Mahmodiah District Hospital

11. Kom Hamada District Hospital
12. Kom Hamada Fever Hospital
13. El Rahmania District Hospital

14. Abo El Matamir District Hospital
15. Abo El Matamir Fever Hospital

16. Shobrakhit District Hospital
17. Shobrakhit Fever Hospital

18. El Delengat District Hospital
19. El Delengat Fever Hospital

20. Badr Hospital (El Tahrir District)

21. Hosh Eissa District Hospital

22. Wady Natroun District Hospital
23. Wady Natroun Fever Hospital

24. Rasheed District Hospital?
25. Rasheed Fever Hospital

26. Edco District Hospital

8. ARI Training Facilities

ARI training facilities were established in 1992 in:

- Damanhour Nursing School Center
- Damanhour Teaching Hospital Center
- Kafr El Dawar General Hospital Center.

9. ARI Training Accomplished in Beheira

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	2	12	0	0	14
Specialists	6	8	16	0	30
PHC Physicians	226	412	133	100	871
Nurses	0	390	543	204	1137
Pharmacists	0	0	25	0	25
Nursing School Staff	0	--	--	25	25
Health Education Officers	0	--	--	19	19
Laboratory Specialists	0	0	0	0	2
Total	234	822	717	348	2121

10. ARI Cases Registered

	1993	1994	1995	--------Percent Distribution---- 1993	1994	1995	Sentinel
Very Severe Disease	53	476	)	0.30	0.71	)	0.80
Severe Pneumonia	282	891	)9050	1.61	1.33	)40.20	2.40
Pneumonia	7010	23162	)	40.11	34.65	)	8.60
Otitis Media	3016	13686		17.26	20.48		12.50
Pharyngitis	4197	15936		24.02	23.84		24.20
Cough/Cold/Bronchitis	2917	12689		16.69	18.98		46.40
Total	17475	66950	22510	100.00	100.00	100.00	100.00

Annex 2 Infant and Child Mortality Data in ASWAN

	Number of Live Births	Number of. Infant Deaths	Avg	Reg'd IMR	No of 1 thru 4 Deaths	Avg	CMR or index
CAPMAS Published Data on Registered Births, Deaths, IMR and CMR							
1985	33533	5712		67	1015		10.6
1986	35527	5047		77	1162		11.8
1987	36584	2774		76	1048		10.5
1988	36344 epi			60			11.0
1989	30363 epi			64			10.5
87-89 average				66.7e			10.8e
1990	30663 epi			51			7.0
1991	27504 epi			47			5.9
1992	27910 epi			48	591		5.6
1990-92 average				48.7e			6.17e
Est. 1993-95 IMR average (CSP estimate)				35.4			na
1995 (CSP Estimate)				33.2			4.87

Vital Statistics From Aswan Health Directorate

Year	Births	Infant Deaths		Reg'd IMR	Child Deaths	Index of CMR(b)
1990	31087)	1585)			2340	
1991	29853) 29703c	1333)	1385c	46.6c	2065	
1992	28171)	1236)		43.9	1846	15.4
1993	27890)	1168)			1749	
1994	27695) 27664c	928)	977c	35.3c	1452	
1995	27407)	834)		30.4	1448a	13.4
Change from 1992 to 1995				- 30.8%		- 13%

Source: a-the figures communicated by the governorate was 448. It is assumed that 1448 is the correct figure.
b - calculated by dividing child deaths (1 thru 4) by number of births in that year and preceding 3 years
c - three year average epi - provided by governorate to EPI.

E Project-Wide Child Survival Interventions in Aswan

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management. A five day workshop on planning, budgeting and management for child survival was conducted in the governorate in 1996..

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, and training for governorate staff,.and monitoring visits (1). Aswan is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Being pilot ed in 13 other governorates.

4. Mobilization of Health Education Offices

- Training of 5 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- Training of health education officers and physicians in public health messages for the ARI Control Program is scheduled to be conducted in 1996.
- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 9 teaching staff in the secondary school of nursing in 1994. ARI has scheduled training of nursing teaching staff in 1996

Field work for this study was completed in 1995-96 in six governorates. Aswan Governorate participated with 1,279 deliveries monitored. A preliminary result is the wide variance noted in LBW incidence among governorates, ranging from 9-10 to 15-17 per 100 live births. A report of the results of the study in preparation.

ASWAN

Annex 1

TRENDS IN REGISTERED INFANT MORTALITY RATES (IMR), ADJUSTED IMR AND CHILD MORTALITY RATES (AGES 1 THRU 4) FOR ASWAN GOVERNORATE

	1987*	1992*	% Change 1987-92	1995**	% Change 1987-95
Registered IMR (a)	76	48	- 37%	33	57%
Adjusted IMR (a)	89	48	- 44%	33	63%
CMR (b)	10.5	5.6	- 47%	4.9	54%

*CAPMAS published data.
** Estimated by CSP based on vital statistics provided by Aswan Governorate
a) deaths per 1000 live births
b) deaths children aged 1 through 4 per 1000 children aged 1 through 4.

Delivery Rooms Up-graded

Four delivery rooms in four districts were selected by the Health Directorte to up graded. Inputs have included renovation, supply of equipment, development of standards,[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Aswan General Hospital	Aswan District
2. Draao District Hospital	Draao District
3. Kom Ombo District Hospital	Kom Ombo District
4. Nasr District Hospital	Nasr District

Further work is required in training delivery room staff and in development and use of standards to ensure hich quality of emergency and routine obstetrical care, including neonatal resuscitation procedures.

2. Training for MCH Care

- 160 physicians were trained in child spacing and MCH care (1992-1994)
- 15 laboratory technicians trained (1995)
- 20 physicians and nurses were trained in a ten day course in neonatal care
- 50 physicians trained in neonatal resuscitation in 1995.
- 30 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality
- 389 dayas trained (MOH/UNICEF)

3. Aswan Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Aswan.[6] The committee reviewed 108 cases of female deaths and identified 12 as maternal deaths, leading to an estimate of maternal mortality ratio of 135 (per 100,000 live births), with a 90% confidence interval of 73 - 242. The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality in Aswan to 68 maternal deaths per 100,000 live births and the implementation of a safe motherhood program targeting maternal mortality reduction based on recommendations of the national study.

4. Aswan Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 indicated that:) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW. Based on the pilot study a national low birth study has been carried out to:)estimate the magnitude and distribution of LBW nationally.ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and) determine birth weight specific mortality and morbidity.

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[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[6]Members of the Committee were Dr. Dr. Mohammad Mahmoud Basyouni, Dr. Fouad Medhat Abdel-Wahed, Dr. Ahmed Lasheen, Dr. Ahmed El-Soghayer and Dr. Ahmed Mohammed Kodb..

Delivery Rooms Selected For Up-grading

Four delivery rooms in four districts were selected by the Health Directorate to be up-graded: two in hospitals, one in an MCH center and one in the Mandara model clinic. Inputs have included renovation, supply of equipment, training, and monitoring.

Delivery Rooms Selected For Up-Grading in Alexandria

1.El Amreya hospital
2.Borg El Arab hospital
3.Moharam Bek MCH
4. Mandara Urban Health Center

Further work is required in training delivery room staff and development of use of performance standards to ensure high quality emergency and routine obstetrical services and neonatal resuscitation procedures.

- 845 physicians were trained in MCH service delivery in 1989-95
- 89 physicians, nurse midwives and nurse inspectors trained for daya training and supervision
- 280 dayas trained were trained in safe delivery procedures and in MCH counseling and referral procedures during 1989-95
- 675 physicians were trained in mother child nutrition in 1989-91
- 600 nurses and dietitians were trained in MCH nutrition in 1989-91
- 138 PHC nurses were trained in child spacing and MCH care in 1992
- 44 Laboratory technicians were trained in MCH laboratory analysis in 1990-93
- 57 physicians and 22 nurses were trained in ten day course for first referral neonatal care during 1991-95
- 48 physicians and 45 nurss trained in neonatal resuscitation procedure..
- 20 obstetricians participated in workshops in 1994 and 1995 on improving delivery room service and reducing maternal mortality

3. Alexandrian Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Alexandria.[4] The committee reviewed 426 cases of female deaths and identified 68 as maternal deaths, leading to an estimate of maternal mortality ratio of 281, with a 90% confidence interval of 216-366.

The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This goal implies a target for Alexandria Governorate of a reduction in MMR to 87 through development and implemention of a safe motherhood program aimed at maternal mortality reduction and based on the findings and recommendations of the national study.

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[4]Members of the Alexandria committee were: Dr. Fayek Moatemid Mohammed, Dr. Muhammed Mahmoud Bakeer. Dr. Ibrahim Anwar Ali. Dr. Samir Fahmv El Gazaverii. Dr. Devaa Sarhan. Dr. Abdel-Moneim

The Daya program should be extende) the remaining three districts during 1996-1997. Arrangements should be made by the Healtl rectorate to have district health offices continue to monitor daya activity, re-certfy dayas (aving been trained), and provide for refresher training. Health education offices shoul ke advantage of dayas as community health influentials in spreading key child survival (afe motherhood messages.

MCH Laboratories Up-Graded in Alexandria

Fourteen laboratories in MCH and Urban Health Centers in six of the seven districts were up-graded by the provision of equipment and supplies, and training of laboratory staff:

1. El Amreya	MCH/Amreya District
2. Wadi El Kamar	UHC/Amreya District
3. El Gomrok	MCH/Gomrok District
4. Karmouz	MCH/Gharb District
5. Hagr El Nawatia	MCH/Sharq District
6. Somoha	UHC/Sharq District
7. El Montaza	UHC Montaza District
8. El Raml	UHC/Sharq District
9. Abou Keir	MCH/Montaza District
10.Toson	MCH/Montaza District
11. El Laban	MCH/Gomrok District
12. El Kabery	UHC/Gharb District
13. Maharam Bek	MCH/Wasat District
14. El Hadara	MCH/Wasat District

Neonatal Care Centers

Six first referral neonatal care centers were established and developed during 1991-95 in 3 of the 7 districts with inputs including training, advisory services, supplies and equipment.*.In 1995-96 the centers in Alexandria provided first referral care for 877 neonates, of who slightly over 50% were referrals. The number of admissions equals 32% of the "estimated need"[2] of first referral care for 3200 infants in the three districts . Based on total live births, the number of LBW babies born in Alexandria falls in the range of 7,700 - 11,400. indicating a need for further development of neonatal care capacity and facilities during 1996-2000.

Neonatal Care Centers Established in Alexandria, 1991-95

Hospital	District/Births in 1995	Incubators Supplied[3]	Admissions in 1995
1.Dar Ismail General H.	Gharb/11303	5	394
2.Ras El Teen General H.	Gomerok/4972	2	na
3.El Enfoshy Pediatric H.	Gomerok	5	145
4.El Gomhoria General H.	Gharb	4	39
5.El Raml Pediatric H.	Sharq/15863	3	126
6.Fawzy Moaz Pediatric H.	Gharb	3	193
	4 Districts/32138	22	897

[2]"Estimated need" is bsed on the estimated minimum proportion of LBW babies among neonates..

[3]Equipment included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators.

May 1996

Gharbia- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	3,437,000
1995 Births/Women needing maternal services	79,930
Women of Reproductive age (22% of 1995 pop.)	756,000
No. of children under 5 years of age [est.1994]	385,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Tanta	18483	18051	16875	1	6	3
Mahala Koubra	21325	22421	21293	1	2	1
Samanoud	6562	6528	6569			1
El Santah	7942	7571	7481			
Zeftah	8996	9461	9698		1	
Kotour	6006	5916	5346		1	
Kafr El Zaiat	7609	7762	7671	1	1	1
Bassion	5443	4915	4997			2
	82336	82625	79930	3	11	8

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	35	35	na	0%	60	41	32
Child (1 thru 4) mortality	4.4	2.8	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	15
No. of MCHs - 13/ UHCs - 4	17
No. of RHCs -33, rural hospitals - 7 and RHUs - 137	288
No. of general (1), district (8) and fever (5) hospitals	14
University Hospital	1
No. of health education offices	4

5. MOH Health Agents

No. of PHC physicians	597
No. of nurses	1884
No. of hospital based pediatricians(1993 data).	na.
No. of health education staff	9

6. Distribution of Health Facilities in Gharbia by District

Districts (8):	Population* (1993)	-------Hospitals and Primary Health Care Facilities#------ GH	DH	FH	MCH	UHC	RHC	RH	RHU
Tanta	836,619	1	1	1	5	2	4	1	22
Mahala Koubra	896,591	0	1	1	2	1	8	0	24
Samanoud	363,548	0	1	0	1	0	3	1	9
El Santah	312,548	0	1	0	1	1	6	0	15
Zeftah	389,333	0	1	1	1	0	6	4	10
Kotour	252,187	0	1	0	1	0	2	1	16
Kafr El Zaiat	346,119	0	1	1	1	0	2	1	17
Bassion.	216,261	0	1	1	1	0	2	1	10
Total	3,300,658	1	8	5	13	4	33	9	123

*Source: EPI Basic Data Book, Aug. 1994. .#Source: ARI Data Base.

B. Expanded Program of Immunization

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

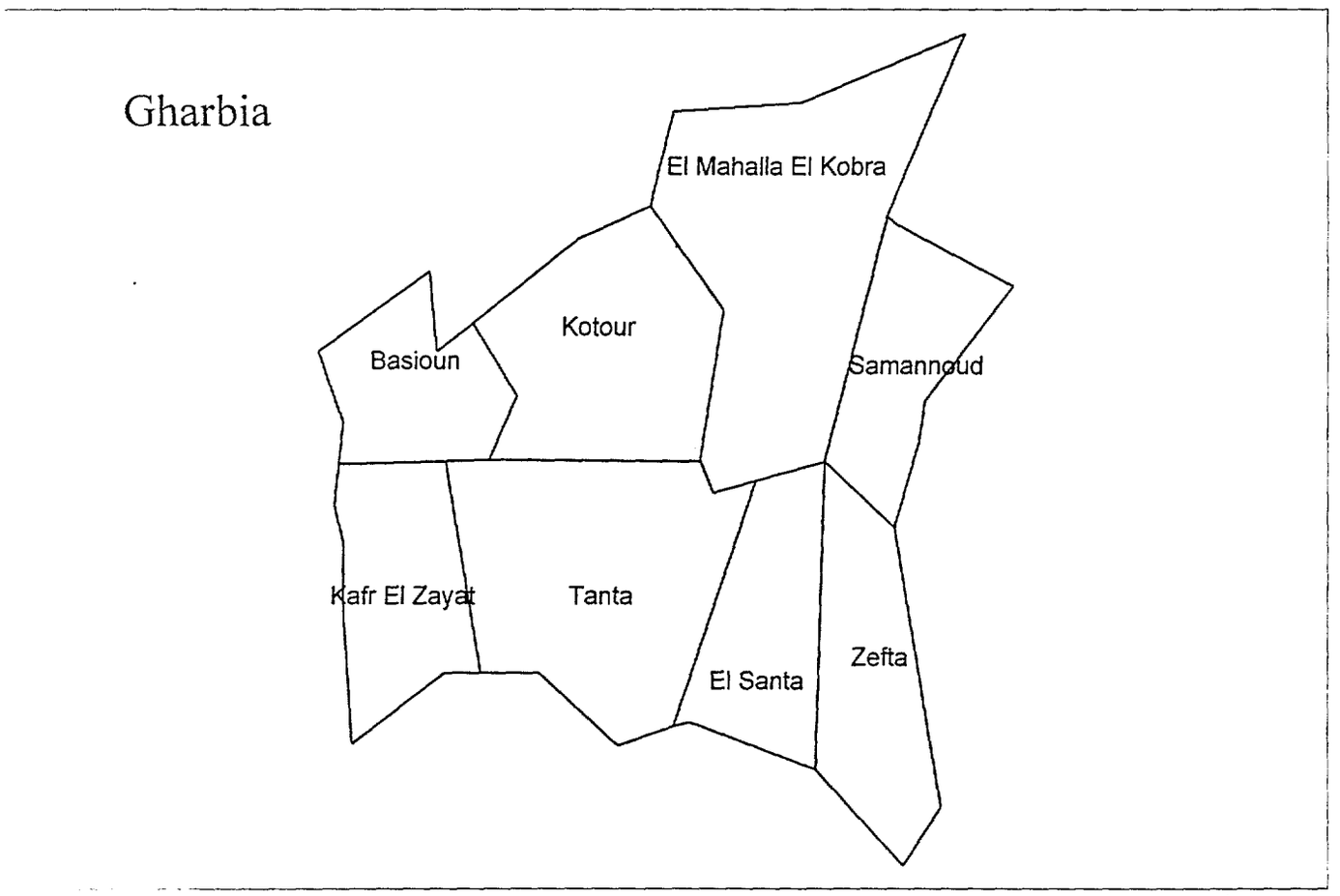
1. Immunization Facilities - Gharbia

• No. of vaccination units	200
• No. of Cold Chain deep freezers (18) and refrigerators (309)	327
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	8
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	483
PHC Nurses*	972
Sanitarians*	280
Clerks	160
Total	1895

*Including health managers


Gharbia
El Mahalla El Kobra
Kotour
Basioun
Samannoud
Kafr El Zayat
Tanta
El Santa
Zefta

May 1996

CSP Data Sheet For Gharbia Governorate

Population:

Total (Jan 1995 CAPMAS est.) - 33 % urban.....3,437,000
1994 Births/Women needing maternal services.....82,625
1995 Births/Women needing maternal services.....79,930
Women of Reproductive age (22% of pop).....756,000
Est. no. of children under 5.....385,000

Health Infrastructure:

No. of Health Bureaux.....15
No. of MCHs - 13 Urban Health Centers - 4.....17
No. of RHCs-33, RHUs - 123, rural hospitals - 9.....165
No. of general hospitals(1) district (8) and fever (5) hospitals.....14
No. of health education offices.....4

Districts(8)/births(1993/94/95) • Tanta (18483/18051/16875), Mahala Koubra (21325/22421/21293), Samanoud (6562/6528/6569), El Santah (7942/7571/7481), Zeftah (8996/9461/9698), Kotur (6006/5916/5346), Kafr El Zaiat (7609/7762/7671), and Bassion (5443/4915/4997) • As in 1992-94, all districts reached 80% or more infant vaccination coverage in all antigens in 1995

MOH Health Agents

No. of physicians (1993 data).....597
No. of nurses (1993 data).....1,884
No. of pediatricians (1993 data).....na
No. of health education staff.....9

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	35	35	na	0%	60	41	32
Child (1 thru 4) mortality	4.4	2.8	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program-Initated in 1995-96 with a model clinic established.in Tanta Medical Center.

Expanded Program of Immunization

No. vaccination units.....200
No. deep freezers (18) and refrigerators (309)- April 1995.....327
No. of PHC staff trained in EPI. (1989-95).....1,895
Routine Infant/Child Immunizations in 1993 (Vacc. rate - 95%..... 1,090,396
Women immunized TT2 in 1994..(24,002 in 1993).....26,212
Women immunized TT2 in 1995.....25,323
Women immunized TT3/4/5 in 1994.....30,222
Women immunized TT3/4/5 in 1995.....27,681

Key infant vaccination rates in 1993/94/95 (%): BCG-96/98/101 OPV3- 95/97/100
TT2+-60/69/66 Measles-94/95/101 HB3-80/97/99 DPT3- 95/96/99

Polio Cases:	1991 - 7	1992 - 25	1993 - 7	1994 - 1	1995- 3
NNT Cases*	1991 - 60	1992 - 31	1993 - 16	1994 - 18	1995- 11

*• NNT elimination <1 NNT case per 1000 live births).was maintained in 1995 in all districts.

ARI Program • Initiated in 1993 • 586 health agents trained (35 pediatricians, 258 PHC physicians, 227 nurses, 66 others) • 2899 cases of severe ARI in children <5 years treated in MOH outpatient clinics in 1995 (5688 cases in 1994) • 58% compliance in ARI case registration in 1995.• Population access to SCM in 1995 - 80%.

CS/MCH Program • 611 PHC physicians trained in MCH service delivery, 1990-95 • 870 dayas trained in 6 districts, 1989-95.- 95 dayas given refresher training, 1995•142 nurses trained in MCH service delivery, 1992 • 450 doctors and 1445 nurses and dieticians trained in maternal and infant nutrition, 1989-91 • 300 food inspectors trained, 1989-91.• 10 MCH laboratories up-graded - 10 laboratory technicians trained • 9342 women received antenatal care (initial visit) in MOH facilities in 1992 - 12% • 4 neonatal intensive care centers established (19 incubators) - 51 physicians and 30 nurses - 766 neonates treated in 1995 • BF and Baby Friendly Initiative in 1995 (Menshawy Hospsital and Tanta UHC) - 122 physicians and 85 nurses trained • Survey of maternal mortality carried out in 1992-93-Maternal Mortality Rate-213 (95% confidence interval, 149-302) -National MMR-174 • 8 first-referral level hospital delivery rooms being up-graded - 59 obstetricians trained, 1994-95.• Deliveries managed by a doctor or a trained birth attendant > 70% (1993 est.).

2. Training for MCH Care

- 611 physicians were trained in child spacing and MCH care (1989-1995)
- 870 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 450 physicians trained in mother child nutrition, 1990-1991
- 1446 nurses and dieticians trained in mother-child nutrition. 1990-91
- 300 food inspectors trained. 1990-91
- 50 laboratory technicians trained in MCH laboratory analysis
- 51 physicians and 30 nurses were trained in neonatal care, 1992-95
- 35 obstetricians trained for delivery room service upgrading. 1995
- 122 physicians and 85 nurses trained for the BF-baby friendly program, 1995
- 20 nurses trained in nurse-midwifery. 1995

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Gharbia.[5] The committee reviewed 504 cases of female deaths and identified 33 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **213** maternal deaths per 100,000 live births, with a 90% confidence interval of 86-144..The national MMR was found to be **174**

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Gharbia by year 2000 to **106** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity based on recommendations of the national study.

E Project-Wide Child Survival Interventions in Gharbia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).Gharbia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

[5]Members of the Committee were Dr. Essaam Bakeer Dr. Ibrahim Abbas El-Rafei, Dr. El-Sayed Fattouh Reda and Dr. Mohammed Mohammed Abou El-Rous.

The governorate has opted to collaborate in the MOH Clinic Management Improvement Program and initated the proram with the selection of the Tanta Medical Center (Tanta District) as a model clinic which undergoing renovation. Initial training of the Clinic Management Team in use of performance service standards is scheduled to be completed in 1996. The aim is to extend the program to most health centers during following years.

4. Mobilization of Health Education Offices

- Training of 2 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of 26 health education officers and and other health agents in Gharbia in public health messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility of over 870 trained dayas in 6 districts as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students are to be provided opportunities to observe organization and management of primary health care services in the model clinic being developed in Tanta district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

EPI trained 131 teaching staff in the 8 secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI has scheduled training of teaching staff for secondary nursing schools in 1996. .

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 39 teaching staff in the 5 secondary schools of nursing, provided reference materials for teaching in these schools and helped train graduating nurses during 1993-1995. ARI has scheduled training of teaching staff in 5 secondary schools in 1996..

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas.

Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Thirteen primary health care facilities were selected by the by the Gharbia Health Directorate for up-grading (List below). Ten were up-graded during the period 1992-95 and three were selected and are in the process of up-grading in the period 1995-96. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits. Training for laboratotory technicians for the three additional centers is scheduled to take place in June 1996.

MCH Laboratories Up-Graded in Gharbia

1. El -Santah MCH	Santah District
2. Qala El-Baab Rural Hospital	Santah District
3. El-Kur Raheyaa Rural Hospital	Santah District
4. Zeftah MCH	Zeftah District
5. Mit Badr Halawa Rural Hospital	Samanout District
6. Mahalla Koubra UHC	Mahalla Koubra District
7. Mahalla Maternity*	Mahallat Koura District
8. Tanta 4 MCH	Tanta District
9. El-Agizy MCH*	Tanta District
10. El-Kotur MCH	Kotur District
11. Sa'el Hagar Rural Hospital	Bassion District
12 Bassion Maternity*	Bassion District
13. Kafr El-Zayat MCH	Kafr El-Zayat District

•Training of laboratory techicians in these facilities is scheduled in June 1996.

Neonatal Care Facilities in Gharbia

Four first referral neonatal care centers were established and developed during 1991-95 in 4 of the 8 districts of Gharbia. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the four centers provided care for 766 neonates,of whom 54% were referrals of referrals from outside the hospital. The number of admittances is equivalent to slighltly over 14% of the indicated need for first referral care for about 5300 infants in the six districts[3] The number of LBW infants in the governorate in 1995 is estimated in the range 8,000 - 12,000.

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[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Need based on estimated proportion of LBW infants among births.

Further development of the referral system for neonates requiring first level care and of district level neonatal care capacity and facilities is required during 1996-2000.

Neonatal Care Centers Established in Gharbia 1991-95

Hospital	District/Births in the District - 1995	Incubators Supplied*	Admittances 1995
1. Menshawy General Hospital	Tanta/16875	7	250
2. Mahalla Koubra Hospital	M. Kourbr/21293	6	302
3. Kotur Hospital	Kotur/5346	2	105
4. Zeftah Hospital	Zeftah/9698	4	109
	6 Districts/53212	17	766

Delivery Rooms Up-graded

Eight delivery rooms in all eight districts were targeted to be up-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El Menshawi Hospital	Tanta District
2. Kafr El-Zayat Hospital	Kafr El Zayat District
3. Zeftah Hospital	Zeftah District
4. Samandoud Hospital	Samanoud District
5. Kotour Hospital	Kotour District
6. El Mahalla Hospital	Malhalla Koubra District
7. El-Santah Hospital	Santah District
8. Bassion Hospital	Bassion District

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services, including neonatal resuscittion procedure.

[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

5. ARI Targeted Hospitals - Gharbia

14 Hospitals in Gharbia are targeted for in patient and out patient care of ARI according to ARI Standard Case Management. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Addition staff training.(pediatricians, residents and nurses) is required.

1. Tanta General H. (El Menshawi General Hospital) -
2. Tanta District Hospital
3. Tanta **Fever** Hospital

4. El Mahala District Hospital
5. El Mahala **Fever** Hospital

6. Zefta District Hospital
7. Zefta **Fever** Hospital

8. Kafr El Zaiat District Hospital
9. Kafr El Zaiat **Fever** Hospitals

10.. Kotour District Hospital

11. Samanoud District Hospital

12. El Santah District Hospital

13. Bassion District Hospital
14. Bassion **Fever** Hospital

6. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.The program is coordinated with other PHC education.

7. ARI Training Facilities

An ARI training center for PHC staff was established in Tanta District in El Manshawi General hospital in 1993..

9. ARI Training Accomplished in Gharbia

	1993	1994	1995	Total
Managers	12	0	0	12
Specialists	19	14	2	35
PHC Physicians	156	102	0	258
Nurses	148	79	0	227
Pharmacists	0	0	24	24
Secondary Nursing School Teachers	0	0	0	(p)
Health Education Officers	0	0	30	30
Total	335	195	56	586

p-planned for 1996.

8. Cases of ARI Registered in Gharbia

	1993	1994	1995	1993	1994	1995	Sentinel
	-------number -------			--------percentages--------			
Very Severe Disease	272	200	)	3.61	0.82	)	0.80
Severe Pneumonia	165	407	) 2800	2.19	1.68	) 11.67	2.40
Pneumonia	1690	5018	)	22.44	20.70	)	8.60
Otitis Media	1026	3238		13.63	13.36		12.50
Pharyngitis	2216	6632		29.43	27.36		24.20
Cough,Cold/Bronchitis	2161	8748		28.70	36.08		46.40
Total	7530	24243	24020	100.00	100.00	100.00	100.00

E. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Tahta Health Directorate 1991-1996 to train physicians and nurses to monitor, supervise and train dayas in the following districts of Dakahlia

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained
Tanta		
Mahalla Koubra		
Samanoud		
El-Santah		
Zeftah		
Kotur		
Kafr El Zauat		
Bassion		
Total		870

The dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Gharbia,as well as assurances of safer deliveries for Gharbian women.[1]

[1]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

3. Infant Immunization Coverage Attained in Gharbia

	BCG	Measles	HB	OPV3	DPT3
1987*	95.8	87.4	0	93.5	88.8
1990*	100	95.2	0	98.3	98.3
1993#	96	94	80	95	95
1994#	98	95	97	97	96
1995#	101	101	99	100	99

4. TT Immunization (of Pregnant Women) Attained in Gharbia

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			15.2
1990*			71.9
1993#	24,005	na	60%
1994#	26,212	30.222	69%
1995#	25,323	27,681	66%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Gharbia

	1991	1992	1993	1994	1995
Polio Cases:	7	25	7	1	3
NNT Cases*	60	31	16	16	11

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Tanta	16875	1	2	6	111	111	112	112	112	49
Mahala Koubra	21293	1	0	2	98	102	92	94	95	62
Samanoud	6569	0	1	0	101	94	100	100	94	64
El Santah	7481	0	0	0	97	100	93	93	93	100
Zeftah	9698	0	0	1	94	91	95	91	93	82
Kotur	5346	0	0	1	110	109	116	116	116	97
Kafr El Zaiat	7671	1	0	1	94	95	93	93	93	44
Bassion	4997	0	2	0	100	102	93	99	93	66
	63457	3	5	11	101	101	99	100	99	66

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 50%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-5688) 2,800

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually - 38,000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (All PHC facilities,182, targeted) 145 (est. 80%)
- Hospitals (Total in Patient and Out Patient targetd- 14) 9 (est. 64%)

3 Hospital Laboratory Upgrading

The laboratory in Tanta General hospital El Manshwai) has been up-graded in 1995-96 for diagnosis of acutre respriatory infections and tests of ARI microbial drug resistance.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 938 respiratory timers,
- 6 oxygen concentrators
- 13 oxygen cylinder sets
- 8 nebulizers
- 1 oximeter
- 200 otoscopes

4. Drugs Supplied to Gharbia by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	0	0	32200	53064	40,089
of which Amox 125 ml	0	0	(12200)	(9316)	(12410)
Paracetamol 120 cm	0	0	12100	5800	5800
Expectorant	0	0	0	0	0
LA Penicillin	0	0	2000	4600	3067
Salbutamol Syrup	0	0	0	0	5800

Neonatal Care Centers Established in Fayoum, 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admittances in 1995
1.El Fayoum General H..	Bandra El Fayoum& Markea Fayoum/16821	6	302
2.Ebshawaai District H.	Ebshawaai/ 14211	6	117
Total	3 district/31,032	12	419

Delivery Rooms Up-graded

Delivery rooms were targeted to up-graded in five districts. Inputs have included renovation, supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Fayoum Genera Hospital	Fayoum District
2. Senoures District Hospital	Senoures District
3. Tammaiaih District Hospital	Tammaiaih District
4. Etsaa District Hospital	Etsaa District
5. Abshawaai District Hospital	Abshawaai District

Further work is required in training delivery room staff, and in development of use of performance services to ensure high quality of emergency and routine obstetrical services, including neonatal resuscittion procedure.

2. Training for MCH Care

- 259 PHC physicians trained in MCH service delivery 1991-95
- 365 nurses and dieticians trained in mother-child nutriton, 1989-91
- 105 food inspectors trained in nutriton, 1989-91
- 20 MCH laboratory technicians trained, 1991-93
- 25 physicians and 13 nurses trained in neonatal care, 1991-95
- __ physicians and nurses trained as midwifery trainers, 1995-96
- 20 nurses trained in midwifery, 1996.

[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

3. Fayoum Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Fayoum.[6] The committee reviewed 199 cases of female deaths and identified 17 as maternal deaths, leading to an estimate of maternal mortality ratio of **151** (per 100,000 live births), with a 90% confidence interval of 91 - 247. The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality in Fayoum from 151 to 75 deaths per 100,000 births which will require implementation of a safe mother hood program aimed at maternal mortality reduction and following the recommendations of the national study.

E Project-Wide Child Survival Interventions in Fayoum

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (2). Fayoum is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Being piloted in other governorates

4. Mobilization of Health Education Offices

- Training of 6 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- Training of health education officers and physicians in key messages for the ARI Control Program is scheduled to be conducted in 1996.
- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

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[6]Members of the Committee were Dr. Mahmoud Abou El-Nasr Rashed, Dr. Amal Reyad Abdel-Latif, Dr.Abdel-Aal Abdel-Aal El Gebdyli, Dr.Salah El-Din Youssef El-Kadi , Dr. Abdel-Mongi Ibrahim Hassan and Dr. Hani Adli Moomen. .

May 1996

CSP Data Sheet For Giza Governorate

Population:

Total (Jan 1995 CAPMAS est.) - 57% urban.....4,525,000
1994 Births/Women needing maternal services.....128,521
1995 Births/Women needing maternal services.....130,789
Women of Reproductive age (22% of pop.).....995,000
Children Under 5 (1994 est.).....580,000

Health Infrastructure

No. of Health Bureaux.....21
No. of MCHs - 12/UHCs-7.....19
No. of RHCs - 12, RHUs - 108 and Rural hospitals - 12.....134
No. of general 3), district (11) and fever (3) hospitals.....17
No. of health education offices.....8

14 Districts/Births (1993/94/95) • Ganoub* (7179/6192/6347) •Gharb (18859/19899/20,477) • El Haram (8435/8882/8828) • Wasat el Giza (8776/9516/9067) • Shamal El Giza (13832/13260/14771) • Giza (5206/5135/5194) • Ooseim (5773/5654/5503) • Imbaba (23205/23371/23701) • Hawamdia (3082/3103/3802) • Bedrishen (8844/9348/9254), • Aiat (9009/9271/8865) •El Saf (7155/7055/7416) • Atfih (7076/7185/6985) • El Wahat (591/650/579). 5 nderlined districts missed achieving 80% vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....640
No. of nurses.....2174
No. of hospital based pediatricians.....151
No. of health education staff.....20

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	85	42	33	- 61%	60	41	32
Child (1 thru 4) mortality	9.3	3.2	2.2	- 76%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....171
No. Cold Chain deep freezers(25) and refrigerators(434)-as of April 1995.....459
No. of PHC staff trained in EPI, 1989-95.....1911
Routine infant immunizations in 1993 (vacc.80% coverage 1,531,828
Women immunized TT2 in 1994 (52.065 in 1993).....36,563
Women immunized TT2 in 1995.....31,839
Women immunized TT3/4/5 in 1994.....26,976
Women immunized TT3/4/5 in 1995.....23,868

Key vaccination coverage rates achieved in 1993/94/95(%): BCG-95/98/94 DPT3-86/92/85
TT2+ - 67/49/43 Measles - 85/97/87 HB3-74/92/87 OPV3-85/92/87

Polio Cases:	1991 - 60	1992 - 40	1993 - 26	1994 - 8	1995 - 10
NNT Cases*:	1991 - 91	1992 - 67	1993 - 57	1994 - 36	1995 - 43

* All districts achieved NNT elimination rates (<1 case of NNT per 1000 live births).in 1994 and 1995.

ARI Program • Initiated in 1991. •1491 health agents trained-(103 pediatricians, 643 PHC physicians, 651 nurses, 94 others) • 18,325 cases of severe ARI in children <5 years treated in MOH outpatient facilities in 1995 (12043 cases in 1994). • Compliance of 85% in ARI case registration in 1995 • Est. Pop. Access to SCM >85%.

CS/MCH Program • 579 PHC physicians trained in MCH service delivery, 1990-1995 • 250 PHC agents trained as daya trainers and supervisors - 320 dayas trained in 9 districts • 450 physicians and 500 nurses and dieticians trained in mother-child nutrition,1989-91. • 123 food inspectors trained in nutrition, 1989-91 • 5 MCH laboratories upgraded-15 laboratory technicians trained• 5 neonatal intensive care centers established (21 incubators)-38 physicians and 21 nurses trained in neonatal care 1201 neonates treated in 1995. • 44 physicians trained in neonatal resuscitation, 1995. • Baby Friendly program initiated (Bolak El Dacrou General Hospital and in Giza MCH).-101 physicians and 72 nurses trained, 1995). • Maternal mortality survey completed in 1992/9 - Maternal Mortality Rate - 221 (95% confidence interval, 168-289).- National MMR- 174 • Eight first-referral level delivery rooms being up-graded •Nurse-midwifery training program- piloted in 1996 - 20 nurse midwives trained •Proportion of deliveries managed by a doctor or other trained birth attendant> 60% (est. 1993)

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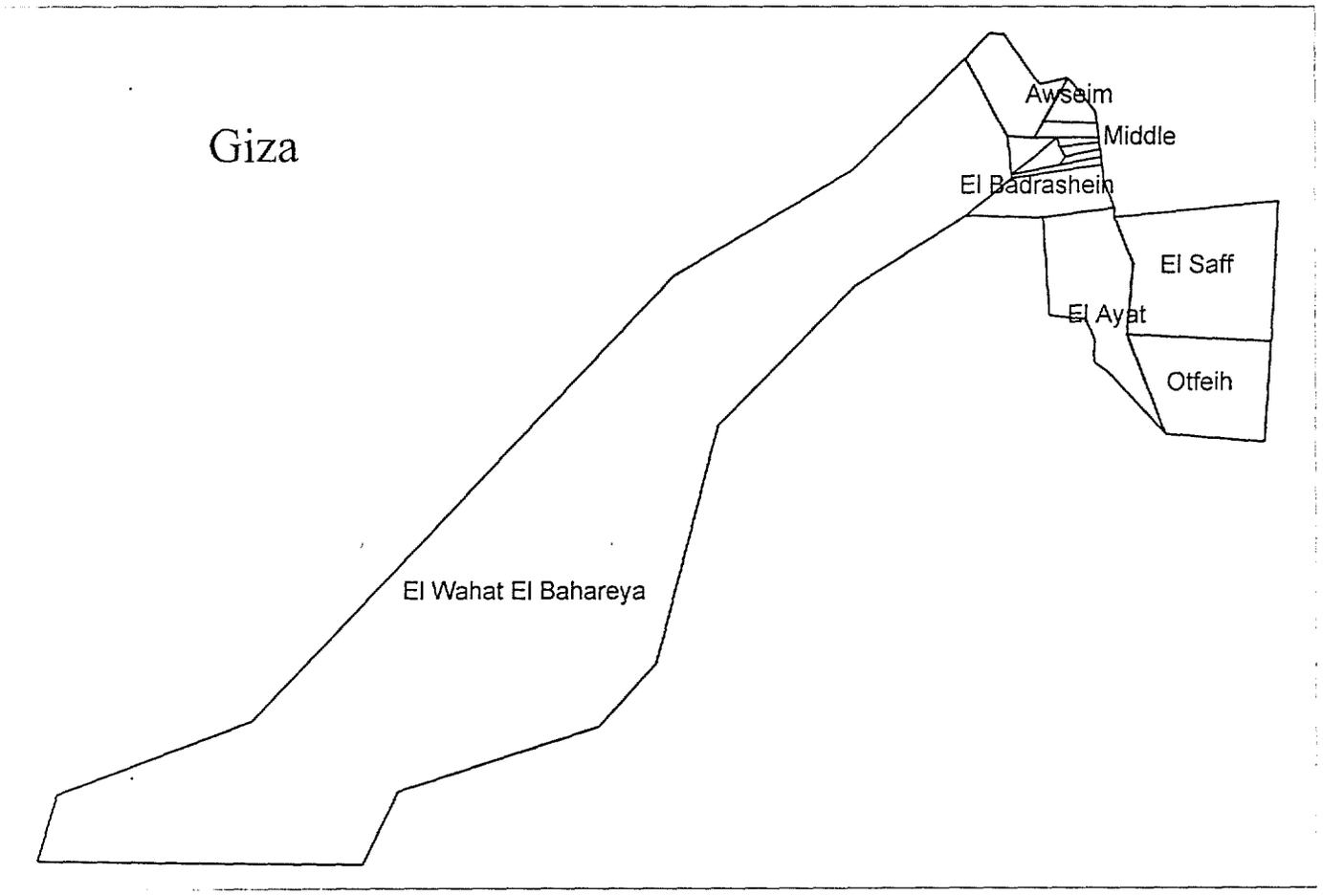

Giza
Awseim
Middle
El Badrashein
El Saff
El Ayat
Otfeih
El Wahat El Bahareya

May 1996

ISMAILIA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	680,000
1995 Births/Women needing maternal services	19,847
Women of Reproductive age (22% of 1995 pop.)	150,000
No. of children under 5 years of age [est.1994]	86,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Ismailia	10275	10726	10848
El Tal El Kebir	3406	3411	3642
Faied	1910	1973	2063
Kantarah Gharb	2437	2522	2735
Kantarah Shark	444	493	559
	18,508	19,125	19,847

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	35	35	na	0%	60	41	32
Child (1 thru 4) mortality	4.4	2.8	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	5
No. of MCHs -2/ UHCs - 5	7
No. of RHCs -1, rural hospitals - 0 and RHUs - 27	28
No. of general (1), district (8) and fever (5) hospitals	14
University Hospital	1
No. of health education offices	4

5. MOH Health Agents

No. of PHC physicians	97
No. of nurses	565
No. of hospital based pediatricians	na.
No. of health education staff	2

6. Distribution of Health Facilities in Ismailia by District

Districts (5): Ismailia	Population* (1993)	----------Hospitals and Primary Health Care Facilities---------- GH	DH	FH	MCH	UHC	RHU	RH	RHU
Ismailia	403,509								
El Tal El Kebir	209,576								
Faied	65,398								
Kantarh Gharb	56,215								
Kantarah Shark	20,100								
Total	754,798*				2	5	1		27

*Source: Population data - EPI Basic Data Book-1994; Health Facilities - ARI health facilities data base.

B. Expanded Program of Immunization in Ismailia

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Centers	39
• No. of Deep Freezers (9) and refrigerators (70)	79
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	4
• Cold Chain Repair and Maintenance Work Shop	

2. EPI Training - 1989-95

PHC Physicians*	202
PHC Nurses*	133
Sanitarians*	78
Clerks	45
Total	458

*Including health managers

3. Infant Immunization Coverage Trends in Ismailia

	BCG	Measles	HB	OPV3	DPT3
1987*	97.8	77.3	0	92.4	89.9
1990*	93.4	92.4	0	91.0	91.0
1993#	97	97	87	95	95
1994#	92	90	92	92	92
1995#	94	93	92	92	93

E Project-Wide Child Survival Interventions in Gharbia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management. A five day workshop on planning, budgeting and management for child survival was conducted out in the governorate in 1994.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96.The program has also been installed in most district health offices. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (30).Giza is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Being piloted in other governorates.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of 18 health education officers and and other health agents in Giza in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility of over 320 trained dayas in 9 districts as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students are to be provided opportunities to observe organization and management of primary health care services in the model clinic being developed in Tanta district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

EPI trained 81 teaching staff in the 9 secondary schools of nursing and provided reference materials for teaching in these schools in 1993. ARI trained 19 teaching staff of 10 secondary nursing schools in 1994-1995. .

GIZA

Annex 1

Trends in Infant and child Mortality Rates in Giza

	1987*	1992*	% Change 1987-92	1995**	% Change 1987-95
Registered IMR	71	39	- 45%	30	- 40%
Adjusted IMR	85	42	- 51%	33	- 61%
Registered CMR	9.3.	3.2	- 66%	2.2	- 76%

*CAPMAS data and estimates.
**Estimated by MOH/Child Survival Project using vital statistics provided b the Governorate. See Table 1.

Annex 2

Infant and Child Mortality Data For GIZA Governorate

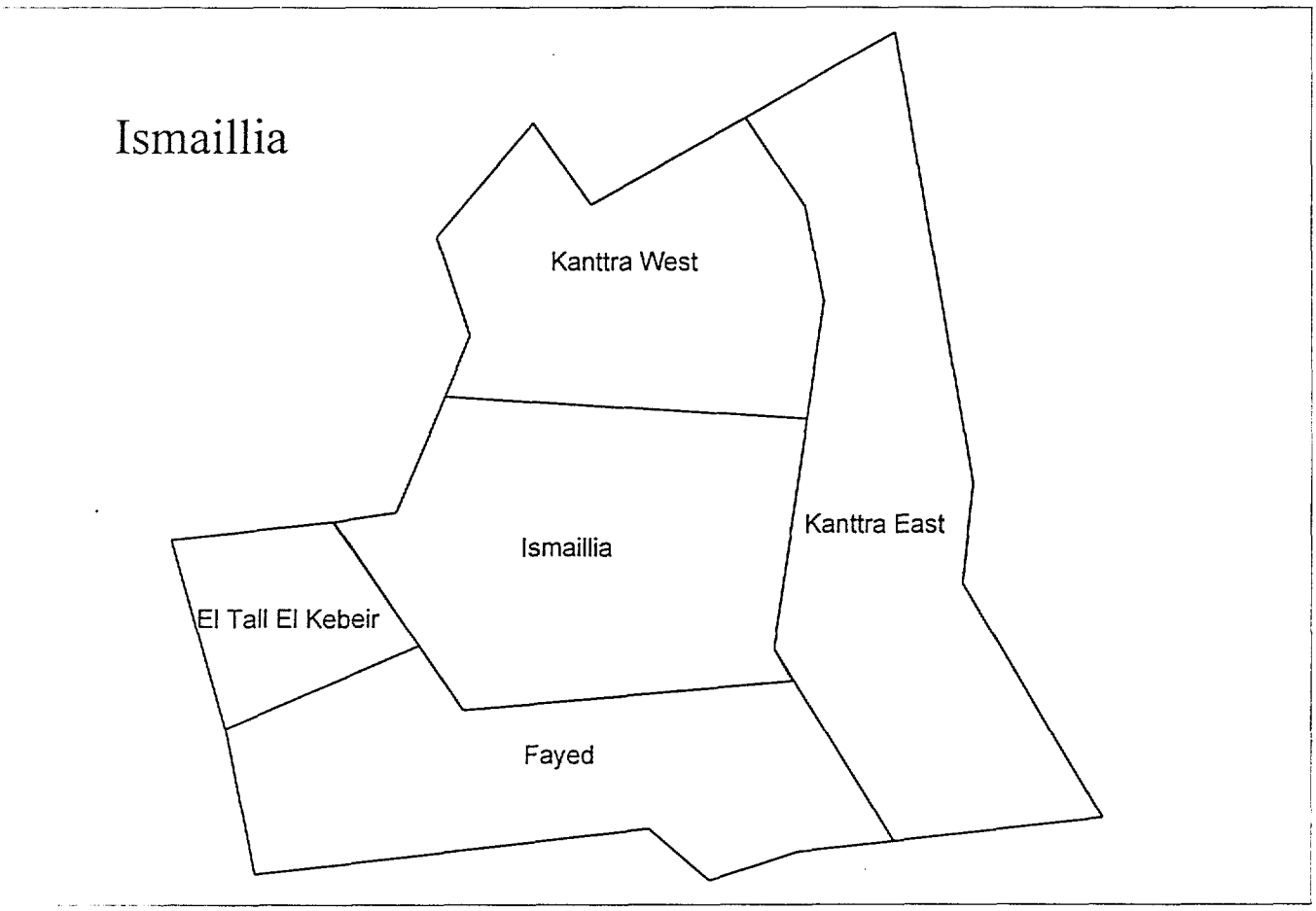
CAPMAS Published Data on Registered IMR and CMR*

Year	Births	Infant Deaths	Reg'd IMR	Children Deaths	CMR
1985	143202		71	1447	11.0
1986	146460		62	1577	.....8.6
1987	147258	10490	71	1594	9.3
1988			42		5.6
1989			45		5.8
87-89 average			52.7		6.9
1990			41		4.4
1991			38		3.7
1992			39		3.2
90/92 average			39.3		3.76
1995 (MOP/CSP Estimate)			30.3		2.2
Change from 1987 to 1995			- 22%		- 31%

Vital Statistics From Giza Health Directorate#

Year	Births	Infant Deaths		Reg'd IMR	Children Deaths	Index of CMR (b)
1987	145519	6631			2257	
1988	143489	4814			3635	
1989	135384	4929			2276	
1990	134752	4817)			1993	
1991	129504	4727)	4577a	35.6a	866?(b)	
1992	121905	4186)		34.3	2086	3.98
1993	125236	3790)			1529	
1994	109843	3686)	3655a	30.0a	1444	
1995	130897	3485)		26.6	1355	2.74
Change from 1992 to 1995				- 22.4%		- 31.2%

*Source-CAPMAS, *Infant and Mortality Rates in Egypt, 1980-87* and *1980-92*. Cairo, 1989 and 1996.
#Source: Vital Statistics provided by EPI (births) and Governorate Health Directorate (deaths)
a) This figure appears in error and may be 1866 (subject to check). b)Calculated by dividing the number of child deaths in the year by the number of births in that year and the preceding three years.


Ismaillia
Kanttra West
Kanttra East
Ismaillia
El Tall El Kebeir
Fayed

May 1996

CSP Data Sheet on ISMAILIA Governorate

Population

Total (Jan 1995 CAPMAS) - 49% urban 680,000
1994 Births/Women needing maternal care services.....19,125
1995 Births/Women needing maternal care services.....19,847
No. of Children Under 5 (1994 est.).....86,000
Women of Reproductive age (22% of total pop).....150,000

Health Infrastructure

No. of Health Bureaux (vital statistics and vaccination).....5
No. of MCHs - 2 /Urban Health Centers - 5.....7
No. of RHCs - 1, RHUs - 27, Rural hospitals - 0.....28
No. of general (1), district (3) and fever (2) hospitals.....6
No. of University hospitals.....1
No. of Health Education centers.....1

5 Districts/Births(1993/94/95) • Ismailia (10275/10726/10848), El Tal El Kebir (3406/3411/3642), Faied (1910/1973/2063), Kantarah Gharb (2437/2522/2735), and Kantarah Shark (444/493/559).• Kantara Gharb and Kantarah Sharq missed attaining 80% infant vaccination coverage in 1994 and 1995.

MOH Health Agents:

No. of PHC physicians..... .97
No. of nurses (1990 data).....565
No. of hospital based pediatricians.....5
No. of health education staff (1993 data).....2

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	35	35	na	0%	60	41	32
Child (1 thru 4) mortality	4.4	2.8	na	- 46%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program-Initiated in 1994 by the establishment of a model clinic in Salam 3 medical center in Ismailia health district.

Expanded Program of Immunization

No. vaccination units.....39
No. Cold Chain deep freezers (9) and refrigerators (70)-April 1995.....79
No. of PHC staff trained in EPI, 1989-95.....458
Routine Infant vaccinations in 1993 (equals 94% coverage).....243,162
Women immunized TT2 in 1994(10,232 in 1993).....7,142
Women immunized TT2 in 1995.....7,598
Women immunized TT3/4/5 in 1994.....4,093
Women immunized TT/3/4/5 in 1995.....4,759

Vaccine Coverage in 1993/94/95 (%) BCG -97/92/94 OPV3 - 95/92/92
TT2+-91/59/62 Measles - 97/90/93 HB3 - 87/92/93 DPT3 - 95/92/93

Polio Cases:	1991- 2	1992- 3	1993 - 0	1994 - 0	1995 - 0
NNT Cases*:	1991- 16	1992 - 15	1993 - 9	1994-11	1995 - 6

*Faied missed attaining NNT elimination (less than 1 NNT case per 1000 live births) in 1994 and 1995.

ARI Program • Initiated in 1990 • 333 health agents trained (36 pediatricians, 196 PHC physicians, 80 nurses, 21 others) • 1690 cases of severe ARI in children <5 years treated in MOH out-patient facilities in 1995 (1593 cases in 1994) • Compliance in ARI case registration >80% in 1995. • Est. Pop Access to SCM - 90 %.

CS/MCH Program • 235 PHC physicians trained in MCH service delivery (in 1990, and in 1994) •__daya trainers and supervisors trained - 155 dayas trained, 1991-92 - 45 dayas given refresher training, 1996. • 50 physicians and 120 nurses and dieticians trained in maternal-child nutrition, 1990-91 • 55 food inspectors trained, 1989-91 • 4 MCH laboratories upgraded - 16 laboratory technicians trained • 3,458 women received antenatal care in MOH facilities in 1992 - 19%.• 2 neonatal intensive care centers established (Faied and Ismailia - 6 incubators) - 39 physicians and 17 nurses trained - 90 neonates treated in 1995. • Breast Feeding program initiated (MOH/UNICEF) • Maternal mortality survey carried out in 1992/93 - Maternal Mortality Rate - 325 (95% confidence interval, 202-518).- National MMR - 174 • 5 first referral hospital delivery rooms being upgraded - 11 obstetricians trained, 1995. • Proportion of deliveries by doctors, trained birth attendants> 85% (1993 estimate).

Further work is need to train delivery room staff and to develop the systematic use of service standards s to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care

- 235 physicians were trained in child spacing and MCH care, 1990 and 1994
- 155 dayas trained in safe motherhood, MCH referrals and counseling, 1989-91
- 45 dayas provided refresher training, first quarter, 1996
- __ physicians and nurses trained as daya trainers and supervisors, 1989-91
- 50 physicians trained in mother-child nutrition, 1989-1991
- 129 nurses and dieticians trained in mother-child nutrition, 1989-91
- 55 food inspectors trained, 1989-91
- 16 laboratory technicians trained in MCH laboratory analysis, 1993 and 1995
- 39 physicians and 17 nurses were trained in neonatal care, 1992-95

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Ismailia.[6] The committee reviewed 140 cases of female deaths and identified 19 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **325** maternal deaths per 100,000 live births, with a 90% confidence interval of 202-518..The national MMR was found to be **174.**

The study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Ismailia by year 2000 to **162** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

E Project-Wide Child Survival Interventions in Ismailia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (8).Ismailia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

The governorate has opted to collaborate in the MOH Clinic Management Improvement Program and initated the program in 1994 with the selection and development of the Salam 3 Medical Center (Ismailia District) as a model clinic. The aim is to extend the program to most health centers during following years.

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[6]Members of the Committee were Dr. Mahmoud Abdou El-Khader, Dr. Mohammed Hassan Ismail, Dr. Moselhi Osman, Dr. Abdallah Mahmoud El-Khodari, and Dr. Mervat Mansour Mohammad. .

MCH Laboratories Up-Graded in Ismailia

1. Kantara Hospital Maternity	Kantara Gharb District
2. Sabaah Banaat UHC	Ismailia District
3. Salaam 3 UHC	Ismailia District
4. Sheikh Zaid 2 UHC	Ismailia District
5. Seidi Salem UHC	Ismailia District

Neonatal Care Facilities in Ismailia

Two first referral neonatal care centers established and developed during 1991-95 in Ismaili General Hospital, Ismaili District.and in Faied Hospital in Faied district Inputs including training, advisory services, development of service standards[3] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters. In 1995, the Ismaili center with 4 incubators provided care for 90 neonates,of whom 9% were referrals of referrals from outside the hospital. The Faied Neonatal Care Center has been inoperative for lack of pediatric staff assigned to the hospital.

The number of admittances in 1995 in the Ismailia Hospital Center equals less than 10% of the indicated need for first referral care for about 1100 infants in the district[4] The number of LBW infants in the governorate in 1995 is estimated in the range 1800 -2500. Action is required to activate the Faied Center or relocate it. Further development of the referral system for neonates requiring first level care facilities is required by the Health Directorate.

Neonatal Care Centers Established in Gharbia 1991-95

Hospital	District/Births in the District-1995	Incubators Supplied*	Admittances 1995
1. Ismaili General Hospital	Ismailia/10848	4	90
2. Faied Hospital	Faied/2063	2	0
Total	2 districts/12912	6	90

Delivery Rooms Up-graded in Ismailia

Five delivery rooms districts were selected by the Health Direcotrate to be up-graded. Inputs have included supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El-Kantara Hospital	Kantara Gharb District
2. Ismailia GeneraHospital	Ismailia District
3. Faied Hospital	Faied District
4. El-Tal El-Kebir Hospital	Tal El-Kebir District
5. Kassasin Hospital	Tal El-Kebir District

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[3]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[4]Need based on estimated proportion of LBW infants among births.

[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

221 maternal deaths per 100,000 live births, with a 90% confidence interval of 86-144..The national MMR was found to be **174.**[8]

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Giza by year 2000 to **110** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity, based on recommendations of the national study.

4. Giza Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 (in Qalyubia) indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW.

Based on the pilot study a national low birth study has been carried out to: i)estimate the magnitude and distribution of LBW nationally l ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and ib) determine birth weight specific mortality and morbidity. Field work for this study was completed in 1995-96 in six governorates.

Giza Governorate participated with 1,004 deliveries monitored. A preliminary result is the wide variance noted in LBW incidence among participating governorates ranging from under 10 to over 17 per 100 live births. A report of the results of the study in preparation.

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[8]A previous study carried out by Forney et al. in 1985-86 had identified 153 maternal deaths and an MMR of 153. (Noted on page 18 of the National Maternal Mortality Study).

Delivery Rooms Up-graded

Eight delivery rooms in eight of the 14 districts were targeted to be up-graded. Inputs have included renovation, supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Aiat Hospital	Aiat District
2. El-Wahat El-Baharia Hospital	Wahat District
3. Om El-Masryeen Hospital	Ganoub District
4. Boulak El-Dakrour Hospital	Gharb District
5. El-Saf Hospital	Saf District
6. El-Bandrashin Hospital	Bandrashin District
7. Imaba General Hospital	Imbaba District
8. El Hawamdia Hospital	Hawamdia District

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services., including neonatal resuscitation procedure.

Baby Friendly Hospital/Health Centers

The Baby Friendly program was installed in 1995 in:

- Bolak el Dakrou Hospital in Gharb District
- Giza District MCH.

2. Training for MCH Service Delivery, 1989-1995

- 579 physicians were trained in child spacing and MCH care (1989-1995)
- 275 physicians, nurse midwives and nurse inspectors in nine districtswere trained for daya training and supervision, 1990-1995
- 320 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- 450 physicians trained in mother child nutrition, 1990-1991
- 500 nurses and dieticians trained in mother-child nutrition. 1990-91
- 123 food inspectors trained. 1990-91
- 15 laboratory technicians trained in MCH laboratory analysis
- 38 physicians and 21 nurses were trained in neonatal care, 1992-95
- 44 physicians trained in neonatal resuscitation. 1995
- 101 physicians and 72 nurses trained for the BF-baby friendly program, 1995
- 20 nurses trained in nurse-midwifery, 1995.

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates.[6] A committee was established in Giza by the Under Secretary for Health to conduct the study in the governorate.[7] The committee reviewed 535 cases of female deaths and identified 55 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of

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[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,. (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[6]MOH/CSP-USAID, *National Maternal Mortality Study, Findings and Conclusions, Egypt, 1992-1992*, Cairo, July 1994.

[7]Members of the Committee were Dr. Taha El-Rashidi Abas Abou Shosha, Prof. Dr. Ahmed El-Tagi, Dr. Nadia Fawzi, Dr. Mostafa Badr, and Dr. Seham Hussein.

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Tahta Health Directorate 1991-1996 to train physicians and nurses to monitor, supervise and train dayas in 9 of the 14 districts of Giza:

Giza Health Districts With Daya Program Installed

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
Shamal	32	60
Wasat	30	40
Ganoub	37	45
Giza	41	60
Gharab	33	65
El-Haram	23	15
El-Badrashin	18	15
El Aiat	31	15
El Hawamdia	30	5
Total	275	320

The dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Gharbia,as well as assurances of safer deliveries for Giza women.[2]

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas.

Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

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[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

[2]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

MCH Laboratory Up-Grading Program

Five MCH centers were selected by the by the Giza Health Directorate for up-grading (List below) which took place during 1992-95. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in Giza

1. Badrishin MCH	Badrishin District
2. 6 October MCH	Badrishin District
3. Imbaba MCH	Imabab District
4. Osseim MCH	Osseim District
5. Saf MCH	Saf District

Continue attention to the Laboratory up-grading program is needed through monitoring, appropriate staffing and governorate support to assure necessary laboratory supplies.

Neonatal Care Facilities in Giza

Four first referral neonatal care centers were established and developed during 1991-95 in 4 of the 14 districts of Giza. Inputs including training, advisory services, development of service standards[3] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the four centers provided care for 1201 neonates, of whom 55% were referrals from outside the hospital. The number of admittances is equivalent to about 22% of an indicated need for first referral care for about 5400 infants in the six districts[4] The number of LBW infants in the governorate in 1995 is estimated in the range 13,000 - 20,000. Further development of a referral system for neonates requiring first level care and of district level neonatal care capacity and facilities is required in Giza during 1996-2000.

Neonatal Care Centers Established in Giza 1991-95

Hospital	District/Births in the District - 1995	Incubators Supplied*	Admittances 1995
1. Boulak El Dakrou H.	Gharb/20477	6	414
2. El-Hawamdia Hosptial	Hawamdia/3801	5	136
3. Om El Masryeen Hospital	Ganoub/6347	5	202
4. Imbaba General Hospital	Imbaba/23,701	4	450
Total	4 Districts/54326	17	766

[3]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[4]Need based on estimated proportion of LBW infants among births.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995) in Giza

- 790 respiratory timers,
- 9 oxygen concentrators
- 15 oxygen cylinder sets
- 14 nebulizers
- 1 oximeter
- 490 otoscopes

5. Drugs Supplied to Giza by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250and 125 ml)	12000	57000	59200	97408	73327
[of which Amox 125 ml]	--	(15100)	(22100)	(17252)	(22979)
Paracetamol 120 cm	5000	15500	22100	10500	10500
Expectorant	4000	13800	--	--	--
LA Penicillin	--	--	2000	8400	5600
Salbutamol Syrup	--	--	--	--	10500

6. ARI Targeted Hospitals - Giza

18 Hospitals in Giza are targeted for in patient and out patient care of ARI for stallation of ARI Standard Case Management. (In addition to 3 general, 11 district and 3 fever hospitals, the Giza Chest hospital is targeted) Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996.

7. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.

8. ARI Training Facilities in Giza

Three ARI training centers were established:

- Om El Maserrien General Hospital Center (1990)
- Giza MCH Center for Nurses Training (1992)
- Bolak El Dakror General Hospital Center (1994).

9 ARI Training Accomplished in Giza

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	6	15	0	0	21
Specialists	39	48	12	4	103
PHC Physicians	603	0	40	0	643
Nurses	181	340	130	0	651
Pharmacists	0	0	0	23	23
Nursing School Teachers	0	0	0	19	19
Health Education Officers	0	0	0	21	21
Total	829	403	182	77	1491

10. Cases of ARI Registered in Giza

	1993	1994	1995	1993	1994	1995	Sentinel
	---------- number ----------			------- ------percentages ----------			
Very Severe Disease	112	263	)	0.39	0.30	)	1.10
Severe Pneumonia	535	1039	)18325	1.86	1.17	) 23.57	4.60
Pneumonia	4051	10741	)	14.08	12.06	)	13.10
Otitis Media	3416	12451		11.88	13.99		8.80
Pharyngitis	6939	22672		24.12	25.47		18.10
Cough/Cold/Bronchitis	13710	41862		47.67	47.00		50.10
Total	76,541	89028	77719	100.00	100.00	100.00	100.00

6. ARI Targeted Hospitals - Ismailia

Six hospitals are targeted for in patient and out patient care of ARI according to ARI Standard Case Management. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996.

:

1. Ismailia General Hospital
2. Ismailia Fever Hospital

3. El-Tal El Kabir Fever Hospital
4. El-Kassasseen District H. (El-Tal E-Kebir District)
5. El-Tal El-Kebir District Hospital

6. El-Kantarah Shark District Hospital

7. ARI Training Facilities

An ARI training center was established in Ismailia General Hospital in 1990.

8. ARI Training Accomplished in Ismailia

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	5	--	--	--	5
Specialists	6	4	2	24	36
PHC Physicians	140	0	56	--	196
Nurses	0	80	0	0	80
Model Clinic Training	--	--	16	--	16
Pharmacists	--	--	--	--	--
Nursing School Teachers	0	0	0	0	(p)
Health Education Officers	0	0	0	0	(p)
Total	151	84	74	24	333

p - planned to be accomplished in 1996

9. Cases of ARI Registered in Ismailia

	1994	1995	1994	1995	Sentinel
	----number------		----Percentage Distribution---		
Very Severe Disease	33		0.18		0.80
Severe Pneumonia	89		0.48		2.40
Pneumonia	1471		7.89		8.60
Otitis Media	1923		10.31		12.50
Pharyngitis	6664		35.73		24.20
Cold/Cough	8469		45.41		46.40
Total	18649	18330	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Ismailia Health Directorate to train physicians and nurses to monitor, supervise and train dayas in the following districts of Dakahlia

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
• Ismailia District		
• Kantara (Gharb/Shark) D.		
• Faied District		
•		
Total		155

The dayas trained and certified (as trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Gharbia,as well as assurances of safer deliveries for Ismaili women.[2]

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as trained), and provide for refresher training of dayas. Training will be required for PHC staff as daya trainers and in management of the daya program.

Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Five primary health care facilities were selected by the by the Ismailia Health Directorate for up-grading (listed below). One was up-graded during the period 1991-93 and four were selected and up-grading in the period 1994-95. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

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[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

[2]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

4. TT Immunization (of Pregnant Women) Attained in Ismailia

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			6.5
1990*			67.5
1993#	10,232	na	91%
1994#	7,142	4,093	59%
1995#	7,598	4,759	62%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Ismailia

	1991	1992	1993	1994	1995
Polio Cases:	2	3	0	0	0
NNT Cases*	16	15	9	11	6

*All Districts except Faied maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Ismailia	10848	0	1	3	96	98	97	98	98	58
El Tal El Kebir	3642	0	0	1	94	88	87	84	87	79
Faied	2063	0	0	2	103	101	107	107	107	60
Kantarah Gharb	2735	0	0	0	82	82	74	74	74	56
Kantarah Shark	559	0	0	0	66	64	63	63	63	63
Total	19874	0	1	6	94	93	92	92	93	62

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 85%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-1593) 1690

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:9,000)

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 35 targeted) 30 (est. 86%)
- Targeted Hospitals (total in Patient and Out Patient - 6) 6 (est. 100%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 206 respiratory timers,
- 2 oxygen concentrators
- 7 oxygen cylinder sets
- 7 nebulizers
- 1 oximeter
- 95 otoscopes

4. Drugs Supplied to Ismailia by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	4800	16700	14800	24324	18078
of which Amox 125 ml	--	(4400)	(5200)	(3500)	(4671)
Paracetamol 120 cm	2500	5800	5600	2700	2700
Expectorant	4000	5100	--	--	--
LA Penicillin	--	--	2000	2100	1400
Salbutamol Syrup	--	--	--	--	1100

5. ARI Health Education:

Scheduled to developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of health education officers and and other health agents in Ismailia in key messages for the ARI Control Program is scheduled to be conducted in 1996.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility in 4 districts of 155 trained dayas as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

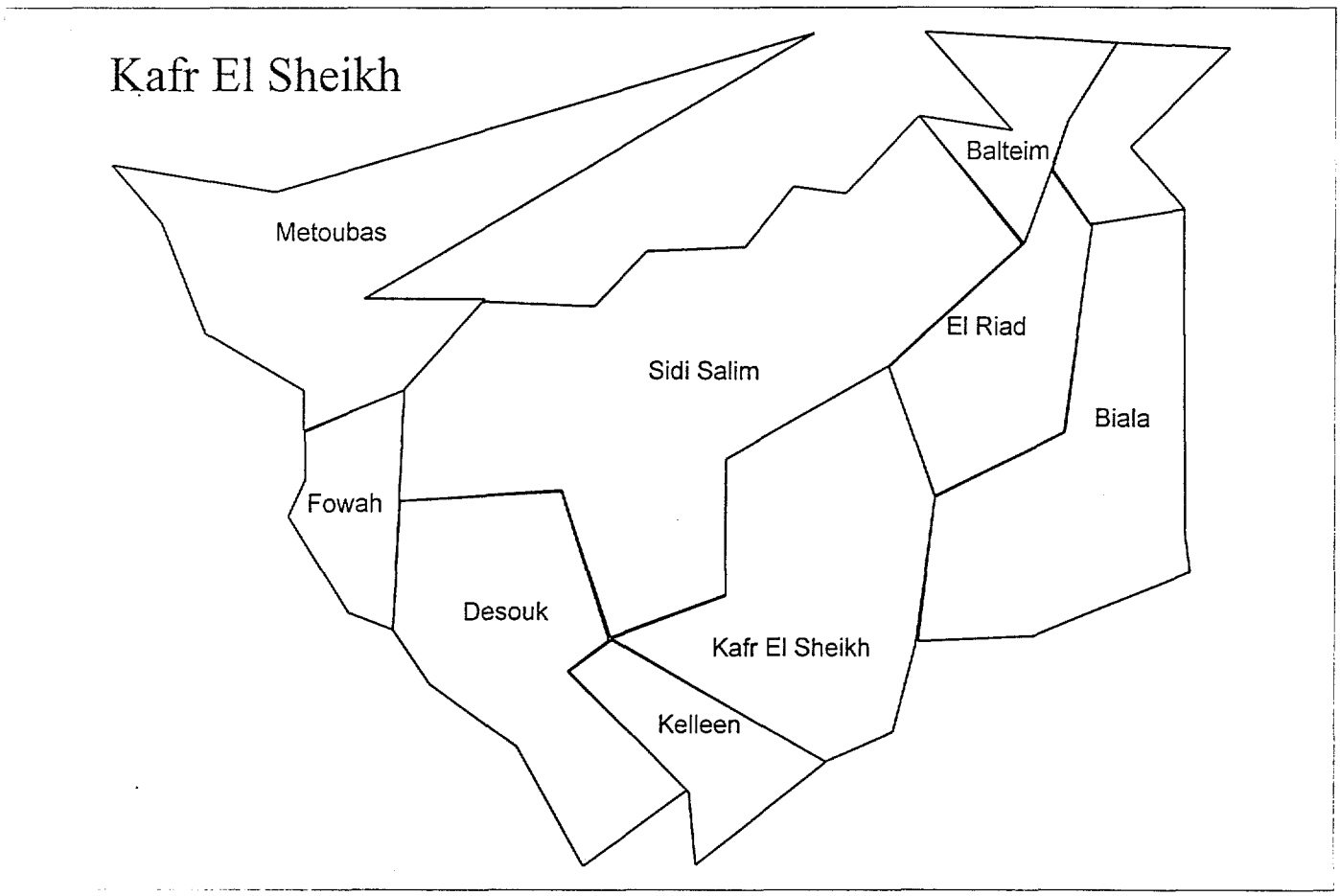
Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students from Suez University are to be provided opportunities to observe organization and management of primary health care services in the model clinic in Ismailia district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

EPI trained 20 teaching staff in the 3 secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI has scheduled training of teaching staff for the secondary nursing schools in 1996.


Kafr El Sheikh
Balteim
Metoubas
El Riad
Sidi Salim
Biala
Fowah
Desouk
Kafr El Sheikh
Kelleen

May 1996

CSP Data Sheet on Kafr El Sheikh Governorate

Population

Total (Jan 1995 CAPMAS est.) - 33 % urban.....2,226,000
1994 Births/Women needing maternal services.....58,905
1995 Births/Women needing maternal services.....55,204
Children Under 5 (1992est.).....280,000
Women of Reproductive age (22% of pop.).....490,000

Health Infrastructure

No. of Health Bureaux.....12
No. of MCHs - 12; Urban Health Centers - 4.....16
No. of RHCs - 13, RHUs - 134, rural hospitals - 9.....156
No. of general (1), district (9) and fever (2) hospitals.....12
No. of health education offices.....6

Districts(10)/Births(1993/94/95) • Kafr.El-Sheikh (10732/10544/10193), El-Reiad (3279/3571 /3521), Dosouk (8975/9232/8231), Fowah (2775/2892/2892), Motobas (4853/5280/4920), Qellin (4103 /4130/3986), Beiala (5400/5573/5075), El-Hamoul (4897/5180/4726), Baltim (4316/4512/3938), and Seidi Salem (7940/7991/7722) • All districts achieved 80% infant vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....234
No. of MOH nurses.....692
No. of pediatricians (in hospitals, 1993 data).....50
No. of health education staff.....na

Mortality Data

	1987*	1992*	1995#	Change 87-95	--------All Egypt------ 1987	1992	1995
Infant Mortality(adjusted data)	43.0	22.0	17	- 60%	60.0	41.0	32.0
Child (1 thru 4) mortality	4.6	2.5	2.8	- 39%	7.4	4.0	3.2

Capmas estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP Estimate

Expanded Program of Immunization

No. vaccination units.....188
No. Cold Chain deep freezers (21) and refrigerators (416) - April 1995.....437
No. of PHC staff trained in EPI, 1989-95.....1,234
Routine Infant/Child Immunizations in 1993 (vacc. rate 94%..... 243,162
Women immunized TT2 in 1994 (13,196 in 1993).....14,364
Women immunized TT2 in 1995.....16,500
Women immunized TT3/4/5 in 1994.....9,544
Women immunized TT3/4/5/ in 1995.....12,871

Key Vaccination Coverage in 1993/94/95 (%) BCG - 97/92/101 DPT3 - 90/89/93
TT2+ - 35/41/53 Measles - 89/87/97 HB3 - 77/83/97 OPV3 - 90/89/98

Polio Cases:	1991 - 4	1992 - 25	1993 - 0	1994 - 2	1995 - 0
NNT Cases:	1991 - 94	1992 - 58	1993 - 33	1994 -32	1995 - 21

*All districts except El Hamoul achieved/sustained NNT elimination in 1995 (<1 case per 1000 live births)

ARI Program • Initiated in 1993.• 731 health agents trained (28 pediatricians, 251 PHC physicians, 400 nurses, 52 others] • 1,829 cases of severe ARI in children<5 treated in MOH out patient facilities in 1995 (1,989 cases in 1994) • Compliance in ARI case registration 61% in 1995.• Est. Pop. Access to SCM - 90%.

CS/MCH Program • 504 PHC physicians trained in MCH service delivery, 1990-93 • 325 physicians and 370 nurses and dieticians trained in maternal-child nutrition, 1989-91 • __ daya trainer/supervisors trained • 160 dayas trained, 1990-95 • 7 MCH laboratory up graded - 30 laboratory technicians trained • Number and proportion of pregnant women receiving antenatal care in MOH facilities - not available • 2 neonatal intensive care centers established (12 incubators) - 28 doctors and 16 nurses trained in neonatal care, 1992-94 - 251 neonates treated in 1995. - 50 physicians and 50 nurses trained in neonatal resuscitation, 1995 • Baby Friendly program initiated in 1995 (Kafr El Sheikh General Hospital) - 23 BF trainers trained. - 60 physicians and 45 nurses trained, 1995. • Maternal mortality survey carried out in 1992/93 - MMR=96 (confidence interval: 60-140) - national MMR-174] • 10 first referral level delivery rooms up graded - 11 obstericians trained, 1995.• Proportion of deliveries managed by a trained birth attendant: 50% (1993 est.).

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May 1996

KAFR EL SHEIKH- Health & Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	2,226000
1995 Births/Women needing maternal services	55,204
Women of Reproductive age (22% of 1995 pop.)	490,000
No. of children under 5 years of age [est.1994]	280,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
K.El Sheikh	10732	10544	10193
El Reiad	3279	3571	3521
Dosouk	8975	9232	8231
Fowah	2775	2892	2892
Motobas	4853	5280	4920
Qellin	4103	4130	3986
Beiala	5400	5573	5075
El Hamoul	4897	5180	4726
Baltim	4316	4512	3938
Seidi Salem	7940	7991	7722
	57270	58905	55204

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	43	22	17	- 60%	60	41	32
Child (1 thru 4) mortality	4.6	2.5	2.8	- 39%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	12
No. of MCHs - 12/ UHCs - 4	16
No. of RHCs -13, rural hospitals - 9 and RHUs - 134	156
No. of general (1), district (9) and fever (2) hospitals	12
No. of health education offices	6

5. MOH Health Agents

No. of PHC physicians	234
No. of nurses	692
No. of hospital based pediatricians(1993 data).	50
No. of health education staff	na

6. Distribution of Health Facilities in Kafr El Sheikh by District

Districts (10): Kafr El Sheikh	Population* (1993)	----Hospitals and Primary Health Care Facilities#---							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Kafr El Sheikh	420,869	1	0	1	2	1	3	1	21
2. El Reiad	117,852	0	1	0	1	0	1	1	12
3. Desouk	363,509	0	1	1	2	1	2	3	17
4. Fowah	122,655	0	1	0	1	0	1	0	8
5. Motobas	161,580	0	1	0	1	0	2	0	13
6. Qellin	170,562	0	1	0	1	0	1	1	11
7. Beiala	209,899	0	1	0	1	1	2	1	11
8. El Hamoul	174,658	0	1	0	1	0	1	0	11
9. Baltim.	108,139	0	1	0	1	0	0	0	9
10. Seidi Salem.	299,365	0	1	0	1	1	0	2	21
Total	2,149,088*	1	9	2	12	4	13	9	134

*Population data from the EPI Basic Data Book (August 1994). #Source: ARI Data Base, 1995.

C. Expanded Program of Immunization in Kafr El Sheikh

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Centers	188
• No. of Deep Freezers (21) and refrigerators (416) - April 1995	437
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	10
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	192
PHC Nurses*	686
Sanitarians*	192
Clerks	164
Total	1234

*Including health managers

3. Infant Immunization Coverage Trends in Kafr El Sheikh

	BCG	Measles	HB	OPV3	DPT3
1987*	60.6	71.9	0	84.6	77.8
1990*	84.3	82.4	0	81.9	84.3
1993#	97	89	77	90	90
1994#	92	87	83	89	89
1995#	101	97	97	98	93

4. TT Immunization Coverage (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			20.9
1990*			69.4
1993#	13196	na	35%
1994#	14364	9544	41%
1995#	16520	12781	53%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	4	25	0	2	0
NNT Cases*	94	58	33	32	21

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
K.El Sheikh	10193	0	3	2	105	98	100	100	100	50
El Reiad	3521	0	0	2	104	102	101	101	101	41
Dosouk	8231	0	1	0	108	98	103	103	103	52
Fowah	2892	0	1	0	96	97	92	92	92	78
Motobas	4920	0	3	2	105	96	93	98	98	61
Qellin	3986	0	0	1	97	96	103	103	103	30
Beiala	5075	0	0	1	88	86	88	88	88	77
El Hamoul	4726	0	0	9	105	116	104	104	104	40
Baltim	3938	0	0	0	85	93	93	92	93	73
Seidi Salem	7722	0	1	3	103	92	93	93	93	43
	55204	0	9	21	101	97	97	98	98	53

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Kafr El Sheikh was initiated in 1993 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 61%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-1989) 1,829

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:28000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 174 targeted) 147 (est. 84%)
- Targeted Hospitals (total targeted - 12) 10 (est. 83%)

3. ARI Laboratory Up-grading

The Kafr El Sheikh General Hospital's Laboratory is being up-graded to become part of a national ARI microbial resistance surveillance network.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 838 respiratory timers,
- 5 oxygen concentrators
- 10 oxygen cylinder sets
- 5 nebulizers
- 1 oximeter
- 145 otoscopes

5 Drugs Supplied to Kafr El Sheikh by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	0	0	13000	23484	18113
of which Amox 125 ml	0	0	(4900)	(3944)	(5236)
Paracetamol 120 cm	0	0	5100	2500	2500
Expectorant	0	0	0	0	0
LA Penicillin	0	0	2000	2100	1400
Salbutamol Syrup	0	0	0	0	2500

6. ARI Targeted Hospitals - Kafr El Sheikh

12 Hospitals are targeted for in patient and out patient care of ARI. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

ARI Hospitals Targeted in Kafr El Sheikh

1. Kafr El Sheikh General Hospital	- pediatricians trained.
2. Kafr El Shiekh Fever Hospital	- pediatricians trained
3. Desouk District. Hospital	- pediatricians trained
4. Desouk Fever Hospital	- training needed
5. El Hamoul D. Hospital	- pediatricians trained
6. Fowah District Hospital	- pediatricians trained
7. Qellin District Hospital	- pediatricians trained.
8. Baltim District hospital	- pediatricians. trained
9. Motobas District Hospital	- pediatricians. trained
10. Beiala District Hospital	- pediatricians. trained
11. Sidi Salem District Hospital	- training needed
12. El Reiad District Hospital	- training needed

7. ARI Health Education:

To be developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.

8. ARI Training Facilities

Two ARI training centers were established in 1993:

- Kafr El Sheikh Nursing School Center
- Kafr El Sheikh General Hospital Center.

9. ARI Training Accomplished in Kafr El Sheikh

	In 1993	In 1994	In 1995	Total
Managers	12	0	0	12
Specialists	13	15	0	28
PHC Physicians	212	39	0	251
Nurses	300	100	0	400
Pharmacists	--	16	0	16
Nursing School Teaching staff	0	0	24	24
Health Education Officers	0	0	0	(p)
Total	537	170	24	731

p - planned for 1996.

10 ARI Cases Registered

	1993	1994	1995	1993	1994	1995	Sentinel
	---------- number ----------			----------percentages ----------			
Very Severe Disease	0	60	)	0.00	0.29	)	0.80
Severe Pneumonia	0	241	) 1829	0.00	1.15	) 9.53	2.40
Pneumonia	4	1688	)	0.69	8.13	)	8.60
Otitis Media	43	2582		7.47	12.43		12.50
Pharyngitis	163	6448		28.30	31.05		24.20
Cough/Cold/Bronchitis	366	9748		63.54	46.94		46.40
Total	576	20767	19181	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development in Kafr El Sheikh

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate in Kafr El Sheih 1991-1996 to train physicians and nurses to monitor, supervise and train dayas in the following four districts:

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
•		
•		
•		
•		
Total		

The dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Gharbia,as well as assurances of safer deliveries for Kafr El Sheikh women.

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas. The Daya program should be extended to all 10 districts.

[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading in Kafr El Sheikh

Five laboratories were up-graded in 1992-1994.in primary health care facilities selected by the by the Kafr El Sheikh (List below). An evaluation of the program in 1994 led to the decision to up-grade laboratories in two additional centers. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits. Training for laboratotory technicians for the two additional centers is scheduled to take place in July 1996.

MCH Laboratories Up-Graded in Kafr El Sheikh

1. K. El Sheikh 1 (UHC)	K. El Sheikh District
2. Beiala UHC	Beiala District
3. Qellin MCH	Qellin District
4. Fowah MCH	Fowah District
5. Seidi Salem UHC	Seidi Salem District
6. Dosouk MCH*	Dosouk District
7. Bourg El Borolous*	

*Training of laboratory techicians in these facilities is scheduled in June 1996.

Neonatal Care Facilities in Kafr El Sheikh

Two first referral neonatal care centers were established and developed during 1991-95 in 2 of the 10 districts.. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the two centers provided care for 251 neonates, of whom 60% were referrals from outside the hospital. The number of admittances is equal to nearly 18% of the indicated need for first referral care for about 1400 infants in the two districts[3] The number of LBW infants in the governorate in 1995 is estimated in the range 5,500 - 8,000. Further development of the referral system for neonates and of district level neonatal care capacity and facilities is required in Kafr El Sheikh during 1996-2000.

Neonatal Care Centers Established in Kafr El Sheikh, 1991-95

Hospital	District/Births in the District - 1995	Incubators Supplied*	Admittances 1995
1. K. El Sheikh General Hospital	K. El Sh./10193	8	238
2. Qellin Hospital	Qellin /3986	4	13
	2 Districts/14179	12	251

Delivery Rooms Up-graded in Kafr El Sheikh

Eleven delivery rooms in the 10 districts were selected by the Health Directorate to be up-graded. Inputs have included renovation (6 delivery rooms), supply of equipment,

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[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Need based on estimated proportion of LBW infants among births.

development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Kafr El Sheikh Hospital	K. El Sheikh District
2. El-Reiad District Hospital	Reiad District
3. Fowah District Hospital	Fowah District
4. El-Hamoul District Hospital	Hamoul District
5. Seidi Salem Hospital	Seidi Salem District
6. Beiala District Hospital	Beiala District
7. Qellin District Hospital	Qellin District
8. Desouk DistrictHospital	Desouk District
9. Baltim District Hospital	Baltim District
10. Metobus Hospital	
11. Burg El-Borollos Hospital	

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care in Kafr El Sheikh

- 504 physicians were trained in child spacing and MCH care, 1990-1993
- 160 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 325 physicians trained in mother child nutrition, 1989-1991
- 370 nurses and dieticians trained in mother-child nutrition. 1989-91
- 30 laboratory technicians trained in MCH laboratory analysis
- 28 physicians and 16 nurses were trained in neonatal care, 1992-95
- 11 obstetricians trained for delivery room service upgrading. 1995
- 50 physicians and 50 nurses trained in neonatal resuscitation. 1995
- 60 physicians and 45 nurses trained for the BF-baby friendly program, 1995

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Kafr El Sheikh.[5] The committee reviewed 314 cases of female deaths and identified 29 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) in Kafr El Sheikh of **96** maternal deaths per 100,000 live births, with a 90% confidence interval of 65-140..The national MMR was found to be **174.**

Kafr El Sheikh was found to register the lowest rate of MMR in Egypt .The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Kafr El Sheikh by year 2000 to **48** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

E Project-Wide Child Survival Interventions in Kafr El Sheikh

1. Decentralized Planning and Management for Child Survival

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[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[5]Members of the Committee were Dr.Abdel-Moneim Abdel-Hafez Youssef, Dr. Samira Mohammed Abdel-Moneim, Dr. Mohammed Adel Kotry, Dr. Fawzi El-Bahay, Dr. Mohammed Hemyasa and Dr. Khaled Mohsen.

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (4).Kafr El Sheikh is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program is being piloted in 13 other governorates.

4. Mobilization of Health Education Offices

- Training of 2 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of health education officers and and other health agents in key messages for the ARI Control Program is planned in 1996.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility of over 870 trained dayas in 6 districts as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

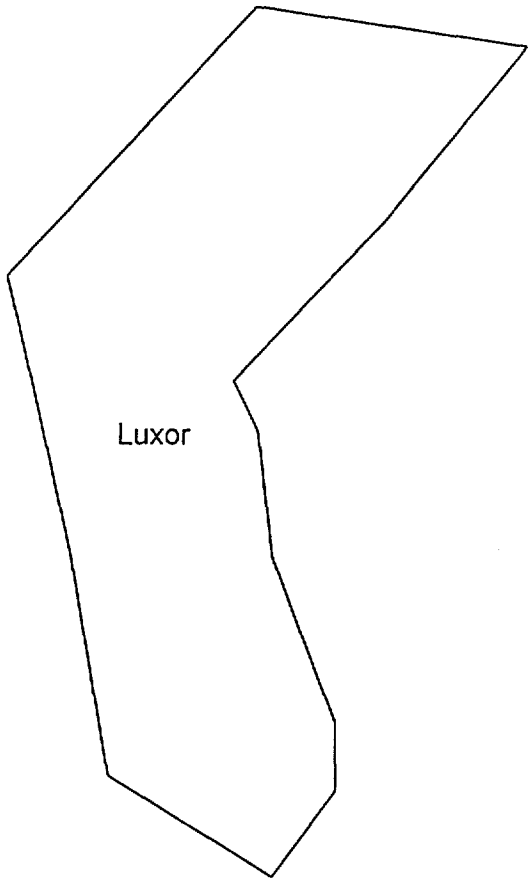
6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students are to be provided opportunities to observe organization and management of primary health care services in the model clinic being developed in Tanta district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

EPI trained 62 teaching staff in the secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI trained 24 teaching staff for 6 of the secondary nursing schools in 1995.

Luxor



May 1996

CSP Data Sheet for Luxor (Badr El Luxor)

Population

Total (Jan 1995 CAPMAS est.).....159,000
1993 Births/Women needing maternal services.....4,665
1994 Births/Women needing maternal services 3,470
1995 Births/Women needing maternal services.....4,184
Est. no. of children under 5 years of age.....22,000
Women of Reproductive age (22% of pop.).....34,000

Districts • Luxor comprises the former Badr El Luxor district of Qena.

Health Facilities

No. of Health Bureaux.....2
No. of MCHs - 1/ UHCs - 2.....3
No. of RHCs - 0, rural hospitals - 0 and RHUs - 5.....5
No. of general (1), district (0), fever (1) and chest hospitals.....3
No. of health education offices.....1

MOH Health Agents

No. of PHC physicians..... .....na
No. of nurses.....na
No. of hospital based pediatricians(1993 data).....na
No. of health education staff.....,.....na

Mortality Data (/000): Not Available.

Clinic Management Improvement Program - Initiated in 1995 with establishment of model clinic (Sheikh Mouusa UHC)

Expanded Program of Immunization

No. Vaccination centers.....9
No. Deep freezers (4) and refrigerators (28) - April 1995.....32
No. of PHC staff trained in EPI, 1989-95.....197
Women immunizaed TT2 in 1994.....1,312
Women immunized TT2 in 1995.....1,057
Women immunized TT3/4/5 in 1994.....941
Women immunized TT3/4/5 in 1995.....1,118

Key vaccination coverage rates in 1994 and 1995 (%)*: .. BCG-120/80 ...DPT3-108/80
TT2+ - 65/52 Measles - 114/80 .. HB3- 108/80 ..OPV3-108/80

*Luxor appears to have beeen vaccinating a signicant number of children not born in the city, which may explain why coverage rates appear to exceed 100 in 1994 (the denominator is children born in the city).

Polio Cases:	1991 - na	1992 - na	1993 - na	1994 - 2	1995 - 0
NNT Cases:	1991 - na	1992 - na	1993 - na	1994 - 3	1995 - 0

ARI Program • Initiated in 1992 • 143 health agents trained (4 pediatricians, 89 PHC physicians, 41 nurses, 8 pharmacists, 1 other) • ARI drugs supplied since 1992. • 849 registered cases of severe ARI among children <5 years old treated in MOH outpatient facilities in 1995 (2,219 treated in 1994) • 90% compliance in ARI case registration in 1995 • Public access to standard case management estimated at 90%.

CS/MCH Program • 50 PHC physicians trained in CS/MCH* • __ .Dayas trained (MOH/UNICEF) • 2 MCH laboratories up-graded in 1994-95 - 10 lab technicians trained • Number and proportion of pregnant women receiving ante natal care in MOH facilities: not available. • 1 neonatal care centers established (4 incubators) - 26 physicians and 17 nurses trained in neonatal care - 121 neonates treated in 1995 • Baby Friendly program initated with UNICEF help.• A first-level referral level delivery room being up-graded in Luxor General Hospital.

* Note: Until 1994, data for Luxor was combined with that for Qena.

May 1996

LUXOR- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan 1995 CAPMAS est.) - urban .governorate.....159,000
1993 Births/Women needing maternal services.....4,665
1994 Births/Women needing maternal services 3,470
1995 Births/Women needing maternal services.....4,184
Est. no. of children under 5 years of age..... 22,000
Women of Reproductive age (22% of pop.).....34,000

2.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	na	na	na	na	60	41	32
Child (1 thru 4) mortality	na	na	na	na	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

3. Health Facilities

No. of Health Bureaux	2
No. of MCHs - 1/ UHCs - 2	3
No. of RHCs - 0, rural hospitals - 0 and RHUs - 5	5
No. of general (1), district (0) fever (1) and chest (1) hospitals	2
No. of health education offices	1

4. MOH Health Agents

No. of PHC physicians	na
No. of nurses	na
No. of hospital based pediatricians(1993 data)	na
No. of health education staff	na

5. List of Primary Health Care Facilities

1. UHC El Awamia -
2. MCH Luxor
3. UHC El Sheik Mossa
4. RHU El Karnak El Kadim
5. RHU El Karnak El Gediid
6. RHU Marchah El Amary
7. RHU El Kayahy El Gharb
8. RHU El Nakdawy

B. Expanded Program of Immunization in Luxor

EPI goals include: sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles.

1. Immunization Facilities

• No. of vaccination units	9
• No. of Cold Chain deep dreezers (4) and refrigerators(28)	32
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	89
PHC Nurses*	77
Sanitarians*	15
Clerks	16
Total	197

*Including health managers

3. Infant Immunization Coverage Trends in Luxor

	BCG	Measles	HB	OPV3	DPT3
1994*	120	114	108	108	108
1995*	80	80	80	80	80

*Luxor appears to have beeen vaccinating a signicant number of children not born in the city, which may explain why coverage rates appear to exceed 100 in 1994 (the denominator is children born in the city).

4. TT Immunization (of Pregnant Women) - Luxor

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1994#	1,312	941	65%
1995#	1,057	1,118	52%

#EPI Service Statistics

5. Reported Polio and Neonatal Tetanus Cases in Luxor

	1991	1992	1993	1994	1995
Polio Cases:	na	na	na	2	0
NNT Cases*	na	na	na	3	0

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The program in Luxor was initiated in 1992 and is established in most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at > 90%
- Compliance by MOH Facilities in Case Registration Reporting 81%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-2,210) 849

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:2,200)

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 8 targeted) 8 (100%)
- Targeted Hospitals (3) 3 (100%)

ARI Targeted Hospitals - Luxor

1.Luxor General H - 4 pediatricians, 7 ass't pediatricians, 3 residents, 2 nurses, all trained.
2.Luxor Fever Hospital - 5 trained pediatricians, 1 resident and 11 nurses untrained,.Apr 1995 report
3.Luxor Chest Hospital - 2 pediatricians trained, 1 of 2 residents trained, 1 of 2 nurses trained, (Outpatients only) [Apr 1995 Report)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 92 respiration timers
- 3 oxygen concentrators
- 3 oxygen cylinder sets
- 3 nebulizers
- 1 oximeter
- 125 otoscopes

4. Drugs Supplied to Luxor by the ARI Control Program

	1992	1993	1994	1995
Amoxicillin (250 and 125 ml)	7300	9900	16452	12922
(of which Amox 125 ml)	(2000)	(3700)	(3008)	(4009)
Paracetamol 120 cm	1000	3700	1800	1800
Expectorant	500	--	--	--
LA Penicillin	--	--	1400	933
Salbutamol Syrup	--	--	--	1800

5. ARI Health Education:

Being developed with the Health Education Department of the Luxor Health Directorate.in 1996

6. ARI Training Facilities

An ARI training center was established in Luxor General Hospital in 1992.

7. ARI Training Accomplished in Luxor

	Thru 1993	In 1994	In 1995	Total
Managers	1*	0	0	1
Pediatricians as Specialists	1	3	0	4
PHC Physicians/Residents	89*	0	0	89
PHC Nurses	41*	0	0	41
Pharmacists	0	0	8	8
Nursing School Teachers	0	0	0	(p)
Private Physicians	0	0	0	0
Health Education Officers	0	0	--	(p)
Total	132	3	8	143

* Other staff may have been trained in 1991-92 as part of the training for Qena. p-planned in 1996

8. ARI Cases Registered in Luxor

	1993	1994	1995	------Percentage Distribution------			
	---- number ----			1993	1994	1995	Sentinel
Very Severe Disease	62	41	)	1,66	0.33	)	1.10
Severe Pneumonia	114	187	) 849	3.05	1,49	)9.80	4,60
Pneumonia	368	1982	)	9.84	15.78	)	13,10
Otitis Media	95	1311		2.54	10.43		8.80
Pharyngitis	961	2679		25,70	21.32		18.10
Cold/Cough/Bronchitis	2139	6364		57.21	50.65		50.10
Total	3739	12564	8666	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing neonatal care and aimed at reducing maternal and child mortality and morbidity..

1. Facilities Development

MCH Laboratory Up-Grading Program

Two MCH laboratories were up-graded. Inputs include the provision of equipment and supplies, training of laboratory staff (scheduled in 1996) and field monitoring.visits.

1. Luxor MCH
2. Sheikh Moussa UHC

Neonatal Care Center Established in Luxor Hospital

A first referral neonatal care centers were established and developed during 1991-95 in Luxor Hospital with 4 incubators and other equipment and supplies. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the center admitted 121 neonates, including 73 referred cases from outside the hospital. . The admittances covered about 24% of the estimated need for first referral care for neonates in the governorate.[2] The number of LBW neonates in the governorate in 1995 is estimated in the range 400-600 infants.

Delivery Room in Luxor Hospital Up-graded

The delivery room in Luxor Hospital was selected by the health directorate to be up-graded, including its renovation. Inputs included renovation, supply of equipment, development of standards,[3] and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation. Further work is required in Luxor and other governorates in training delivery room staff, and in the development of use of performance services to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care

- 50 physicians were trained in child spacing and MCH care (1995-1996)
- __ dayas trained in safe motherhood, MCH referrals (MOH/UNICEF).
- 23 physicians and nurses were trained during 1992-95 in a ten day course in neonatal care
- 10 laboratory technicains trained.

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[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on estimated proportion of LBW infants among births.

[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

E Project-Wide Child Survival Interventions in Luxor

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1) Luxor is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program in Luxor

MOH and the Governroate initiated this program in 1995 with establishment of a model clinic in Sheikh Moussa Urban Health Center. The next step in 1996 is to extend the program to cover the Luxor MCH and the second Urban Health Center.

4. Mobilization of Health Education Offices

- Training of 1 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- Training of health education officers and and other health agents in key messages for the ARI Control Program is scheduled to be conducted in 1996.
- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

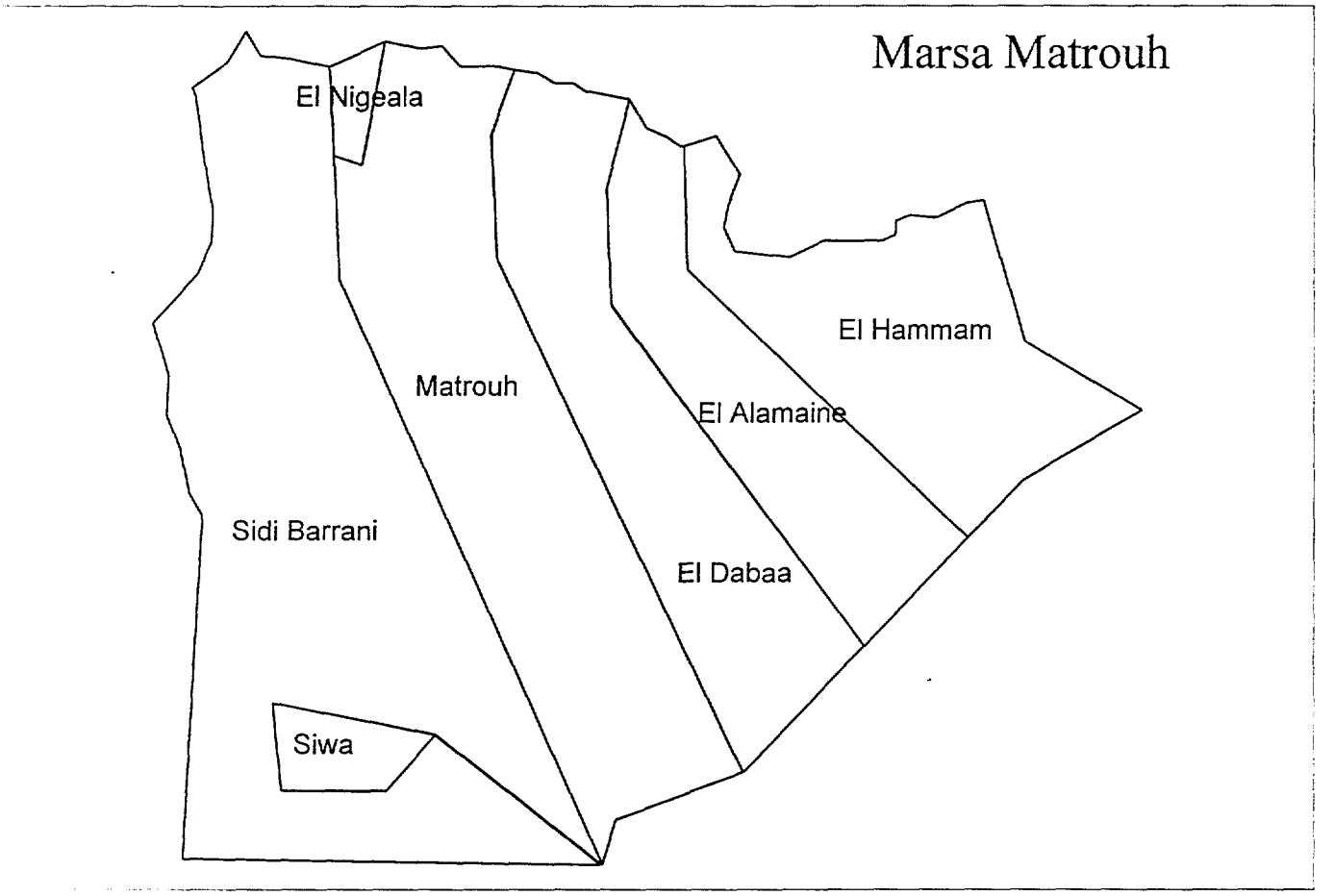
Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained teaching staff in the secondary school in 1993 and provided reference materials for teaching. ARI has scheduled trained teaching staff for the secondary nursing school in 1996.


Marsa Matrouh
El Nigeala
El Hammam
Matrouh
El Alamaine
Sidi Barrani
El Dabaa
Siwa

May 1996

CSP Data Sheet For Matrouh Governorate

Population

Total (Jan 1995 CAPMAS est..) - 55% urban.....187,000
1995 Births/Women needing maternal services.....8,596
Women of Reproductive age (22% of pop.) 41,000
Children Under 5 (1993 est.).....34,000

Health Infrastructure

No. of Health Bureaux (vital registrations and vaccinations).....6
No. of MCHs - 1/ Urban Health Centers - 0.....1
Rural Health Centers -1; Rural Hospitals -1; Rural Health Units-17.....19
No. of general (1), district (6) and fever (1) hospitals.....8
No. of health education offices.....0

Districts (6)* /Births (1993/94/95) • Marsa Matrouh (4286/7407/3587), Barany (1512/2767/1513), El Dhabha (1106/1978/1111), El-Hammam (1076/2160/1155), Siwa (602/1130/616), El-Alaman (na/na/179) and El-Negilah (na/na/434• • Four Districts (underlined) missed 80% infant immunization coverage in 1995.
*El-Alaman district was established in 1994; its population data for 1993 and 1994 are included in other districts. El-Nigilah district was established in 1995.

MOH Health Agents

No. of MOH physicians (1993 data).....50
No. of MOH nurses (1993 data).. 160
No. of MOH pediatricians.....2
No. of health education officers.....2

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt------- 1987	1992	1995
Infant Mortality(adjusted data)	na	46	na	na%	60	41	32
Child (1 thru 4) mortality	4..2	3.5	na	- 17%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....21
No. Cold Chain deep freezers (11) and refrigerators (68)- April 1995.....79
No. of PHC staff trained in EPI, 1989-95.....324
Routine infant/child vaccinations in 1993 (vacc rate - 69%).....83,456
Women immunized TT2 in 1994 (3,052 in 1993).....3,653
Women immunized TT2 in 1995.....2,072
Women immunized TT3/4/5 in 1994.....3,465
Women immunized TT3/4/5 in 1995.....2,718

Key vaccination coverage achieved in 1993/94/95 (%) BCG - 93/95/104 DPT3 - 64/74/76
TT2+ - 56/46/56 Measles - 73/79/8 HB3 - 48/68/74 OPV3 - 64/74/77

Polio Cases:	1991 - 4	1992 - 5	1993 - 0	1994 - 2	1995 - 0
NNT Cases*:	1991 - 6	1992 - 4	1993 - 7	1994 - 3	1995 - 5

*All districts achieved NNT elimination (< 1 case per 1000 births) in 1995.

ARI Program • Initiated in 1992 • 148 health agents trained (5 pediatricians, 66 PHC physicians, 50 nurses, 27 others) • 1,147 cases of severe ARI in children under 5 treated in MOH out patient facilities in 1995 (2,183 cases in 1994) • Compliance in ARI case registration - 75% in 1995 • Est Pop. access to SCM - 90%.

CS/MCH Program • 91 PHC physicians were trained in MCH care in 1992 and in 1994 • 37 physicians trained in mother-child nutrition, 1989-91 • __ daya trainers and supervisors trained • 20 Dayas trained, 1993 and 1994. • 4 MCH laboratory upgraded - 10 laboratory technicians trained • Number and proportion of pregnant women receiving ANC in MOH facilities-not available • 1 neonatal intensive care center established in Matrouh General Hospital (4 incubators) - 5 nurses and 30 physicians were trained in neonatal care - 112 neonates treated in 1995. • The Baby Friendly program was installed in 1994 in (Matrouh General Hospital and in Marsa Matrouh MCH) - 24 physicians and 22 nurses trained.• The Program to upgrade first referral level delivery rooms covers 4 hospitals (Matrouh general and 3 district hospitals) - 12 obstetricians trained, 1994 • Proportion of deliveries managed by a trained birth attendant-50% [estimated in 1993).

5. MOH Health Agents

No. of PHC physicians	597
No. of nurses	1884
No. of hospital based pediatricians(1993 data).	na.
No. of health education staff	9

6. Distribution of Health Facilities in Giza by District

Zones/Districts (14):	Population*	--Hospitals and Primary health Care Facilities# (1993)								
		GH	DH	FH	CH	MCH	UHC	RH	RHC	RHU
1. Ganoub (South)	302,989	0	1	0	0	1	0	0	0	3
2. Gharb (West)	768,142	0	0	0	1	1	2	0	0	3
3. El Haram	338,979	0	1	0	0	1	1	0	1	3
4. Wasat	330,104	0	0	0	0	1	1	0	0	0
5. Shamal (North)	570,605	0	1	0	0	1	3	0	0	0
6. Markaz El Giza	159,175	0	1	0	0	0	0	2	0	7
7. Oosiem	172,923	1	1	0	1	1	0	2	0	5
8. Embaba	825,999	2	0	1	1	0	0	6	0	28
9. Hawamdia	113,031	0	1	0	0	1	0	0	1	0
10. Bedrasheen	280,944	0	1	0	0	1	0	1	3	11
11. Aiyat	269,741	0	1	1	1	1	0	0	4	19
12, El Saf	212,729	0	1	1	1	1	0	1	1	18
13. Atfiih	201,784	0	1	0	0	1	0	0	2	9
14. El Wahat	22,851	0	1	0	0	1	0	0	0	4
Total	4,569,996*	3	11	3	5	12	7	12	12	108

*Source: EPI Data Book (1994) and the ARI/Case Registration System 1995 Data Base. .

B. Expanded Program of Immunization

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities - Giza

• No. of Vaccination Centers	171
• No. of Deep Freezers (25) and refrigerators (434)	459
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	14
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training in Giza - 1989-95

PHC Physicians*	727
PHC Nurses*	683
Sanitarians*	226
Clerks	165
Total	1911

*Including health managers

May 1996

GIZA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	4,525,000
1995 Births/Women needing maternal services	130,789
Women of Reproductive age (22% of 1995 pop.)	995,000
No. of children under 5 years of age [est.1994]	580,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births	P	T	AFP
Ganoub	7179	6192	6347		1	
Gharb el-Giza	18859	19899	20477		3	2
El Haram	8435	8882	8828	1	2	3
Wasat el-Giza	8776	9516	9067			
Shamal el-Giza	13832	13260	14771		3	
M.Giza	5206	5135	5194		1	
Ooseim	5773	5654	5503	1	1	1
Imbaba	23205	23371	23701	6	23	10
Hawamdia	3082	3103	3802			
Bedrishen	8844	9348	9254	2	5	4
Aiat	9009	9271	8865		4	
El Saf	7155	7055	7416			
Atfih	7076	7185	6985			
El Wahat	591	650	579			
	127,022	128,521	130,789	10	43	20

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	85	42	33	-61%	60	41	32
Child (1 thru 4) Mortality	9.43	3.2	2.2	- 76%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	15
No. of MCHs - 13/ UHCs - 4	17
No. of RHCs -33, rural hospitals - 7 and RHUs - 137	288
No. of general (1), district (8) and fever (5) hospitals	14
University Hospital	1
No. of health education offices	4

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Ganoub	6347	0	0	1	104	96	96	96	06	72
Gharb	20477	0	2	3	102	89	86	83	81	29
El Haram	8828	1	2	2	98	87	90	94	87	37
Wasat	9067	0	0	0	64	68	59	59	59	44
Shamal	14771	0	0	3	91	77	86	88	86	37
Giza	5194	0	0	1	103	93	93	93	93	50
Ooseim	5503	1	0	1	107	112	103	103	103	53
Imbaba	23701	6	4	23	98	87	87	86	86	46
Hawamdia	3802	0	0	0	79	72	74	74	74	61
Bedrishen	9254	2	2	5	79	80	82	82	73	40
Aiat	8865	0	0	4	93	98	103	103	93	26
El Saf	7416	0	0	0	100	100	101	101	99	55
Atfih	6985	0	0	0	95	79	82	82	82	43
El Wahat	579	0	0	0	91	83	89	90	90	69
Total	130,789	10	10	43	94	87	87	87	85	43

C. ARI Control Program in Giza

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment Program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Giza was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 85%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-12043) 18,325

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually - 58,000

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities(all PHC facilities, 150, targeted) 135 (est. 90%)
- Hospitals (18 targeted) 17 (est. 94%)

3 Hospital Laboratory Upgrading

Imbaba fever hospital was up-graded in 1995-96 for diagnosis of acutre respriatory infections and tests of ARI microbial drug resistance.

3. Infant Immunization Coverage Sustained in Giza

	BCG	Measles	HB	OPV3	DPT3
1987*	79.2	74.4	0	86.5	79.6
1990*	91.9	85.7	0	88.2	87.1
1993#	95	85	74	85	86
1994#	98	97	92	92	92
1995#	94	87	87	87	85

4. TT Immunization (of Pregnant Women) in Giza

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*	na	na	5.5
1990*	na	na	44.0
1993#	52,065	na	67%
1994#	36,563	26,976	49%
1995#	31,839	23,868	43%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Giza

	1991	1992	1993	1994	1995
Polio Cases:	60	40	26	8	10
NNT Cases*	91	67	57	36	43

*All Districts achieved NNT elimination(<1 NNT case per 1000 live births) in 1994 and 1995.

3. Infant Immunization Coverage Trends in Minya

	BCG	Measles	HB	OPV3	DPT3
1987*	48.3	66.3	0	73.4	67.0
1990*	91.3	86.1	0	86.6	86.2
1993#	91	89	71	88	88
1994#	97	89	90	93	93
1995#	86	86	86	88	83

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			11.6
1990*			64.6
1993#	65.385	na	63%
1994#	57,616	44,245	88%
1995#	23,793	27,660	47%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	62	77	17	16	7
NNT Cases*	303	196	99	101	49

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which Polio	AFP Cases of which Non Polio	NNT Cases	----Immunization Coverage Attained in 1995---- BCG	Measles	HB3	OPV3	DPT3	TT2+
Minya	18846	0	0	6	79	77	77	77	77	45
Samalout	15116	1	0	9	86	88	86	85	76	66
Matai	7022	0	1	5	81	81	83	85	84	43
Beni Mazar	12603	0	0	0	95	92	96	97	96	39
Maghagha	10973	0	0	0	98	97	99	99	100	64
El Adwa	5240	0	0	5	100	91	89	90	88	46
Abu Kerkas	13164	0	1	16	73	76	84	83	64	28
Malawi	18817	5	2	6	90	90	81	92	84	28
Dir Mowas	7838	1	1	2	84	84	93	03	88	54
Total	109,615	7	5	49	86	86	86	88	83	47

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Minya was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 67%
- Children Treated For Severe ARI* - in 1995 (number in 1994-24,174) 23,222

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:54,000)

2. Minya Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 237 214 (est. 90%)
- Hospitals (Total targeted - 19) 19 (100%)

3. Drugs Supplied to Minya by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250 and 125 ml)	--	--	63900	96184	72024
[of which Amox 125 ml]	--	--	(24000)	(17004)	(22653)
Paracetamol 120 cm	--	--	22700	10000	10000
Expectorant	--	--	--	--	--
LA Penicillin	--	--	--	8000	5333
Salbutamol Syrup	--	--	--	--	10000

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995: 1047 respiratory timers, 8 oxygen concentrators, 10 oxygen cylinder sets, 8 nebulizers, 1 oximeter and 160 otoscopes

5. ARI Health Education:

Being developed with the Health Education Department of the Minya Health Directorate and with District Health Education officers.

6. ARI Targeted Hospitals

19 hospitals are targeted for in patient and out patient care of ARI (see following list). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

May 1996

MINYA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 21% urban	3,372,000
1995 Births/Women needing maternal services	109,615
Women of Reproductive age (22% of 1995 pop.)	742,000
No. of children under 5 years of age [est.]	539,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Menya	17281	20722	18846
Samalout	15357	15533	15116
Matai	6395	6540	7022
Beni Mazar	13152	13493	12603
Maghagha	11540	11596	10973
El Adwa	5287	5771	5240
Abu Kerkas	12892	12674	13164
Malawi	18864	19792	18817
Dir Mowas	8575	8733	7838
	109,343	115,214	109,615

3.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	95	59	na	- 48%	60	41	32
Child (1 thru 4) mortality	12.5	9.6	na	- 23%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux.....14
No. of MCHs - 10, UHCs - 10.....20
No. of RHCs - 34, RHUs - 168, Rural Hospitals - 13.....215
No. of general(1), district (8) and fever (9)hospitals.....18
No. of University Hospitals (Univ. of Minia).....1
No. of Health Education Offices.....4
No. of Health Bureaux.....10

5. MOH Health Agents

No. of MOH-PHC physicians 454
No. of MOH nurses.....868
No. of MOH pediatricians.....82
No. of health education staff.....12

529

6. Distribution of Health Facilities by Health Districts*

Districts (7):	Population* (1994)	-------Hospitals and Primary Health Care Facilities------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
Districts (9) Minya	Population (mid-1994)	-------Hospitals and Primary Health Care Facilities--------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
El Edwa	146,463	0	1	1	1	1	0	1	13
Maghagha	330,308	0	1	1	1	1	3	1	20
Beni Mazar	360,569	0	1	1	1	1	4	2	17
Matai	323,468	0	1	1	1	1	3	0	13
Samalout	423,391	0	1	1	1	1	6	2	26
Minya	587,737	1	0	1	2	2	5	2	27
Abo Kerkas	369,648	0	1	1	1	1	5	2	19
Malawi	558,920	0	1	1	1	1	7	2	20
Deer Mowas	233,496	0	1	1	1	1	1	1	13
	3,333,998	1	8	9	10	10	34	13	168

1

Source: Population data and data on number and distribution of health facilities provided by the Minya Health Directorate in mid 1994

B. Expanded Program of Immunization in Minya

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

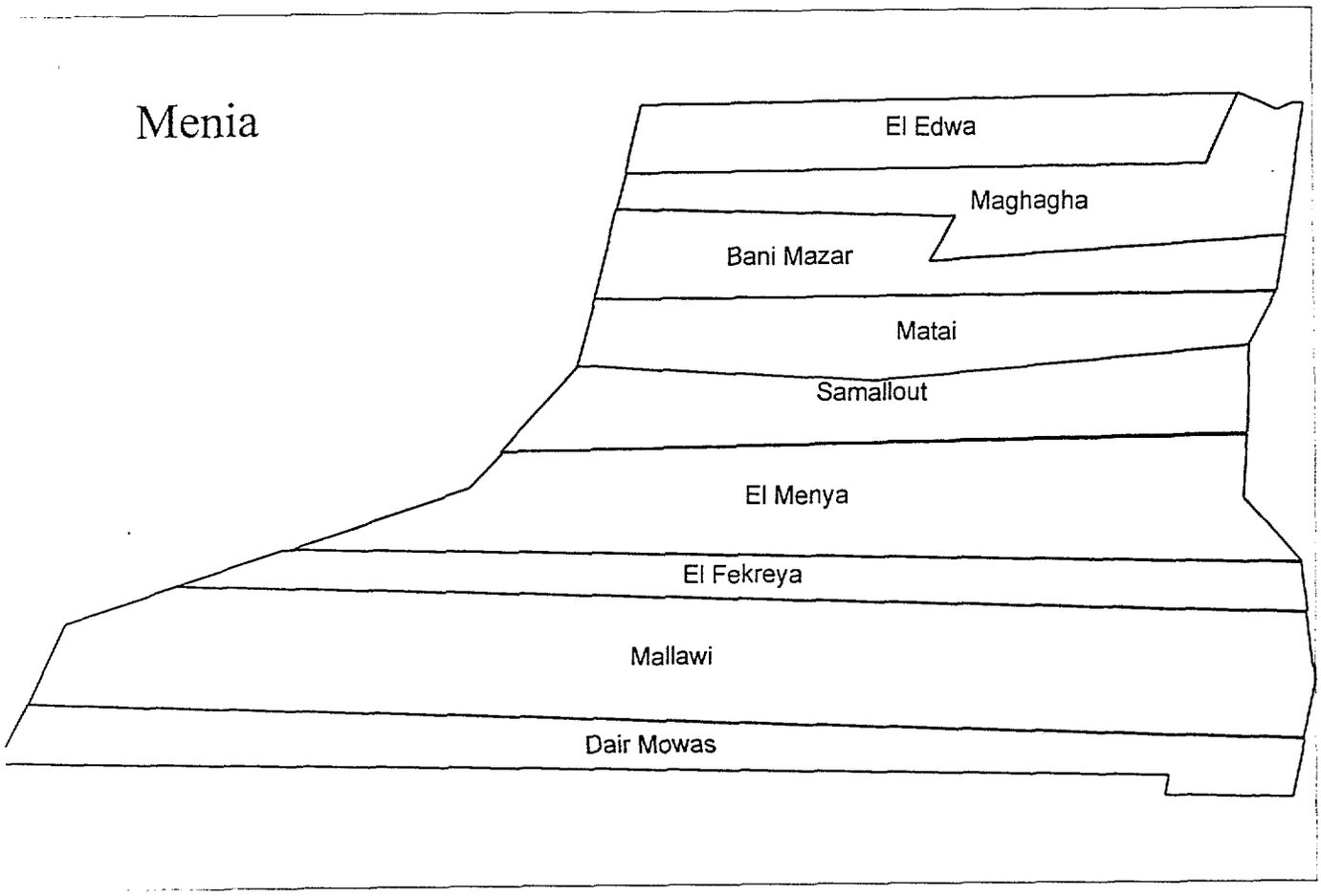
1. Immunization Facilities

• No. of vaccination units	237
• No. of Cold Chain deep freezers (15) and refrigerators(462)	477
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	9
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians	1083
PHC Nurses	1173
Sanitarians	733
Clerks	225
Total	3214

*Including health managers


Menia
El Edwa
Maghagha
Bani Mazar
Matai
Samallout
El Menya
El Fekreya
Mallawi
Dair Mowas

May 1996

CSP Data Sheet for Minya Governorate

Population

Total (Jan 1995 est. - CAPMAS:- 21% urban.....3,373,000
1995 Births/Women needing maternal services.....109,615
Women of Reproductive age (22% of pop.).....742,000
Est. no. of children under 5 years of age.....539,000

Health Infrastructure

No. of Health Bureaux.....14
No. of MCHs - 10, UHCs - 10.....20
No. of RHCs - 34, RHUs - 168, rural hospitals - 13.....215
No. of general(1), district (8) and fever (9) hospitals.....18
No. of University Hospitals (Univ. of Minia).....1
No. of Health Education Offices.....4

Districts(9)/Births(1993/94/95) • Menia (17281/20722/18846), Samalout (15357/15533/15116), Matai (6395/6540/7022), Beni Mazar (13152/13493/12603), Maghagha (11540/11596/10973), El-Adwa (5287/5771/5240), Abu Kerkas (12892/12674/13164), Malawi (18864/19792/18817), and Dir Mowas (8575/8733/7838) • 2 Districts missed 80% vaccination coverage in 1995 (Minya and Abu Kerkas).

MOH Health Agents

No. of MOH-PHC physicians 454
No. of MOH nurses.....868
No. of MOH pediatricians.....82
No. of health education staff.....12

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt---- 1987	1992	1995
Infant Mortality(adjusted data)	95	59	na	- 48%	60	41	32
Child (1 thru 4) mortality	12.5	9.6	na	- 23%	7.4	4.0	3.2

Clinic Management Improvement Program: Initiated in 1995 with establishment of a model clinic in Malawi MCH..

Expanded Program of Immunization

No. vaccination units.....237
No. Cold Chain deep freezers (15) and refrigerators (462) - April 1995.....477
No. of PHC staff trained in EPI, 1989-1995.....3,214
Routine Infant/Child vaccinations in 1993 (vacc. rate = 86%).....1,316,863
Women immunized TT2 in 1994 (65,385 in 1993).....57,616
Women immunized TT2 in 1995.....23,793
Women immunized TT3/4/5 in 1994.....44,245
Women immunized TT3/4/5 in 1995.....27,660

Key vaccination coverage achieved in 1993/1994 (%): BCG-91/97/86 OPV3- 88/93/88
TT2+- 63/88/47 Measles - 89/89/86 HB3-71/90/86..... DPT3-88/93/83

Polio Cases:	1991- 62	1992- 77	1993 -17	1994- 16	1995 - 7
NNT Case*s:	1991-303	1992-196	1993- 99	1994-101.....	1995 - 49

*1 district failed to achieve NNT elimination (<1 NNT case per 1000 live births) in 1995 (5 missed in 1994)

ARI Program • Initiated in 1993 • 1, 654 health agents trained (126 pediatricians, 1094 PHC physicians, 540 nurses, 57 other) • 23,222 cases of severe ARI in children <5 years treated in MOH outpatient clinics in 1995 (24,174 cases in 1994) • Compliance rate in ARI case registration - 67% in 1995 • Public access to SCM >90%.

CS/MCH Program • 595 PHC physicians trained in MCH, 1991-95 • 225 health agents trained in maternal and infant/child nutrition, 1990-91 • 10 MCH laboratories upgraded - 30 lab technicians trained. • 850 dayas trained (MOH/UNICEF) • A total of 45,001 women were reported to have obtained ante natal care (initial visit) in MOH facilities in 1992-40% ANC rate • 3 neonatal intensive care centers (13 incubators) established - 36 physicians and 22 nurses trained - 572 neonates treated in 1995. • Baby Friendly program was installed in 1994-95 (MOH/UNICEF) • A program to assess maternal mortality was carried out in 1992/93 - Maternal Mortality Ratio - 151 (confidence interval, 119-190).- National MMR - 174. • First-referral level delivery rooms in 9 districts upgraded. - 21 obstetricians trained.. • Births managed by a doctor or trained birth attendant - 70% (1993 estimate).

Delivery Rooms Up-graded in Menoufia

Eight delivery rooms in eight of the ten districts were selected by the Health Directorate to be up-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El-Sadaat Hospital	M. El-SadaatDistrict
2. Tala Hospital	Tala District
3. Ashmoun Hospital	Ashmoun District
4. Berket El-Sabh Hospital	Berket El-Sabh District
5. Menouf Hospital	Menouf District
6. El-Shouhada Hospital	Shouhada District
7. E; Bagour Hospital	Bagour District
8. Qisna Hospital	Qisna District

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care in Menoufia, 1989-95

- 756 physicians were trained in child spacing and MCH care,1990-1994
- 1480 dayas trained in safe motherhood, MCH referrals and counseling, 1989-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1989-1995
- 270 physicians trained in mother child nutrition, 1989-1991
- 1241 nurses and dieticians trained in mother-child nutrition. 1989-91
- 180 food inspectors trained. 1989-91
- 23 laboratory technicians trained in MCH laboratory analysis
- 44 physicians and 21 nurses were trained in neonatal care, 1992-95
- 73 obstetricians trained for delivery room service upgrading. 1995
- 107 physicians and 71 nurses trained for the Baby Friendly program, 1994-95
- 40 nurses trained in nurse-midwifery. 1995

3. National Maternal Mortality Study - Menoufia

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established by the Under Secretary for Health was responsible for conducting the study in Menoufia.[5] The committee reviewed 300 cases of female deaths and identified 28 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **117** maternal deaths per 100,000 live births, with a 90% confidence interval of 86-144..The national MMR was found to be **174.**

The study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Menoufia by year 2000 to **58** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity based on recommendations of the national study.

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[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[5]Members of the Committee: Dr. Hassan Abdel-Latif Belal, Dr. Salwa Mostafa El-Haga, Dr. Maher Abdel-Satar Saheen, Dr. Ezzat Abdel-Khalek, Dr. Ahmed Nabil.

E. Project-Wide Child Survival Interventions in Menoufia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).Menoufia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

The governorate has opted to collaborate in the MOH Clinic Management Improvement Program and initated the proram with the selection of the Shibun El Koum MCH (Shebin El Koum District) as a model clinic which undergoing renovation. The aim is to extend the program to most health centers during coming years.

4. Mobilization of Health Education Offices

- Training of 2 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of health education officers and and other health agents in Menoufia for the ARI Control Program is planned in 1996. .

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices is the availablility of 1490 trained dayas as key influentials in community health education.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Secondary Students of Nursing

EPI trained 85 teaching staff in the 8 secondary schools of nursing and provided reference materials for teaching in these schools during 1993. ARI trained 26 teaching staff of the secondary nursing schools in 1995.

D. The Child Spacing and MCH Program in Menoufia

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Menoufia Health Directorate 1991-1996 to train physicians and nurses to monitor, supervise and train dayas in the following eight districts of Menoufia:

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained or Retrained[1]
• Shibun El Koum		
•		
•		
•		
•		
•		
•		
Total		1480

The dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Menoufia as well as assurances of safer deliveries for Menoufia women.

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas.

Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

[1]During 1986-88, approximately 1000 dayas in Beheira Governorate were trained in a pilot program conducted by the MOH and UNICEF. The CSP undertook starting in 1994 to carry out re-training for these dayas in 5-day courses and to provide the basic 10 day daya training course for untrained dayas.

MCH Laboratory Up-Grading Program

Eleven primary health care facilities in nine districts were selected by the Menoufia Health Directorate for up-grading (list below). Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in Menoufia

1. Shibeen El Kom MCH	Shibum El K.District
2. El Qibli UHC	Shibum El K.District.
3. Zawit Naoura MCH	Shouhada District
4. El Shouhada UHC	Shouhada District
5. Ashmoun MCH	Ashmoun District
6. Menouf UHC	Menouf District
7. Sers Elian MCH	Sers Elian District
8. El Bagour MCH	Bagour District
9. Tala MCH	Tala District
10. Berkit El S. MCH	Berkit El Sabah District
11 Qisna UHC	Qisna District.

Neonatal Care Facilities in Menoufia

Five first referral neonatal care centers were established and developed during 1991-95 in 5 of the 10 districts of Menoufia. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

Neonatal Care Centers Established in Menoufia 1991-95

Hospital	District/Births in the District - 1995	Incubators Supplied*	Admittances 1995
1. Ashmoun Hospital	Ashmoun/14745	2	61
2. Berket El-Sabh Hospital	B. El-Sabh/5238	5	135
3. Kosesna Hospital	Qisna/7917	4	127
4. Menouf Hospital	Menouf/8957	5	209
5. Shibun El Koum Hospital	Shebin El. K/11034	6	233
Total	5 Districts/47891	22	765

In 1995, the five centers provided care for 765 neonates,of whom 59% were referrals from outside the hospital. The number of admittances is equal to about 16% of the indicated need for first referral care for about 4800 infants in the five districts[3] The number of LBW infants in the governorate in 1995 is estimated in the range 7,000 - 10,500.

Menoufia requires further development is required of the referral system for neonates requiring first level care and further development of district level facilities during 1996-2000.

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[2]MOH/CSP and USAID. Egyptian National Neonatal Care Program. *Guidelines for Egyptian Hospital Nurseries*. 1996

[3]Need based on estimated proportion of LBW infants among births.

6. ARI Targeted Hospitals - Menoufia

16 Hospitals are targeted for in patient and out patient care of ARI. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

ARI Targeted Hospitals in Menoufia

1. Shebin El Koum Teaching hospital
2. Shebin El Koum Fever Hospital

3. Menouf Fever Hospital
4. Menouf General Hospital

5. Ashmoun District Hospital
6. Ashmoun Fever Hospital

7. El Bagour District Hospital

8. Tala District Hospital
9. Tala Fever Hospital

10. El Shouhada District Hospital
11. Zawaya El Naoura Hospital (El Shouhada District.)
12. Zawaya El Naoura Fever H (El Shouhada District.)

13. Qisna District Hospital

14. Berket El Sabh District Hospital

15. Sers Elian District Hospital

16. El Batanoon Hospital (M. El Sadat District)

7. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.

8. ARI Training Facilities

An ARI training center for PHC staff was established in Shibun El Koum Teaching Hospital in 1990..

9. ARI Training Accomplished in Menoufia

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	 5	2	0	0	7
Specialists	14	6	14	8	42
PHC Physicians	521	0	71	0	592
Nurses	0	140	0	0	140
Model Clinic Training	0	0	17	na	17
Pharmacists	0	0	0	27	27
Nursing School Teachers	0	0	0	26	26
Laboratory specialists	0	0	0	2	2
Total	540	148	102	63	843

10. Cases of ARI Registered in Menoufia

	1993	1994	1995	Percentage Distribution 1993	1994	1995	Sentinel
	----------number----------						
Very Severe Disease	172	51	)	0.51	0.10	)	0.80
Severe Pneumonia	190	1289	)16738	0.56	2.51	)25.62	2.40
Pneumonia	4317	7637	)	12,74	14.88	)	8.60
Otitis Media	4443	5699		13.11	11.10		12.50
Pharyngitis	11823	16524		34.88	32.20		24.20
Cough/Cold	12948	20125		38.20	39.21		46.40
Total	33893	51324	65339	100.00	100.00	100.00	100.00

3. Infant Immunization Coverage trends in Menoufia

	BCG	Measles	HB	OPV3	DPT3
1987*	97.6	83,9	0	94.6	94.6
1990*	99.5	92.9	0	94.3	94.3
1993#	102	98	80	98	98
1994#	101	95	95	108	96
1995#	99	93	95	95	92

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			14.4
1990*			64.3
1993#	28,788	na	84%
1994#	27,042	34,499	90%
1995#	29,443	38,770	98%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases in Menoufia

	1991	1992	1993	1994	1995
Polio Cases:	22	41	7	5	0
NNT Cases*	78	45	39	33	18

*All Districts maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District - 1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Shebin El Koum	11034	0	1	3	97	90	93	93	94	127
Menouf	8957	0	1	7	106	96	101	101	100	72
Ashmoun	14745	0	0	5	103	94	99	97	87	54
El Bagour	6754	0	0	0	94	92	92	91	93	93
Qisna	7917	0	1	0	94	93	94	94	92	128
Tala	6015	0	0	2	93	89	86	88	84	125
El-Shouhada	5532	0	0	0	94	88	91	91	91	116
Berket El Sabh	5238	0	0	1	101	93	94	94	94	123
Sers Ellian	1042	0	0	0	105	114	108	108	108	113
M. El Sadaat	2057	0	1	0	111	95	103	107	103	92
	69291	0	4	18	99	93	95	95	92	98

C. ARI Control Program in Menoufia

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 44%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-8977) 16738

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:32.000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 193 facilities) 154 (est. 80%)
- Targeted Hospitals (16) 13 (est. 81%)

3 Hospital Laboratory Upgrading

The laboratory of Menouf Hospital was up-graded in 1995-96 for diagnosis of acutre respriatory infections and tests of ARI microbial drug resistance.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 961 respiratory timers,
- 4 oxygen concentrators
- 13 oxygen cylinder sets
- 8 nebulizers
- 1 oximeter
- 220 otoscopes

5. Drugs Supplied to Menoufia by the ARI Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	10000	47400	60700	104028	76125
of which Amox 125 ml	0	(12200)	(22600)	(18452)	(23706)
Paracetamol 120 cm	5000	13100	23200	11800	9800
Expectorant	3000	10100	0	0	0
LA Penicillin	1500	0	0	9000	4333
Salbutamol Syrup	0	0	0	0	9800

May 1996

MENOUFIA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	2,672,000
1995 Births/Women needing maternal services	69,291
Women of Reproductive age (22% of 1995 pop.)	588,000
No. of children under 5 years of age [est.1994]	318,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Shebin El Koum	10591	11031	11034
Menouf	10174	9014	8957
Ashmoun	14403	15114	14745
El Bagour	6511	6545	6754
Qisna	7664	7032	7917
Tala (6089/6041/6015			
El-Shouhada	5415	5584	5532
Berket El Sabh	5063	5086	5238
Sers Ellian	957	1101	1042
M. El Sadaat	988	2121	2057
	67855	68669	69291

3.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	45	38	na	- 14%	60	41	32
Child (1 thru 4) mortality	7.9	4.0	na	- 49%	7.4	4.0	3.2

*CAPMAS estimates of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	9
No. of MCHs - / UHCs - 6	13
No. of RHCs -31, rural hospitals - 14 and RHUs - 135	180
No. of general (1), district (8) and fever (5) hospitals	14
University Hospital	1
No. of health education offices	4

5. MOH Health Agents

No. of PHC physicians	247
No. of nurses	2349
No. of hospital based pediatricians(1993 data).	33
No. of health education staff	6

6. Distribution of Health Facilities in Menoufia by District

Districts (10): Menoufia	Population* (1993)	----------Hospitals and Primary Health Care Facilitie#----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Shebin El Koum	465,982	0	0	1	1	1	2	5	13
2. Menouf**	36,665	1	0	1	0	1	3	1	18
3. Ashmoun**	509,251	0	1	1	1	1	8	1	23
4. El Bagour	177,154	0	1	0	1	0	3	1	21
5. Qisna	320,812	0	1	0	0	1	4	1	23
6. Tala**	273,148	0	1	1	1	0	4	1	14
7. El Shohada	223,196	0	2	1	1	1	3	1	12
8. Berket El Sabh	201,102	0	1	0	1	0	3	2	8
9. Sers Ellian.	43,817	0	1	0	1	0	0	0	0
10. El Sadat	90,909	0	1	0	0	1	1	1	3
Total	2,342,036*	1	9	5	7	6	31	14	135

*Source: Population - EPI Basic Data Book, August 1994. Health Facilties - 1995 CRS Data Base.

B. Expanded Program of Immunization - Menoufia

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities - Menoufia

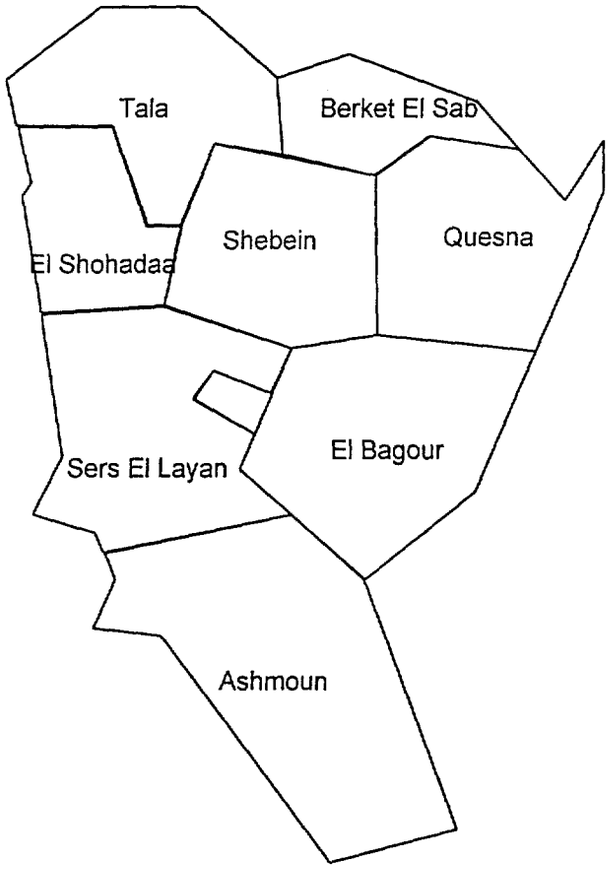
• No. of vaccination units	199
• No. of Cold Chain deep freezers (19) and refrigerators (317)	336
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	10
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - Menoufia, 1989-95

PHC Physicians*	511
PHC Nurses*	856
Sanitarians*	233
Clerks	154
Total	1754

*Including health managers

Menofia


Tala
Berket El Sab
Shebein
Quesna
El Shohadaa
El Bagour
Sers El Layan
Ashmoun

May 1996

CSP Data Sheet For Menoufia Governorate

Population

Total (Jan 1995 CAPMAS est..) - 20% urban.....2,672,000
1994 Births/Women needing maternal services.....68,669
1995 Births/Women needing maternal services.....69,291
Women of Reproductive age-1994 (22% of pop.).....588,000
Children Under 5 (1994 est.).....318,000

Health Infrastructure

No. of Health Bureaux (vital registrations and vaccinations).....9
No. of MCHs-7/Urban Health Centers-6.....13
No. of RHCs-31, RHUs - 135, rural hospitals - 14.....180
No. of general (1), district (9) and fever (5) hospitals.....15
No. of health education offices.....4

Districts(10)/Births(1993/94/95) • Shebin El Koum (10591/11031/11034), Menouf (10174/9014/8957), Ashmoun (14403/15114/14745), El Bagour (6511/6545/6754), Qisna (7664/7032/7917), Tala (6089/6041/6015), El-Shouhada (5415/5584/5532), Berket El Sabh (5063/5086/5238) and Sers Ellian (957/1101/1042), M. El Sadaat (988/2121/2057).• All districts achieved 80% vaccination rate.

MOH Health Agents

No. of MOH physicians 247
No. of MOH nurses.....2349?
No. of hospital based pediatricians.....33
No. of health education staff.....6

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	45	38	na	- 14%	60	41	32
Child (1 thru 4) mortality	7.9	4.0	na	- 49%	7.4	4.0	3.2

*CAPMAS data #CSP Estimate

Clinic Management Improvement Program: Initiated in 1994-95 in Shibun El Kom.MCH.

Expanded Program of Immunization

No. vaccination units.....199
No. Cold Chain deep freezers(19) and refrigerators(317) - April 1995.....336
No. of PHC Staff Trained, 1989-95.....1,754
Routine infant/child vaccinations in 1993 (vacc. rate - 98%).....929,644
Women immunized TT2 in 1994 (28,788 in 1993).....27,042
Women immunized TT2 in 1995.....29,443
Women immunized TT3/4/5 in 1994.....34,499
Women immunized TT3.4.5. in 1995.....38,770

Key vaccination coverage rates in 1993/94/95 (%): BCG-102/101/99 OPV3 - 98/108/95
TT2+ - 84/90/98 Measles - 98/95/93 HB3.-.80/95/95 DPT3 - 98/96/92

Polio Cases:	1991 - 22	1992 - 41	1993 - 7	1994 - 5	1995 - 0
NNT Cases*:	1991 - 78	1992 - 45	1993- 39	1994 - 33	1995 - 18

* All districts achieved NNT elimination (<1 NNT case/1000 live births) in 1995 (3 districts missed in 1994)

ARI Program • Initiated in 1990 • 843 Health agents trained (42 pediatricians, 592 PHC physicians, 140 nurses, 69 other) • 16,736 cases of severe ARI in children <5 years treated in 1995.[8,977 cases in 1994] • Compliance in ARI case registration - 44% in 1995 • Est. Pop. Access to SCM - 80%.

CS/MCH Program • 756 PHC physicians trained, 1990-94 • 172 nurses trained, 1992.• 270 physicians and 1241 dieticians and nurses trained in nutrition, 1989-91 • 180 food inspectors trained in nutrition, 1989-91 • __daya trainers and supervisors trained • 1490 dayas trained, 1989-95 - 45 dayas given refresher training, 1995. • 11 MCH laboratories upgraded-23 laboratory technicians trained. • 5,659 women received antenatal care (initial visit) in MOH facilities in 1992-8% • 5 neonatal care centers developed (22 incubators), 44 physicians and 21 nurses trained in neonatal care, 1991-94 - 765 neonates treated in 1995. • Baby Friendly program initiated in 1995 (Shibun El Koum Teaching Hospital and Shibun El Kom MCH) - 107 physicians and 71 nurses trained • Maternal mortality assessment conducted in 1992/93-Maternal Mortality Rate-117 (95% confidence interval, 79-171). National MMR-174 • 8 first-level referral hospital delivery rooms upgraded-73 obstetricians trained, 1994-95 • Nurse midwifery training, 1994-95 - 40 nurse midwives trained • Proportion of deliveries managed by a doctor or trained birth attendant- 95% (1993 estimate)

- Training of 1 health education officer inchild survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of health education officers and and other health agents in Ismailia in key messages for the ARI Control Program is scheduled to be conducted in 1996.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices that has been developed is the availablility in several districts of 20 trained dayas as key influentials in community health education and for counseling mothers on maternal and child care.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students from Suez University are to be provided opportunities to observe organization and management of primary health care services in the model clinic in Ismailia district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

EPI trained 7 teaching staff in the secondary school of nursing and provided reference materials for teaching in these schools during 1993. ARI trained 4 teaching staff of the secondary nursing school in 1994.

MCH Laboratory Up-Grading Program

Four primary health care facilities were selected by the by the Ismailia Health Directorate for up-grading (listed below). One was up-graded during the period 1991-93 and four were selected and up-graded in the period 1994-95. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in Marouh

1. M. Matrouh MCH	M. Matrouh District
2. El-Hammam District H.	Hammam District
3. Siwa District Hospital	Siwa District
4. El-Saloon District H.	Barani District

Neonatal Care Facilities in Ismailia

A first referral neonatal care center ws established and developed during 1991-95 in Matrouh General Hospital. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the Matrouh center with 4 incubators provided care for 113 neonates,of whom 40% from outside the hospital.

The number of admittances in 1995 in the Matrough General Hospital Center equals about 30% of the indicated need for first referral care for about 360 infants in the district[2] The number of LBW infants in the governorate in 1995 is estimated in the range 800 - 1200. Further development of the referral system for neonates requiring first level care facilities is required by the Health Directorate.

Neonatal Care Centers Established in Matrough 1991-95

Hospital	District/Births in the District-1995	Incubators Supplied*	Admittances 1995
1. Matrouh General Hospital	M.Matrouh/3587	4	112
Total	M. Matrouh/3587	4	112.

[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on estimated proportion of LBW infants among births.

Delivery Rooms Up-graded in Matrouh

Seven delivery rooms districts were up-graded. Inputs have included renovation (in 7 hospitals), supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Matrouh General Hospital	M. Matrouh District
2. El-Hammam Hospital	Hammam District
3. Siwa Hospital	Siwa District
4. El-Dhabha Hospital	Dhabha District
5.	
6. complete list with MANAL	
7.	

Further work is need to train delivery room staff and to develop the systematic use of service standards s to ensure high quality of emergency and routine obstetrical services.

2. Training for MCH Care

- 91physicians were trained in child spacing and MCH care, 1992 and 1994
- 20 dayas trained in safe motherhood, MCH referrals and counseling, 1993 and 1994
- __ physicians and nurses trained as daya trainers and supervisors, 1993 and 1994
- 37 physicians trained in mother-child nutrition, 1989-1991
- 10 laboratory technicians trained in MCH laboratory analysis, 1993 and 1995
- 30 physicians and 5 nurses trained in neonatal care, 1992-95
- 24 physicians and 22 nurses trained in the Baby Friendly Program, 1994-95
- 12 obstetricians trained in delivery room up-grading, 1995.

E. Project-Wide Child Survival Interventions in Matrouh

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1). Matrouh is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program has been iniitat ed in 13 other governorates.

4. Mobilization of Health Education Offices

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[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

6. ARI Targeted Hospitals - Matrouh

Eight hospitals are targeted for in patient and out patient care of ARI according to ARI Standard Case Management. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Further training of hospital staff will be required.
:

ARI-Targeted Hospitals in Matrouh Governorate

1. Marsa Matrouh General Hospital
2. Marsa Matrouh Fever Hospital

3. Sidi Barany District Hospital (Barani District)
4. El Saloon District Hospital (Barani District)

5. Siwa District Hospital

6. El Dhabba District Hospital

7. El Hamman District Hospital

8. El Alameen District Hospital

7. ARI Training Facilities

ARI training facilities were established:

- Marsa Matrouh General Hospital in 1992
- Marsa Matrouh Nursing Center in 1993.

8. ARI Training Accomplished

	In 1992	In 1993	In 1994	In 1995	Total
Managers (5-day course)	6	3	0	0	9
Specialists(6-day course)	(1*)	(1*)	5	0	5
PHC Physicians	33	18	15	0	66
Nurses	0	30	20	0	50
Pharmacists	0	0	12	0	12
Nursing School Teachers	0	0	4	0	4
Health Education Officers	0	0	na	0	na
Laboratory specialists	0	0	0	2	2
Total	39	51	56	2	148

*OTJ training as trainers\

9. Cases of ARI Registered in Matrouh

	1994	1995	---Percentage Distribution---		
	------Number	-----	1994	1995	Sentinel
Very Severe Disease	81	)	0.62	)	0.80
Severe Pneumonia	141	) 1147	1.09	)19.8	2.40
Pneumonia	1961	)	15.19	)	8.60
Otitis Media	1328		10.23		12.50
Pharyngitis	2886		22.22		24.20
Cough/Cold	6589		50.74		46.40
Total	12987	5796	100.00	100.00	100.00

E. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development in Matrouh Governorate

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Matrouh Health Directorate to train physicians and nurses to monitor, supervise and train dayas in the following districts:

District	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained
• Matrouh		
•		
•		
Total		20

The dayas trained and certified (as trained) in these districts provide an asset for the extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities, as well as assurances of safer deliveries for Matrouh women.

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as trained), and provide for refresher training of dayas. The program should be extended to all districts.

Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

3. Infant Immunization Coverage Trends in Matrouh

	BCG	Measles	HB	OPV3	DPT3
1987*	17.1	49.5	0	67.6	65.3
1990*	60.6	80.3	0	87.8	87.8
1993#	93	73	48	64	64
1994#	95	79	68	74	74
1995#	104	87	74	77	76

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			0
1990*			63.5
1993#	3,052	na	91%
1994#	3,653	3,465	59%
1995#	2,718	2,718	62%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	4	5	0	2	0
NNT Cases*	6	4	7	3	5

*All Districts except Faied maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Marsa Matrouh	3587	0	0	2	89	84	72	74	75	58
Barany	1513	0	0	1	100	100	78	63	69	63
El-Dhabha	1111	0	0	1	62	62	43	40	40	37
El-Hammam	1155	0	0	1	197	146	118	125	125	132
Siwa	616	0	0	0	99	94	92	92	92	21
El-Alaman	178	0	0	0	140	130	82	98	98	39
El-Negilah	434	0	0	0	92	72	65	65	65	29
Total	8596	0	1	5	104	87	74	77	76	56

C. ARI Control Program in Matrouh

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The program was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 75%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-2183) 1147

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:9,000)

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 35 targeted) 30 (est. 86%)
- Targeted Hospitals (total - 8) 6 (est. 100%)

3. ARI Laboratory Up-Grading

The General Hospital in M. Matrouh was up-graded in 1995-96 to strengthen laboratory diagnosis of acute respiratory infections and for microbial resistance testing.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 157 respiratory timers,
- 5 oxygen concentrators
- 7 oxygen cylinder sets
- 7 nebulizers
- 1 oximeter
- 125 otoscopes

5. ARI Drugs Supplied by CSP to Matrouh Governorate

	1992	1993	1994	1995
Amoxicillin (250/125 ml)	2300	7600	15952	14389
of which Amox 125 ml	700	2700	2556	3741
Paracetamol 120 cm	400	3000	1500	1500
Expectorant	200	--	--	--
LA Penicillin	--	--	1200	1500

5. ARI Health Education:

Scheduled to developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers. Trainers in ARI health education trained in Matrouh in 1995.

May 1996

Matrouh - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 55% urban	187,000
1995 Births/Women needing maternal services	8,596
Women of Reproductive age (22% of 1995 pop.)	41,000
No. of children under 5 years of age [est.1994]	34,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births*	1995 Births
Marsa Matrouh	4286	7407	3587
Barany	1512	2767	1513
El Dhabha	1106	1978	1111
El-Hammam	1076	2160	1155
Siwa	602	1130	616
El-Alaman	na	na	179
El-Negilah	na	na	434
	8,582	15,442*	8,596

*As reported; however these data appear to be in error.

3. Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt------- 1987	1992	1995
Infant Mortality(adjusted data)	na	46	na	na	60	41	32
Child (1 thru 4) mortality	4..2	3.5	na	- 17%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4 Health Facilities

No. of Health Bureaux	6
No. of MCHs -1/ UHCs - 0	1
No. of RHCs -1, rural hospitals - 1 and RHUs - 17	19
No. of general (1), district (6) and fever (1) hospitals	8
No. of health education offices	0

5. MOH Health Agents

No. of PHC physicians	50
No. of nurses	160
No. of hospital based pediatricians	2
No. of health education officers	2

6. Distribution of Health Facilities in Matrouh by Districts (5)

Districts (6) Matrouh	Population (1993)	Hospitals and Primary Health Care Facilities							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1.M. Matrouh	100,000	1	0	1	1	1	0	0	8
2.Sidi Barani	34,000	0	2	0	0	0	0	0	0
3.El Dhabha	26,000	0	1	0	0	0	0	0	2
4.El Hammam	25,000	0	1	0	0	0	0	0	7
5.Siwa	15,000	0	1	0	0	0	0	0	4
6.El Alaman	na	0	1	0	0	0	0	0	2
Total	200,000	1	6	1	1	1	0	0	23

*Source: Population data - EPI Basic Data Book, August 1994. Health Facilities - ARI health facilities data base.

B. Expanded Program of Immunization in Matrouh

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles.

1. Immunization Facilities

- No. of vaccination units 21
- No. of Cold Chain deep freezers (9) and refrigerators (70)- April 1995 79
- Central Governorate Vaccination Storage Facility 1
- District Vaccination Storage Facilities (1993) 5
- Cold Chain Repair and Maintenance Work Shop 1

2. EPI Training in Matrouh - 1989-95

PHC Physicians*	123
PHC Nurses*	113
Sanitarians*	88
Clerks	0
Total	324

*Including health managers

2. Health Facilities with ARI Standard Case Management Installed

• Primary Health Care Facilities (total, all, targeted - 33)	30 (est. 90%)
• Targeted Hospitals (4)	2 (est. 50%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 74 respiratory timers,
- 3 oxygen concentrators
- 11 oxygen cylinder sets
- 4 nebulizers
- 2 oximeter
- 95 otoscopes

4. Drugs Supplied to New Valley by the ARI Program

	1992	1993	1994	1995
Amoxicillin (250/125 ml)	13400	11000	20856	17327
of which Amox 125 ml	(1300)	(1800)	(3832)	(5520)
Paracetamol 120 cm	5100	4200	2000	2000
Expectorant	4800	0	0	0
LA Penicillin	0	0	1600	1067
Salbutamol Syrup	0	0	0	2000

5. ARI Targeted Hospitals - New Valley

Four hospitals targeted for in patient and out patient care of ARI (see list below). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required. A hospital being established in El-Faraga District will be targeted when it becomes operative.

1. El-Khargah General Hospital
2. El-Khargha Fever Hospital

3. El-Dakhla District Hospital
4. El -Dakhla Fever Hospital

6. ARI Health Education

The ARI Control Program will work with the New Valley Health Directorate in 1996-97 to develop health education for ARI control.

7. ARI Training Facilities

The followiang ARI training facilities were established in 1992:

- El Kharga General Hospital
- El Kharga Nursing School
- El Dakhla District Hospital.

4. TT Immunization (of Pregnant Women) in New Valley

	Number of Women Immunized TT2	TT3/4/5	TT2+ Coverage (Percent)
1987*			50.3
1990*			76.9
1993#	1,589	na	76%
1994#	983	1,572	78%
1995#	816	1,652	75%(r)

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics
r - revised

5. Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	0	0	0	0	0
NNT Cases	0	0	0	0	0

6. New Valley Immunization Coverage, by District - 1995

District	Births	AFP Cases of which Polio	Non Polio	NNT Cases	---Immunization Coverage Attained in 1995---- BCG	Measles	HB3	OPV3	DPT3	TT2+
El-Khargah	1648	0	0	0	94	87	87	91	91	95
El-Dakhlia	1456	0	3	0	96	99	99	99	99	70
El-Farafra	176	0	0	0	79	78	78	99	99	57
Total	3290	0	0	0	94	92	92	95	95	92

C. ARI Control Program in New Valley

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the ARI Control Program in New Valley

- Public access to standard case management (estimated) 90%
- Installation in Health Districts 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 59%
- Children Treated For Severe ARI* - number in 1995 (859 cases in 1884)) 687

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually: 1,500

6. New Valley Distribution of Health Facilties by District

Districts (3):	Population* (Jan 1994)	----------Hospitals and Primary Health Care Facilities#----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
El-Khargha	61,188	1	0	1	1	1	1	1	8
El-Dakhla	70,725	0	1	1	0	1	1	2	12
El-Farafra	2,786	0	0	0	0	0	0	0	5
Total	134,699	1	1	2	1	2	2	3	25

*Source of Population data: Governorate Health Directorate. Source of Health Facility Data: 1995 ARI/CRS Data Base.

B. Expanded Program of Immunization in New Valley

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Units	29
• No. of Deep Freezers (8) and refrigerators (66) - April 1995	74
• No of District Cold Storage Facilities	3
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	87
PHC Nurses*	136
Sanitarians*	38
Clerks	27
Total	258

*Including health managers

3. Infant Immunization Coverage Trends in New Valley

	BCG	Measles	HB	OPV3	DPT3
1987*	94.3	90.0	0	94.3	80.5
1990*	95.5	94.8	0	92.4	92.4
1993#	97	93	83	93	93
1994#	98	91	97	97	97
1995#	97	92	92	95	95

May 1996

NEW VALLEY - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 44% urban	126,000
1995 Births/Women needing maternal services	3,290
Women of Reproductive age (22% of 1995 pop.)	27,000
No. of children under 5 years of age [est.1994]	15,000

2. Births (1993, 1994, 1995)

	1993 Births	1994 Births	1995 Births
El-Khargah	1529	1532	1648
El-Dakhlia	1608	1595	1456
El-Farafra	68	143	176
	3205	3270	3290

3. Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	46	41	na	- 11%	60	41	32
Child (1 thru 4) Mortality	4.1	5.4	na -	+ 32%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	3
No. of MCHs - 1/ UHCs - 2	3
No. of RHCs - 2, rural hospitals - 3 and RHUs - 25	30
No. of general (1), district (1) and fever (1) hospitals	4
No. of health education offices	2

5. MOH Health Agents

No. of PHC physicians	34
No. of nurses	396
No. of hospital based pediatricians	2
No. of health education staff	4

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled.

- Training of 26 health education officers and and other health agents in key messages for the ARI Control Program conducted in 1995.

- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 11 teaching staff in 6 secondary schools, provided reference materials for teaching in these schools and helped train graduating nurses during 1993-1995. ARI trained 21 teaching staff in 6 secondary nursing schools in 1995.

2. Training for MCH Care

- 595 physicians were trained in child spacing and MCH care (1991-1996)
- 850 dayas trained in safe motherhood, MCH referrals and counseling (MOH/UNICEF)
- 30 laboratory technicians trained.
- 36 physicians and22 nurses were trained during 1992-95 in neonatal care
- 21 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality

3. Minya's Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Minya[5] The committee reviewed 431 cases of female deaths and identified 75 as maternal deaths, leading to an estimate of maternal mortality ratio of **151** (per 100,000 live births), with a 90% confidence interval of 119 - 190. The national MMR was found to be 174. In addition to establishing base line data on maternal mortality, the study identified avoidable causes of maternal deaths and developed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This goal implies a target for Minya of reducing maternal mortality to 75 per 100,000 live births based on a safe motherhood program targeting maternal mortality reduction and based on recommendations of the national study.

E. Project-Wide Child Survival Interventions in Minya

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).. Fayoum is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

Initiated in 1995 with establishment of a model clinic in Malawi MCH..

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[5]Members of the Committee were Dr. Allam El-Din Hassan Derballa, Dr. Mohammed Hashim Soltan, Dr.Mahdi Ahmed Hussein, Dr.Mostafa Mahmoud Hafez, Dr. Mohammed Ami Mahmoud Ragab and Dr. Marcel Labib Kamel. . .

Neonatal Care Program

Three first referral neonatal care centers were established and developed in 1991-95 in 3 of the 10 districts. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the three centers provided care for 572 neonates of which 67% were referrals. covering 13.6% of the estimated need (4200 neonates) for first referral care for infants in the three districts.[3] The number of LBW infants in the governorate in 1995 is estimated in the range 11000-16000.

Neonatal care in Minya requires further development of district capacity and facilities and further organization of the neonatal referral systm at district level during 1996-2000.

Neonatal Care Centers Established in Minya 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admittances
1.El Minya General H..	Minya/18846	8	297
2.Beni Mazar District H.	Beni Mazar/12603	2	122
3.Maghagha District H.	Maghagha/10973	3	153
	3 districts/42422	13	572

Delivery Rooms Up-graded

Nine delivery rooms in nine districts were selected by the Health Directorate to up-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Minya Genera Hospital	Minya District
2. Maghagha District Hospital	Maghagha District
3. Abu Kerkas District Hospital	Abu Kerkas District
4. Beni Mazar District Hospital	Beni Mazar District
5. Dir Mawas District Hospital	Dir Mawas District
6. Matai District Hospital	Matei District
7. El Edwa District Hospital	El Edwa District
8. Malawi District Hospital	Malawi District
9 Samalout District Hospital	Samalout \District.

Further work is required in training delivery room staff, development of use of performance services to ensure high quality of emergency and routine obstetrical services.

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[2]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[3]Need is estimatd based on minimum estimated proportion of LBW infants among births.

[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

MCH Laboratory Up-Grading Program

Ten MCH laboratories were up-graded in seven districts (see following list). Inputs included the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

1. Minya 1 MCH	Minya District
2. Minya 2 MCH	Minya District
3. Dir Mowas MCH	Dir Mowas District
4. Malawi MCH	Malawi District
5. Malawi UHC	Malawi District
6. El Edwa MCH	El Edwa District
7. Maghagha MCH	Maghagha District
8. Matai MCH	Matai District
9. Beni Masar MCH	Beni Mazar District
10. Abu Kerrkas MCH	Abu Kerkas District

ARI Targeted Hospitals in Minya

1. Minya General Hospital
2. Minya Fever Hospital

3. El Edwa District Hospital
4. El Edwa Fever Hospital

5. Beni Mazar District Hospital
6. Beni Mazar Fever Hospital

7. Deer Mowas District Hospital
8 Deer Mowas Fever Hospital

9. Maghagha District Hospital
10. Maghagha Fever H.

11. Malawi District Hospital
12. Malawi Fever Hospital

13. Matai District Hospital
14. Matai Fever Hospital ***

15.Samalout District Hospital* 5
16. Samalout Fever Hospital

17. Abo Kerkas District Hospital
18. Abo Kerkas Fever Hospital

19. Malawi Chest Hospital

8. ARI TrainingFacilities Developed

ARI training centers were established in 1993 in:

- Bar El Garby UHC in Minya
- Minya University Hospital Center (specialist training for pediatricians)
- Eight district hospitals.[1] .

[1] Abu Korkas, El Edwa, Bani Mazar, Dir Moass, Maghagha, Malawi, Matai and Samalot districts.

9. ARI Training Accomplished in Minya

	In 1993	In 1994	In 1995	Total
Managers	12	0	0	12
Specialists	115	0	0	115
PHC Physicians	118	462	60	640
Nurses	0	545	0	545
Model Clinic Training	0	19	na	19
Pharmacist Training	0	28	0	28
Nursing School Teachers	0	0	21	21
Health Education Officers	0	0	26	26
Total	245	1054	107	1380

10. ARI Cases Registered

	1994	1995	--Percentage Distribution--		
	-------number-------		1994	1995	Sentinel
Severe Disease	270	)	0.41	)	1.10
Severe Pneumonia	1312	)23222	1.97	)51.20	4.60
Pneumonia	22682	)	34.03	)	13.10
Otitis Media	9189		13.78		8.80
Pharyngitis	8960		13.44		18.10
Cough/Cold	24249		36.38		50.10
Total	66662	45358	100.00	100.00	100.00

E. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care.

1. Facilities Development

Districts Developed To Establish the Daya Program (MOH/Finns/UNICEF)

The MOH with UNICEF assistance trained physicians and nurses to monitor, supervise and train dayas in most districts of Minya. The 850 dayas trained in these districts provide for an extension of primary health outreach (referrals and health education) for mother and infant health in rural and urban communities, as well as the safer deliveries. The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant is estimated at. 70% (1993 estimate).

May 1996

CSP Data Sheet for New Valley Governorate

Population

Total (Jan 1995 CAPMAS).- 44% urban.....126,000
1992 Births/Women needing maternal services..... 3,192
1993 Births/Women needing maternal services.....3,205
1994 Births/Women needing maternal services.....3,270
1995 Births/Women needing maternal services.....3,290
Children Under 5 (1994 est.).....15,000
Women of Reproductive age (22% of pop.).....27,000

Health Infrastructure

No. of Health Bureaux (for vital statistics and vaccination).....2
No. of MCHs (1) - Urban Health Centers (2).....3
No. of RHCs - 2, RHUs - 25, Rural hospitals - 3.....30
No. of general (1), district (1) and fever (2) hospitals.....4
No. of health education offices.....2

1 **Districts(3)/Births(1993/94/95)** • El Khargah (1529/1532/1648), El Dakhlia (1608/1595/1456), El Farafra (68/143/176). • All districts maintained 90% infant vaccination coverage in 1995..

MOH Health Agents

No. of PHC physicians.....34
No. of MOH nurses.....396
No. of hospital based pediatricians.....2
No. of health education staff.....4

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt---- 1987	1992	1995
Infant Mortality(adjusted data)	46	41	na	- 11%	60	41	32
Child (1 thru 4) Mortality	4.1	5.4	na	- + 32%	7.4	4.0	3.2

Expanded Program of Immunization

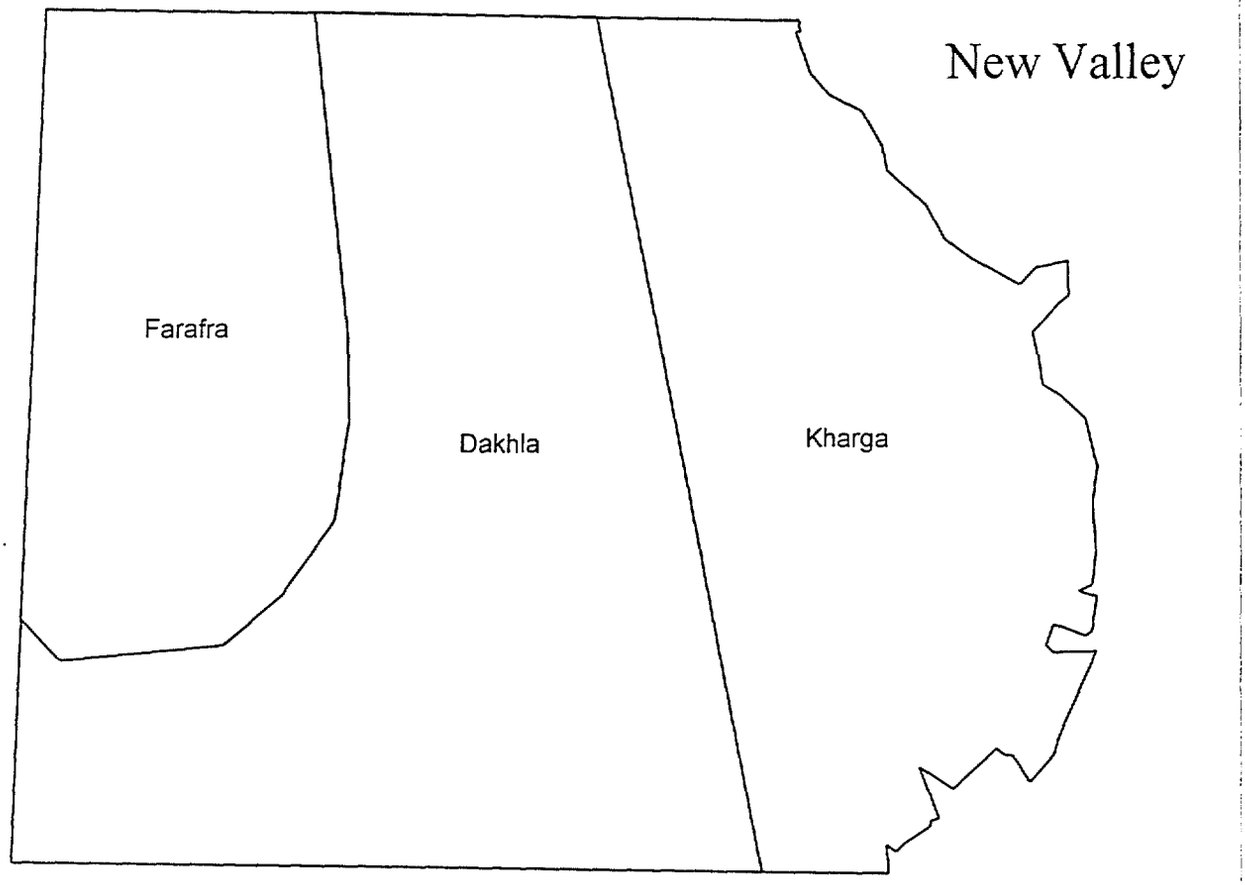
No. vaccination units.....29
No. Cold Chain deep freezers (8) and refrigerators (66)- April 1995.....74
No. of PHC staff trained in EPI, 1989-1995.....258
Routine infant/child vaccinations in 1992 (vacc. rate - 94%).....42,129
Women immunized TT2 in 1994 (1580 in 1993).....983
Women immunized TT2 in 1995.....816
Women immunized TT3/4/5 in 1994.....1,572
Women immunized TT3/4/5 in 1995.....1,652

Vaccination rates achieved in 1993/94/95 (%): BCG - 97/98/94 DPT3-93/97/95
TT2+ - 76/78/82 Measles-93/91/92 HB3 - 83/97/92 OPV3-93/97/92

Polio Cases:	1991 - 0	1992 - 2	1993 - 0	1994 - 0	1995 - 0
NNT Cases:	1991 - 0	1992 - 0	1993 - 0	1994 - 0	1995 - 0

ARI Program • Initiated in 1992 • 311 health agents trained (2 pediatricians, 111 PHC physicians, 170 nurses, 28 other) • 687 cases of severe ARI reported treated in MOH outpatient facilities in 1995 (859 cases in 1994) • 59% compliance in ARI case registration in 1995. • Est. population access to SCM >90%.

CS/MCH Program • 106 PHC physicians trained in MCH service delivery, 1993-95 • 2 MCH laboratories up-graded in 1994-19 lab technicians/assistants trained.• 24 physicians and nurses in 2 districts trained as daya trainers and supervisors • 45 dayas trained from 3 districts, 1993-96 - 25 dayas providd refresher training, 1996.. • Number and proportion of pregnant women receiving antenatal care in MOH facilities-not available • 2 neonatal intensive care centers (10 incubators) established in the El Kharga general and in El Dakla district hospitals - 31 physicians and 6 nurses trained in neonatal care - 142 neonates treated in 1995. • Baby Friendly program initiated in Kharga District in 1995 -16 physicians and 17 nurses trained • 2 first referral delivery rooms up-graded • Est. proportion of deliveries managed by a doctor or trained birth attendant (1993): 40%.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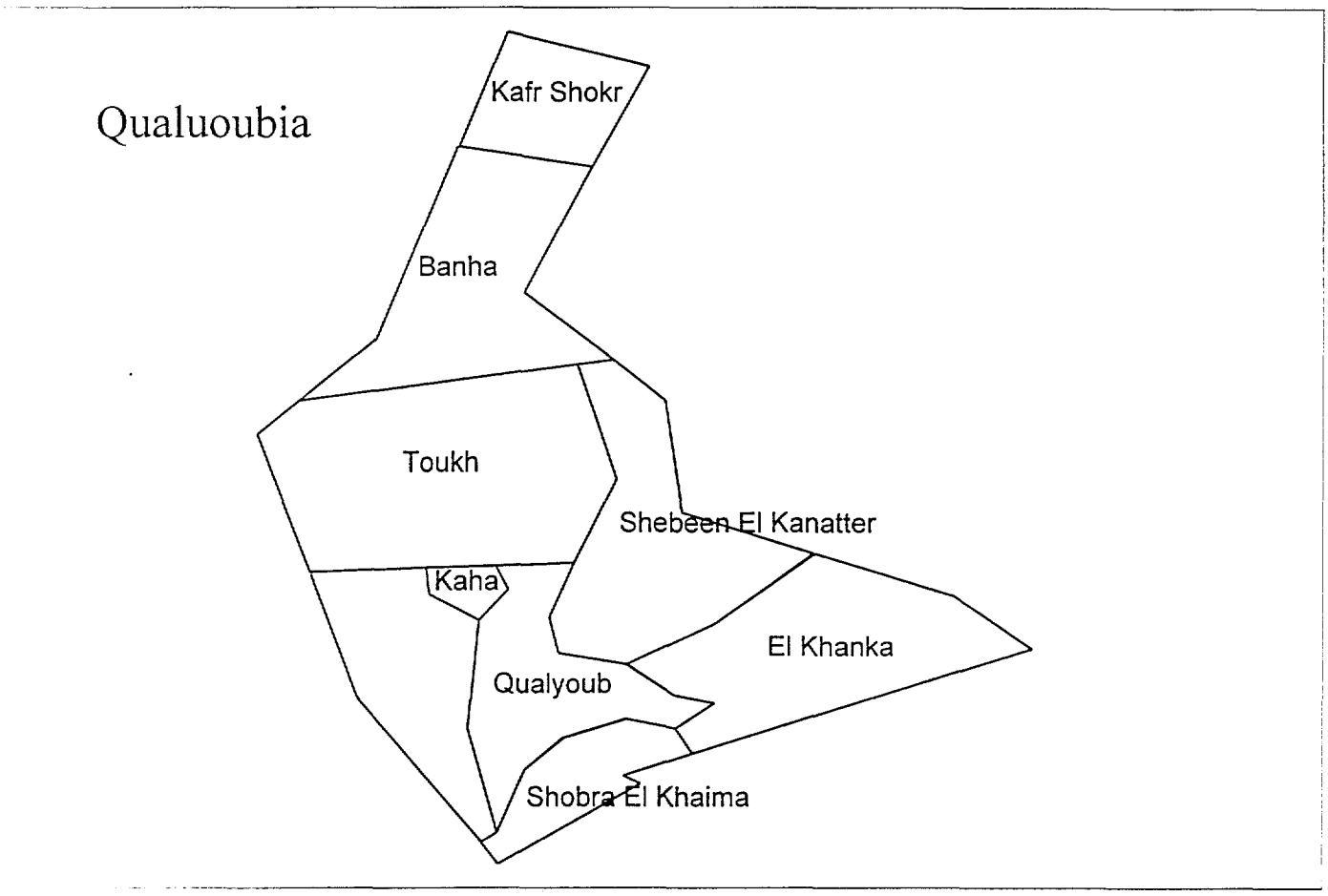
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May 1996

CSP Data Sheet on Qalyoubia Governorate

Population

Total (Jan 1995 CAPMAS est.) - 44% urban 3,045,000
1994 Births/Women needing maternal services.....76,984
1995 Births/Women needing maternal services.....76,826
Women of Reproductive age (22% of pop.).....670,000
Est. No. of Children Under 5.....344,000

Health Infrastructure

No. of Health Bureaux.....16
No. of MCHs (5) - UHCs (14).....19
No. of RHCs - 23, RHUs - 88, Rural Hospitals - 6.....117
No. of general (1), district (8), and fever (6) hospitals.....15
No. of University Hospitals.....1

Districts(9)/Births(1993/94/95) • Benha (9171/10479/10926), Tookh (9189/9465/9421), Qaha (663/727/665), Kafr Shokr (3113/3054/2755), Qalioub (7823/8141/8086), Shebin El-Qanater (9669/9742/10472), El-Khankah (8890/9572/9994), Qanater El-Kh.(7724/7726/7842) and Shobra El-Kh. (19332/18078/16665) • Shebin El-Qanater district did not attain 80% infant vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians 644
No. of MOH nurses.....1375
No. of hospital based pediatricians.....26

Mortality Data

	1987*	1992*	1995#	Change 87-92	All Egypt 1987	All Egypt 1992	All Egypt 1995
Infant Mortality(adjusted data)	56	42	na	- 25%	60	41	32
Child (1 thru 4) mortality	6.7	3.4	na	- 41%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program - Initiated in 1995-96 in Benha UHC, Benha District.

Expanded Program of Immunization:

No. vaccination units.....153
No. Cold Chain deep freezers (14)and refrigerators(336) - April 1995.....350
No. of PHC staff trained in EPI, 1989-95.....2,485
Routine infant vaccinations in 1993 (88% coverage rate) 993,856
Women immunized TT2 in 1994 (23,408 in 1993).....19,459
Women immunized TT2 in 1995.....18,576
Women immunized TT3/4/5 in 1994.....17,445
Women immunized TT3/4/5 in 1995.....17,427

Key vaccination rates achieved in 1993/94/95 (%): BCG - 105/101/92 DPT3 - 92/98/91
TT2+ - 56/48/47 Measles - 88/99/90 HB3 - 72/98/91 OPV3 - 92/99/93

Polio Cases:	1991-50	1992- 35	1993 - 16	1994 - 6	1995 - 2
NNT Cases:	1991-74	1992- 52	1993- 20	1994 -18	1995 - 21

*All districts maintained NNT elimination [<1 case per 1000 live births) in 1995

ARI Program • Initiated in 1992 • 1,471 health agents trained (22 pediatricans, 606 PHC physicians, 793 nurses, 50-other) • 8,873 children <5 years treated for severe ARI in 1994 in MOH outpatients clinics (10,213 in 1994) • 78% compliance in registering ARI cases • Public access to SCM est.at 90%.

CS/MCH Program • 446 PHC physicians trained in MCH service delivery, 1990-95 • __daya trainers and monitors trained - 1,130 dayas trained,1990-95 - 390 dayas provided refresher training, 1995 • 165 PHC nurses trained in MCH care, 1992 • 500 physicians and 930 nurses and dieticians trained in maternal-child nutrition (1989-91).• 140 food inspectors trained in nutriton, 1989-91 .• 9 MCH laboratories upgraded (1992-96).- 50 laboratory technicians trained, 1992-95 • 6,320 women received antenatal care, initial visit, in 1992 - 9% ANC coverage • 1 first referral neonatal care center established (6 incubators)- 51 physicians and 21 nurses trained in neonatal care - 164 neonates treated in 1995. • Baby Friendly program initiated (MOH/UNICEF) • Maternal mortality assessment completed in 1992/93. Maternal Mortality Rate-103 (95% confidence interval, 69-152) - National MMR-174.• 9 first-level referral level delivery rooms being up-graded - 15 obstetricians trained, 1994 • Deliveries managed by a doctor/trained birth attendant - 90% (1993 estimate).

6. Hospitals Targeted for ARI Control in Qena

17 Hospitals are targeted for in patient and out patient care of ARI. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

Figure ARI Targeted Hospitals - Qena

1. Qena General Hospital	13 pediatricians, 8 residents, 3 nurses trained. (Oct 94 report)
2. Qena Fever Hospital:	12 pediatricians, 1 resident. 6 nurses trained. (Oct 94 report)
3. Nakada D. Hospital:	1 pediatrician, trained. 1 physician (internal medicine trained
4. El Wakf D. Hospital:	1 pediatrician, 1 resident, 2 nurses: trained. (Sep 94 report).
5. Nagi Hammadi D. H.:	2 pediatricians trained, 1 resident trained. 1 nurse trained. (July 94)
6. Nagi Hammadi F. H.:	4 specialists, 2 residents, 1 nurse, all trained. (July 94 report)
7. Deshna District H	1 pediatrician, 2 nurses not trained (Jul 1995 report)
8. Deshna Fever H.	No outpatient department. One trained specialist (July 1995 report).
9. Abo Tesht District H	1 pediatrician, 1 resident, 1 nurse: trained (Feb 95 report)
10.Abo Tesht Fever H	3 pecialists, 3 nurses trained. (Feb 1995 report)
11. Qift District H.	1 pediatrician, 3 nurses trained.(3/95 and 9/95 report).
12. Farshoot District H	2 pediatricians, 2 nurse: trained (Feb 95 report)
13. Qoos District H.	3 trained pediatricians, 1 trained nurse(3/95 and 9/95 reports).
14. Armant District H.	
15. Armant Fever H.	4 trained specialists, 4 of 6 nurses trained. (Feb 95 rep.)
16. Essna D. Hospital	
17. Essna Fever H.	

7. ARI Training Facilities

ARI training facilities were established in 1992 with UNICEF assistance in:

- Qena General Hospital
- Nine district hospitals[1]

[1] Abu Tesht, Armart, Deshna, El Wakf, Essna, Farshoot, Qaft, Kous, Nakada, and Nagea.

8. ARI Training Accomplished in Qena with ARI

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	11	14	0	0	25
Specialists	0	4	4	0	8
PHC Physicians	275	197	0	0	472
Nurses	147	316	0	0	463
Pharmacists	0	0	0	18e	18e
Nursing School Teachers	0	0	0	0	(p)
Health Education Officers	0	0	0	0	(p)
Total	433	531	4	18e	986

e estimated, based on 22 pharmacists trained in Qena and Luxor.

9. ARI Cases Registered

	1993	1994	1995	Percentage 1993	1994	1995	Sentinel
Very Severe Disease	224	476		1.02	0.56		1.10
Severe Pneumonia	876	1944		3.97	2.30		4.60
Pneuonia	5218	17098		23.65	20.21		13.10
Otitis Media	2487	10262		11.27	12.13		8.80
Pharyngitis	3631	14568		16.46	17.22		18.10
Cough/Cold	9630	40251		43.64	47.58		50.10
Total	22-66	84599		100.00	100.00		100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care in order to reduce mortality and morbidity among womenand children.

1. Facilities Development

Districts Developed To Establish the Daya Program (MOH/Finns/UNICEF)

The MOH with UNICEF assistance trained physicians and nurses to monitor, supervise and train dayas in most districts of Qena. The 757 dayas trained in these districts provide for an extension of primary health outreach (referrals and health education) for mother and infant health in rural and urban communities of Qena as well as the safer deliveries. Deliveries by trained dayas in 1994 are estimated to total 30,000-35,000 deliveries.[2].The proportion of deliveries managed by a physician, nurse-midwife or trained birth attendant was estimated at 70% in 1993.

[2]A study of Maternal Health in Qena carried out in September-October 1994 under Egyptian-Italian Cooperation found that 65% of delivereis take place at home with the help of dayas, indicating approximately 54000 deliveries managed by dayas in 1994.

MCH Laboratory Up-Grading Program

Four MCH laboratories have been up-graded 4 districts. Inputs include the provision of equipment and supplies, training of laboratory staff (scheduled in 1996) and field monitoring.visits.

1. Qena MCH	Qena District
2. El Omal MCH	
3. Naga Hamady MCH	Naga Hamdi District
4. El Wakf MCH	El Wakf District

Neonatal Care Program

Two first referral neonatal care centers were established and developed during 1991-95 in 2 of the 12 districts. Inputs including training, advisory services, development of service standards[3] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the two centers provided care for 265 neonates, of which about 80% were referrals from outside the hospital centrs. The admittances in 1995 covered about 11% of the estimated need for first referral care for some 2400 infants in the two districts[4] The number of LBW infants in the governorate in 1995 is estimated in the range 8000-12000. Neonatal care in Qena requires further development of capacity and facilities during 1996-2000 and the organization of a more effective neonatal referral system.

Neonatal Care Centers Established in Qena 1991-95

Hospital	District/Births in 1995	Incubators Supplied*	Admittances in 1995
1.Qena General H.	Qena/ 13080	7	209
2.Naga Hamadi	Naga Hamadi/10980	3	56
	2 districts/24060	10	265

[3]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[4]Need based on estimated proportion of LBW infants among births.

Delivery Rooms Up-graded

Eleven delivery rooms in eleven districts are being up-graded. Inputs have included renovation, supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1.Qena General Hospital	Qena District
2.Abu Tesht Hospial	Abu Tesht District
3.Deshna Hospital	Deshna District
4. El Wakf Hospital	El Wakf District
5. Nagada Hospital	Nagada District
6. Quos Hospital	Quos District
7. Qeft Hospital	Qeft District
8. Essnaa Hospital	Essnaa District
9. Armant Hospital	Armant District
10. Farshout Hospital	Farshout District
11. Nage Hamadi Hospital	Nage Hamadi District

Up-grading of delivery rooms is an on-going effort of the MOH. Further work is need to train delivery room staff and to develop the systematic use of service standards to ensure high quality of emergency and routine obstetrical services, including neonatal resuscition procedures.

2. Training for MCH Care

- 210 physicians were trained in child spacing and MCH care (1995-1996)
- 757 dayas trained in safe motherhood, MCH referrals and counseling (MOH/UNICEF).
- 41 physicians and 18 nurses were trained during 1992-95 in neonatal care
- 50 pysicians trained in neonatal resuscitation, 1995
- 37 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Qena[6] The committee reviewed 191 cases of female deaths and identified 38 as maternal deaths, leading to an estimate of maternal mortality ratio of **386** maternal deaths per 100,000 live births, with a 90% confidence interval of 277- 535..The national MMR was found to be 174.

A second study carried out under Italian-Egyptian Cooperation, found a maternal mortality ratio in Qena of 320 maternal deaths per 100,000 live births based on data collected in September-October 1995. The life time risk of maternal morality for a women in Qena was calculated to be 1 in 55[7].

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[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[6]Members of the Committee were Dr. Shawki Hussein Ahmed, Dr. Edward Eskander Botros, Dr.Galal El:-Din Hafafi, Dr.Gamal El-Din Mohammed Gad and , and Dr. Mohammed Abdallal Ammar. .

[7]MOH/Italian Ministry of Foreign Affairs, Report on Maternal Health in Qena Governorate, Upper Egypt, Cairo, February 1995

May 1996

QALYUBIA - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 44% urban.....3,045,000
1995 Births/Women needing maternal services..... 76,826
Women of Reproductive age (22% of 1995 pop.)..... 670,000
No. of children under 5 years of age [est.].....344,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Benha	9171	10479	10926
Tookh	9189	9465	9421
Qaha	663	727	665
Kafr Shokr	3113	3054	2755
Qalioub	7823	8141	8086
Shebin El Qanater	9669	9742	10472
El Khankah	8890	9572	9994
Qanater El Kh.	7724	7726	7842
Shobra El Kh.	19332	18078	16665
Total	75574	76984	76826

3.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	56	42	na	- 25%	60	41	32
Child (1 thru 4) mortality	6.7	3.4	na	- 41%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	16
No. of MCHs - 5/ UHCs - 14	19
No. of RHCs -23, rural hospitals - 6 and RHUs - 88	117
No. of general (1), district (8) and fever (6) hospitals	15
University Hospitals	1
No. of health education offices	na

5. MOH Health Agents

No. of PHC physicians	644
No. of nurses	1375
No. of hospital based pediatricians(1993 data)	26

6. Distribution of Qalyubia Health Facilities by District*

Health Districts(9): Qalyubia	Population Jan 1995)	----------Hospitals and Primary Health Care Facilitie#----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHUs
1. Banha		0	0	1	1	0	6	0	16
2. Tookh		0	1	1	0	1	7	0	14
3. Qaha		0	1	0	1	0	0	0	0
4. Kafr Shokr		0	1	0	0	1	2	0	7
5. Qalioub		0	1	1	1	1	3	2	10
6. Shebin El Qanater		0	1	1	1	0	5	0	18
7. El Khanka		0	1	0	0	2	0	2	10
8. Qanater El Khaireya		0	1	1	0	2	0	1	13
9. Shobra El. Khima		1	1	1	1	7	0	1	1
Total	3,045.000	1	8	6	5	14	23	6	88

*Source: Health Facilities: 1995 ARI/CRS Data Base.

B. Expanded Program of Immunization in Qalyubia

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities - Qalyubia

• No. of Vaccination Centers	153
• No. of Deep Freezers (14) and refrigerators(336) - April 1995	350
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	0
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	704
PHC Nurses*	1288
Sanitarians*	225
Clerks	168
Total	2485

*Including health managers

3. Infant Immunization Coverage Trends in Qalyubia

	BCG	Measles	HB	OPV3	DPT3
1987*	70.2	77.1	0	85.9	82.4
1990*	88.3	86.9	0	87.8	87.8
1993#	91	88	66	87	87
1994#	84	80	80	81	81
1995#	87	81	83	83	83

4. TT Immunization (of Pregnant Women) in Qalyubia

	Number of Women Immunized TT2	TT3/4/5	TT2+ Coverage (Percent)
1987*			8.4
1990*			65.4
1993#	23,408	na	56%
1994#	19,459	17,445	48%
1995#	18,576	17,427	47%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	50	35	16	6	2
NNT Cases*	74	52	20	18	21

6. Polio and NNT Cases and Immunization Coverage by District, 1995

District	Births	AFP Cases of which Polio	Non Polio	NNT Cases	----Immunization Coverage Attained in 1995---- BCG	Measles	HB3	OPV3	DPT3	TT2+
Benha	10926	0	0	1	91	96	89	95	95	37
Tookh	9421	1	0	6	82	84	88	87	87	52
Qaha	665	0	0	0	94	94	99	110	95	75
Kafr Shokr	2755	0	0	0	110	103	106	109	101	58
Qalioub	8086	0	0	1	88	88	84	85	85	52
Shebin Qanater	10472	0	2	6	78	75	76	76	75	32
El Khankah	9994	1	2	3	79	82	90	89	88	42
Qanater El Kh.	7842	0	3	2	112	104	110	111	111	79
Shobra El Kh.	16665	0	1	2	104	97	95	98	92	42
Total	77826	2	8	21	92	90	91	93	91	47

C. ARI Control Program in Qalyubia

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 45%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-10213) 8,873

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:34,000)

2. Health Facilities with ARI Standard Case Management Installed

(estimated as of Dec 1995)

• Primary Health Care Facilities (all 136 targeted)	122 (est. 90%)
• Targeted Hospitals (15 targeted)	8 (est. 53%)

3 Hospital Lab Upgrading

The Banha General Hospital Laboratory has been up-graded for ARI clinical analysis and for ARI microbial resistance surveillance.

4. Equipment Provided For ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

744 respiration timers,
8 oxygen concentrators,
5 oxygen cylinder sets,
8 nebulizers
1 oximeter
190 otoscopes

5. Drugs Supplied to Qalyubia by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250 and125 ml)	--	47400	26900	44696	34276
(of which Amox 125 ml)	--	(12100)	(10000)	(7788)	(10334)
Paracetamol 120 cm	--	13800	10000	10000	4800
Expectorant	--	13100	--	4800	--
LA Penicillin	--	--	2000	3800	2533
Salbutamol Syrup	--	--	--	--	4800

6. ARI Health Education:

Being developed with the Health Education Department of the Qalyubian Health Directorate and with District Health Education officers.

7. ARI Cases Registered

	1994 (No.)	1995	1994	1995	Sentinel
	-------number-------		----------percentages ----------		
Very Severe Disease	193)		0.37)		0.80
Severe Pneumonia	563)	8873	1.07)	20.02	2.40
Pneumonia	9457)		17.92)		8.60
Otitis Media	9076		17.19		12.50
Pharyngitis	11692		22.15		24.20
Cough/Cold	21806		41.31		45.40
Total	52787	44321	100.00	100.00	100.00

8. ARI Targeted Hospitals

Fifteen hospitals have been and are targeted for in patient and out patient care of ARI (see following list). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment.and monitoring. Additional equipment is being provided in 1996. Addition staff training.(pediatricians, residents and nurses) and conitnued monitoring is required.

ARI Targeted Hospitals - Qalyubia

1.Benha Fever Hospital

2.Toukh District Hospital
3.Toukh Fever Hospital -.

4.Kafr Shokr District H.

5. Qalioub Fever Hospital
6.Qalioub District Hospital

7.Shebin el Qanater District Hospital
8.Shebin el Qanater Fever Hospital

9.El Khanka District H. - 1

10. El Qanater Hospital (Qanater El Khaireya District)
11.El Qanater Fever Hospital Qanater El Khaireya District)

12. Nasser General Hospital(Shobra El Kheyma District)
13.Aboul Menagga DH (Shobra El Kheyma District)
14.Bahteen Fever Hospital (Shobra El Kheyma District)

15.Qaha Distdrict Hospital

9. ARI Training Facilities

An ARI training facility was established in Banha Fever Hospital in 1992.

10. ARI Training Accomplished in Qalyubia (Through 1995)

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	6	7	0	0	13
Specialists	2	12	8	0	22
PHC Physicians	166	181	153	106	606
Nurses	120	244	226	203	793
Pharmacists	0	0	0	16	16
Nursing School Teachers	0	0	0	0	(p)
Model Clinic Training	0	0	0	0	(p)
Health Educ. Officers	0	0	0	21	21
Total	294	444	387	346	1471

p) Scheduled for 1996.

E. The Child Spacing and MCH Program in Qalyubia

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care in order to reduce maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish the Daya Program

The Child Survival Project worked with the Beheria Health Directorate in 1994-1995 to train physicians and nurses to monitor, supervise and train dayas in the nine districts of Qalyubia

District	1995 Births	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained
Benha	10926		
Tookh	9421		
Qaha	665		
Kafr Shokr	2755		
Qalioub	8086		
Shebin El Qanater	10472		
El Khankah	9994		
Qanater El Kh.	7842		
Shobra El Kh.	16665		
Total	76826		

The 1130 dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Qalyubia

MCH Laboratory Up-Grading Program

9 MCH laboratories have been up-graded in 6 of the 9 districts. Inputs include the provision of equipment and supplies, training of laboratory technicians (including training for four laboratories scheduled in 1996) and field monitoring.visits.

1.Shoubra El Khema MCH	Shoubra El Khema District
2.Benha MCH	Banha District
3.Qalioub MCH	Qalioub District.
4.Qaha MCH	QahaDistrict.
5.Shebin El Qanater MCH	Shebin El Qanater District
6.Banha UHC	Banha District
7.Bahtim UHCDistrict	Shobra El Khema District
8.Banha Maternity	Banha District.
9.El Kanater El Khairia UHC	Kanater El-Khairia District

Neonatal Care Program

A first referral neonatal care centers were established and developed during 1991-95 in Nasr General Hospital (Shobra El Khema District). . Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the Nasr Hospital center provided care for 164 neonates of whom about 20% were referred from outside the hospital. Admittances covered about 10% of the estimated need for first referral care for approximately 1600 infants in the Shobra El Khema districts.[2] The number of LBW infants in the governorate in 1995 is estimated in the range 7600-11000. Neonatal care in Qalyubia requires further development of district neonatal care capacity and facilities during 1996-2000.and the organization of an improved referral system for neonates requiring clinical care.

Neonatal Care Centers Established in Qa;yubia 1991-95

Hospital	District and 1995 District Births	Incubators Supplied*	Admittances 1995
1.Nasr Hospital	Shobra El KH./16665	6	164

Delivery Rooms Up-graded

Nine delivery rooms in eleven districts were selected by the Health Directorate for up-grading .Inputs have included renovation, supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1.Qalioub Hospital	Qalioub District
2. Shebin El-Kanater Hospital	Shebin El-K. District
3. Bahtim Hospital	Shoubra El Kh. District
4. Abu Zaabal Hospital	Khankah District
5. El Khanka Hospital	Khankah District
5. Nasr General Hospital	Shoubra El Kh District
6. Tookh Hospital	Tookh District
7. El Kanater El-Kh. Hospital	Kanater El Kh. District
8. Kafr Shokr Hospital	Kafr Shokr District
9. MCH/Banha	Banha District

Further work is need to train delivery room staff and to develop the systematic use of service standards s to ensure high quality of emergency and routine obstetrical services including neonatal resuscitation procedure.

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[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on estimated proportion of LBW infants among births.

[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

2. Training for MCH Care

• 446 PHC physicians trained in MCH service delivery, 1990-95) • 165 PHC nurses trained in MCH care, 1992 • 500 physicians and 930 nurses and dieticians trained in maternal-child nutrition (1989-91).• 140 food inspectors trained in nutriton, 1989-91 • __daya trainers and monitors trained. • 1,130 dayas trained,1990-95) - 390 dayas provided refresher training, 1995.• 9 MCH laboratories upgraded (1992-96).- 26 laboratory technicians trained, 1992-95 • 6,320 women reportedly received antenatal care, initial visit, in 1992 - 9% ANC coverage • 1 first rererral neonatal care center established (6 incubators)- 51 physicians and 21 nurses trained in neonatology - 164 neonates treated in 1995. • Baby Friendly program initiated (MOH/UNICEF) • Maternal mortality assessment completed in 1992/93. Maternal Mortality Rate-103 (95% confidence interval, 69-152). National MMR-174.• 8 first-level referral level delivery rooms up-graded - 15 obstetricians trained, 1994 • Deliveries managed by a doctor/trained birth attendant - 90% (1993 estimate).

- 446 physicians were trained in child spacing and MCH care,1991-95
- 165 nurses trained in MCH care, 1992
- 1130 dayas trained in safe motherhood, MCH referrals and counseling, 1990-95
- 350 dayas provided refresher training, 1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 500 physicians trained in mother child nutrition, 1990-1991
- 930 nurses and dieticians trained in mother child nutrtion, 1990-1991
- 140 food inspectors trained in family nutrtion, 1990-1991
- 50 laboratory technicians trained in MCH laboratory analysis
- 51 physicians and 21 nurses trained in neonatal care
- 15 obstetricians participated in workshops on improving delivery room service and reducing maternal mortality (1994-1995)

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Qalyubia[4] The committee reviewed 297 cases of female deaths and identified 27 as maternal deaths, leading to an estimate of maternal mortality ratio of **103** maternal deaths per 100,000 live births, with a 90% confidence interval of 69 - 152. Qa;yubia registered one of the lowest rates of MMR in Egypt. .The national MMR was found to be 174. The national maternal mortality the study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector.

The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality in Qalyubia by year 2000 to **51** maternal deaths per 100,000 births through a program of safe motherhood aimed at reduction of maternal mortality and morbidity and based on findings and recommendations of the national study.

4. Qalyubia Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 in Qalyubia indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW. Based on the pilot study a national low birth study has been carried out to: i) estimate the magnitude and distribution of LBW nationally; ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal, fetal, environmental and health care perspectives; and iv) determine birth weight specific mortality and morbidity. The report of the national study is in preparation..

E Project-Wide Child Survival Interventions in Qalyubia

[4]Members of the Committee were: Dr. Mostafa Hammouda, Dr. Mohammed Nafea Helmi, Dr. Seddik El-Lethi, Dr. Sami Abdel-Azeim, Dr. Osma Abdel-Samea, Dr. Mohammed Safwat Abdel-Fattah.

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (6).. Qalyubia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program was initiated in 1995-96 with a model clinic in Benha UHC.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled.

- Training of 21 health education officers and and other health agents in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 63 teaching staff in 10 secondary schools of nursing, provided reference materials for teaching in these schools during 1993-95.. ARI has scheduled training for teaching staff for these secondary nursing schools in 1996.

Arrangements should be made by the Health Directorate to continue to monitor daya activity, provide for daya refresher training and re-certfy dayas periodically (as having been trained).

Training will be required for PHC staff as daya trainers and in management of the daya program as new personnel are assigned to the system. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Two health centers were selected by the by the North Sinai Health Directorate for up-grading (list below) which took place during 1992-94. Inputs included provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in New Valley

1. El-Kharga MCH	Kharga District
2. El-Dahkla Hospital Maternity	Dahkla District.

Neonatal Care Facilities in New Valley

Two first referral neonatal care centers were established and developed during 1991-95 in two of of the three districts. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the three centers provided care for 142 neonates, of whom 48% were referrals from outside the hospital. The number of admittances is equivalent to about % of an indicated need for first referral care for about 300 infants in the two districts. [2] The number of LBW infants in the governorate in 1995 is estimated in the range 330-500.

Further development of the referral system for neonates needing first level care is required as well as systematic use of standards to insure quality contorl in service delivery.

Neonatal Care Centers Established in New Valley,1991-95

Hospital	District/1995 Births	Incubators Supplied	Admittances 1995
1. El-KhargahGeneral Hospital.	Kharga/1640	5	100
2. El Kahkla District Hospital	Dakhla/ 1456	5	42
Total	2 Districts/2996	10	48

[1]MOH/CSP and USAID. Egyptian National Neonatal Care Program. *Guidelines for Egyptian Hospital Nurseries*. 1996

[2]Need based on estimated proportion of LBW infants among births.

8. ARI Training Accomplished in New Valley

Training has been carried out in the main by central teams visiting the governorate in 1992, 1993 and 1995.

	In 1992	In 1993	In 1994	In 1995	Total
Managers	0	2	--	(a)	2
Specialists	(2*)	0	2	0	2
PHC Physicians	49	40	1	21	111
Nurses	55	92	0	23	170
Nursing School Teachers	0	0	0	3	3
Pharmacists	0	0	0	22	22
Health Eduction Officers	0	0	0	1	1
Total	104	134	3	70	311

*OTJ training as trainers.
(a) The district health officer of Farafra has taken PHC physiican training.

9. ARI Cases Registered

	1994	1995	1994	1995	Sentinel
	--------number--------		----------percentages----------		
			----------percentages----------		
Very Severe Disease	3	)	0.04		1.10
Severe Pneumonia	14	) 687	0.21	12.4	4.60
Pneumonia	842	)	12.61		13.10
Otitis Media	1203		18.01		8.80
Pharyngitis	2150		32.20		18.10
Cold/Cough	2466		36.93		50.10
Total	6678	5527	100.00	100.00	100.00

D. The Child Spacing and MCH Program in New Valley

The target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Health Agents Trained in PHC Facilties To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train 24 physicians and nurses to monitor, supervise and train dayas.in the following health districts:

- El-Kharga District - 12 physicians and nurses
- El Dakhlla District - 12 physicians and nurses

3. **Clinic Management Improvement Program:**

This program has been initiated in 13 other governorates.

4. **Mobilization of Health Education Offices**

- 3 health education and information officers participated in a workshop on key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- ARI trained health education officers and in ARI health education in 1996.
- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).
- An important asset to health education offices that has been developed is the availablility of 20 trained dayas in as key influentials in community health and for counseling mothers on maternal and child care.

5. **Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages**

Mass media transmission of 12 key messages by TV and radio during 1996.

6. **Pre-Service Training for Medical and High Institute of Nursing Students**

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. **Pre-Service Training for Students of Nursing**

EPI trained 13 teaching staff in the secondary school of nursing and provided reference materials for teaching in these schools in 1993. The ARI control program trained 3 teaching staff of the secondary nursing school in 1995.

Delivery Rooms Up-graded

Delivery rooms in two of the 3 districts were selectedby the Health Directorate to be up-graded in 1994-95. Inputs included renovation, supply of equipment, development of standards,[3] and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El -Kharga Hospital	Kharga District
2. El-Dahkla Hospital	Dahkla District

Further work is required in training delivery room staff and development of use of performance services to ensure high quality of emergency and routine obstetrical services and in neonatal resuscitation.

Baby Friendly Hospital/Health Centers

The Baby Friendly program was installed in 1995 in El Kharga General Hospital.

2. Training for MCH Care

- 105 PHC physicians and __ PHC nurses were trained in MCH care in 1994 and 1996.
- 24 physicians and nurses trained as daya trainers and supervisors, 1994-96
- 45 dayas trained in safe motherhood, MCH referrals and counseling, 1994-1996
- 25 dayas provided refresher training in 1996
- 19 laboratory technicians trained in MCH laboratory analysis, 1992-94
- 31 physicians and 6 nurses were trained in neonatal care, 1992-95
- 16 physicians and 17 nurses trained for the BF-baby friendly program, 1995

E. Project-Wide Child Survival Interventions in New Valley

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Training was conducted to strengthen decentralized health planning and management. .

2. Decentralized Health Information System

The MOH health information system was established in the health information office of the Health Directorate in 1995-96.Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1). New Valley is putting the system into effect starting in 1996..

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[3]MOH/CSP and USAID. *Maternity Care at the First Referral Level*,. (Prepared by Child Spacing Executive Director. Dr. M. Kassas in Child Spacing Technical Series. Issue #2). Cairo. March 1994.

May 1996

CSP Data Sheet for North Sinai Governorate

Population

Total (Jan 1995 CAPMAS est.)- 61% urban 219,000
1992 Births/Women needing maternal services 6,219
1993 Births/Women needing maternal services.....6,786
1994 Births/Women needing maternal services.....6,687
1995 Births/Women needing maternal services.....7,128
No. of Children Under 5 (1994 estimate).....30,000
Women of Reproductive age (22% of pop.).....48,000

Health Facilities

No. of Health Bureaux.....29
No. of MCHs-2/ UHCs-2.....4
No. of RHCs-0, rural hospitals-3 and RHUs - 38.....41
No. of general (1) district (3), Fever (0) hospitals.....4

Districts(6)/Births(1993, 94/95) • El-Areesh (2551/2419/2689), Zowaid (1205/1259/1337), El-Abd (1124/1141/1208), El-Hasanah(291/340/280), Nakhl (18/27/26) and Rafah (1548/1550/1588) • 3 (underlined - sparsely populated) districts missed attaining 80% vaccination coverage in 1994 and in 1995.

MOH Health Agents

No. of PHC physicians.....50
No. of MOH nurses.....281
No. of hospital based pediatricians.....6

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	na	71	na	na	60	41	32
Child (1 thru 4) Mortality	4.5	1.8	na	- 60 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....63
No. Cold Chain deep freezers (6) and refrigerators (79) - April 1995.....85
No. of PHC staff trained in EPI, 1989-95.....544
No. Cold Chain Technicians trained.....3
Routine infant/child immunizations in 1993 (vacc. rate - 91%).....86,294
Women immunized TT2 in 1994 (3,166 in 1993).....2,140
Women immunized TT2 in 1995.....2,208
Women immunized TT3/4/5 in 1994.....3,699
Women immunized TT3/4/5/ in 1995.....3,908

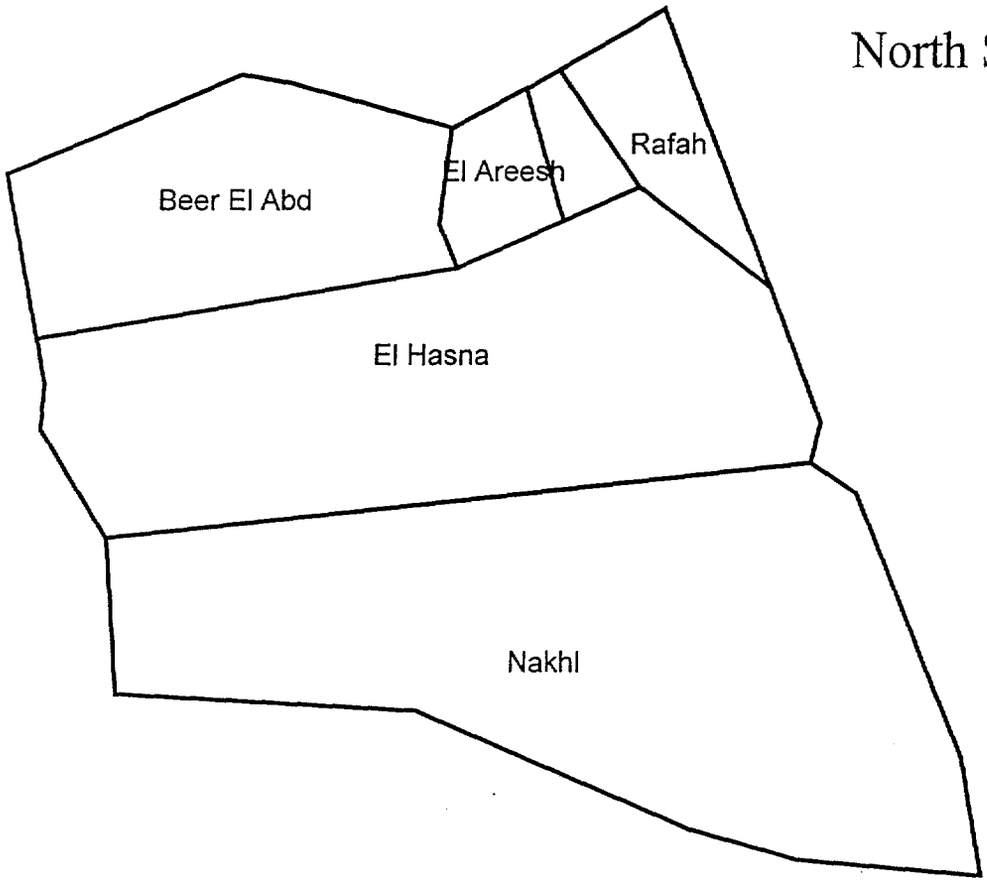
Vaccination coverage rates in 1993/94/95 (%): BCG-99/103/96 OPV3-93/96/89
TT2+ - na/87/86 Measles-88/96/91 HB3-78/93/89 DPT3-93/94/89

Polio Cases:	1991 - 2	1992 - 2	1993 - 0	1994 - 0	1995 - 0
NNT Cases:	1991 - 12	1992 - 16	1993 - 13	1994 - 9	1995 - 7

*Two of the five districts failed to attain/maintain NNT elimination (<1 case/1000l live births) in 1995

ARI Program • Initiated in 1992 • 153 health agents trained (5 pediatricians, 109 PHC physicians, 28 nurses, 11 other • 1,202 cases of severe ARI in children <5 years treated in MOH out-patient clinics in 1995 (1511 cases in 1994) • Compliance in ARI case registration in 1995 - 51% • Estimated Population Access to SCM- 80 %.

CS/MCH Program • 20 physicians trained in MCH service delivery, 1993 • __ daya trainers and supervisors trained • 20 dayas trained • 2 MCH laboratories upgraded - 5 lab technicians trained • Number and proportion of pregnant women receiving antenatal care (initial visit) in MOH facilities: not available • 3 neonatal care centers established (7 incubators) - 10 physicians and 15 nurses trained in neonatal care, 1992-95 - 9548 neonates treated in 1995 • Baby Friendly program initiated in 1995 (El-Areesh General Hospital and El-Areesh MCH) - 38 physicians and 21 nurses trained • 6 first-referral level hospital delivery rooms up-graded • Proportion of deliveries managed by a doctor, nurse, or trained birth attendant- 65 % (est 1993).


North Sinai
Beer El Abd
El Areesh
Rafah
El Hasna
Nakhl

6. North Sinai Distribution of Health Facilties by District

Districts	Population* (1994, est.)	---------Hospitals and Primary Health Facilities---------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
El-Arish	100,000	1	0	*	1	2	0	0	6
Bir El Abd	70,000	0	1	0	0	0	0	0	13
Rafah	35,000	0	1	0	0	0	0	0	5
Sheikh Zowaid	31,000	0	1	0	1	0	0	0	6
Nakel	7,000	0	0	0	0	0	0	1	3
El-Hassanah	6,000	0	0	0	0	0	0	2	5
Total	260,000	1	3	0	2	2	0	3	38

B. Expanded Program of Immunization in North Sinai

EPI goals include:sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of vaccination units	63
• No. of Cold Chain deep freezers (6) and refrigerators (79) - April 1995	85
• No of District Cold Storage Facilities	na
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	192
PHC Nurses*	183
Sanitarians*	143
Clerks	26
Total	544

*Including health managers

3. Infant Immunization Coverage Trends

	BCG	Measles	HB	OPV3	DPT3
1987*	70.8	74.9	0	80.5	80.5
1990*	86.3	87..7	0	85.8	86.7
1993#	99	88	74	93	93
1994#	103	96	92	96	94
1995#	96	91	87	89	89

May 1996

NORTH SINAI - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) 61% urban	219,000
1995 Births/Women needing maternal services	7,128
Women of Reproductive age (22% of 1995 pop.)	48,000
No. of children under 5 years of age [est.1994]	30,000

2. Births (1993, 1994, 1995)

	1993 Births	1994 Births	1995 Births
El Areesh	2551	2419	2689
Zowaid	1205	1259	1337
El Abd	1124	1141	1208
El 'Hasanah	291	340	280
Nakhl	18	27	26
Rafah	1548	1550	1588
	6786	6687	7128

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	na	71	na	na	60	41	32
Child (1 thru 4) Mortality	4.5	1.8	na -	- 60 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	29
No. of MCHs - 2/ UHCs - 2	4
No. of RHCs -0, rural hospitals - 3 and RHUs - 38	41
No. of general (1), district (3) and fever (0) hospitals	4
No. of health education offices	1

5. MOH Health Agents

No. of PHC physicians	50
No. of nurses	281
No. of hospital based pediatricians(1993 data).	6
No. of health education staff	na

2. Health Facilities in North Sinai with ARI Standard Case Management Installed

- Primary Health Care Facilities (total, all, targeted, 45) 36 (est. 80%)
- Targeted Hospitals (4) 3 (est. 75%)

3. ARI Laboratory Upgrading

The El Arish General Hospital laboratory was up-graded in 1995 for micorbiolical identification of ARI bacteria for diagnostic purposes, and to survey ARI microbial resistance.

4. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 182 respiration timers,
- 5 oxygen concentrators
- 10 oxygen cylinder sets
- 4 nebulizers
- 1 oximeter
- 95 otoscopes

5. Drugs Supplied to North Sinai by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	5000	12200	4800	10100	8937
of which Amox 125 ml	--	(2400)	(1800)	(1720)	(2556)
Paracetamol 120 cm	2500	4700	1800	900	900
Expectorant	2000	4600	--	--	--
LA Penicillin	--	--	--	700	467
Salbutamol Syrup	--	--	--	--	900

6. ARI Targeted Hospitals

Four hospitals in North Sinai have been targeted for in patient and out patient care of ARI (see following list). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

1. El-Areesh General Hospital*
2. El-Sheikh Zowaid District Hospital
3. Beir El Abd District Hospital
4. Rafah District Hospital

7. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department..

8. ARI Training Facilities in North Sinai

An ARI training facility was established in 1991 in El Areesh General Hospital.

4. TT Immunization (of Pregnant Women) in North Sinai

	Number of Women Immunized TT2	TT3/4/5	TT2+ Coverage (Percent)
1987*			12.3
1990*			34.1
1993#	3,166	na	74%
1994#	2,140	3,699	65%
1995#	2,208	3,908	55%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	2	2	0	0	0
NNT Cases	12	16	13	9	7

6. North Sinai Immunization Coverage, by District - 1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
El Areesh	2689	0	0	1	111	104	101	102	102	95
Zowaid	1337	0	0	0	93	83	100	100	100	65
Rafah	1588	0	0	4	84	74	65	65	65	92
El Abd	1208	0	0	0	89	89	86	86	86	85
El 'Hasanah	280	0	0	2	73	94	64	60	60	74
Nakhl	26	0	0	0	4	62	62	62	62	12
Total	7128	0	0	7	96	91	89	89	89	86

C. ARI Control Program in North Sinai

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The program was initiated in 1991 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the ARI Control Program in North Sinai

- Public access to standard case management (estimated) 80%
- Installation in Health Districts 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 51%
- Children Treated For Severe ARI* in 1995 (number in 1994-- 1511) 1,202

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually:3,000)

MCH Laboratory Up-Grading Program

Two health centers were selected by the by the North Sinai Health Directorate for up-grading (list below) which took place during 1992-94. Inputs included provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in North Sinai

1. El-Arish MCH	Arish District
2. El-Sheikh Zowaid MCH	Zowaid District.

Neonatal Care Facilities in North Sinai

Three first referral neonatal care centers were established and developed during 1991-95 in three of the six districts. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters. In 1995, the two centers for which admittance data is available provided care for 48 neonates, of whom 45% were referrals from outside the hospital. The number of admittances is equivalent to about 11% of an indicated need for first referral care for about 430 infants in the two districts.[2] The number of LBW infants in the governorate in 1995 is estimated in the range 700-1,000.

Further development of a referral system for neonates needing first level care is required.

Neonatal Care Centers Established in North Sinai,1991-95

Hospital	District/1995 Births	Incubators Supplied	Admittances 1995
1. El Arish General Hospital.	El-Arish/2689	5	42
2. Rafah Hospital	Rafah/1588	2	6
3. El-Sheikh Zowaid Hospital	Zowaid/1337	1	na
Total	3 Districts/5614	8	48

Delivery Rooms Up-graded

Four delivery rooms in four of the 6 districts were selected by the Health Directorate to be up-graded. Inputs included renovation, supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El-Arish Hospital	El-Arish District
2. Rafah Hospital	Rafah District
3. El-Sheikh Zowaid Hospital	Zowaid District
4. Beir El-Abd Hospital	Abd District

Further work is required in training delivery room staff and development of use of performance services to ensure high quality of emergency and routine obstetrical services.

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[1]MOH/CSP and USAID. Egyptian National Neonatal Care Program. *Guidelines for Egyptian Hospital Nurseries*. 1996

[2]Need based on estimated proportion of LBW infants among births.

[3]MOH/CSP and USAID. *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director. Dr. M. Kassas in Child Spacing Technical Series. Issue #2). Cairo. March 1994.

9 ARI Training Accomplished in North Sinai

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	3	4	0	0	7
Specialists	(2)*	4	0	1	5
PHC Physicians	82	0	27	0	109
Nurses	0	0	28	0	28
Pharmacists	0	0	6	0	6
Nursing School Teachers	0	0	0	0	(p)
Health Education Officers	0	0	0	0	..(p)
Total	85	8	61	1	153

*Trained OTJ as trainers p-planned for 1996.

10. ARI Cases Registered

	1993	1994	1995	1993	1994	1995	Sentinel
	---------number -------			-------Percentage Distribution------			
Very Severe Disease	158	67	)	1.40	0.46	)	0.80
Severe Pneumonia	260	145	)1202	2.31	0.99	) 7.39	2.40
Pneumonia	1288	1299	)	11.45	8.89	)	8.60
Otitis Media	1361	1827		12.09	12.51		12.50
Pharyngitis	3160	3859		28.09	26.42		24.20
Cough/Cold/Bronchitis	5026	7412		44.66	50.74		46.40
Total	11253	14609	16255	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Health Agents Trained in PHC Facilties To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train physicians and nurses to monitor, supervise and train dayas.in the following health districts:

-
-
-
-

Arrangements should be made by the Health Directorate to continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas.

Training will be required for PHC staff as daya trainers and in management of the daya program as new personnel are assigned to the system. . Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Students of Nursing

EPI trained 5 teaching staff in the secondary school of nursing in North Sinai and provided reference materials for teaching in these schools in 1993. The ARI control program has scheduled training of teaching staff of the secondary nursing school in 1996.

Baby Friendly Hospital/Health Centers

The Baby Friendly program was installed in 1995 in:

- El-Areesh General Hospital
- El-Areesh MCH Center

2. Training for MCH Care

- __ PHC physicians and __ PHC nurses were trained in MCH care in 1994 and 1996.
- 20 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 5 laboratory technicians trained in MCH laboratory analysis, 1992-94
- 10 physicians and 15 nurses were trained in neonatal care, 1992-95
- 49 physicians and 44 nurses trained in neonatal resuscitation, 1995
- 38 physicians and 21 nurses trained for the BF-baby friendly program, 1995
-

E. Project-Wide Child Survival Interventions in North Sinai

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Training was conducted to strengthen health planning and management. .

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96.The program has also been installed in most district health offices. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1). North Sinai is putting the system into effect starting in 1996..

3. Clinic Management Improvement Program:

This program has been initiated in 13 other governorates.

4. Mobilization of Health Education Offices

- A health education officer participated in a workshop on key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.

- Training of health education officers and and other health agents in ARI health education is scheduled by the ARI Control Program in 1996.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices is the availablility of trained dayas in as key influentials in community health.

May 1996

CSP Data Sheet For Port Said Governorate

Population

Total (Jan 1995 CAPMAS est.) - 100% urban.....467,000
1994 Births/Women needing maternal services.....9,381
1995 Births/Women needing maternal services.....9,518
Children Under 5 (1994 est.).....41,000
Women of Reproductive age (22% of pop.).....103,000

Health Infrastructure

No. of District Health Offices (no districts in Port Said).....0
No. of Health Bureaux.....4
No. of MCHs (3) /Urban Health Centers(2).....5
No. of RHCs- 0 , RHUs - 8, and rural hospitals - 0.....8
No. of general (3), district (0) and fever (1) hospitals.....4
No. of health education offices.....1

MOH Health Agents:

No. of MOH - PHC physicians (1993 est.).....106
No. of MOH nurses (1993 est.).....971?
No. of Pediatricians (1933 estimate.....13
No. of health education staff.....2

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	36	29	na	- 19%	60	41	32
Child (1 thru 4) Mortality	2.5	0.9	na	- 64 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program: Initiated in 1994 in Kuweiti and Zahour UHCs.

Expanded Program of Immunization

No. vaccination units.....13
No. Cold Chain deep freezers (5) and refrigerators (4) - April 1995.....48
No. of PHC staff trained in EPI, 1989-95.....770
Routine infant/child immunizations in 1993 (vacc. rate - 84%).....106,455
Women immunized TT2 in 1994 (4238 in 1993).....3,520
Women immunized TT2 in 1995.....3,199
Women immunized TT3/4/5 in 1994.....2,540
Women immunized TT3/4/5/ in 1995.....2,011

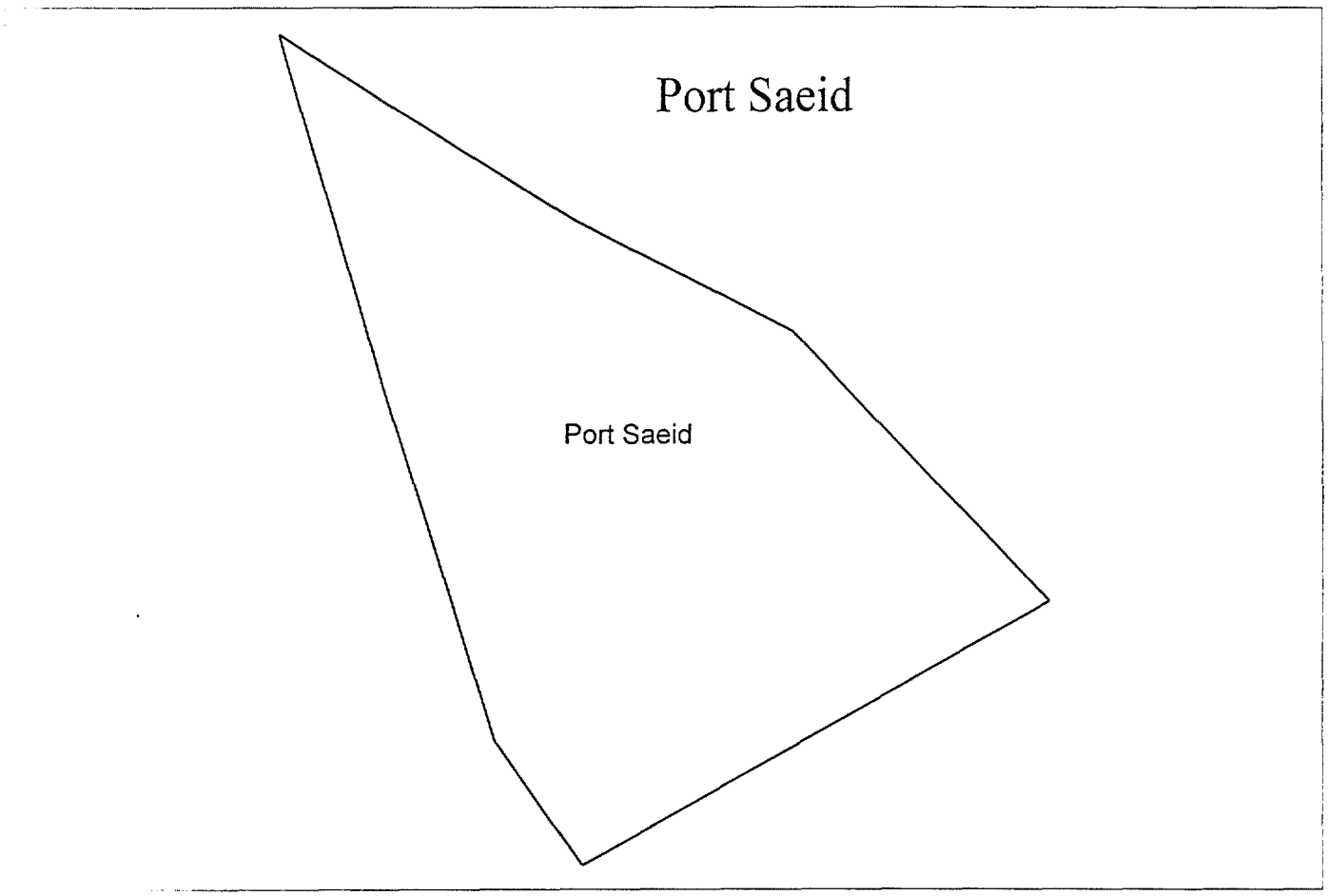
Key vaccination rates in 1993/94/95 (%): BCG - 93/91/89 DPT3 - 92/95/93
TT2+ - 74/65/955 Measles - 89/94/93 HB3 - 85/93/93 OPV3 - 94/93/93

Polio Cases:	1991 - 0	1992 - 0	1993 - 0	1994-0	1995-0
NNT Cases:	1991 - 0	1992 - 4	1993 - 0	1994-0	1995 -0

ARI Program • Initiated in 1992 • 406 health agents trained (23 pediatricians, 127 PHC physicians, 200 PHC nurses, 56 others) • 863 cases of severe ARI in children<5 years treated in MOH out-patient facilities in 1995 (1199 cases in 1994) • Compliance in ARI case registration in 1995-41% • Est. Pop.Access to SCM-90%.

CS/MCH Program • 318 PHC physicians trained in MCH service delivery, 1991-1994 •__ daya trainers and monitors trained, 1993-94 • 80 dayas trained, 1993-1994 •115 doctors and 90 nurses and dieticians trained in maternal and infant nutrition, 1989-91 • 39 food inspectors trained in nutrition, 1990-91 • 2,896 women received antenatal care (initial visit) in MOH health facilities in 1992-35% ANC coverage • 3 MCH laboratories upgraded-34 laboratory technicians trained •3 neonatal intensive care centers established (10 incubators) -35 physicians and 24 nurses trained in neonatal care - 297 neonates treated in 1995. • 49 physicians and 44 nurses trained in neonatal resuscitation procedure • Baby Friendly Program initated in El Nasr general hospital and in Kuweiti UHC - 11 physicians and 8 nurses trained.in 1994 • Maternal mortality assessment completed in 1992/93 - Maternal Mortality Rate-152 (95% confidence interval, 67-328) - National MMR = 174.• Four first-referral level delivery rooms being up-graded. - 59 obstetricians trained • Proportion of deliveries managed by a trained birth attendant >80% (1993 estimate).

596


Port Saeid
Port Saeid

2. EPI Training in Port Said - 1989-95

PHC Physicians*	230
PHC Nurses*	472
Sanitarians*	43
Clerks	25
Total	1911

*Including health managers

3. Infant Immunization Coverage Sustained in Port Said

	BCG	Measles	HB	OPV3	DPT3
1987*	98.5	89.2	0	96.7	96.2
1990*	95.7	89.1	0	91.4	91.9
1993#	93	89	74	94	92
1994#	91	94	92	93	95
1995#	89	93	87	93	93

4. TT Immunization (of Pregnant Women) in Giza

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			30.4
1990*			67.9
1993#	4,238	na	74%
1994#	3,530	2,540	65%
1995#	3,199	2,011	55%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

May 1996

PORT SAID-Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	467,000
1995 Births/Women needing maternal services	9,591
Women of Reproductive age (22% of 1995 pop.)	103,000
No. of children under 5 years of age [est.1994]	41,000

2. Births (1993, 1994, 1995)

1993 Births	1994 Births	1995 Births
9,016	9,381	9,519

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	36	29	na	- 19%	60	41	32
Child (1 thru 4) Mortality	2.5	0.9	na -	- 64 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	4
No. of MCHs - 3/ UHCs -	5
No. of RHCs -0, rural hospitals - 0 and RHUs - 8	8
No. of general (3), district (0) and fever (1) hospitals	4
No. of health education offices	1

5. MOH Health Agents

No. of PHC physicians	106
No. of nurses	971?
No. of hospital based pediatricians(1993 data).	13
No. of health education staff	2

B. Expanded Program of Immunization in Port Said

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Units	12
• No. of Deep Freezers (5) and refrigerators (43) - April 1995	48
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

5. ARI Targeted Hospitals - Port Said

Four hospitals in Port Said are targeted for the ARI Control Program:

- Port Said General Hospital - Several pediatricians trained; 1 ped. trained in Dec. 1995
- El Nasr General Hospital - 1 pediatricans trained in Nov. 1994, others trained earlier. 2 pediatricians trained in December 1995
- Port Fouad General Hospital - 2 pediatricians trained in November.1994
- Port Said Fever Hospital - 2 pediatricians trained in December 1994

6. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department..

7. ARI Training Facilities in Port Said

Two ARI training centers were established:

- Port Said Nursing School (1992)
- Kuweiti Health Center (1992)

7. Training in ARI Control Accomplished in Port Said

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	4	1	0	2	7
Pediatricians	4	3	10	5	23
PHC Physicians	91	--	36	0	127
Nurses	40	80	80	0	200
Pharmacists	--	--	21	0	21
Nursing School Teachers	--	--	--	0	--
Model Clinic Training	--	--	14	0	14
Health Eduction Officers	--	--	--	15	15
Total	139	84	161	22	406

8. Cases of ARI Registered in Port Said

	1993	1994	1995	Percentages 1993	1994	1995	Sentinel
	----------number----------						
Very Severe Disease	79	42		0.60	0.20		0.70
Severe Pneumonia	292	118		2.40	0.50		1.70
Pneumonia	828	793		6.70	3.50		7.80
Otitis Media	1304	811		10.60	3.60		8.30
Pharyngitis	4223	8788		34.20	38.90		26.20
Cough/Cold	5619	12064		45.50	53.30		50.00
Total	12345	22626	22520	100.00	100.00	100,00	100.00

5. Reported Polio and Neonatal Tetanus Cases in Port Said

	1991	1992	1993	1994	1995
Polio Cases:	0	0	0	0	0
NNT Cases	0	4	0	0	0

C. ARI Control Program

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program in Port Said - End 1995

- Public access to standard case management (estimated) 90%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 41%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-- 1199) ____

*pneumonia, severe pneumonia, and very severe disease- Min. no.expected cases annually:10.000)

2. Health Facilities in Port Said with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (total targeted, 13) 10 (est. 90%)
- Targeted Hospitals (total targeted-in Patient and Out Patient , 4) 4 (est. 100%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 102 respiratory timers,
- 3 oxygen concentrators
- 2 oxygen cylinder sets
- 4 nebulizers
- 1 oximeter
- 190 otoscopes

4. Drugs Supplied to Port Said by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	0	14600	7300	12288	9561
of which Amox 125 ml	0	(3100)	(2700)	(2020)	(2738)
Paracetamol 120 cm	0	5100	2500	2020	1200
Expectorant	0	4800	0	0	0
LA Penicillin	0	0	0	1000	667
Salbutamol Syrup	0	0	0	0	1200

In 1995, the three centers provided care for 297 neonates, of whom 38% were referrals from outside the three hospitals. The number of admittances is equivalent to about 22% of an indicated need for first referral care for about 950 infants in the six districts[3] The number of LBW infants in the governorate in 1995 is estimated in the range 950-1,500. Further development of a referral system for neonates is required in Port Said during 1996-2000.

Neonatal Care Centers Established in Giza 1991-95

Hospital	1995 Births in Port Said	Incubators Supplied	Admittances 1995
1. Port Said General Hospital.		2	40
2. El-Nasr Hospital		8	216
3. Port Fouad Hospital		2	41
Total	9518	12	297

Delivery Rooms Up-graded

Four delivery rooms in eight of the 14 districts were up-graded. Inputs have included renovation, supply of equipment, development of standards[4] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El-Nasr General Hospital
2. Port Foad General Hospital
3. Kuweiti Medical Center (&Model Clinic)
4. Zahuur Medical Center.

Further work is required in training delivery room staff and development of use of performance services to ensure high quality of emergency and routine obstetrical services.

Baby Friendly Hospital/Health Centers

The Baby Friendly program was installed in 1995 in:

- El-Nasr General Hospital
- Kuweit Medical Center

2. Training for MCH Care

- 318 physicians were trained in child spacing and MCH care, 1989-1995
- 80 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- __physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 115 physicians trained in mother child nutrition, 1990-1991
- 90 nurses and dieticians trained in mother-child nutrition, 1990-91
- 39 food inspectors trained, 1990-91
- 34 laboratory technicians trained in MCH laboratory analysis, 1992-94
- 35 physicians and 24 nurses were trained in neonatal care, 1992-95
- 49 physicians and 44 nurses trained in neonatal resuscitation, 1995
- 101 physicians and 72 nurses trained for the BF-baby friendly program, 1995
- 59 obstetricians trained, 1995.

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[3]Need based on estimated proportion of LBW infants among births.

[4]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

E. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Health Agents Trained in PHC Facilties To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train physicians and nurses to monitor, supervise and train dayas.as part of the work of the primary health care system. The 80 dayas trained and certified (as having been trained) in these districts provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Port Said ,as well as assurances of safer deliveries for Port Said women.[1]

Arrangements should be made by the Health Directorate to continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas. Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

Three health centers were selected by the by the Port Said Health Directorate for up-grading (List below) which took place during 1992-93. Inputs included provision of equipment and supplies, training of laboratory staff and field monitoring.visits. A program evaluation in 1994 found the three lab oratories operating satisfactorily. .

MCH Laboratories Up-Graded in Port Said

1. Menakh MCH
2. Kuweiti UHC (model clinic) Ba
3. Zahour UHC (participating in Clinic Management Improvement Program)

Neonatal Care Facilities in Port Said

Three first referral neonatal care centers were established and developed during 1991-95. Inputs including training, advisory services, development of service standards[2] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

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[1]The proportion of deliveries in CAiro managed by a trained birth attendant (doctor, nurse or trained daya) is estimated to exceed 90% (1993 estimate).

[2]MOH/CSP and USAID. Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

May 1996

QENA- Health and Child Survival Program Data

Covring EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 23% urban	2,570,000
1995 Births/Women needing maternal services	60,623
Women of Reproductive age (22% of 1995 pop.)	565,000
No. of children under 5 years of age [est.]	408,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Abo Tesht	10099	9770	9418
Farshoot	4012	3899	3855
Nage Hamadi	11704	11622	10980
Deshna	8406	9039	8713
Al Wakf	1664	1841	1702
Qena	13925	13375	13080
Qaft	3360	3167	3260
Qous	10029	9916	9148
Nakada	3622	3384	3242
Markz El Luxor	5638	5506	5354
Armant	4678	4555	4321
Essnaa	8200	8635	8993
Total	85337	84709	82006

3.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	104	56	na	- 46%	60	41	32
Child (1 thru 4) mortality	12.8	6.3	na	- 51%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux.....12
No. of MCHs - 10/ UHCs - 10.....20
No. of RHCs -33, rural hospitals - 7 and RHUs - 137.....177
No. of general (1), district (10) and fever (6) hospitals.....16
No. of health education offices.....8

5. MOH Health Agents

No. of PHC physicians.....541
No. of nurses.....267
No. of hospital based pediatricians(1993 data)..... 23
No. of health education staff.....12

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6. Distribution of Qena Health Facilities by District*

Districts (12) Qena	Population*	----------Hospitals and Primary Health Care Facilities----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Qena	414,969	1	0	1	1	0	5	1	16
2. Abo Tesht	280,438	0	1	1	1	0	5	1	23
3. Farshoot	102,404	0	1	0	1	0	1	0	8
4. Nage Hamadi	321,629	0	1	1	1	1	5	1	20
5. Deshna	239,275	0	1	1	1	1	5	1	9
6. Al Wakf	54,541	0	1	0	0	4	0	0	3
7. Qaft	99,861	0	1	0	1	0	1	0	5
8. Qoos	274,761	0	1	0	1	0	3	0	11
9. Nakada (Taada)	113,329	0	1	0	1	0	1	0	13
10. Markaz El Luxor	177,809	0	0	0	0	2	0	1	10
11. Armant	154,524	0	1	1	1	1	1	1	8
12. Essna	266,335	0	1	1	1	1	6	1	11
Total	2,652,000*	1	10	6	10	10	33	7	137

Source: Qena Health Directorate, 1994 data, and 1995 ARI/CRS Data Book. *Excludes El Luxor City

B. Expanded Program of Immunization

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

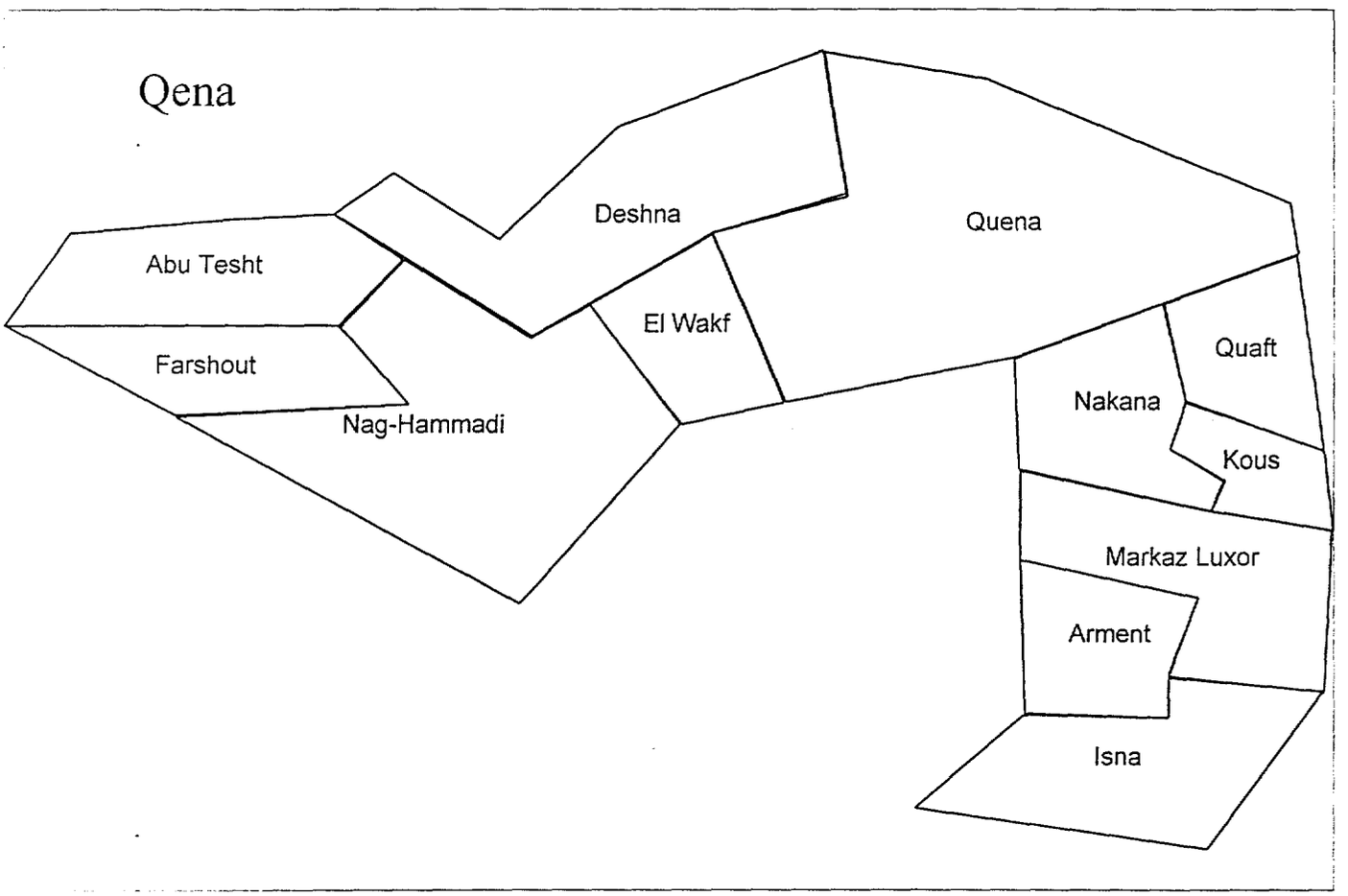
1. Immunization Facilities

- No. of vaccination units 186
- No. of Cold Chain deep freezers (29) and refrigerators(595) - April 1995 624
- Central Governorate Vaccination Storage Facility 1
- District Vaccination Storage Faculties 13
- Cold Chain Repair and Maintenance Work Shop 1

2. EPI Training - 1989-95

PHC Physicians*	870
PHC Nurses*	720
Sanitarians*	793
Clerks	264
Total	2847

*Including health managers


Qena
Deshna
Quena
Abu Tesht
El Wakf
Farshout
Quaft
Nakana
Nag-Hammadi
Kous
Markaz Luxor
Arment
Isna

May 1996

CSP Data Sheet for Qena Governorate

Population

Total (Jan 1995 - CAPMAS est.) - 23% urban.....2,766,000
1994 Births/Women needing maternal services 84,709
1995 Births/Women needing maternal services.....82,006
Est. no. of children under 5 years of age.....508,000
Women of Reproductive age (22% of pop.).....565,000

Health Facilities

No. of Health Bureaux.....12
No. of MCHs - 10/ UHCs - 10.....20
No. of RHCs -33, rural hospitals - 7 and RHUs - 137.....177
No. of general (1), district (10) and fever (6) hospitals.....16
No. of health education offices.....8

Districts(12)/Births(1993/94/95) • Abo Tesht (10099/9770/9418), Farshoot (4012/3899/3855), Nage Hamadi(11704/11622/10980), Deshna (8406/9039/8713), Al Wakf (1664/1841/1702), Qena (13925/ 13375 13080), Qaft (3360/3167/326-), Qous(10029/9916/9148), Nakada (3622/3384/3242), Markz El Luxor (5638/ 5506/5354) , Armant (4678/4555/4321), and Essnaa (8200/8635/8993). All but one district (Essnaa) achieved at least to 80% infant vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians (Mid Term Eval.).....541
No. of nurses.....267
No. of hospital based pediatricians(1993 data).....23
No. of health education staff.....12

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	104	56	na	- 47%	60	41	32
Child (1 thru 4) mortality	12.8	6.3	na	- 51%	7.4	4.0	3.2

CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....186
No. Cold Chain deep freezers (23) and refrigerators (556)..... 579
No. of PHC staff trained in EPI, 1995.....2,847
Infant/child immunizations provided in 1993 (vacc. rate-88%).....625,000
Women immunized TT2 in 1993 ...../.....70,610
Women immunized TT2 in 1994 (excl. Bandr Luxor).....m 95 - 24336.....36,584
Women immunized TT3/4/5 in 1995 (excl Bandr Luxor)...m 95 - 41,709..... .32,610
Key vaccination coverage rates in 1993/94 95(%) BCG - 91/92/100 DPT3 - 90/87/98
TT2+ - 67/81/81 Measles - 89/84/102 HB3- 67/81/91 OPV3 - 90/87/98

Polio Cases:	1991 - 71	1992 - 49	1993- 8	1994 - 2	1995 - 7
NNT Cases*:	1991 - 164	1992 - 124	1993- 91	1994 - 66	1995 - 59

*Four districts failed to achieve NNT elimination (less than 1 NNT case per 1000 live births) in 1995.

ARI Program • Initiated in 1992 • Health agents trained-968 (8 pediatricians, 472 PHC physicians, 463 nurses, 43 others) • 6,870 cases of severe ARI in children <5 years treated in 1995 (15161 cases in 1994) • 80% compliance in ARI case registration in 1995 • Public access to standard case management estimated at 90%.

CS/MCH Program • 210 PHC physicians trained in CS/MCH, 1995-96 • 757 dayas trained (MOH/UNICEF) • 4 MCH laboratories up-graded • Number and proportion of pregnant women receiving ante natal care in MOH facilities: not available • 1 neonatal care centers established (5 incubators) - 41 physicians and 18 nurses trained in neonatal care - 265 neonates treated in 1995 • 50 physicians trained in neonatal resuscitation, 1995.• Baby Friendly program initiated (UNICEF/MOH) • Maternal mortality assessment carried out in 1992/93 - Maternal Mortality Rate - 386 (95% confidence interval, 277 - 535) -. National average - 177. - A second survey of maternal mortality carried out, November 1994 (Egypt-Italian cooperation) found a ratio of 320 deaths per 100,000 live births • 11 first-level referral level delivery rooms being up graded - 37 obstetricians trained. • Proportion of deliveries managed by a trained birth attendant - 75%.(1993 estimate).

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates.[5] A committee was established in Port Said by the Under Secretary for Health to conduct the study in the governorate.[6] The committee reviewed 22 cases of female deaths and identified 7 as maternal deaths, leading to an estimate of maternal mortality ratio (MMR) of **152** maternal deaths per 100,000 live births, with a 90% confidence interval of 67-366..The national MMR was found to be **174.**[7]

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000.

This implies a reduction of maternal mortality ratio in Port SAid by year 2000 to **76** maternal deaths per 100,000 births through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

4. Port Said Participation in the National Low Birth Weight (LBW) Study

A pilot study carried out in 1994 in Qalyubia indicated that: i) neonatal mortality among LBW infants is six times greater than among neonates weighing ≥ 2500 grams at birth; ii) birth interval from last pregnancy is the greatest risk factor, and iii) dayas can be used effectively in field studies of LBW.

Based on the pilot study a national low birth study has been carried out to: i)estimate the magnitude and distribution of LBW nationally l ii) describe the population of pregnant women who experience LBW; iii) identify risk factors for LBW from maternal. fetal, environmental and health care perspectives; and ib) determine birth weight specific mortality and morbidity. Field work for this study was completed in 1995-96 in six governorates.

Port Said Governorate participated with 755 deliveries monitored. A preliminary result of the national study is the wide variance noted in LBW incidence among participating governorates ranging from under 10 to over 17 per 100 live births. A report of the results of the study in preparation.

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[5]MOH/CSP-USAID, *National Maternal Mortality Study, Findings and Conclusions, Egypt, 1992-1992*, Cairo, July 1994.

[6]Members of the Committee were Dr. Mahmoud Farag Oweda, Dr. Said Mohammed El Maghrabi, Dr. Mohammed Mosaas Abou El-Regal, Dr. Abdel-Rahmaman El-Batouty, Dr. Mohammed Naguib Shehata and Dr. Magdi Mohammed El-Dessouki.

[7]A previous study carried out by Forney et al. in 1985-86 had identified 153 maternal deaths and an MMR of 153. (Noted on page 18 of the National Maternal Mortality Study).

C. ARI Control Program in Qena

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 81%
- Children Treated For Severe ARI* - number in 1995 (number in 1994-15161) 6,870

*pneumonia, severe pneumonia, and very severe disease - Min. no.expected cases annually:50,000

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities 177 (est. 90%)
- Targeted Hospitals (total in Patient and Out Patient - 17) 14 (est. 82%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

- 944 respiratory timers
- 18 oxygen concentrators
- 4 oxygen cylinder sets
- 6 nebulizers
- 1 oximeter
- 220 otoscopes

4. Drugs Supplied to Qena by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	--	20500	39900	65888	49694
(of which Amox 125 ml)	(--)	(5800)	(14800)	(11584)	(15383)
Paracetamol 120 cm	--	3300	14400	6900	6900
Expectorant	--	1500	--	--	--
LA Penicillin	--	--	--	5500	3667
Salbutamol Syrup	--	--	--	--	6900

5. ARI Health Education:

Being developed with the Health Education Department of the Qena Health Directorate and with District Health Education officers.

3. Infant Immunization Coverage Attained in Qena

	BCG	Measles	HB	OPV3	DPT3
1987*	26.4	48,5	0	57.3	54.8
1990*	78.6	79.3	0	80.4	79.0
1993#	91	89	67	90	90
1994#	92	84	81	87	87
1995#	100	102	91	98	98

4. TT Immunization (of Pregnant Women) Attained in Qena

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			7.7
1990*			63.2
1993#	70,610	na	67%
1994#	36,584	32,610	81%
1995#	24,336	41,709	81%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	71	49	8	2	7
NNT Cases*	164	124	91	66	59

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which Polio	AFP Cases of which Non Polio	NNT Cases	----Immunization Coverage Attained in 1995---- BCG	Measles	HB3	OPV3	DPT3	TT2+
Abo Tesht	9418	0	3	0	90	91	88	88	88	116
Farshoot	3855	0	1	4	106	104	99	99	99	52
Nage Hamadi	10980	0	0	11	100	99	100	100	100	130
Deshna	8713	2	0	10	90	98	90	90	90	51
Al Wakf	1702	2	0	10	92	105	97	97	97	65
Qena	13080	2	4	5	103	111	107	107	107	47
Qaft	3260	0	0	2	102	108	99	99	99	47
Qous	9148	1	1	11	119	128	118	118	118	114
Nakada	3242	0	0	0	97	105	98	98	98	100
Markaz El Luxor	5354	0	1	5	113	107	109	109	109	62
Armant	4321	0	0	0	113	108	96	96	96	90
Essnaa	8993	0	0	1	89	79	80	79	77	55
Total	82006	7	10	59	100	102	98	98	98	81

7. ARI Targeted Hospitals

20 hospitals have been and are targeted for in patient and out patient care of ARI (see following list). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment.and monitoring. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) and conitnued monitoring is required.

ARI Targeted Hospitals - Sohag

1. Sohag General Hospital	-April 1995 report: 4 pediatricians and 2 assistant pediatricians trained; 5 nurses untrained.
2. Sohag Fever Hospital	- 16 pediatricians, 5 residents, 6 nurses: all trained
3. El Maragha District H.	-May 95 report: 2 ped. and 1 nurse trained
4. El Maragha Fever H.	-Oct 94 report: 2 pediatricians trained
5. Tahta District Hospital	- 2 pediatricians, 1 residents, 4 nurses: trained (3/95 report).
6. Tahta Fever Hospital	- 4 pediatricians and 1 nurse trained (August 1995 report).)
7. Tema District Hospital	- 6 pediatricians, 4 nurses trained (8/95 report).
8 Tema Fever Hospital	- 3 pediatricians and 2 nurses trained.(8/95 report)
9. Gehina District H.	- 2 trained ped. 1 nurse not trained (May 1995 report).
10. El Menshaa District H.	-3 pediatricians, 2 nurses trained (Sep 94 report)
12 Girga General Hospital	-5 pediatricians, 2 nurses: trained.
13. Girga Fever Hospital	-3 trained specialists; no nurses trained(July 95 report)
14. El Balina District H.	-2 pediatricians/3 nurses trained [Dec 1994 report).
15. El Balina Fever H.	-6 pediatricians/4 nurses (Dec 94 report)
16. Sakolta District Hospital	-{pediatrician visits 3 times weekly from Akhmim)
17. Sakolta Fever Hospital	-1 pediatrician/2 nurses: trained (Feb 94 report)
18 Akhmim District H.	-5 pediatricians, 3 residents, 2 nurses: all trained
19. Akhmim Fever H.	-5 pediatricians, 1 resident doctor: trained
20. Dar Es Salem District H.	-2 pediatrician trained, 2 nurses not trained. (12/95 report)

7. ARI Training Facilities

ARI training facilities were established in Sohag in 1992 with UNICEF assistance in:

- Sohag General Hospital
- Ten district hospitals[1]

[1]Akhmieme, Dar El Salam, El Ballina, El Maragha, El Menshaa, Girga, Gihina, Sakolta, Tahta and Tema.

9. ARI Training Accomplished in Sohag

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	12	8	0	0	20
Specialists	6	19	0	3	28
PHC Physicians	208	259	0	0	467
Nurses	216	180	0	0	396
Pharmacists	0	0	0	29	29
Nursing School Staff	0	0	0	22	22
Health Education Officers	0	0	0	22	22
Total	444	466	0	76	986

10. ARI Cases Registered in Sohag, 1993 - 1995

	1993	1994	1995	Percentages 1993	1994	1995	Sentinel
	number						
Very Severe Disease	192	654	)	0.76	0.77	)	1.10
Severe Pneumonia	822	2400	)26191	3.25	2.83	)50.38	4.60
Pneumonia	6036	18848	)	23.88	22.20	)	13.10
Otitis Media	3643	12152		14.41	14.31		8.80
Pharyngitis	4551	14915		18.01	17.57		18.10
Cough/Cold	29,111	35930		39.66	42.32		50.10
Total	66,980	84898	51982	100.00	100.00	100.00	100.00

E. The Child Spacing and MCH Program in Sohag

The aim of the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the objective of reducing maternal, infant and child mortality and morbidity. Actions undertaken included

- Action For Safe Motherhood and Reduction of Maternal Mortality
- Action to Improve Neonatal Care
- Action to Strengthen CS/MCH Service Delivery

1. Actions For Safe Motherhood and Reduction of Maternal Mortality

Actions to develop safe motherhood and reduce maternal mortality and morbidity carried out in the 1988-96 period of the Child Survival Project include:

- Maternal Mortality Survey, 1992-93
- Improvement of First Referral Delivery Room Facilities
- Training of Dayas For Improved Safety and Practice in Home Deliveries

May 1996

SOHAG - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 40% urban	3,067,000
1995 Births/Women needing maternal services	100,185
Women of Reproductive age (22% of 1995 pop.)	675,000
No. of children under 5 years of age [est.]	498,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
Sohag	15,370	15442	15102
El Maragha	8,126	7528	8296
Tahta	9,196	9826	9115
Tema	8,955	9169	8518
Gohina	5,705	5558	5479
El Manshaa	11,323	11446	11013
Gerga	12,212	11712	11168
El Balina	11,361	10711	10091
Sakolta	4,702	5016	4764
Akhmi	7313	7406	7526
Dar El Salam	9,034	9188	9113
Total	103,297	103,002	100,185

3. Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	88	48	42	- 52%	60	41	32
Child (1 thru 4) mortality	12.5	6.6	6.7	- 42%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	17
No. of MCHs - 9/ Urban Health Centers - 4	13
No. of RHCs - 35, rural hospitals - 8, RHUs - 152)	195
No. of general (2), district (9) and fever (8) hospitals	19
No. of health education offices	12

5. MOH Health Agents

No. of PHC physicians.....278
No. of nurses.....356
No. of pediatricians- hospital based.....20
No. of health education staff.....20

6. Distribution of Sohag Health Facilities by District*

Districts (11):	Population (1994)	----------Hospitals and Primary Health Care Facilities----------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Sohag	470,901	1	0	1	1	1	8	1	9
2. El Maragha	253,230	0	1	0	1	0	4	1	14
3. Tahta	302,334	0	1	1	0	1	4	2	11
4. Tema	276,707	0	1	1	1	0	3	1	17
5. Gehina	165,881	0	1	0	0	1	0	1	10
6. El Manshaa	325,367	0	1	1	1	0	5	0	19
7. Girga	331,182	1	0	1	1	1	3	0	17
8. El Ballina	315,619	0	1	1	1	0	3	1	18
9. Sakolta	132,025	0	1	1	1	0	3	0	9
10. Akhmim	236,228	0	1	1	1	0	0	1	11
11. Dar Es Salam	241,051	0	1	0	1	0	2	0	17
Total	3,050,525	2	9	8	9	4	35	8	152

*Source: Population - Sohag Health Directorate. Health Facilities - 1995 ARI/CRS Data Base.

B. Expanded Program of Immunization in Sohag

EPI goals include: sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

Immunization Facilities

• No. of vaccination units	226
• No. of Cold Chain deep freezers (29) and refrigerators(615)	644
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	11
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	1288
PHC Nurses*	617
Sanitarians*	871
Clerks	197
Total	2973

*Including health managers

3. Infant Immunization Coverage Trends in Sohag

	BCG	Measles	HB	OPV3	DPT3
1987*	13.7	54.0	0	62.7	54.8
1990*	56,0	71.7	0	73.7	79.0
1993#	84	78	58	73	78
1994#	116	99	89	90	90
1995#	95	90	93	94	93

*Vaccination coverage surveys - children 12-23 months. #EPI Service Statistics

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			10.3
1990*			57.1
1993#	na	na	72%
1994#	49,341	29,366	75%
1995#	139,319	144,112	183%**

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics
**TT immunizations in 1995 extended beyond pregnant women to all women of reproductive age.

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	96	59	11	21	5
NNT Cases	453	310	219	190	146
Measles*	na	293	600	31	83

*All ages,reported by Sohag Health Directorate based on increased surveillance by Fever Hospitals since 1993.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	----Immunization Coverage Attained in 1995----					
		Polio	Non-Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Sohag	15102	1	3	18*	96	88	89	89	89	283
El Maragha	8296	0	0	19*	88	87	87	88	89	403
Tahta	9115	0	0	15*	93	90	87	91	88	264
Tema	8518	1	2	1	99	105	109	109	109	50
Gohina	5479	0	0	11*	96	89	94	94	92	314
El Manshaa	11013	0	1	26*	96	94	97	98	98	384
Gerga	11168	0	0	10	104	91	103	103	103	265
El Balina	10091	0	0	15*	97	86	94	94	94	299
Sakolta	4764	0	0	16*	96	102	105	105	105	373
Akhmi	7526	0	1	9*	90	87	84	84	84	251
Dar El Salam	9113	3	2	5	90	82	80	80	80	252
Total	100,185	5	9	146*	95	90	93	94	93	283

*8 Districts failed to attain NNT elimination (<1 case per 1000 live births).

D. ARI Control Program in Sohag

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Sohag was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management is estimated at 90%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting 77%
- Children Treated For Severe ARI* -_number in 1995 (number in 1994-22210 26,191

*pneumonia, severe pneumonia, and very severe disease - Minimum. no.expected cases annually:50,000.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all PHC facilities, 208, targeted) 187 (est. 90%)
- Hospitals (Total targeted - 20) 18 (est. 90%)

3. Equipment Provided ARI-Targeted Health Facilities (Through 1995)

- 1061 respiration rate timers
- 9 nebulizers (hospitals)
- 9 oxygen concentrators (hospitals)
- 1 oximeter
- 13 oxygen cylinder delivery sets(hospitals)
- 220 otoscopes

4. Drugs Supplied to Sohag by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	9500	26000	52400	86804	65079
(of which Amox 125 ml)	(--)	(10200)	(19500)	(15190)	(20246)
Paracetamol 120 cm	2000	9000	19100	9100	9100
Expectorant	2000	7100	--	--	--
LA Penicillin	1500	--	--	7000	4867
Salbultamol Syrup	--	--	--	--	9100

5. ARI Health Education

ARI health education in Sohag is being developed with the Health Education Department of the Sohag Health Directorate and with District Health Education officers.

6. ARI Hospital Laboratory Up-Graded

The laboratory in Sohag Fever Hospital was up-graded in 1995-96 in order to improve capability to iisolate ARI bacteria for the diagnosis and treatment of ARI and to monitor for microbial drug resistance.

2 Improvement of First Referral Delivery Room Facilities

Ten delivery rooms in ten districts were up-graded. This program was initiated in 1993-94 in Sohag General Hospital and in the District Hospitals of Akhmim and Gehina. In 1995-96, the program was extended to other districts. Inputs have included renovation, supply of equipment, development of standards[5] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation. Experience to date indicates further work is needed for training of delivery room staff, monitoring and introduction of the use of standards for emergency and routine obstretical care

Delivery Rooms Up-Graded in Sohag

1.Sohag General Hospital	Sohag District
2.El Menshaa Hospial	El Menshaa District
3.El Balina Hospital	El Balina District
4.Dar El Salam Hospital	Dar El Salaam District
5.Tahta Hospital	Tahta District
6.El Maragha Hospital	El Maragha District
7.Girga Hospital	Girga District
8.Tema Hospital	Tema District
9.Akhmim Hospital	Akhmim District
10. Gohina Hospital	Gohina District

3 Training of Dayas For Improved Safety and Practice in Home Deliveries

The MOH with UNICEF assistance trained physicians and nurses to monitor, supervise and train dayas in all districts of Sohag (Figure 1). The 1,085 dayas trained safer deliveries. Deliveries by trained dayas in 1994 are estimated to total at least 35,000-40,000 deliveries.The proportion of deliveries managed by a trained attendent (physician, nurse-midwife or trained daya) was estimated at over 80% in 1993.

Figure 1 Dayas Trained for Safe Motherhood in Sohag

District	Estimated Number Births (1994)	Home Deliveries#	Number of Trained Dayas	Ratio of Trained Dayas To Estimated Home Deliveries
1.Sohag	15,442	9000	100	90
2.El Maragha	7,528	4500	180	25
3.Tahta	9,826	5900	130	45
4.Tema	9,169	5500	122	45
5.Gohina	5,558	3300	75	45
6.El Manshaa	11,446	6800	105	65
7.Gerga	11,712	7000	75	95
8.El Balina	10,711	6400	75	85
9.Sakolta	5,015	3100	74	40
10.Akhmim	7,406	4400	100	45

[5]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

Maternal Mortality Survey (1992-93)

The MOH National Maternal Study carried out in 1992/93 was implemented in Sohag by a local committee chaired by the Under Secretary of Health.[2] A total of 227 female deaths occurring between March 1992 and February 1993 were investigated by verbal autopsy techniques with a finding of 42 maternal deaths. The maternal mortality ratio (number of maternal deaths to 100,000 live births-MMR) was determined to be 307[3] compared to 174 for Egypt as a whole and 217 for Upper Egypt. Maternal Mortality in Sohag was thus found to be nearly double the national average for Egypt. The study evaluated avoidable causes of maternal deaths and provided detailed recommendations for the health sector.

Selected Findings and Recommendations of the National Maternal Mortality Study[4]

- Two major avoidable causes of maternal mortality - delays by the women and her family in seeking obstetric care, and substandard care on the part of medical professionals. Both factors may interact and need to be attacked together.
- First priority - tackle problems occurring within hospital facilities [because the most serious conditions leading to maternal death require obstetric interventions not available below the first referral level (district hospital)].
- Protocols for the management of common obstetric emergencies should be developed and used.- with emergency flow charts on how to manage major killers (such as postpartum hemorrhage) of women. There is a requirement for in-service or refresher training of obstetricians and general practitioners.
- Campaigns should be launched to tackle the issues of women's and family awareness and recognition of danger signs and complications in pregnancy.
- Antenatal care could have detected up to 33% of the cases in the study. Attempts need to be made to strengthen those aspects of ANC likely to help in detecting high risk pregnancies.Laboratory services for antenatal care should be up graded and the antenatal care record system improved.

The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Sohag Governorte by year 2000 to **154** maternal deaths per 100,000 births through a program of safe motherhood aimed at reduction of maternal mortality and morbidity and based on the findings and recommendations of the national study.

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[2]Members of the Committee were Dr. Mohamad Ataya El Kefrawi, Dr. Sabri Nofal, Dr. Ezz El-Dawala El-Sharkawi, Dr. Ahmed Bayoumi Shori, and Dr. Ibrahim Mohamad Ibrahim.

[3]This level of maternal mortality represents an significant decline as compared to the period 1984-85 when a study determined the MMR to be 471 (Abdullah et al., 1985).

[4]MPH/CSP-USAID, *National Maternal Mortality Study: Egypt, 1992-93, Findings and Conclusions* , Cairo, 1994

E Project-Wide Child Survival Interventions in Sohag

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).Sohag is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

MOH and the Governroate plan to initiate this program in 1996 with establishment of a model clinic in the MCH.in Sohag district.

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled.
- Training of 17 health education officers and and other health agents in key messages for the ARI Control Program was conducted in 1995.
- Distribution in 1996 of health education materials prepared by CSP (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

ARI trained 25 teaching staff for 5 secondary nursing schools in 1995. EPI trained teaching 39 staff in the 5 secondary schools and provided reference materials for teaching in these schools in 1994,.

Annex 1 Trends in Infant and child Mortality Rates in SOHAG

	1987*	1992*	% Change 1987-92	1995**	% Change 1987-95
Registered IMR	51	40	- 23	34	- 33%
Adjusted IMR	88	52	- 42	36	- 59%
Registered CMR	12.5.	6.5	- 52	6.5	- 52%

*CAPMAS data and estimates.
**Estimated by MOH/Child Survival Project using vital statistics provided b the Governorate. See Table 2. .

Annex 2 Infant and Child Mortality Rates in SOHAG Compared to Average Rates in Upper and Lower Egypt

	Infant Mortality Adjusted Data		Child Mortality Data		
	1987	1992	1987	1992	1995
SOHAG	88	52	12.5	6.5	6.5
UPPER EGYPT	91	57	11.1	6.2	na
LOWER EGYPT	43	33	5.6	3.3	na
ALL EGYPT	60	41	7.4	4.2	na

11 Dar El Salam	9,188	5500	75	75
Total Sohag	103,002	61400	1085*	55

*There is a slight discrpancy between the toral of registered dayas and the total of registered by districts (estimates provided by SOHAG directorate].
#Estimated at 60% of total births

2. Action to Promote Improved Neonatal Care in Sohag

1. Development of Pilot MOH Neonatal Care Facilities

In 1991-92, the Sohag Health Directorate collaborated with the Child Survival Project to establish its first MOH neonatal care center[6] Efforts are underway to install and initiate operations of a second MOH neonatal care center at El Belinia District Hospital. Inputs have included the supply of equipment, preparation and publication of an operations manual on neonatal care[7], training, and field monitoring and advisory visits. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters (See Figure 4)

Figure 2: Neonatal Care Equipment Provided to Sohag

- 12 incubators
- 1 phototherapy unit
- 1 blood sugar analyzer
- 1 suction machines
- 1 resuscitators
- 1 resuscitator training kits
- 1 bilibirubin analyzer
- 1 syring pump

Training in neonatal care has been carried out by providing for physician and nurse training in a basic ten-day course (29 physicians and 12 nurses) organized in the regional neonatal training center established by the Child Survival Project in Assiut University Hospital. Sohag's neonatal care staff have in addition attended two day seminars on neonatal care. Advisory visits have provided on-the-job training for physicians and nurses.

In 1995, the two centers provided care for 777 neonates of which nearly 80% were neonates at risk referred to the hospitals. The number of infants admitted is equal to about 30% of the estimated need for first referral care of 2500 infants in the two districts[8]. The number of LBW infants in the governorate in 1995 is estimated in the range 10000-15000 indicating the need for further development of neonatal care in Sohag during 1996-2000.

[6]A Neonatal Care Facility is also operating in Sohag University Hospital.
[7]MOH/CSP, Guidelines For Hospital Care of the Newborn, CSP, Cairo. Dec 1995
[8]Need based on estimated proportion of LBW infants among births.

2. Neonatal Resuscitation

This program has included steps to certify delivery room personnel in neonatal resuscitation. It has been developed nationally by the Child Survival Project. Sohag has participated actively in this program. Staff of delivery rooms in all district hospitals are being trained, and each hospital has been equipped with a neonatal resuscitation corner. The next phase of the neonatal care program will require actions to develop first referral neonatal care facilities at the district level, and to develop a referral system for new borns needing such care.

3. Actions in SOHAG to Strengthen CS/MCH Service Delivery

Actions in Sohag to strengthen CS/MCH Service Delivery include

- MCH Laboratories Up-grading
- Extending PHC outreach through the Daya Program
- Training
- Development and introduction of MCH and PHC service standards

MCH Laboratory Up-Grading

Five MCH laboratories have been up-graded in 5 districts. Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

1. Dar Es Salam MCH	Dar Es Salam District
2. Gohina MCH	Gohina District
3. El Manshaa MCH	El Manshaa District
4. Sakolta MCH	Sakolta District
5. Sohag East MCH	Sohag District

Extension of PHC outreach through the Daya Program

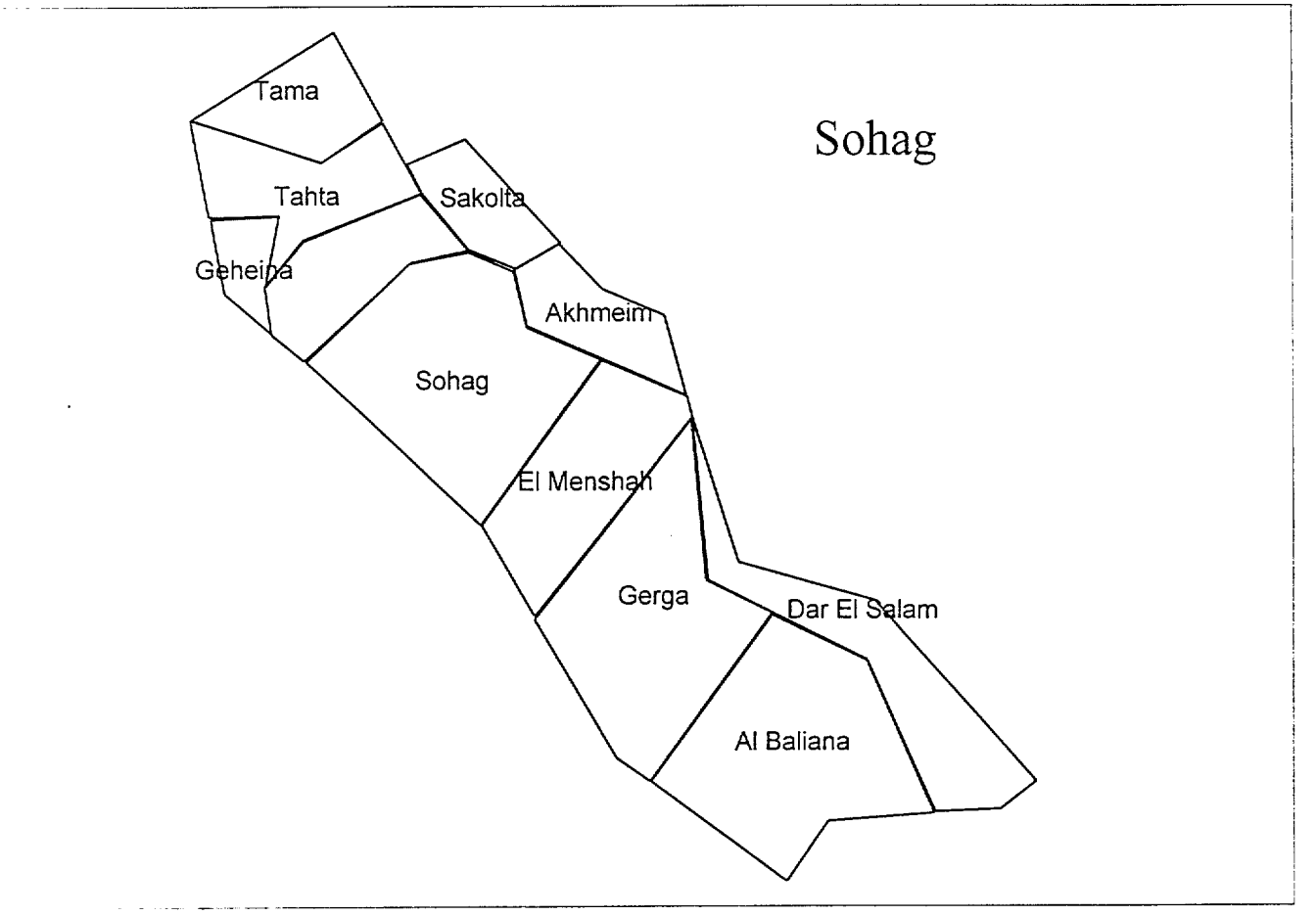
The 1,085 dayas trained in the 11 districts provide for an extension of primary health outreach thorugh referrals and through counseling for mothers in mother and child health in rural and urban communities of Sohag as well as the safer deliveries. The system includes staff of PHC facilities trained in regular monitoring and supervision of dayas and as trainers. The dayas provide an invaluable asset to the Health Direcotate in increasing the efficacy of family health education

. Training for Improved MCH Service Delivery

- 167 physicians were trained in child spacing and MCH care (1995-1996)
- 1058 dayas trained in safe motherhood, MCH referrals and counseling (MOH/UNICEF)
- 35 physicians and 18 nurses were trained during 1992-95 in neonatal care
- 22 obstetricians participated in workshops in 1995 on improving delivery room service and reducing maternal mortality - 22
- 50 physicians trained in neonatal resuscitation skill.

Development and introduction of MCH and PHC Service Standards

During 1993-95, MCH and PHC service standards were developed for use by governorate health managers in insuring quality of service. Sohag is participating in the MOH Clinic Management Improvement Program, developed by the Child Survival Program, which aims to establish the use of service standards and the development clinic management team approachs to solving community health problems.


Sohag
Tama
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Geheina
Akhmeim
Sohag
El Menshah
Gerga
Dar El Salam
Al Baliana

May 1996

CSP Data Sheet on Sohag Governorate

Population

Total (Jan 1995 CAPMAS est.) - 21% urban.....3,067,000
1994 Births/Women needing maternal services.....103,559
1995 Births/Women needing maternal services.....100,185
Women of Reproductive age (22% of popul.).....675,000
Est. No. of Children Under 5.....498,000

Health Infrastructure

No. of Health Bureaux.....17
No. of MCHs - 9/UHCs - 4.....13
No. of RHCs - 35, RHUs - 152, rural hospitals - 8.....195
No. of general (2), district (9) and fever (8).....19
No of health eduction offices.....12

Districts(11)/Births(1993/94/95) •.Sohag(15370/15442/15100), El-Margha(8126/7528/8296), Tahta(9196/9826/9115), Tema(8955/9169/8518), Gohina(57005/5558/5479, El-Manshaa(11323/11446/11013), Gerga(12212/111712/11168), El-Balina(11361/10711/10091), Sakolta/(4702/50164764), Akhmim/7313/7406/7526), Dar El-Salem/9034/9188/9113) • All districts maintained at least 80% infant vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....278
No. of PHC nurses.....356
No. of pediatricians.....20
No. of health education officers.....20

Mortality Data	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	88	48	42	- 52%	60	41	32
Child (1 thru 4) mortality	12.5	6.6	6.7	- 42%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program - Initiated in 1996 with the development of Sohag District MCH as a model clinic.

Expanded Program of Immunization

No. vaccination units.....226
Cold Chain deep freezers (29)and refrigerators(615) - April 1995.....644
PHC staff trained, 1989-95 (1288 physicians, 617 nurses, 871 sanitarians, 197 clerks).....2,973
Infant/child routine of immunizations in 1993 (vacc rate - 77%).....750,000
Women immunized TT2 in 1994.....49,341
Women immunized TT2 in 1995.....139,319
Women immunized TT3/4/5 in 1994.....29,266
Women immunized TT3/4/5 in 1995.....144,112

Key vaccination rates in 1993/94/95(%): BCG - 84/116/95 DPT3- 78/92094
TT2+ - 51/72/283* Measles - 78/99/90 HB3 - 58/89/93 OPV3- 73/90/94
TT immunizations in 1995 exended beyond pregnant women to women of reproductive age.

Polio Cases:	1991 - 96	1992 - 59	1993 - 11	1994 - 21	1995 - 5
NNT Cases*:	1991 - 453	1992 - 310	1993 - 219	1994 - 190	1995 - 146

*3 disttricts achieved NNT elimination (<1 case per 1000 live births) in 1995

ARI Program • Initiated in 1991.• 986 health agents trained (28 pediatricians, 467 PHC physicians, 396 nurses, 95 other) • 26,191 cases of severe ARI in children <5 years treated in MOH out-patient clinics in 1995 (22,201 cases in 1994) • 77% compliance in ARI case registration in 1995. • Estimated population Access to SCM - 90%.

CS/MCH Program • 167 PHC physicians trained in MCH service delivery, 1993-96 .• 1950 dayas trained (MOH/UNICEF) • 5 MCH laboratories upgraded - 29 laboratory technicians trained, 1992m 1993 and 1995. • 56,581 reooirtedkt women received antenatal care (initial visit) in 1992 in MOH facilities-53% indicated coverge rate.• 2 neonatal intensive care centers developed (13 incubators)-35 physicians and 18 nurses trained in neonatal care - 777 neonates were treated in 1995 • 50 physicians trained in neonatal resuscitation. • Maternal mortality assessment conducted in 1992/93. MMR = 124 (95% confidence interval: 92 - 165). - national average of 174 • 10 first-level referral hospital delivery rooms being upgraded (Sohag General and 9 district hospitals) - 22 obstetricians trained, 1995 • Deliveries managed by a doctor or a trained birth attendant >80% (1993 estimate).

E. Project-Wide Child Survival Interventions in Sharkia

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1). Sharkia is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program was initiated in 1995-96 with a model clinic in Menia El Kamh UHC..

4. Mobilization of Health Education Offices

- Training of 4 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents at the district level is scheduled.

- Training of 26 health education officers and and other health agents in key messages for the ARI Control Program was conducted in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Nurses in Secondary Schools

EPI trained 82 teaching staff in 10 secondary schools of nursing, provided reference materials for teaching in these schools during 1993-95. ARI has scheduled training for teaching staff for these secondary nursing schools in 1996.

Further work is needed in the Governorate to train delivery room staff and to develop the systematic use of service standards to ensure high quality of emergency and routine obstetrical services including neonatal resuscitation procedure.

Baby Friendly Program

Installed in 1995 in:

- Zagazig general hospital
- Zagazig MCH..

2. Training for MCH Care

- 865physicians were trained in child spacing and MCH care, 1991-95
- 665 dayas trained in safe motherhood, MCH referrals and counseling, 1990-95
- 45 dayas provided refresher training, 1995
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 40 physicians trained in mother child nutrition, 1989-1991
- 13 laboratory technicians trained in MCH laboratory analysis. 1993 and 1995
- 41 physicians and 18 nurses trained in neonatal care
- 75 obstetricians participated in workshops on improving delivery room service and reducing maternal mortality, 1994-1995
- 20 physicians and nurses trained as trainers in BF and for the Baby Friendly Program, 1995
- 89 physicians and 56 nurses trained for the Baby Friendly Program, 1995

3. National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Sharkia[4] The committee reviewed 537 cases of female deaths and identified 48 as maternal deaths, leading to an estimate of maternal mortality ratio of **124** maternal deaths per 100,000 live births, with a 90% confidence interval of 92 - 165.

The national maternal mortality the study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Sharkia by year 2000 to **62** maternal deaths per 100,000 births hrough a program of safe motherhood aimed at reduction of maternal mortality and morbidity.

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[4]Members of the Committee were: Dr. Anwar Ahmed Salah, Prof. Atef Ahmed Ghali, Abdel Moneim Saber, Dr. Galal Ibrahim Harb, Dr. Ezzat Ashri.

Neonatal Care Program

Six first referral neonatal care centers were established and developed during 1991-95 (see following list). Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

Neonatal Care Centers Established in Sharkia 1991-95

Hospital	District and 1995 District Births	Incubators Supplied*	Admittances 1995
1.El Zagazig Hospital	Zagazig./17552	6	185
2.El-Hesaineia Hospital	Hesaineia/10465	2	35
3.Belbis Hospital	Belbis/15508	3	30
4.Derb Negm Hospital	Derb Negm/8229	1	90
5.Faquos Hospital	Faquos/14559	4	168
6.Mashtoul El-Souq Hospital	Mashtoul/3946	1	14
Total	6 District/60259	17	522

In 1995, the six centers provided care for 522 neonates of whom about 65% were referrals from outside the hospitals. The admittances covering about 9% of the estimated need for first referral care for about 6000 infants in the six districts.[2] The number of LBW infants in the governorate in 1995 is estimated in the range 12000-18000. Neonatal care in Sharkia requires further development of district neonatal care capacity and facilities during 1996-2000.and the organization of an improved referral system for neonates.

Delivery Rooms Up-graded

12 delivery rooms were selected by the Health Directorate for up-grading .Inputs have included renovation (six0, supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Faquos Hospital	Faquos District
2. Zagazig General Hospital	Zagazig District
3. Derb NegmHospital	Derb Negm District
4. Abu Hammad Hospital	Abu Hammad District
5. Minia El Gamh Hospital	Minia El-Gamh District
5. Mashtoul El-Souk Hospital	Mashtoul District
6. Kafr Sakr Hospital	Kafr Sakr District
7. Belbis Hospital	Belbis District
8. El-Zawamel Hospital	Belbis District
9. Abu Kebir Hospital	Abu Kebir District
10. Hahia Hospital	Hahia District
11.El Ibrahimia Hospital	Ibrahimia District
12.El Hesaineia Hospital	Hesaineia District

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[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on estimated proportion of LBW infants among births.

[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

D. The Child Spacing and MCH Program in Sharkia

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care in order to reduce maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish the Daya Program in Sharkia

The Child Survival Project worked with the Sharkiya Health Directorate in 1994-1995 to train physicians and nurses to monitor, supervise and train dayas in the five districts of Sharkia:

District	1995 Births	Number of PHC Physicians and Nurses Trained as DayasTrainers and to Monitor Daya Activity and Referrals	Number of Dayas Trained
El Zagazig	17552		
Menia El Gamb	13145		
Belbis	15508		
Mashtool	3946		
Abu Kebir	7987		
Total			625

The 625 dayas trained through 1995 provide an important extension of primary health outreach (referrals, family counseling, health education) for mother and infant health in rural and urban communities of Sharkia.A total of 702 Daya delivery kits were supplied to the Governorate.

Arrangements should be made by the Health Directorate to continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas. Training will be required for PHC staff as daya trainers and in management of the daya program. Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

4 MCH laboratories have been up-graded in 4 of the 13 districts. Inputs includeed the provision of equipment and supplies, training of laboratory technicians and field monitoring.visits.

MCH Laboratories Up-Grade in Sharkia

1.Derb Negm MCH	Derb Negm District
2.Faquos MCH	Faquos District
3.Kafr Sakr MCH	Kafr Sakr District.
4.Menia El Gamh MCH	Menia District.

A needs assessment carried out in 1995 indicated a requirement to up-grade laboratories in other PHC facilities.

8. ARI Training Facilities

In 1993, an ARI training facility was established in El Ahrar Medical Center in Zagazig.

9. ARI Training Accomplished in Sharkia

	In 1992	In 1993	In 1994	In 1995	Total
Managers	2	12	0	2	16
Specialists	0	12	42*	0	54
PHC Physicians	84	108	319	100	611
Nurses	0	20	200	57	277
Pharmacists	0	0	0	23	23
Nursing School Teachers	0	0	0	0	(p)
Private Physicians	0	0	0	0	0
Health Education Officers	0	0	0	34	34
Model Clinic training	0	0	0	19	19
Total	86	152	561	235	1034

* Includes 22 pediatricians on the the staff of Zagazig University. p-planned for 1996.

10. ARI Cases Reported

	1993*	1994	1995	1993	1994	1995	Sentinel
	----------number----------			----------percentages ----------			
Very Severe Disease	59	171	)	0.41	0.26	)	0.80
Severe ARI	162	616	)15499	1.11	0.94	)31.53	2.40
Pneumonia	2351	13029	)	16.18	19.87	)	8.60
Otitis Media	2654	13463		18.26	20.53		12.50
Pharyngitis	3974	18373		27.34	28.02		24.20
Cough/Colds	5334	19916		36.70	30.38		46.40
Total	14534	65567	49145	100.00	100.00	100.00	100.00

*Part Year

7. ARI Targeted Hospitals

25 hospitals have been and are targeted for in patient and out patient care of ARI (see following list, Figure 1). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment.and monitoring. Additional equipment is being provided in 1996. Addition staff training.(pediatricians, residents and nurses) and conitnued monitoring is required.

Figure 1 ARI Targeted Hospitals - Sharkia

1.El Zagazig General Hospital
2. El Ahrar Hospital
3. El Zagazig Fever Hospital

4.El Kanayat District Hospital

5.El Menia El Kamh Hospital.
6. El Menia El Kamh Fever Hospital

7.El Saadyeen District Hospital.

8. Belbeis Distrrict Hospital
9. Belbeis Fever Hospital .

10. El Zawamel District H.

11. Mashtool El Sok Dist. H.

12. Abo Hamaad Dist. H.
13. El Kareen District.H.

14. Derb Negm District H.
15 Derb Negm Fever H.

16. Hehya District Hospital
17. Hehya Fever Hospital

18. El Ibrahimaia District H.

19. Abo Kabeer District H.

20. Fakous District Hospital
21. Fakous Fever Hospital

22. El Hussenia District H.
23. El Hussenia Fever H.

24 Kafr Sakr District Hospital
25. Kafr Sakr Fever Hospital

C. ARI Control Program in Sharkia

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Sharkia was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 55%
- Children Treated For Severe ARI* in 1995 (number in 1994-13,815) 15,499

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:52,000)

2. Health Facilities with ARI Standard Case Management Installed (estimated as of Dec 1995)

- Primary Health Care Facilities (all 274 targeted) 220 (est. 80%)
- Targeted Hospitals (25 targeted) 16 (est. 64%)

3 Hospital Lab Upgrading

The Zagazig General Hospital Laboratory has been up-graded for ARI clinical analysis and for ARI microbial resistance surveillance.

4. Equipment Provided For ARI-targeted Health Facilities (Through 1995)

Equipment provided through 1995:

1393 respiration timers,
3 oxygen concentrators,
8 oxygen cylinder sets,
7 nebulizers
1 oximeter
220 otoscopes

5. ARI Health Education

A program of ARI health education at the governorate level is being developed with the Governorate health directorate's health education department.

6. Drugs Supplied to Sharkia by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	6300	47000	102000	164800	123768
of which Amox 125 ml	5000	(14800)	(37000)	(28340)	(37801)
Paracetamol 120 cm	600	8100	37300	17700	14700
Expectorant	2000	3800	--	--	--
LA Penicillin	2000	--	3000	13500	7400
Salbutamol Syrup	-	--	--	--	15700

3. Infant Immunization Coverage Trends in Sharkia

	BCG	Measles	HB	OPV3	DPT3
1987*	74.0	66.3	0	75.5	69.7
1990*	91.9	82.0	0	84.8	82.0
1993#	99	93	78	90	90
1994#	95	87	92	92	92
1995#	97	93	91	91	87

**Cluster surveys - children 12-23 months #EPI Service Statistics

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*			5.1
1990*			65/6
1993#	na	na	51%
1994#	47,221	38,604	72%
1995#	57,358	57,717	93%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	44	24	4	4	3
NNT Cases*	192	110	82	84	51

6. Polio and NNT Cases and Immunization Coverage by District, 1995

District	Births	AFP Cases of which		NNT Cases	----Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
El Zagazig	17552	1	1	14	95	87	82	82	80	157
Menia El Gamb	13145	1	0	6	95	101	97	97	93	42
Belbis	15508		0	3	104	97	98	99	90	47
Mashtool	3946		0	3	88	85	76	80	73	43
Abu Hamaad	8232		0	6	123	105	102	103	100	130
Derb Negm	8220	0	1	3	101	90	93	93	93	68
Hahia	4997	1	0	4	102	99	91	91	86	102
Ibrahimia	3221	0	0	2	93	84	89	90	89	86
Abu Kebir	7987	0	1	2	99	97	85	86	80	49
Kafr Sakr	6326		0	2	86	83	87	87	87	42
Awlaad Sakr	4110		0	0	100	101	100	100	97	69
Faquos	14559			4	93	94	94	94	90	49
El Hesaineia	10465	0	0	2	82	80	88	84	72	41
Total	116940	3	8	51	97	93	91	91	87	93

5. MOH Health Agents

No. of PHC physicians	644
No. of nurses	1375
No. of hospital based pediatricians(1993 data)	26

6. Distribution of Sharkia Health Facilities by District*

Districts (13):	Population* (1993)	Hospitals and Primary Health Care Facilities #							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. El Zagazig	821,905	1	1	1	2	2	7	0	26
2. Minya El Gamh	489,459	0	1	0	1	0	1	0	5
3. Belbies	444,416	0	1	1	1	2	3	2	18
4. Mashtool El Sok	116,984	0	1	0	1	0	1	0	5
5. Abo Hamaad	302,571	0	2	1	1	2	5	1	10
6. Dyerb Negm	281,594	0	1	1	1	0	3	1	17
7. Heheya	166,194	0	1	1	0	1	3	1	11
8. El Ibrahemaia	107,510	0	1	1	1	0	2	0	5
9. Abo Kebir	254,737	0	1	0	1	0	2	0	15
10. Faquos	453,247	0	1	1	1	1	6	2	21
11. El Hosanaya	299,310	0	1	1	0	1	6	1	20
12. Kafr Sakr	178,609	0	1	1	1	0	2	0	10
13. Awlaad Sakr	138,289	0	0	0	1	0	2	1	13
Total*	4,054,825	1	14	10	12	10	48	10	194

*Source: Population - SharkiaUnder-Secretary for Health, Nov 1994 (FAX). Health Facilities: ARI/CRS 1995 database.

B. Expanded Program of Immunization in Sharkia

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities - Sharkia

• No. of Vaccination Centers	276
• No. of Deep Freezers (21) and refrigerators(426) - April 1995	447
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Faculties	13
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	712
PHC Nurses*	1534
Sanitarians*	917
Clerks	253
Total	2416

*Including health managers

May 1996

SHARKIA - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 21% urban	4,220,000
1995 Births/Women needing maternal services	124,095
Women of Reproductive age (22% of 1995 pop.)	928,000
No. of children under 5 years of age [est.]	521,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
El Zagazig	20683	20834	17552
Menia El Gamh	13193	13257	13145
Belbis	15456	15724	15508
Mashtool	3756	4386	3946
Abu Hamaad	9427	9215	8232
Derb Negm	7514	7089	8220
Hahia	4475	4688	4997
Ibrahimia	2943	3299	3221
Abu Kebir	7149	7483	7987
Kafr Sakr	5148	5139	6326
Awlaad Sakr	4158	4225	4110
Faquos	13636	13941	14559
El Hesaineia	9402	9817	10465
Total	116940	119097	124094

3.Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	47	36	na	- 23%	60	41	32
Child (1 thru 4) mortality	6.6	4.3	na	- 35%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	16
No. of MCHs - 12/ UHCs - 10	22
No. of RHCs - 48, rural hospitals - 10 and RHUs - 194	252
No. of general (1), district (14) and fever (10) hospitals	25
University Hospitals	1
No. of health education offices	na

May 1996

CSP Data Sheet on Sharkia Governorate

Population

Total (Jan 1995 CAPMAS est.) - 21% urban.....4,220,000
1994 Births/Women needing maternal services.....119,097
1995 Births/Women needing maternal services.....124,094
Women of Reproductive age (22% of popul.).....928,000
Est. No. of Children Under 5.....521,000

Health Infrastructure

No. of Health Bureaux.....16
No. of MCHs - 12/UHCs - 10.....22
No. of RHCs - 48, RHUs - 194, rural hospitals - 10.....252
No. of general (1), district (14) and fever (10).....25
1 University hospital (Zagazig).....1

Districts(13)/Births(1993/94/95) • El Zagazig (20683/20834/17552), Menia El Gamh (13193/13257/13145), Belbis (15456/15724/15508), Mashtool (3756/4386/3946), Abu Hamaad (9427/9215/8232), Derb Negm (7514/7089/8220), Hahia (4475/4688/4997), Ibrahimia (2,943/3299/3221), Abu Kebir (7149/7483/ 7987), Kafr Sakr (5148/5139/6326), Awlaad Sakr (4158/4225/4110), Faquos (13,636/13941/14559), El Hesaineia (9402/9817/10465).• All distraicts maintained at least an 80% infant vaccination coverage rate in 1995.

MOH Health Agents

No. of MOH- PHC physicians (1990 data).....476
No. of MOH-PHC nurses (1990 data).....677
No. of MOH pediatricians.....?

Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	47	36	na	- 23%	60	41	32
Child (1 thru 4) mortality	6.6	4.3	na	- 35%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Clinic Management Improvement Program - Initiated in 1995-96 with the development of Menia El Gamh UHC as a maodel clinic.

Expanded Program of Immunization

No. vaccination units.....276
No. Cold Chain deep freezers (21)and refrigerators(426) - April 1995.....447
No. of PHC staff trained in EPI, 1989-95.....2,416
Infant/child routine of immunizations in 1993 (vacc rate - 85%).....1,394,829
Women immunized TT2 in 1994.....47,221
Women immunized TT2 in 1995.....57,358
Women immunized TT3/4/5 in 1994.....38,604
Women immunized TT3/4/5 in 1995.....58,717

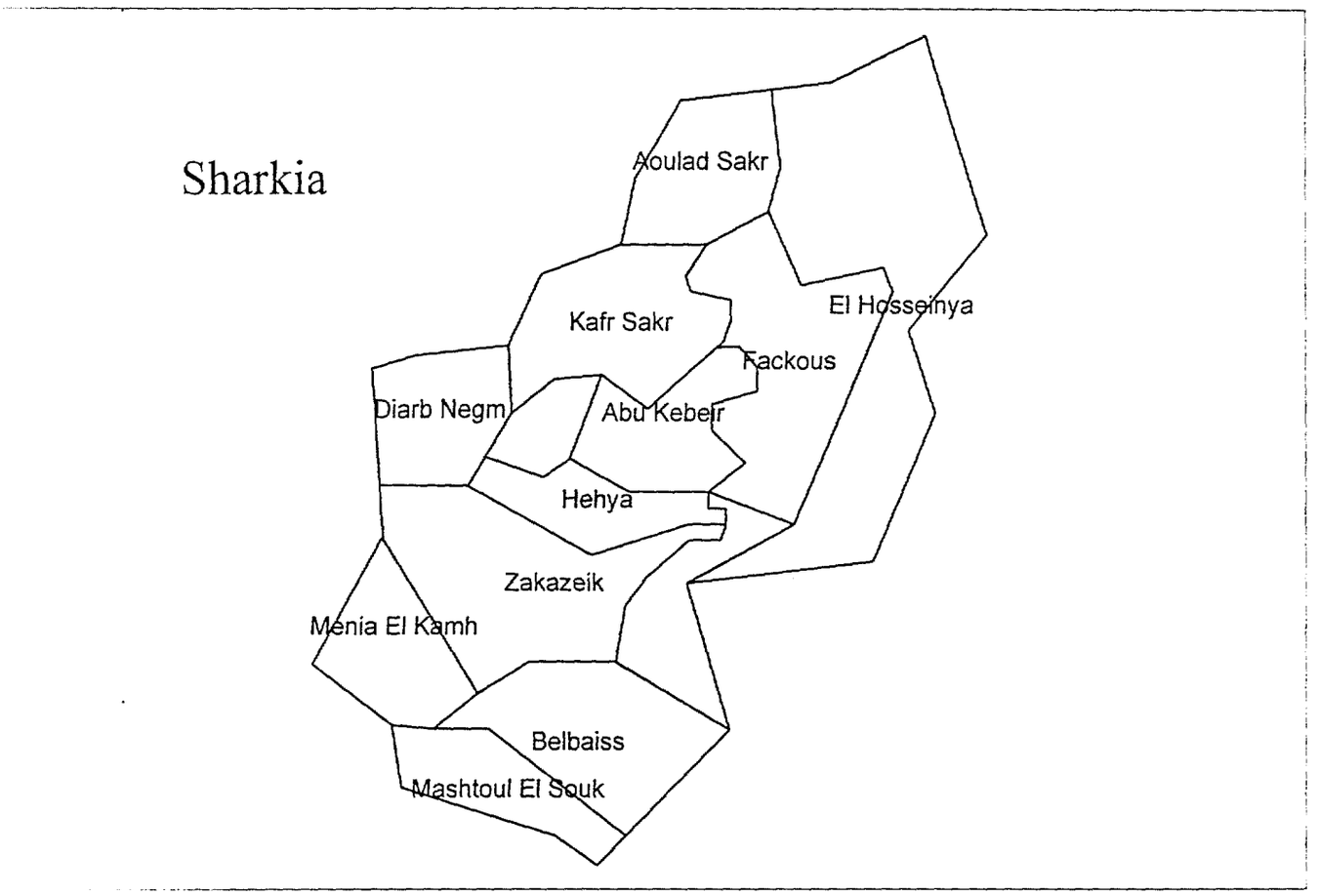
Key vaccination rates in 1993/94/95(%) BCG - 99/95/97 DPT3- 90/92/87
TT2+ - 51/72/93 Measles - 93/87/93 HB3 - 78/92/91 OPV3- 90/92/91

Polio Cases:	1991 - 44	1992 - 24	1993 - 4	1994 - 4	1995 - 3
NNT Cases:	1991 - 182	1992 -110r	1993 - 82	1994 - 84	1995 - 51

*All districts achieved NNT elimination (<1 case per 1000 live births) in 1995

ARI Program • Initiated in 1992.• 997 health agents trained (54 pediatricians, 611 PHC physicians, 277 nurses, 55 other) • 15,499 cases of severe ARI in children <5 years treated in MOH out-patient clinics in 1995 (13815 cases in 1994) • 55% compliance in ARI case registration in 1995. • Est Population Access to SCM - 80%.

CS/MCH Program • 865 PHC physicians trained in MCH service delivery, 1991-95 .• 625 dayas trained in 5 districts, 1992-95 - 45 dayas provided refresher training, 1995 • 40 physicians trained in maternal chilld nutrition, 1989-91• 6 MCH laboratories upgraded in 1992-96 - 13 laboratory technicians trained, 1993 and 1995. • 10,962 women received antenatal care (initial visit) in 1992 in MOH facilities-10%.• 6 neonatal intensive care centers developed (17 incubators)-41 physicians and 18 nurses trained in neonatal care - 522 neonates were treated in 1995 • Baby Friendly program initiated in 1995 in Zagazig General hospital and Zagazig MCH. - 20 health agents trained as BF trainers - 89 physicians and 56 nurses trained • Maternal mortality assessment conducted in 1992/93. MMR = 124 (95% confidence interval: 92 - 165). - national average of 174 • 13 first-level referral hospital delivery rooms being upgraded - 75 obstetricians trained, 1994-95 • Est. proportion of deliveries managed by a doctor or a trained birth attendant >50% (1993 estimate).


Sharkia
Aoulad Sakr
Kafr Sakr
El Hosseinya
Fackous
Diarb Negm
Abu Kebeir
Hehya
Zakazeik
Menia El Kamh
Belbaiss
Mashtoul El Souk

Annex 2

Infant and Child Mortality: Red Sea Governorate

	Number of Live Births	Number of. Infant Deaths	Avg	IMR	Number of 1-4 Deaths	Avg	CMR
Published CAPMAS Data on Registered Births, Deaths, and Mortality Rates							
1985				50			7.7
1986				45			4.9
1987				73			4.8
1988				53			4.0
1989				51			2.8
Average 1987-89				**59.0**			**3.87**
1990				52			2.4
1991				52			4.0
1992				48			3.5
Average 1990-92				**50.7**			**3.30**
1994 (Estimated by MOH/CSP)				40.6			2.29

Vital Statistics Provided by the Red Sea Health Directorate

Year	Births	Infant Deaths		Reg'd IMR	Child Deaths		Index of CMR (b)
1987	2375	163	)		37	)	
1988	3312	191	) 165a	57.4a	44	) 39	
1989	2934	152	)		36	)	
1990	2991	130	)		32	)	
1991	2881	124	) 120		40	) 40	
1992	2987	107	)	35.8	47	)	3.98
1993	3125	160			26		
1994	3269	99		30.3	32		2.60
1995							
Change from 1992 to 1994				- 16.4%			- 34.7%

Source: Vital Statistics provided by Governorate Health Directorate
*Based on data unadjusted for under reporting. a) average b) calculated by dividing child deaths in the year by the births in the year and in the preceding three years.

Annex 1

Trends in Infant and Child Mortality Rates

Red Sea Governorate

	1987*	1992*	% Change 1987-92	1995**	% Change 1987-95
Registered IMR (a)	73	48	- 34%	41	- 44%
Adjusted IMR (a)	na	48	na	41	na
CMR (1 thru 4)(b)	4.8	3.5	- 27%	2.3	- 52%

*CAMPAS published data.
**CSP Estimate based on vital statistics reported by Governorate Health Directorate.
a) infant deaths per 1000 live births
b) child deaths (1 thru 4) per 1000 children aged 1 thru 4)

E Project-Wide Child Survival Interventions in the Red Sea

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Management training was conducted to strengthen health planning and management.

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).The Red Sea Governorate is putting the system into effect starting in 1996.

3. Clinic Management Improvement Program:

This program has been initiated in 13 other governorates.

4. Mobilization of Health Education Offices

- Training of 3 officers in key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996. Training of health education officers and other health agents in health education at the district level is scheduled.

- Training of health education officers and and other health agents in the Red Sea in key messages for the ARI Control Program is scheduled to be conducted in 1996.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

- An important asset to health education offices is the availablility of trained dayas as key influentials in community health education.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula. Medical students from Suez University are to be provided opportunities to observe organization and management of primary health care services in the model clinic in Ismailia district.

7. Pre-Service Training for Students of Nursing in Secondary Schools

ARI trained 4 teaching staff for the secondary nursing school in Hurgada in 1995.

Neonatal Care Facilities in the Red Sea

A first referral neonatal care centers established and developed during 1991-95 in Hurgada General Hospital, El-Ghardaka District. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters. Data is not available on the operation of this center. The center is equipped with 5 incubators. 25 physicians and 10 nurses have been trained in neonatal care.

Delivery Rooms Up-graded

Four delivery rooms in four districts hsopitals were selected by the Health Directorate to be up-graded. Inputs have included supply of equipment, development of standards[2] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Hurgada General Hospital	El-Ghardaka District
2. Safaga District Hospital	Safaga District
3. El-Kooseir Hospital	El-Kooseir District
4. Ras Ghareb District Hospital	Ras Ghareb District.

Improvement and up-grading of first referral delivery rooms is an on-going effort of the MOH. Further work is needed in the Red Sea and other Governorates to train delivery room staff and to develop the systematic use of service standards s to ensure high quality of emergency and routine obstetrical services, including neonatal resuscitation procedures.

2. Training for MCH Care

- 87 PHC physicians were trained in MCH service delivery 1992 and 1994
- 50 PHC nurses trained in MCH service delivery, 1992 and 1994
- 20 dayas trained in safe motherhood, MCH referrals and counseling, 1995
- __PHC physicians and nurses trained as daya trainers and supervisors, 1995
- 10 laboratory technicians trained in MCH laboratory analysis, 1993 and 1995
- 25 physicians and 14 nurses were trained in neonatal care, 1992-95
- 10 physicians and 20 nurses trained in BF for the Baby Friendly Initiative
- 26 obstetricians participated in a workshop on delivery room up-grading and reduction of maternal mortality, 1995

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[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,, (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program in the Red Sea

Two primary health care facilities were selected by the by the Red Sea Health Directorate for up-grading (listed below). Inputs include the provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in the Red Sea

1. Hurgada MCH	El-Ghardaka District
2. Safaga MCH	Safaga District

8. ARI Training Accomplished in Red Sea

	In 1993	In 1994	In 1995	Total
Managers	5	-	-	5
Specialists	--	1	-	1
PHC Physicians	32	4	17	53
Nurses	92	-	22	114
Pharmacists	-	-	16*	16
Nursing School Teachers	-	-	4**	4
Health Education Officers	-	-	0	(p)
	129	5	59	193

* Three pharmacists and 15 assistants
** Hurgada Nursing School.(The Nursing School in Koseir is closed pending assignment of staff)
p - planned for 1996.

9. ARI Case Registration

	1993	1994	1995	Percentage 1993	1994	1995	Sentinel
	----------number----------						
Very Severe Disease	40	12	)	1.39	0.18	)	1.10
Severe Pneumonia	124	68	) 1127	4.32	1.00	)33.88	4.60
Pneumonia	690	1291	)	24.06	19.02	)	13.10
Otitis Media	307	605		10.70	8.91		8.80
Pharyngitis	736	1909		25.66	28.13		18.10
Cold/Cough	971	2902		33.86	42.76		50.10
Total	2868	6787	3326	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Districts Developed To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train __ physicians and nurses to monitor, supervise and train dayas in the districts of Safaga and Ghardak.

Arrangements should be made by the Health Directorate to have district health offices continue to monitor daya activity, re-certfy dayas (as trained), and provide for refresher training of dayas. Training will be required for PHC staff as daya trainers and in management of the daya program.

2. Health Facilities with ARI Standard Case Management Installed (est. as of Dec 1995)

- Primary Health Care Facilities (all 20 targeted) 16 (est. 80%)
- Hospitals (all 4 targeted) 4 (est.100%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 99 respiration timers,
- 4 oxygen concentrators
- 10 oxygen cylinder sets
- 4 nebulizers
- 1 oximeter
- 95 otoscopes

4. Drugs Supplied to the Red Sea Governorate by the ARI Program

	1993	1994	1995
Amoxicillin (250 and 125 ml)	4800	10300	9029
(of which Amox 125 ml)	(1800)	(1720)	(2616)
Paracetamol 120 cm	1800	1000	900
Expectorant	0	0	0
LA Penicillin	0	700	467
Salbutamol Syrup	0	0	1000

5. ARI Health Education:

Scheduled to developed by the ARI Control Program with the Health Education Department of the governorate and with district health education officers.

6. ARI Targeted Hospitals - Red Sea

Four hospitals are targeted for in patient and out patient care of ARI according to ARI Standard Case Management. Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Continuing training of staff will be required.

ARI Targeted Hospitlas - Red Sea

1. El Ghardaka General Hospital (Hurgada District)
2. Sofaga District Hospital -
3. Gharab District Hospital - No full time pediatrician.
4. Kosseir District Hospital - No full time pediatrician

7. ARI Training Facilities

Two ARI training facilities were established in 1993 in :

- Hurgada General Hospital
- Hurgada Nursing School.

4. TT Immunization (of Pregnant Women) in the Red Sea

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*	na	na	9.6
1990*	na	na	51.4
1993#	na	na	70%
1994#	776	845	50%
1995#	808	943	54%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months. #EPI Service Statistics

5. Trends in Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	0	1	0	0	0
NNT Cases*	0	2	0	0	0

*All Districts except Faied maintained NNT elimination status (<1 NNT case per 1000 live births) in 1995.

6. Polio and NNT Cases and Immunization Coverage by District-1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Ras Ghareb	637	0	0	0	101	104	98	98	98	27
Safaga	629	0	0	0	102	113	100	100	100	85
El-Kooseir	793	0	0	0	101	106	128	104	104	55
El-Ghardaka	1087	0	0	0	96	93	98	98	98	52
Total	3145	0	0	0	101	108	100	100	100	54

C. ARI Control Program in the Red Sea

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Assiut was initiated in 1992 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the Program - End 1995

- Public access to standard case management (estimated) 80%
- Installation in Health Zones 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 85%
- Children Treated For Severe ARI* in 1995 (number in 1994-1,593) 1690

*pneumonia, severe pneumonia, and very severe disease- Minimum no.expected cases annually:1400)

6. Distribution of Health Facilities in the Red Sea Governorate by District

Districts:	Population (1993(	----------Hospitals and Primary Health Care Facilities*----------							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. El Kooseir	30787	0	1	0	1	0	0	0	8
2. Ras Gharab	27127	0	1	0	1	0	0	0	2
3. Safaga.	20507	0	1	0	1	0	0	0	3
4. El Ghardaka	29917	1	0	0	1	0	0	0	3
Total	108338*	1	3	0	4	0	0	0	16

*Source: Population: EPI Basic Data Book, June 1994. Health Facilities: ARI/CRS 1995 Data Base.

B. Expanded Program of Immunization in the Red Sea

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

1. Immunization Facilities

• No. of Vaccination Centers	12
• No. of Cold Chain deep freezers (10) and refrigerators (36)	46
• Central Governorate Vaccination Storage Facility	1
• District Vaccination Storage Facilities	4
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	84
PHC Nurses*	75
Sanitarians*	39
Total	198

*Including health managers

3. Infant Immunization Coverage Trends

	BCG	Measles	HB	OPV3	DPT3
1987*	79.7	82.6	0	87.4	86.0
1990*	87.7	85.8	0	86.8	86.3
1993#	88	87	73	92	92
1994#	98	88	95	95	95
1995#	101	108	100	100	100

*Cluster surveys - children 12-23 months. #EPI Service Statistics

May 1996

RED SEA- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 26% urban	115,000
1995 Births/Women needing maternal services	3,146
Women of Reproductive age (22% of 1995 pop.)	25,000
No. of children under 5 years of age [est.1994]	14,000

2. Births by Health Districts (1993, 1994, 1995)

Health District	1993 Births	1994 Births	1995 Births
El Kooseir	797	841	793
Ras Ghareb	1089	663	637
Safaga	636	697	629
El Ghardaka	966	1066	1087
	3,125	3,267	3,146

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	73	48	41	- 44%	60	41	32
Child (1 thru 4) mortality	4.8	3.5	2.3	- 52%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

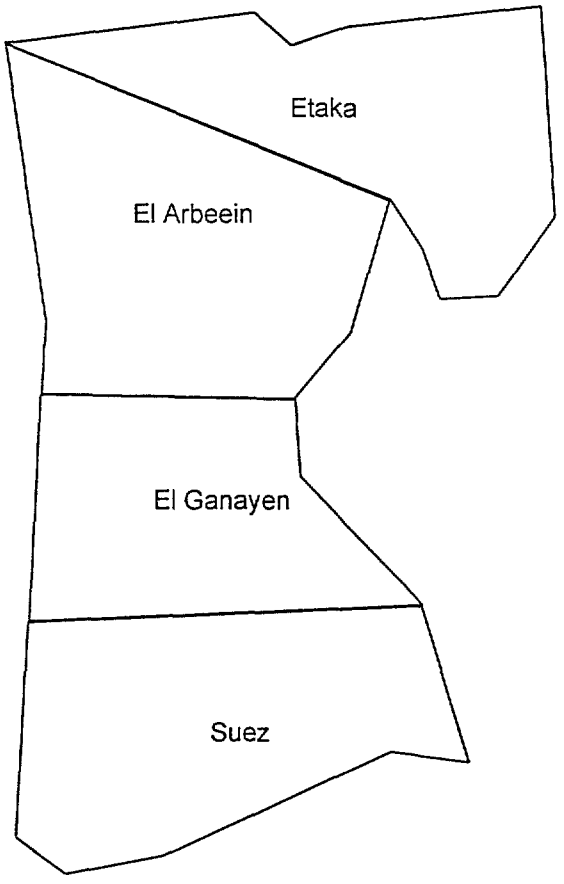
4. Health Facilities

No. of Health Bureaux	3
No. of MCHs -4/ UHCs - 0	4
No. of RHCs -0, rural hospitals - 0 and RHUs - 16	16
No. of health education offices	4

5. MOH Health Agents

No. of PHC physicians	45
No. of nurses	216
No. of hospital based pediatricians	6
No. of health education staff	5

Suez



May 1996

CSP Data Sheet for Suez Governorate

Population

Total (Jan. 1995 CAPMAS est.).....411,000
1994 Births/Women needing maternal services.....10,549
1995 Births/Women needing maternal services.....10,903
Est. No. of Children under 5 years of age(1992 est.).....49,000
Women of Reproductive age (22% of pop.).....90,000

Health Infrastructure

No. of Health Bureaux(vital registrations and vaccinations).....5
No. of MCHs - 5/Urban Health Centers (3).....8
No. of Rural Health Centers-0 , RHUs-8, Rural hospital -0.....7
No. of general (3), district (0) and fever (1) hospitals.....4
No. of health offices.....2

Districts(4)/Births(1993/94/95) • Suez (1575/1452/1741), Arbeiin (5984/5566/5360), Ataka (1849/2114/2311), El Ganaain (1520/1417/1491). El Gannain, Ataka and Suez districts missed 80% vaccination coverage in 1995.

MOH Health Agents

No. of PHC physicians.....294
No. of nurses.....574
No. of hospital based pediatricians (1993 data).....5
No. of health educators.....4

Mortality Data

	1987*	1992*	1995#	Change 87-92	------All Egypt------ 1987	1992	1995
Infant Mortality(adjusted data)	50	45	na	- 10%	60	41	32
Child (1 thru 4) Mortality	2.4	1.7	na -	- 29%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....20
No. Cold Chain freezers (7) and refrigerators (65) - April 1995.....73
No. of PHC staff trained in EPI, 1989-95.....503
Routine infant/child immunizations in 1993 (rate - 88 %).....75,000
Women immunized TT2 in 1994.....4,408
Women immunized TT2 in 1995.....4,586
Women immunized TT3/4/5 in 1994.....2,573
Women immunized TT3/4/5 in 1995.....2,480

Key vaccination rates in 1993/1994 (%): BCG - 96102/88 DPT3 - 87/92/82
TT2+ - 21/66/65 Measles - 85/93/81 HB3 - 76/92/82 OPV3- 87/92/82

Polio Cases:	1991 - 1	1992 - 2	1993 - 0	1994 - 0	1995 - 0
NNT Cases:	1991 - 7	1992 - 3	1993 - 1	1994 - 3	1995 - 6

* One district(El Gannain) failed to sustain NNT elimination (< 1 case of NNT per 1000 live births) in 1995

ARI Program • Initiated in 1991 • 310 health agents trained (11 pediatricians, 90 PHC physicians, 204 nurses, 5 others) • 2895 cases of severe ARI in children <5 years treated in MOH outpatient facilities in 1995 (2480 cases in 1994) • 69% compliance in registration and reporting of ARI cases in 1995 • Est. Pop.Access to Standard Case Management - 90%.

CS/MCH Program • 104 PHC physicians trained in MCH, 1991-1995 • 50 dayas trained in the 4 districts (1991-1992) • 15 physicians and 60 nurses and dieticians trained in mother-child nutrition, 1989-91 • 50 food inpectors trained in nutrition, 1989-91 • 4 MCH laboratory upgraded in 1992-17 laboratory technician trained, 1994 • 3,209 women received antenatal care in MOH facilities in 1992- 31% ANC coverage rate • 1 first referral neonatal care center developed in the Suez General Hospital (8 incubators) - 20 physicians and 12 nurses trained in neonatal care - 192 neonates treated in 1995. • The Baby Friendly Program introduced in 1995 (Suez GH and Sabah UHC) - 75 physicians and 13 nurses were trained, 1995. • A maternal mortality assessment carried out in 1992/93-Maternal Mortality Rate-563 (95% confidence interval, 275-1108). National MMR-174 • 2 delivery rooms in Suez general hospital and in El Sabah UHC being up graded - 40 obstetricians trained, 1995 • Deliveries managed by a doctor or a trained birth attendant - 90%.(1993 estimate).

Delivery Rooms Up-graded

Two delivery rooms in two of the 7 districts were up-graded. Inputs included renovation, supply of equipment, development of standards[3] training, and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. El-TorGeneral Hospital	El-Tor District
2.Sharm El-Sheikh District Hospital	Sharm El-Sheikh District

Further work is required in training delivery room staff and development of use of performance services to ensure high quality of emergency and routine obstetrical services.

Baby Friendly Hospital/Health Centers

The Baby Friendly program was installed in 1995 in:

- El-Tor General Hospital
- El-Tor MCH Center

2. Training for MCH Care

- 41 PHC physicians trained in MCH service delivery, 1993 and 1995.
- __ physicians and nurses trained as daya trainers and supervisors, 1994-1995
- 7 laboratory technicians trained in MCH laboratory analysis, 1992-94
- 9 physicians and 5 nurses were trained in neonatal care, 1992-95
- 22 physicians trained for the BF-baby friendly program, 1995

B Project-Wide Child Survival Interventions in South Sinai

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Training was conducted to strengthen health planning and management. .

2. Decentralized Health Information System

The MOH decentralized health information system was established in the health information office of the Health Directorate in 1995-96.The program has also been installed in most district health offices. Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1). North Sinai is putting the system into effect starting in 1996..

3. Clinic Management Improvement Program:

This program has been initiated in 13 other governorates.

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[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*,. (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

4. Mobilization of Health Education Offices

- A health education officer participated in a workshop on key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.

- Training of governorate-level trainers in ARI health education was conducted in 1995. 5 health education officers and other health agents were trained in ARI public health education in 1995.

- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Students of Nursing

EPI trained 8 teaching staff in the secondary school of nursing in 1993 and provided reference materials for teaching in these schools in 1993. The ARI control program trained 4 teaching staff of the secondary nursing school in 1995.

6. ARI Health Education:

Being developed by the ARI Control Program with the Health Education Department..

7. ARI Training Facilities

An ARI training facility was established in 1993 in El Tor General Hospital.

8 ARI Training Accomplished in South Sinai

	In 1993	In 1994	In 1995	Total
Managers	6	0	0	6
Specialists	2	0	1	3
PHC Physicians	20	4	17	41
Nurses	21	0	15	37
Pharmacists	0	0	9	9
Nursing School Teachers	0	0	4	4
Health Educators	0	0	5	5
Total	49	4	52	105

9. ARI Cases Registered

	1994	1995	Percentage Distribution 1994	1995	Sentinel
Very Severe Disease	58	)	0.92	)	1.10
Severe Pneumonia	106	) 492	1.67	) 9.09	4.60
Pneumonia	428	)	6.75	)	13.10
Otitis Media	521		8.22		8.80
Pharyngitis	1417		22.36		18.10
Cough/Cold	3808		60.08		50.10
Total	6338	5423	100.00	100.00	100.00

E. The Child Spacing and MCH Program

The overall target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Health Agents Trained in PHC Facilties To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train physicians and nurses to monitor, supervise and train dayas.in three health districts. Training of dayas is to be scheduled during 1996.

Arrangements should be made by the Health Directorate to continue to monitor daya activity, re-certfy dayas (as having been trained), and provide for refresher training of dayas. Training will be required for PHC staff as daya trainers and in management of the daya program as new personnel are assigned to the system.

Health education offices should take advantage of dayas as community health influentials in spreading key child survival and safe motherhood messages.

MCH Laboratory Up-Grading Program

The laboratory of the El Tor MCH was up-graded.

Neonatal Care Facilities

A first referral neonatal care center at El Tor General Hospital was established and developed during 1992-95. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the center provided care for 32 neonates, of whom one-third were referrals from outside the hospital. The number of admittances is equivalent to about 100% of an indicated need for first referral care for about 30 infants in El Tor district[2] The number of LBW infants in the governorate in 1995 is estimated in the range 100-150. Further development of the referral system for neonates needing first level care is required.

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[1]MOH/CSP and USAID. Egyptian National Neonatal Care Program. *Guidelines for Egyptian Hospital Nurseries*. 1996

[2]Need based on estimated proportion of LBW infants among births.

3. Infant Immunization Coverage Trends in South Sinai

	BCG	Measles	HB	OPV3	DPT3
1987*	30.8	44.3	0	49.8	46.3
1990*	77.6	78.1	0	73.3	71.9
1993#	105	106	68	98	98
1994#	112	104	108	108	108
1995#	93	90	82	82	82

*Cluster surveys - children 12 - 23 months. #EPI Service Statistics

4. TT Immunization (of Pregnant Women)

	Number of Women Immunized		TT2+ Coverage
	TT2	TT3/4/5	(Percent)
1987*	na	na	0.8
1990*	na	na	48.4
1993#	286	na	39%
1994#	210	180	37%
1995#	277	262	42%

*Cluster surveys - TT2 coverage among mothers of children 0-11 months.
#EPI Service Statistics

5. Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	0	0	0	0	0
NNT Cases	0	1	0	0	0

6. South Sinai Immunization Coverage, by District - 1995

District	Births	AFP Cases of which		NNT Cases	---Immunization Coverage Attained in 1995----					
		Polio	Non Polio		BCG	Measles	HB3	OPV3	DPT3	TT2+
Ras Seedr	223	0	0	0	93	75	85	85	85	25
Abu Zenemah	0	0	0	0	na	na	na	na	na	na
Abu Redess*	193	0	0	0	98	80	68	68	68	25
Tor Sinai	303	0	0	0	131	120	112	112	112	87
Feraan	0	0	0	0	na	na	na	na	na	na
St. Katrin	285	0	0	0	72	84	69	69	69	20
Dahab	0	0	0	0	na	na	na	na	na	na
Sharm El Sheikh	129	0	0	0	84	98	91	91	91	34
Nuweebah	163	0	0	0	66	67	56	56	56	42
Total		0	0	0	93	90	82	82	82	42

*Includes Abu Zenemah district

D. ARI Control Program in South Sinai

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in South Sinai was initiated in 19923 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the ARI Control Program

- Public access to standard case management (estimated) 80%
- Installation in Health Districts 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 75%
- Children Treated For Severe ARI* in 1995 (number in 1994 - 592) 493

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually: 500)

2. Health Facilities with ARI Standard Case Management Installed

- Primary Health Care Facilities (all 13 targeted,) 10 (est. 80%)
- Targeted Hospitals (3) 2 (est. 67%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 108 respiration timers,
- 3 oxygen concentrators
- 10 oxygen cylinder sets
- 5 nebulizers
- 95 otoscopes

4. Drugs Supplied to South Sinai Governorate by the ARI Program

	1992	1993	1994	1995
Amoxicillin (250 and125 ml)	700	4800	11000	8837
of which Amox 125 ml	(200)	(1800)	(1720)	(2556)
Paracetamol 120 cm	400	1800	900	900
Expectorant	100	0	0	0
LA Penicillin	0	0--	700	467
Salbutamol Syrup	0	0--	0	900

5. ARI Targeted Hospitals

Three hospitals in South Sinai have been targeted for in-patient and out-patient care of ARI (see list below). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996. Additional staff training.(pediatricians, residents and nurses) is required.

1. El Tor General Hospital
2. Sharm El Sheikh District.Hospital.
3. Nuweebah District Hospital.

May 1996

SOUTH SINAI- Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 39% urban	25,000
1995 Births/Women needing maternal services	1,296
Women of Reproductive age (22% of 1995 pop.)	5,600
No. of children under 5 years of age [est.1994]	4,400

2. Births (1993, 1994, 1995)

	1993 Births	1994 Births	1995 Births
Ras Sedri	202	202	223
Abu Zenamah	100	92	na*
Abu Redess	63	68	193
Tor Sinai	269	243	303
Ferran	112	137	na**
St. Katrin	104	109	285
Sharm El Sheikh	17	35	129
Dahab	88	84	na#
Nuweebah	76	84	163
	1031	1052	1296

*Included in Abu Redess **Included in St. Katrin #Included in Sharm El Sheikh

3.Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	na	75	na	na	60	41	32
Child (1 thru 4) Mortality**	4.5	1.8	na -	- 60 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children
** For North and South Sinai #CSP estimate

4. Health Facilities

No. of Health Bureaux	8
No. of MCHs - 1/ UHCs - 0	4
No. of RHCs -0, rural hospitals - 5 and RHUs - 7	12
No. of general (1), district (2) and fever (0) hospitals	3
No. of health education offices	1

5. MOH Health Agents

No. of PHC physicians	60
No. of nurses	122
No. of hospital based pediatricians(1993 data).	2
No. of health education staff	?

6. South Sinai Distribution of Health Facilties by District

Districts (7)	Population*	----------Hospitals and PHC Facilities--------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
1. Tor Sinai	na	1	0	0	1	0	0	0	2
2. Ras Sudr	na	0	0	0	0	0	0	1	2
3. Sharm El Sheikh	na	0	1	0	0	0	0	1	0
4. Nuweebah	na	0	1	0	0	0	0	1	1
5. Abo Redees.	na	0	0	0	0	0	0	1	1
6. St. Katrin	na	0	0	0	0	0	0	1	0
7. Abo Zenema	na	0	0	0	0	0	0	0	2
Total		1	2	0	1	0	0	5	7

* Health Facilities Source - 1995 ARI/CRS data base.

B. Expanded Program of Immunization in North Sinai

EPI goals include: Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage, improved disease surveillance, elimination of neonatal tetanus, eradication of poliomyelitis and reduction and control of measles

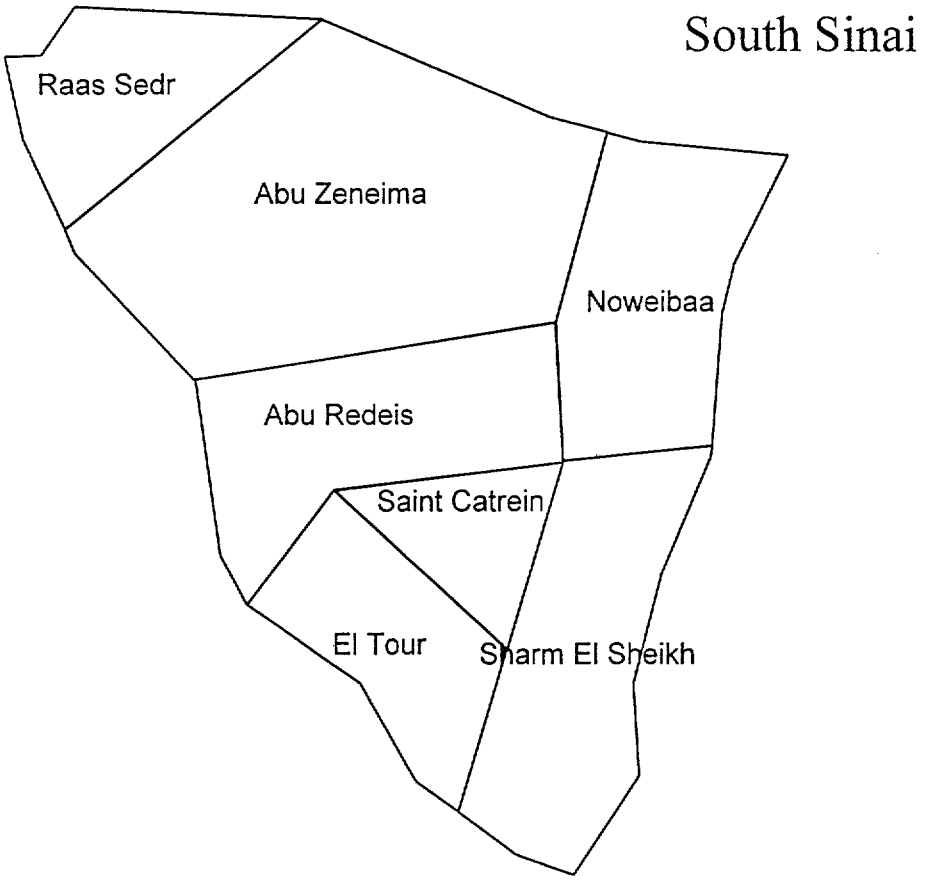
1. Immunization Facilities

• No. of vaccination units	13
• No. of Deep Freezers (5) and refrigerators (43) - April 1995	48
• No of District Cold Storage Facilities	na
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	71
PHC Nurses*	35
Sanitarians*	31
Total	137

*Including health managers


South Sinai
Raas Sedr
Abu Zeneima
Noweibaa
Abu Redeis
Saint Catrein
El Tour
Sharm El Sheikh

May 1996

CSP Data Sheet for South Sinai Governorate

Population

Total (Jan. 1995 CAPMAS est.) - 38%-urban.....25,000
1992 Births/Women needing maternal services.....925
1993 Births/Women needing maternal services.....1,031
1994 Births/Women needing maternal services.....1,052
1995 Births/Women needing maternal services.....1,296
Estimated (1994) no. of children under 5.....4,400
Women of Reproductive age (22% of pop.).....5,600

Health Infrastructure:

No. of Districts 7
No. of Health Bureaux.....8
No. of MCHs- 1 (at El Tor)./UHCs-0..... 1
No. of Rural Health Facilities(7 RHUs, 5 Rural Hospitals)*.....12
No. of general-1 [El Tor), district-2 [Sharm El Sheikh.and Nuweeba) hospitals.. 3

Districts /Births(1995): Ras Sedri (223), Abo Redess (193), Tor Sinai (303), St. Katrin (285) Sharm El Sheikh (129), Nuweebah (163).

MOH Health Agents:

No. of PHC physicians (1993 data).....60
No. of PHC nurses (1993 data).....122
No. of hospital based pediatricians (1993 data).....2
No. of health education staff.....?

Mortality Data	1987*	1992*	1995#	Change 87-92	-------All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	na	75	na	na	60	41	32
Child (1 thru 4) Mortality**	4.5	1.8	na	- 60 %	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate
** Combined North and South Sinai.

Expanded Program of Immunization

No. vaccination units.....13
No. Cold Chain deep freezers (5) and refrigerators (43) - April 1995.....45
No. of PHC staff trained in EPI, 1989-95.....137
Routine infant/child vaccinations in 1993.(rate - 98%).....14,164
Women immunized with TT2 in 1993.....286
Women immunized TT2 in 1994.....210
Women immunized TT2 in 1995.....277
Women immunized TT3/4/5 in 1994.....180
Women immunized TT3/4/5 in 1995.....262

Key vaccination rates in 1993/94/95 (%) BCG - 105/112/93 DPT3 - 98/108/82
TT2+ - 39/37/42 Measles - 106/104/90 HB3 - 68/108/82 OPV3 - 98/108/82

Polio Cases:	1991 - 0	1992 - 0	1993 - 0	1994 -.0	1995 - 0
NNT Cases:	1991 - 0	1992 - 1	1993 - 0	1994 - 0	1995 - 0

ARI Program • Initiated in 1993 • 105 health agents trained (3 pediatricians, 41 PHC physicians, 37 nurses, 24 other) • 75% compliance by clinics reporting ARI case registrations in 1995 •. 493 children under 5 years treated for severe ARI in MOH outpatient facilities in 1995 (592 cases in 1994) • Estimated Population Access to SCM - 80%.

CS/MCH Program • 41 PHC physicians and 12 nurses trained in MCH, 1993 and 1995. • __ physicians and nurses trained as daya trainers and supervisors • 1 MCH laboratory was up-graded (El Tor Sinai MCH) - 7 laboratory technicians trained. • Proportion of pregnant women receiving ante-natal care (initial visit) in MOH facilities - not available.• Baby Friendly program was installed in El Tor Hospital and El Tor MCH.- 22 physicians were trained in BF, 1995. • 1 first referral neonatal care center established in El Tor general hospital - 9 physicians and 5 nurses trained in neonatal care, 1993-95 - 32 neonates treated in 1995. • 2 first-level referral delivery rooms in El Tor and Sharm El-Sheihk being up-graded • Proportion of deliveries managed by a trained birth attendant (est. 1993) - 40%.

Annex 3 Infant and Child Mortality Data in SOHAG

	Number of Live Births	Number of. Infant Deaths	Avg	IMR	No of 1 thru 4 Deaths	Avg	CMR or index
CAPMAS Published Data on Registered Births, Deaths, IMR and CMR							
1985	111351	5876		53			14.2
1986	114765	6926		60		.....	13.4
1987	126886	6502		51			12.5
1988				49	3877		9.9
1989				47			11.3
87-89 average				49.0e			11.2e
1990				43			7.7
1991				39			7.2
1992				40			6.5
1990-92 average				40.7e			7.07e
Estimated 1993-95 average (e)				...36.2**			6.81**
Indicated Increase: 1987-89 to 1993-95				20%			43%
Estimated 1995**				36.0			6.6
Vital Statistics From Sohag Health Directorate and Crude IM and CM Rates							
1987	116122	5801)			3877##)		
1988	118373	5869)	6032	52.1	2808)	3289	
1989	108487	5427)			3181)		
1990	106711	4049)			2352)		
1991	112572	4399)	4181	38.8	2009)	2112	
1992	104318	4095)		39.25			1975 .)
1993	103465	3676)			2043)		
1994	103559	3487)	3528	34.5	1730)	1901	
1995	99582	3421)		34.3	1929)		

Est. Decline Registered Infant Mortality, 1987-89 and 1993-95: **≥21%**
Est. Decline RegisteredChild Mortality, 1987-89 and 1993-95: **41%**

Source: Vital Statistics provided by CAPMAS and theGovernorate Health Directorate
e-estimated by averaging ** estimated . by MOH/CSP

Red Sea
Raas Ghareb
Hurghada
Safaga
Al Quosair

May 1996

CSP Data Sheet For Red Sea (Bahr Ahmar) Governorate

Population

Total (Jan 1995 CAPMAS est.) - 90% urban.....115,000
1992 Births/Women needing maternal services.....2,896
1993 Births/Women needing maternal services.....3,125
1994 Births/Women needing maternal services.....3,267
Estimated No. of Children Under 5(1994 est.).....14,000
Women of Reproductive age (22% of pop.).....25,000

Health Infrastructure

No. of Health Bureaux.....3
No. of MCHs - 4 Urban Health Centers (0).....4
No. of Rural Health Facilities (all RHUs).....16
No. of general (1), district(3) and fever (0) hospitals.....4
No. of health offices.....4

District(4)/Births(1993/94/95) • El Kooseir (797/841/793), Ras Ghareb(1089?/663/637), Safaga(636/697/629), El Ghardaka (966/1066/1087).• Ras Gharab district failed to achieve 80% vaccination. coverage in 1993 • All districts achieved at least 80% infant vaccination coverage in 1995.

MOH Health Agents:

No. of PHC physicians (1993 data).....45
No. of MOH nurses (1993 data).....216
No. of MOH pediatricians (1993 data).....6
No. of health educators.....5

Mortality Data

	1987*	1992*	1995#	Change 87-95	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	73	48	41	- 44%	60	41	32
Child (1 thru 4) mortality	4.8	3.5	2.3	- 52%	7.4	4.0	3.2

*Capmas estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

Expanded Program of Immunization

No. vaccination units.....12
No. Cold Chain deep freezers (10) and refrigerators (36) - April 1995.....46
No. of PHC staff trained in EPI, 1989-95 (Physicians-84; nurses 75; sanitarians-39).....198
Routine Infant/Child hood Immunizations* in 1992 (vacc. rate- 84%).....41,144
Women immunized TT2 in 1994.....776
Women immunized TT2 in 1995.....808
Women immunized TT3/4/5 in 1994.....845
Women immunized TT3/4/5 in 1995.....943

Key vaccination rates achieved in 1993/94/95(%) BCG-88/98/101 DPT3-89/95/100
TT2+ - 70/50/54 Measles-87/88/100 HB3-73/95/100 OPV3-92/95/100

Polio Cases:	1991 - 0	1992 - 1	1993 - 0	1994-0	1995-0
NNT Cases:	1991 - 0	1992 - 2	1993 - 0	1994-0	1995-0

ARI Program • Initiated in August 1993 • 193 health agents trained (53 PHC physicians, 114 nurses, 16 pharmacists, 25-other) • 1127 cases of severe ARI treated by MOH outpatient facilities in 1995 (1371 cases in 1994) • 55% compliance in ARI case registration in 1995. • Est. Pop Access to SCM> 80%.

CS/MCH Program • 87 PHC physicians and 50 PHC nurses trained in MCH service delivery • 31 nurse supervisors/ trainers were trained for Daya program (1994) - 20 dayas trained in Hurgada and Safaga.• 2 MCH laboratories upgraded - 10 laboratory technicians/assistants trained. • Proportion of pregnant women receiving antenatal care in MOH facilities not available, except for Hurgada MCH (1995 - 50%). • 1 neonatal intensive care center established in El Ghardakaa GH (4 incubators) - 27 physicians and nurses trained in neonatal care.- __ neonates treated in 1995. • Baby Friendly program initiated in 1994 in El Ghardaka GH and Hurgada MCH.- 10 physicians and 20 nurses trained • 4 first-level referral level delivery room being upgraded - 26 obstetricians trained, 1995. • Proportion of women giving birth attended by a doctor or trained birth attendant: est.(1993) - 60%. Problems - under-supply of physicians and brief assignments/rapid turnover of specialists.

MCH Laboratory Up-Grading Program

Four health centers were selected by the by the Health Directorate for up-grading (list below). Inputs included provision of equipment and supplies, training of laboratory staff and field monitoring.visits.

MCH Laboratories Up-Graded in Suez

1. El-Suez MCH	Suez District
2. El Mosals MCH	District
3. Fesel MCH	
4 Masaken El-Mosales 3 (MCH)	

Neonatal Care Facilities

A first referral neonatal care centers were established and developed during 1991-95 in Suez General Hospital. Inputs including training, advisory services, development of service standards[1] and supplies and equipment. Equipment provided under the program has included incubators, syringe pumps, blood sugar analyzers, bilirubin analyzers, resuscitators, phototherapy units, heart rate monitors, centrifuges, suction machines and jaundice meters.

In 1995, the Suez hospital center provided care for 192 neonates, of whom 56% were referrals from outside the hospital. The number of admittances is equivalent to about 110 % of the indicated need for first referral care for about 175 infants in the Suez district.[2] The number of LBW infants in the governorate in 1995 is estimated in the range 1000-1500.

Further development of the referral system for neonates needing first level care is required as well as systematic use of standards to insure quality control in service delivery.

Neonatal Care Centers Established in Suez,1991-95

Hospital	District/1995 Births	Incubators Supplied	Admittances in 1995
1. Suez General Hospital.	Suez/1741	8	192

[1]MOH/CSP and USAID, Egyptian National Neonatal Care Program, *Guidelines for Egyptian Hospital Nurseries*, 1996

[2]Need based on minimum estimated proportion of LBW infants among births.

9. ARI Training Accomplished in Suez

	Thru 1992	In 1993	In 1994	In 1995	Total
Managers	2	3	0	0	5
Specialists	4	3	4	0	11
PHC Physicians	44	17	29	0	90
Nurses	40	74	90	0	204
Pharmacists	0	0	0	0	(p)
Nursing School Teachers	0	0	-	0	(p)
Health Education Officers	0	0	0	0	(p)
Private Physicians	0	0	0	0	0
Total	90	97	123	0	310

10. ARI Cases Registration

	1993	1994	1995	1993	1994	1995	Sentinel
	--------number---------			----------Percentages----------			
Very Severe Disease	5	1	)	0.03	0.04	)	0.70
Severe Pneumonia	56	14	)2895	0.30	0.10	)15.93	1.70
Pneumonia	1960	2468	)	12.10	14.30	)	7.80
Otitis Media	3202	3623		19.70	21.00		8.30
Pharyngitis	4919	4345		30.30	25.20		26.20
Cough/Cold	6079	6777		37.50	39.30		50.00
Total	16221	17228	18163	100.00	100.00	100.00	100.00

D. The Child Spacing and MCH Program in Suez

The target for the Child Spacing and MCH Program was to develop an expanded and improved MCH system reaching pregnant women and providing for neonatal care with the aim of decreasing maternal and child mortality and morbidity.

1. Facilities Development

Health Agents Trained in PHC Facilties To Establish and Sustain the Daya Program

The Child Survival Project worked with the Health Directorate to train 56 physicians (30), nurse midwives (21) and nurse inspectors (5) to monitor, supervise and train dayas.in the following health districts.

Arrangements should be made by the Health Directorate to continue to monitor daya activity, provide for daya refresher training and re-certfy dayas periodically (as having been trained). Training will be required for PHC staff as daya trainers and in management of the daya program as new personnel are assigned to the system.

Health education offices should take advantage of trained dayas (50 trained) as community health influentials in spreading key child survival and safe motherhood messages.

2. Health Facilities with ARI Standard Case Management Installed

- Primary Health Care Facilities (total targeted, 21) 18 (est. 90%)
- Targeted Hospitals (2) 2 (est.100%)

3. Equipment Provided ARI-targeted Health Facilities (Through 1995)

- 115 respiration timers,
- 2 oxygen concentrators
- 7 oxygen cylinder sets
- 2 nebulizers
- 1 oximeter
- 95 otoscopes

4. Drugs Supplied to Suez Governorate by the ARI Control Program

	1991	1992	1993	1994	1995
Amoxicillin (250/125 ml)	5000	47400	6600	11116	8673
of which Amox 125 ml	--	(12100)	(2400)	(1924)	(2498)
Paracetamol 120 cm	1500	13800	2400	1100	1100
Expectorant	2000	13100	--	--	--
LA Penicillin	--	--	2000	900	600
Salbutamol Syrup	--	--	--	--	1100

5. ARI Laboratory Up-Grading

The Suez General Hospital laboratory was up-graded in 1995-96 for ARI clinical tests and bacterial resistance testing.

6. ARI Targeted Hospitals

Two hospitals have been targeted for in patient and out patient care of ARI (see list below). Inputs include training for staff - pediatricians, residents, nurses - and the supply of diagnostic and therapeutic equipment. Additional equipment is being provided in 1996.

1. Suez General Hospital
2. Suez Fever Hospital

7. ARI Health Education

The ARI Control Program will work with the Suez Health Directorate in 1996-97 to develop health education for ARI control.

8. ARI Training Facilities

An ARI Training Center was established in El Sabah Medical Center in 1991.

4. TT Immunization (of Pregnant Women) in Suez

	Number of Women Immunized TT2	TT3/4/5	TT2+ Coverage (Percent)
1987*	na	na	12.5
1990*	na	na	25.0
1993#	na	na	76%
1994#	4408	2573	78%
1995#	4586	2480	75%(r)

*Cluster surveys - TT2 coverage among mothers of children 0-11 months.
#EPI Service Statistics r - revised

5. Reported Polio and Neonatal Tetanus Cases

	1991	1992	1993	1994	1995
Polio Cases:	1	2	0	0	0
NNT Cases	7	3	1	3	6

6. Suez Immunization Coverage by District - 1995

District	Births	AFP Cases of which Polio	Non Polio	NNT Cases	---Immunization Coverage Attained in 1995---- BCG	Measles	HB3	OPV3	DPT3	TT2+
Suez	1741	0	0	1	87	73	82	82	82	26
Arbeiin	5360	0	0	0	93	87	86	86	86	56
Ataka	2311	0	0	2	79	75	71	71	71	46
El Ganaain	1491	0	0	3	84	79	83	83	83	171
Total	10903	0	0	6	88	81	82	82	82	65

C. ARI Control Program in Suez

The goal of the Child Survival Project was to establish an effective ARI Detection and Treatment program nationally covering all governorates and health directorates and leading to reduced mortality due to ARI. The ARI control program in Suez was initiated in 1991 and is established in all health districts and most MOH health facilities in the Governorate.

1 Status of the ARI Control Program

- Public access to standard case management (estimated) 90%
- Installation in Health Districts 100%
- Compliance by MOH Facilities in Case Registration Reporting (1995) 69%
- Children Treated For Severe ARI* - number in 1995 (2483 cases in 1994) 2895

*pneumonia, severe pneumonia, and very severe disease- Minimum. no.expected cases annually:3,000)

6. Suez Governorate Distribution of Health Facilities by District

Districts (4):	Population* (1993)	-------Hospitals and Primary Health Care Facilities-------#							
		GH	DH	FH	MCH	UHC	RHC	RH	RHU
Suez	47,449	0	0	0	1	0	0	0	0
El Arbaiin	208,167	0	0	0	1	3	0	0	1
Ataka	101,858	1	0	1	1	5	0	1	0
El Ganaain.	55,791	0	0	0	0	0	0	0	7
Total	413,265*	1	0	1	3	8	0	1	8

*Population data from the August 1994 EPI Basic Data Book..
Health Facility Data from the 1995 ARI CRS Data Base

B. Expanded Program of Immunization in Suez

EPI goals include: • Sustaining universal child immunization (UCI) for seven diseases including Hepatitis B, with 90% coverage • Improved disease surveillance • Elimination of neonatal tetanus • Eradication of poliomyelitis and • Reduction and control of measles.

1. Immunization Facilities - Suez

• No. of Vaccination Units	20
• No. of Deep Freezers (8) and refrigerators (66) - April 1995	73
• No of District Cold Storage Facilities	4
• Central Governorate Vaccination Storage Facility	1
• Cold Chain Repair and Maintenance Work Shop	1

2. EPI Training - 1989-95

PHC Physicians*	231
PHC Nurses*	189
Sanitarians*	52
Clerks	21
Total	503

*Including health managers

3. Infant Immunization Coverage Trends in Suez

	BCG	Measles	HB	OPV3	DPT3
1987*	72.0	76.0	0	88.0	82.0
1990*	99.5	96,7	0	97.7	97.7
1993#	96	85	76	87	87
1994#	102	93	92	92	92
1995#	88	81	82	82	82

*Cluster surveys - Children 12 - 23 months.
#EPI Service Statistics

May 1996

SUEZ - Health and Child Survival Program Data

Covering EPI, ARI, CS/MCH and Cross-Cutting Programs

A. Population and Health Facility Data

1. Population

Total (Jan. 95 est.- CAPMAS) - 44% urban	411,000
1995 Births/Women needing maternal services	10,903
Women of Reproductive age (22% of 1995 pop.)	90,000
No. of children under 5 years of age [est.1994]	49,000

2. Births (1993, 1994, 1995)

	1993 Births	1994 Births	1995 Births
Suez	1575	1452	1741
Arbeiin	5984	5566	5360
Ataka	1849	2114	2311
El Ganaain	1520	1417	1491
	10,919	10,549	10,903

3. Mortality Data

	1987*	1992*	1995#	Change 87-92	-----All Egypt----- 1987	1992	1995
Infant Mortality(adjusted data)	50	45	na	- 10%	60	41	32
Child (1 thru 4) Mortality	2.4	1.7	na -	- 29%	7.4	4.0	3.2

*CAPMAS estimate of infant mortality per 1000 live births and child mortality per 1000 children #CSP estimate

4. Health Facilities

No. of Health Bureaux	5
No. of MCHs - 8/ UHCs - 3	8
No. of RHCs - 0, rural hospitals - 0 and RHUs - 8	8
No. of general (1), district (1) and fever (1) hospitals	4
No. of health education offices	2

5. MOH Health Agents

No. of PHC physicians	294
No. of nurses	574
No. of hospital based pediatricians	5
No. of health education staff	2

E Project-Wide Child Survival Interventions in Suez

1. Decentralized Planning and Management for Child Survival

EPI, ARI and CS/MCH programs were implemented with and through the Health Directorate, and are being sustained by the Governorate. Training was conducted to strengthen decentralized health planning and management. .

2. Decentralized Health Information System

The MOH health information system was established in the health information office of the Health Directorate in 1995-96.Installation of the system included the supply of hardware and software, training for governorate staff and field monitoring visits (1).Suez is putting the system into effect starting in 1996..

3. Clinic Management Improvement Program:

This program has been initiated in 13 other governorates.

4. Mobilization of Health Education Offices

- 1 health education and information officers participated in a workshop on key child survival and safe motherhood messages and health education activity conducted by CSP with MOH Department of Health Education during 1996.
- ARI has scheduled training for health education officers in ARI health education in 1996.
- Distribution in 1996 of CSP health education materials (videos, posters, CSP Flip Chart).
- An important asset to health education offices is the availablility of trained dayas in as key influentials in community health.

5. Mass Media/Social Marketing of Key Child Survival and Safe Motherhood Messages

Mass media transmission of 12 key messages by TV and radio during 1996.

6. Pre-Service Training for Medical and High Institute of Nursing Students

CSP initiated preparation of comprehensive guides for up-dating medical school curricula.

7. Pre-Service Training for Students of Nursing

EPI trained 11 teaching staff in the secondary school of nursing and provided reference materials for teaching in these schools in 1994. The ARI control program has scheduled training of teaching staff of the secondary nursing school in 1996.

Delivery Rooms Up-graded

Delivery rooms in two of the 4 districts were selected by the Health Direcotate to abe up-graded. Inputs included renovation, supply of equipment, development of standards,[3] and monitoring. Each delivery room has been provided with equipment for neonatal resuscitation.

1. Suez GeneralHospital Suez District
2. El Sabah UHC Suez District.

Further work is required in training delivery room staff and development of use of performance services to ensure high quality of emergency and routine obstetrical services and in neonatal resuscitation.

Baby Friendly Hospital Initiative

The Baby Friendly program was installed in 1995 in:

- Suez General Hospital.
- Sabah UHC

2. Training for MCH Service Delivery

- 104 PHC physicians were trained in MCH service delivery, 1994 and 1996.
- 50 dayas trained in safe motherhood, MCH referrals and counseling, 1990-1995
- 56 PHC physicians and nurses trained as daya trainers and supervisors, 1990-1993
- 15 physicians and 60 nurses trained in mother-child nutrition, 1989-91
- 50 food inspectors trained in nutrition, 1989-91
- 19 laboratory technicians trained in MCH laboratory analysis, 1992-94
- 20 physicians and 12 nurses were trained in neonatal care, 1992-95
- 75 physicians and 13 nurses trained for the BF-baby friendly program, 1995
- 40 obstetricians participated in workshops on delivery room up-grading and maternal mortality reduction, 1995.

3. Suez Governorate Participation in National Maternal Mortality Study

The National Maternal Mortality Survey was carried out in 1992-93 in 21 governorates. A committee established under the chairmanship of the Under Secretary for Health was responsible for conducting the study in Suez[4] The Suez committee reviewed 40 cases of female deaths and identified 9 as maternal deaths, leading to an estimate of maternal mortality ratio of 541, with a 90% confidence interval of 275-1108. The national MMR was found to be 174,

The national maternal mortality study identified avoidable causes of maternal deaths and developed detailed recommendations for safe motherhood for the health sector. The national goal is to reduce the MMR by 50% by year 2000. This implies a reduction of maternal mortality ratio in Suez through a safe motherhood program aimed at reduction of maternal mortality and morbidity.

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[3]MOH/CSP and USAID, *Maternity Care at the First Referral Level*., (Prepared by Child Spacing Executive Director, Dr. M. Kassas in Child Spacing Technical Series, Issue #2), Cairo, March 1994.

[4]Members of the Committee: Dr. Badr Issa, Dr. Hoda Mahmoud Mohammed Mahfouz, Dr. Ibrahim Abdel-Azis Afifi, Dr. Sayed Korani Sayed Ahmed.

Annex 12

JOHNS HOPKINS UNIVERSITY ARI SUBCONTRACT REPORT

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ANNUAL REPORT

APPLIED RESEARCH FOR THE ACUTE RESPIRATORY INFECTION CONTROL PROGRAM IN EGYPT

SCHOOL OF HYGIENE AND PUBLIC HEALTH
THE JOHNS HOPKINS UNIVERSITY

SUBCONTRACT FROM THE CLARK ATLANTA UNIVERSITY
CHILD SURVIVAL PROJECT

APRIL 1, 1995 - MARCH 31, 1996

(An update of activities since April 1, 1990)

The Acute Respiratory Infection (ARI) Control Program of the Ministry of Health (MOH) of Egypt reached an active stage of preparation and initial implementation in 1990. Because additional information was needed to assist with development of the Program, applied research studies were initiated with the assistance of the Johns Hopkins University School of Hygiene and Public Health. In planning and conducting the research, there was coordination with the WHO ARI Control Program and with UNICEF.

In initial discussions in Egypt in December 1989 and early 1990, research studies were outlined and studies prioritized for implementation. For those studies considered to be a high priority, JHU faculty worked with the ARI Control Program and with Egyptian investigators to select sites for the studies, to develop more detailed protocols, and to implement the studies in various locations. In the first year of this work, seven studies were initiated. In the second year, most of these studies were completed and several new ones were planned or started. In the third and fourth year, nearly all of the studies were completed and results published. Plans were made for a new study to assess the achievements of the Child Survival Project in two governorates. This study was initiated and analysis and paper preparation from earlier work was continued in year five and six. A listing of the JHU faculty visits in years one to six is included as Appendix I. A listing of all publications is included as Appendix II.

STATUS OF RESEARCH STUDIES

1. Ethnographic Study on the Management of ARI in Children at the Community and Household Levels

Objectives

The ethnographic study attempted to achieve an understanding of how mothers (or other caretakers) in a given cultural context perceive and name the different symptoms of respiratory infection, how they classify those symptoms into illness categories, and how the perception and classification relate to management of children (under five years) with ARI.

It was intended to determine how the symptoms and illness categories identified and defined by mothers correspond to medically defined symptoms and illness categories, and to identify potential cultural barriers to seeking care for children with acute lower respiratory infection, and to suggest approaches to reducing or avoiding those cultural barriers. Finally, it was intended that the study describe mothers' expectations about the results of medical treatment of ARI episodes and the effect of those expectations on satisfaction and adherence to therapeutic recommendations.

Abstract

The research followed a methodology developed by the ARI Program of WHO. This included multiple open-ended interviews with key informants and more structured interviews with a representative sample of caretakers of young children. In addition, small groups of women were

shown a video demonstrating twenty children with different respiratory symptoms, and were asked what they would call the sign or symptom demonstrated on the video.

Hypothetical cases involving children of different ages and with different symptoms were presented to key informants or mothers and asked what they would do in each situation. A similar approach was taken with presentation of cases to pharmacy workers. An inventory of medications available in the home was also conducted. The study was conducted in Ismailia Governorate. A similar study was later conducted by the same consultant in Sohag governorate with support from UNICEF.

Application of Results

This study was among the first conducted by the ARI Control Program because the information relates to many other program activities, specifically, an understanding of local ways of classifying symptoms and of defining illness is important to the following program efforts:

a. The results of the ethnographic study have been used to design the caretakers' questionnaire for the study to evaluate the signs and symptoms of ARI (i.e., to determine what descriptive terms used by mothers are the best predictors of serious illness).

b. In order to monitor the progress of ARI control interventions, the program must develop a household survey instrument that measures the prevalence and severity of ARI symptoms at the community level. This can only be done by using for signs, symptoms, and illness categories that are familiar and meaningful to mothers. The ethnographic results were used in the household survey validation study to determine the best methods for community surveys.

c. A critical part of training health providers is to improve their skills in communicating with mothers, both in terms of obtaining a good case history and in terms of instructing mothers about the importance of completing the prescribed therapy, as well as the indications for returning to the health facility. In order to communicate effectively, health providers must know the terminology that mothers use and have some understanding of the mothers' beliefs about the illness and their expectations from the treatment. Results of the ethnographic study have been useful in designing and revising training materials.

d. Without baseline ethnographic research, it would be impossible to know what messages will be most effective in alerting mothers to danger signs associated with respiratory infections and in motivating mothers to bring children to health facilities. For example, mothers may not make note of fast breathing and they may not perceive it as a danger sign. They may however notice the rapid up and down movement of the stomach that is associated with rapid breathing. Therefore, messages that instruct a mother to bring a child with rapid stomach movement to the health facility may be more meaningful and effective than messages about fast breathing. These results have already been useful in designing messages for use in person to person and mass media communication.

Collaborative Efforts

The Egyptian consultant for this study was a senior staff member of the Egyptian National Research Center. After completing the study in Ismailia under the auspices of the ARI Program, she undertook a similar study in Sohag Governorate for UNICEF. This provided additional information using a common methodology and further promoted the collaborative relationship among the agencies in Egypt.

Status

The study was completed during the period July to September 1990. The final report has been submitted. Information on the assessment of pharmacy workers prescribing for ARI has been included in a letter which has been published in Lancet (338:248, 1991). The result of the study were presented in May 1992 at the WHO meeting on use of ethnographic studies in ARI Control Programs. A manuscript "Developing strategies to encourage appropriate care-seeking for children with acute respiratory infections: An example from Egypt" was published in Int J Health Planning and Management (9:235-243, 1994).

2. Respiratory Rate and Chest Indrawing Assessment among Primary Care Physicians in Egypt

Objectives

The ARI Control Program undertook a study of respiratory rate (RR) and chest indrawing assessment in order to better target planning and training activities for primary care providers. The objective of this baseline study was 1) to describe attitudes toward and practices of health workers in measuring RR, 2) to determine the optimal time interval for counting RR, 3) to examine the effect of viewing a training video tape, providing timers with audible cues on the accuracy of RR assessment, and 3) to examine the recognition of chest indrawing and fast breathing among primary care health personnel.

Abstract

The 320 Ministry of Health physicians were asked to view a videotape of children of different ages and breathing rates, to count the RR, and assess fast breathing and chest wall indrawing. A videotape was used to reduce the variability of RR normally present in children and to address potentially modifiable aspects of counting technique alone. The test videotapes were provided by the WHO ARI Program. Hansen timers with audible cues were supplied by WHO for this study. RR's counted over 60 sec were more accurate than 30 sec counts, although the difference between these may not be clinically significant. Counting RR's using timers with audible cues was comparable to using watches with second hands. Recognition of chest indrawing as defined by WHO was poor among current health personnel. Viewing the training videotape resulted in significantly more correct assessment of chest indrawing and fast breathing (i.e., application of age-

specific cut-offs) compared to those who had not viewed the videotape.

Application of Results

In training for the ARI Control Program, emphasis will be placed on the following areas in implementation of the pneumonia treatment algorithm:

Age-specific RR cut-offs
Counting RR over 60 sec
Recognition of chest wall indrawing
How to use timers

The WHO/ARI training video tape will be used to increase recognition of chest indrawing and age-specific cut-off values.

Status

A manuscript "Assessment of respiratory rate and chest indrawing by primary care physicians in Egypt has been published in the Bull WHO (71: 523-527, 1993).

3. Clinical Signs and Symptoms Associated with Pneumonia and Hypoxia Study

Objectives

The objectives of this multicenter study were to assess the sensitivity and specificity of signs and symptoms reported by caretakers or documented by health workers in the diagnosis of pneumonia (verified by chest x-ray) and hypoxia (measured by pulse oximetry), and to examine the correlation between caretaker report of signs and symptoms with health worker documentation of these signs and symptoms. Words used to describe ARI that were identified by the ethnographic study were included as well.

Abstract

Caretaker recognition and clinical utility of respiratory signs and symptoms in the prediction of pneumonia was examined in a prospective study of infants and children in four cities in Egypt (Alexandria, Assiut, Ismailia, and Cairo). 688 children between the ages of two months and five years of age presenting with a history and/or physical exam findings of cough and difficult or fast breathing were recruited from outpatient health facilities. Interviews of the child caretaker, physical examinations of the child and pulse oximetry were performed by study pediatricians. Chest radiographs were also obtained and were read by the WHO ARI Radiology Group.

Egyptian terms describing ARI were identified by a preceding ethnographic study done in Ismailia. The use of these terms was compared to pediatrician observation of standard respiratory signs and symptoms. The agreement between caretaker's use of the word "nahagan" (fast breathing)

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and respiratory rate was high. The sensitivity of "nahagan" was 80%, and was slightly higher for <12 month olds (84%) versus children between the ages of 12 months and 5 years of age (74%). This means that 80% of the children with elevated respiratory rate were described by the caretaker as having "nahagan". "Nafas seria", another term for fast breathing, was used spontaneously less often, was slightly less sensitive but more specific for elevated respiratory rates. These results suggest that caretaker (primarily maternal) recognition of fast breathing was high. The application of this finding is that the word "nahagan" or "nafas seria" can be reliably used by health workers in eliciting history of ARI from caretakers, and in promoting health seeking behavior in either face to face interactions with health workers or mass media health education.

Another caretaker term "sedro tale nazel", that describes the chest as moving up and down, was a sensitive (86%) and specific (60%) indicator of chest indrawing. The next most sensitive term was "tazyeek" (wheeze) which had a sensitivity of 75% and specificity of 66% when compared to pediatrician assessment of wheezing during physical exam.

Caretaker history and physical exam signs were also compared to pulse oximetry and radiologic diagnosis. Pulse oximetry was performed on 651 children, and CXR readings were available for 673 children, and 635 children had both pulse oximetry and a CXR. Final radiologic diagnoses were available for 667. The use of caretaker terms, nahagan or nafas seria (fast breathing) and sedro tale nazel (chest indrawing), either spontaneously or after asking, were sensitive (70% or more) indicators of radiologic pneumonia. The combination of cough and elevated respiratory rate by age specific cut-offs (sensitivity 81 $\pm$ 5) resulted in the most accurate prediction of radiographic pneumonia. This study supports the need for age specific cut-offs to better identify children who may need antibiotics for ALRI. Using a single respiratory rate of > 50 breaths per minute to determine antimicrobial therapy would mean that 40% of children with radiologic pneumonia would not receive antimicrobial therapy in a timely fashion. Because this study utilizes a conservative, yet objective, gold standard, i.e. radiologic diagnosis, the estimates for the utility of the signs and symptoms used to detect radiologic pneumonia may be underestimated.

Clinically significant oxygen desaturation, defined as a pulse oximetry reading less than 93%, was a common finding in children with pneumonia. The mean oxygen saturation for those children who received a clinical diagnosis of pneumonia (n=270) was 92%, compared to 94% in children diagnosed with bronchiolitis (n=104) or to 98% in children diagnosed with the common cold (n=74). The observation of cyanosis by pediatricians was a late and insensitive finding compared to pulse oximetry readings less than 93% (sensitivity = 9%, specificity = 98%). Chest indrawing, observed in 232 children, was a more sensitive indicator of oxygen desaturation (relative to SpO_2 <93%, sensitivity =58, specificity=71) than cyanosis.

Application of Results

1) The results suggest that the caretaker report of some ARI signs and symptoms can be used for programmatic purposes. The use of terms such as "nahagan" or "nafas seria" are sensitive indicators of tachypnea in children presenting to health facilities with ARI. This means that nearly

80% of the children with elevated respiratory rate were described by the caretaker as having "nahagan" or "nafas seria". Because nafas seria was used spontaneously less often, it may be less widely used by caretakers so "nahagan" might be a better indicator. The application of these findings is that the term "nahagan" can be reliably used by health workers in eliciting history of ARI from caretakers, and in promoting health seeking behavior in either face to face interactions with health workers or mass media health education.

2) Another caretaker term "sedro tale nazel", that describes the chest as moving up and down, was a sensitive (86%) and specific (60%) indicator of chest indrawing. The next most sensitive term was "tazyeek" (wheeze) which had a sensitivity of 75% and specificity of 66% when compared to pediatrician assessment of wheezing during physical exam. These terms could also be used programmatically to facilitate communication between mothers and health workers.

3) Caretaker report of fast breathing, nahagan and nafas seria, is a sensitive indicator of radiologic pneumonia. Health providers should be educated in the utility of the caretaker's report in discriminating ALRI from other ARI. Using these terms in conjunction with visual images in mass media approaches would appear to be an effective way of increasing the level of awareness of ALRI in Egypt.

4) Elevated respiratory rate, as measured by age specific cutoffs recommended by the WHO, is a sensitive clincial sign for detecting pneumonia in Egyptian children presenting to outpatient settings. Its use as an entry criterion for the pneumonia treatment algorithm is justified by this and other studies.

5) Other clinical signs such as working alae nasi, cyanosis are not sensitive enough and occur too late in the course of illness to be used in the treatment algorithm.

6) Because the clinical finding of cyanosis is a late and insensitive indicator of oxygen saturation, cyanosis cannot be relied upon as a sensitive indicator of the need for supplemental oxygen. The presence of chest indrawing is a more sensitive clinical indicator for the need for supplemental oxygen than the presence of cyanosis. If oxygen is in scarce supply, one would stress more specific indicators for oxygen utilization, such as cyanosis, RR > 70 per minute or grunting. If oxygen supply is ample, then one would opt for more sensitivity in the indications for oxygen use, such as chest indrawing, working alae nasi and increased work of breathing or respiratory distress.

7) Most children with radiologic pneumonia have low oxygen saturation, which suggests the need for supplemental oxygen management in these cases. However, how supplemental oxygen improves the outcome of these cases has not been addressed by this study.

8) Amoxicillin is currently widely used in the treatment of ARI, as indicated by rates of use prior to and after the study visit. The widespread use of Amoxicillin at the outset of the ARI Control Program may place this drug at risk for the development of antimicrobial resistance. In instituting the ARI Control Program, careful monitoring of drug use by the program will be necessary to ensure

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that antibiotics for pneumonia are used appropriately. The sensitivity and specificity of the WHO case management entry criteria for the pneumonia treatment algorithm will be assessed in the context of the Egyptian medical system. The results of this study can be used to guide health worker training and mass media message development in terms of the words that mothers use to describe signs and symptoms of pneumonia, and the correlate with physician assessment. The study will also identify a group of signs and symptoms that might prove useful in predicting hypoxia that would prompt health workers to seek prompt referral of the patient or to use oxygen.

Status

The first study report titled "THE SIGNS AND SYMPTOMS OF ACUTE RESPIRATORY INFECTION IN EGYPTIAN CHILDREN: Caretaker Recognition of ARI Signs and Symptoms, and Correlation with Pediatrician Examination and Pulse Oximetry" was finalized 5/13/92. The results of this study were presented and discussed at a WHO meeting on ARI ethnography held in Geneva 5/27/92.

The second study report titled "THE SIGNS AND SYMPTOMS OF ACUTE RESPIRATORY INFECTION IN EGYPTIAN CHILDREN: Correlation of Caretaker Report and Pediatrician Observation of ARI Signs and Symptoms with Radiologic Diagnosis" was also finalized.

A manuscript "Caretaker recognition of respiratory signs in children: correlation with physical exam findings, radiologic diagnosis, and pulse oximetry" has been published (Int J Epidemiol 22:1166-1173, 1993)

4. Management of Wheezing in Infancy

Purpose

The study objectives were to determine the usefulness of albuterol in reducing the respiratory distress of wheezing infants and to compare the effectiveness of oral versus nebulized administration of albuterol. The study also utilized foot pump nebulizers to test their effectiveness and acceptability in this medical setting. A further objective was to assess the frequency of concurrent bacteremia in infants with wheezing.

Abstract

The study design was a double blind randomized clinical trial utilizing four groups, nebulized albuterol, nebulized saline (vehicle), oral albuterol and oral placebo. A fifth group of recurrent wheezing infants were included as open label controls and were given albuterol nebulizations. In October 1990, investigators were trained in Alexandria; the clinical scoring instrument was pretested and inter-rater variability was addressed. The double-blind nature of the study, which involves having the assessors unaware of not only the drug received but also the route of drug delivery,

required two separate rooms for study medicine administration and the assessment of the child. Study outcomes included change in respiratory rate, heart rate, pulse oximetry and clinical score before and after treatment. Etiologic/ laboratory work-up included blood cultures, WBC's and chest x-rays, as well as nasopharyngeal aspirates for viral antigen detection for immunofluoresence. Urine was also tested for antimicrobial activity.

A total of 169 infants completed the trial: 128 were randomized to the four study groups and 41 were included in the recurrent wheezer group. Randomization produced equivalent groups with respect to important contributory variables. Preliminary analysis reveals that nebulized albuterol is most effective in alleviating the respiratory distress of recurrent wheezers as was reflected by the greatest improvement in clinical score relative to the other groups. However, there was little change in respiratory rate, heart rate or pulse oximetry in this group. There was no difference among the other four treatment groups in any of the outcomes with the exception of slight increase in heart rate (10 beats per minute) in the nebulized albuterol group compared to a decrease in heart rate (8 beats per minute) in the oral placebo group. Changes in the state of the infant (falling asleep, waking up, etc) had significant effects on scoring, and were correlated with other outcomes of respiratory rate and heart rate changes. When the results are stratified by absence or presence of state change, no treatment effects of albuterol could be observed among those infants without state change during the trial.

There were three positive blood cultures among the randomized groups (n=169). Two were positive for Salmonella typhi and one for Klebsiella sp. Although the correct media and methods were utilized in processing the blood cultures for respiratory pathogens, the ability of this laboratory to isolate bacterial respiratory pathogens has not been well established.

Application of Results

The preliminary results of this study suggest that albuterol is most effective in relieving the respiratory distress of older children with recurrent wheezing. It does not appear to be effective in relieving the respiratory distress of first time wheezing infants presenting with the clinical syndrome of bronchiolitis. The low frequency of bacteremia caused by respiratory pathogens in this study would not support antibiotic treatment of these infants. The published literature suggests that antibiotic treatment of first time wheezing infants is not necessary. However, typhoid fever should be considered in the differential diagnosis of bronchiolitis in this setting.

The foot pump nebulizer appears to deliver albuterol effectively as evidenced by the good response of the open label control group (recurrent wheezers). Although there was initial resistance by health care staff to the physical effort required to operate the foot pump nebulizer, the nursing staff ultimately accepted this nebulizing apparatus and recognized its value in the management of wheezing.

Status

Patient recruitment ended June 1992. Data editing was completed by the end of June 1992. The WHO CXR readings were received September 1992. The final report was submitted in 1992. A manuscript "Oral versus nebulized albuterol in the management of bronchiolitis in Egypt" has been published (J Pediatr 124: 131-138, 1994).

5. Validation of Maternal Recording of Signs and Symptoms of Acute Respiratory Infections among Egyptian Children

Objective

The purpose of this study was to develop a question or combination of questions asked of mothers that distinguish children with upper respiratory infection from those with acute lower respiratory infections, and from children without respiratory infection and to measure the effect of time since the ARI episode on the accuracy of maternal reporting of ARI episodes.

Abstract

This was a prospective study using children with non-fatal ARI cases enrolled in the signs and symptoms study in Assiut and Ismailia. Children <5 years old with cough and fast or difficult breathing were evaluated by maternal interview, physical examination, chest radiography, and pulse oximetry. Illness was classified using radiographically, clinically, and pulse oximetry-based definitions. Children were alternately assigned for a home maternal interview either 14 or 28 days after the clinical evaluation. The interview consisted of both open- and close-ended questions about the ARI episode.

Of 364 eligible patients, 271 (74%) were located and had a maternal interview. For radiographically-defined acute lower respiratory infection, spontaneously mentioned terms at day 0 in general had a low sensitivity and a high specificity. An exception was *nahagan*, which had the highest sensitivity of 53% and specificity of 78%. The sensitivity of several of the symptoms for combined open- and close-ended questions was relatively high: *nahagan* (80%), *nafas seria* (66%), and *kharfasha* (63%). The specificity of these terms ranged from 50%-68%. *Sedro tale nazel*, showed a sensitivity of 65% and specificity of 70% and *karshet nefas* had a sensitivity of 58% with a specificity of 68%. Similar patterns were seen for the clinically- and pulse oximetry-based definitions of ALRI.

In general, the specificity of terms was inversely related to the follow-up time. For example, the specificity of *karshet nefas* for radiographic pneumonia was 68%, 55%, and 43% for days 0, 14, and 28, respectively. No term provided both a sensitivity and specificity of >50% at day 28 across the radiographically, clinically- and pulse oximetry-based definitions of ALRI.

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Spontaneously mentioned *karshet nefas* at 14 days had a specificity and sensitivity for radiographic ALRI of 87% and 41%, respectively, suggesting that this term may be a good choice for community surveys. Based on these results, maternal reporting of ARI symptoms is relatively non-specific 2 and 4 weeks after diagnosis but may be useful for monitoring trends in the proportion of children with pneumonia who receive medical care. To maximize specificity, ARI programs should generally use a recall period of 2 weeks. Whether maternal education through the mass media will improve maternal reporting of ARI symptoms is not known.

Application of Results

The results of this study will be useful for selecting Egyptian Arabic terms for community ARI surveys.

Status

Data collection was completed in July 1991. A manuscript entitled "Maternal reporting of the signs and symptoms of acute respiratory infections in Egypt two and four weeks after diagnosis" was published (Int J Epidemiology 24:1058-1063, 1995).

6. Health Facilities Surveys

Objective

Following implementation of the program, measurement of key indicators will be required to provide feedback about its progress. Health facilities surveys can be used to measure some of these indicators, such as the proportion of children with ARI presenting to health facilities that are correctly diagnosed and treated. This information can be used to identify weaknesses in the program permitting strengthening of training, supervision, or support activities.

Abstract

Two separate surveys were performed. In July-August, 1990, UNICEF conducted a survey in 20 outpatient and two inpatient facilities in Tema district, Sohag Governorate. An additional survey was conducted among 12 facilities in each of five governorates (Alexandria, Ismailia, Cairo, Assiut, and Menofia) by the Child Survival Project in January-March, 1991.

This study utilizes several different methods and questionnaires to measure the ability of health facilities to deliver ARI case management according to MOH guidelines. A health facilities survey instrument involving 10 data collection forms was developed in Cairo in June 1990. The Health Facility General Information Form contains information about the facility as well as a listing of the physicians and nurses who treat children with ARI. This is used to determine which physicians and nurses should be evaluated during the visit. Outpatient Health Facilities Supply and Inpatient Health Facilities Supplies utilized direct observation by the surveyor and determined the

availability of supplies for treatment of children with ARI. Observation of the Assessment of the Child with Cough or Difficult Breathing is to determine how physicians diagnose and treat children with ARI. Following completion of this form, Surveyors Assessment of the Child is completed in order to determine the correct diagnosis and treatment of the child and to determine whether diagnosis and treatment of the physician are correct. The Caretaker's Exit Interview is used to determine whether the caretaker understands the home therapy of the child with ARI. The Physician Interview is used to assess the physician's general knowledge of ARI as well as knowledge about the diagnosis and treatment of various types of ARI. Four case histories of children with ARI are included. The Nurse Interview also assesses general knowledge and the nurse's knowledge of what advice to give to mothers about home ARI therapy. Review of Patient Records is used to abstract data from existing records on the treatment of inpatients and outpatients with ARI. Assessment of Private Pharmacists Understanding and Practices should be used in private pharmacies near the health facilities that are surveyed to determine current practice in the prescribing of drugs to children with ARI.

Results of the survey in Tema district. No physician counted respirations or checked for chest indrawing while examining 93 children with ARI. In addition, 78/88 (88%) of children judged by the surveyor to have upper respiratory infection were prescribed antibiotics, suggesting that antibiotics are overused. The assessment of five children with illnesses requiring antibiotics were observed by the surveyor (pneumonia [2], severe pneumonia [2], and very severe disease [1]). Although four of five of these children were prescribed antibiotics, three of these children should have been admitted for parenteral antibiotics. After appropriate modifications, the health facilities survey was conducted in a sample of 60 health facilities in the five initial target governorates of the ARI Control Program.

Results of the 5-governorate survey. Of 246 physicians interviewed, 88 (36%) indicated that they had taken a course on ARI case management given by the Egypt ARI Control Programme. Sixty percent of 10 inpatient and 60 outpatient facilities had an antibiotic regimen for the treatment of children with ARI. The proportion of the children with very severe disease, severe pneumonia, and pneumonia given appropriate therapy was 18%, 17%, and 83%, respectively. Among children with no pneumonia, 69% inappropriately received antibiotics. Other types of medications for the treatment of children with ARI were greatly overused. Having taken a previous ARI Program course did not appear to substantially improve the ability of physicians to correctly diagnose and treat children with ARI. Although most mothers were given instructions on how to give an antibiotic and the appropriate dose, the vast majority received no instructions on the duration of therapy or when to bring the child back for reassessment.

Application of Results

The results of these surveys provide data on the status of the ARI case management at health facilities before implementation of the program. A follow-up survey will permit measurement of the progress made by the program in improving ARI case management.

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Status

A final report of the 5-governorate survey was submitted to CSP in August 1992 and a manuscript on the Tema district survey was published (Harrison LH, Khallaf N, El Mougi M, Koura H, Shobair I, Terreri N. An instrument to assess acute respiratory infection case management in Egypt. Quality Assurance in Health Care 1993;5:67-73).

7. Acceptability and Compliance with Various Formulations of Antibiotics

Objective

This study was designed to address three important purposes: 1) to determine how antibiotic prescriptions are actually used, 2) to compare compliance between antibiotic tablets, syrups and single dose packets of antibiotic powder, and 3) to determine factors other than the antibiotic formulation which may be associated with non-compliance.

Abstract

To determine patient compliance with different formulations of cotrimoxazole, 400 children, aged 2 months to 5 years, were randomly assigned to receive one of the following formulations: a) syrup accompanied by a measuring CUP; b) syrup accompanied by a measuring SPOON; c) TABLETS; or d) single-dose SACHETS of antibiotic powder. Compliance with the regimen was assessed on the fourth day of therapy by a home visit during which the caregiver was interviewed about compliance (RECALL) and asked to demonstrate how the medicine was given (OBSERVATION). The remaining amount of medicine was measured (MEASUREMENT), and when possible (n = 151), a urine specimen was tested for the presence of sulfamethoxazole (URINE ASSAY).

Compliance among those who received syrup by CUP was greater than compliance among recipients of tablets or sachets as measured both by RECALL and URINE ASSAY. Those who received syrup accompanied by a SPOON were more likely than those using a cup to underdose the medicine by at least 30%. On the other hand, those taking the syrup by CUP were more likely to undermeasure the medicine than those using sachets. Overall, compliance was highly correlated with the caregiver's report of difficulty in administering the medication.

Application of Results

There is little doubt that antibiotics when properly dosed and administered can significantly reduce mortality from pneumonia, but the effectiveness of the antibiotic is dependent upon the caretaker's compliance with the treatment regimen. This study has demonstrated that compliance varies with different antibiotic formulations. Compliance is best with cotrimoxazole syrup. The choice of measuring utensils is also important with a 10 ml measuring cup superior to a 5 ml measuring spoon.

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Additional research is needed to understand the obstacles encountered by caregivers in administering sachets and tablets. Further endeavors to produce inexpensive but acceptable alternatives to syrups should be encouraged. Such work might include tests to improve antibiotic taste, develop tablets that can easily be crushed or mixed with small volumes of water, or chewable tablets for children over 2 years of age. Compliance with any of these formulations should be tested before being put into widespread use. Meanwhile, the use of antibiotic syrup accompanied by a measuring cup appears to offer the greatest probability of medication compliance in the treatment of children with pneumonia.

Status

This study was completed in April 1992 and a final report was submitted June 30, 1992. A manuscript "Caretaker compliance wiiith different antibiotic formulations for treatment of childhood pneumonia" has been published by the Journal of Tropical Pediatrics (41: 103-108, 1995).

8. The Clinical Signs and Etiologic Agents of Pneumonia, Sepsis, and Meningitis in Young Infants - Not initiated

Objectives

The purpose of this study was to identify the bacterial and viral pathogens responsible for causing pneumonia in infants 0-3 months old. The study would also have identified signs and symptoms of pneumonia in this age group that are most predictive of pneumonia. A large number of infants were needed to adequately address these issues; therefore, the study was to be part of a large WHO multi-country study. Because infants with pneumonia are often difficult to distinguish clinically from infants with other serious infections, such as meningitis and bacteremia, infants with all these infections were to be studied.

Application of results

The results of this study would have been used to improve the ARI treatment algorithm for young infants. Specifically, whether the antibiotics currently recommended by the ARI Program are likely to be effective would have been determined. In addition, the study would have identified the combination of signs and symptoms that are most useful for determining which infants have serious infection. Although the study was not conducted in Egypt, the results of the WHO multi-country study will be available to guide ARI Control Program decisions.

Status

This study was not conducted. The study would have been a major undertaking in that 6-12 months would have been required to develop the laboratory capability to support the microbiologic

component. Given that other sites in the multi-country study were beginning to enroll infants, it was felt that this study was not a priority.

9. Epidemiological and Microbiological Methods for the Surveillance of Respiratory Bacterial Drug Resistance

Objective

The objective of this study is to determine the proportion of isolates of *Haemophilus influenzae* (HI) and *Streptococcus pneumoniae* (SP) that are susceptible to the antibiotics used by the ARI Control Program in Egypt. The study is a Centers for Disease Control and Prevention/Child Survival Project/JHU collaborative project.

Abstract

Children two months to five years of age seen at Embaba and Abbassia Fever Hospitals in Cairo with evidence of pneumonia have nasopharyngeal and blood cultures performed. The proportion of HI and SP isolates sensitive to a panel of antibiotics is being determined, as is the correlation of blood and nasopharyngeal isolates in regard to antimicrobial susceptibility and serotype.

As of May 1993, a total of 1635 children meeting WHO criteria for pneumonia were enrolled in the study, with 997 from Embaba Fever Hospital and 635 from Abbassia Fever Hospital. Approximately 1850 nasopharyngeal isolates of SP and HI have been isolated from enrollees, as have 59 blood isolates of the same pathogens.

A preliminary analysis suggests that antimicrobial disk susceptibility testing of isolates by the hospital laboratories grossly overestimates the true rate of resistance, as determined by the minimum inhibitory concentration (MIC) method performed by Dr. Mona Assad at Vacsera. For example, 47% of SP and 37% of HI were reported to be resistant to penicillin and ampicillin, respectively. However, few penicillin-resistant SP were found and virtually no ampicillin HI were identified by the MIC method.

Application

This study will enable the ARI Control Program to determine whether the antibiotics currently being used by the program are appropriate based on antimicrobial susceptibility patterns and will also assess the feasibility and utility of nasopharyngeal isolates in determining antimicrobial resistance patterns among children with ARI.

Status

This study was completed in April, 1993 and has now been analyzed. A manuscript "Antimicrobial susceptibilities of Streptococcus pneumoniae and Haemophilus influenzae isolates from children with pneumonia in Egypt" has been submitted. A manuscript (Harrison LH, Steinhoff MC, Sridharen G, Castelo A, Khallaf N , Ostroff S and Arthur RR) "Monovalent latex agglutination reagents for the diagnosis of non-meningitic pneumococcal infection. Diagnostic Microbiology and Infectious Disease" is in press.

10. Management of Pharyngitis

Objectives

The study has as its primary objectives to 1) determine the incidence of group A beta hemolytic streptococcal(GABHS) pharyngitis in Egyptian children aged 2-8 years who present to primary care clinics with acute sore throat, 2) compare the sensitivity and specificity of clinical criteria for the prediction of GABHS pharyngitis in younger vs. older children, and 3) determine the proportion of GABHS pharyngitis cases missed using the WHO-recommended criteria for treatment and the proportion of non-GABHS pharyngitis unnecessarily treated using the local criteria. An additional objective is the comparison of the response of symptoms to oral vs. parenteral therapy.

Abstract

The study is a prospective cohort observational study of patients who present to clinics at Abu Reesh Hospital in Cairo. Clinical, and microbiological data have been collected on 388 children who entered the study as of June 1993. Culture positivity rates were: 31/155 in children 2-4 years, 38/167 for 4-8 year olds and 15/66 for > 8 year olds. These rates range from 20.0 to 22.8%. All of the serological procedures have been completed. An assessment of the response to oral or parenteral treatment will be carried out.

Application of Results

The purpose of this project is to obtain information regarding the clinical characteristics of group A beta hemolytic streptococcal infections in children in order to guide policy development in the ARI Control Program in Egypt. The result will be better definition of the clinical criteria to be used to initiate presumptive therapy for streptococcal pharyngitis in Egyptian children. Using the study data, it will be possible to determine the relative cost effectiveness for treatment of acute sore throat using the WHO or locally recommended treatment.

Status

The serological procedures were repeated, and it has been decided to analyze the clinical data in relation to culture results only. A draft manuscript (Prospective evaluation of clinical guidelines for presumptive treatment of streptococcal pharyngitis in Egyptian children) is under review by the authors.

11. Completeness of Vital Registration Data on Infant and Child Deaths in Egypt

Objective

The objective of the study is to estimate the levels of coverage and content errors of the child death registration data (esp. but not limited to ARI) for Egypt. The vital registration is done by the Central Agency for Public Mobilization and Statistics (CAPMAS). With estimates of coverage and content errors it will be possible to adjust the national CAPMAS data to obtain more reliable estimates of ARI-mortality among children in Egypt.

Abstract

To estimate the completeness of CAPMAS data (or coverage), we study deaths recorded in two surveys to determine if they are found in the CAPMAS data files. Two surveys are needed because the numbers of deaths in one survey are too small to give reliable estimates.

The two surveys are PAPCHILD survey done under the auspices of the United Nations and the Arab League and the second Egyptian Demographic and Health Survey (DHS-2). The recorded deaths of children in the five years before each survey will be searched in the CAPMAS records; the number of those missing will give a direct estimate of underenumeration.

Since ARI mortality is the specific interest, we must also consider possible misclassification of cause of death. Thus, to estimate the possible content or misclassification error, we will compare results of verbal autopsies from interviews with the mother, with reports of cause of death on the death certificate, for deaths which are found in both the survey and CAPMAS. Note that the CAPMAS data may overestimate or underestimate ARI deaths.

Application of Results

Without accurate estimates of mortality levels by cause, it is impossible to quantify the impact of the ARI program on mortality reduction. This study will help in the determination of more accurate estimates of infant and child mortality in Egypt.

Status

The analyses of completeness of death reporting was finished in 8/95 and a manuscript,

"Estimation of completeness and accuracy of under-5 death registration in Egypt" has been accepted for publication in Demography. Also we are starting to work on three other papers on cause of death with Stan Becker taking the lead on one and Professor Waheeb working on the other two.

12. Low Birth Weight as a Risk Factor for ARI

Objectives

This study was designed by the Child-Spacing component of the CSP to provide information on the following issues 1) incidence of low birth weight, 2) level of neonatal mortality, 3) risk factors for LBW, and incidence of neonatal morbidity. Discussions with the staff of the Child Spacing component in February 1992 led to the conclusion that it would be highly desirable to expand the study to examine LBW and other factors as determinants of pneumonia morbidity and mortality in the first year of life.

Abstract

Preliminary design work after discussions involving the Child Spacing and the ARI Control components of the CSP resulted in a brief draft protocol.

Application of Results

This study should be a high priority for both the Child Spacing and ARI Control Programs. It would provide information on LBW, important determinant of child survival during infancy, assist in efforts to design and implement effective intervention. In addition, it would provide essential information on the success of current child survival interventions, such as use of tetanus toxoid in pregnancy to reduce neonatal tetanus and ARI case management. ARI-specific mortality is especially a problem in young infants - 50% of all childhood ARI mortality occurs in the first six months of life. The ARI Control Program needs to know how to best target prevention, e.g., reduction in LBW or its consequences or case management, e.g., antibiotics and referral in this critical age group.

Status

JHU faculty advised concerning study design on several visits to Cairo. It was decided by the CSP that JHU would not have a role in assisting with the study.

13. Cotrimoxazole in the Treatment of Egyptian Children with ARI

Objectives

This study was designed to document the proportion of Egyptian children with ARI treated with cotrimoxazole experiencing a serious episode of hemolysis related to G6PD deficiency.

Abstract

Preliminary discussions were held concerning a possible study to document side effects of cotrimoxazole as a continuation of activities in the sites engaged in the study of treatment compliance with various antibiotic formulations.

Application of Results

Although cotrimoxazole is not the first drug of choice in Egypt for treatment of pneumonia, it is the recommended therapy in most countries with ARI control programs because of its efficacy and low cost. Furthermore, a substantial quantity of cotrimoxazole is used in Egypt and serious reactions appear rare. A study of the true rate of serious hemolysis would permit a more informed judgement of the benefits, risks, and costs in antibiotic recommendations in the future.

Status

The ARI Control Program decided against conducting the study.

14. Assessment of the Achievements of the Child Survival Project - Two Governorate Linkage Study

Objective

The objective of this study is to assess the accomplishments of the child survival interventions in reducing morbidity and mortality and improving health services in Egypt.

Abstract

The study consists of a cross-sectional community-based sample survey linked with comprehensive assessments of health services in public facilities, private physician offices and activities of traditional birth attendants. This information will be used to draw inferences regarding the relationship between improving health services and reducing child mortality.

Application of Results

It is important to document changes in child mortality that may cocur and relate these to health program efforts, as this should help to sustain child survival programs and improve their implementation.

Status

Work on the Child Survival Linkages Study was held up for almost a year, from July 1994 to April 1995, by the process of obtaining approval for the field work from the Central Agency for Public Mobilization and Statistics. During this enforced waiting period, work proceeded to the extent possible on the development, translation and pre-testing of survey questionnaires and preparation of the sample frame from Population Census records. Of particular importance was the development and review of the data collection instruments and procedures for health personnel and facilities, by Drs. Black, Hill and Langsten between June and December 1994.

In April 1995, approval for the survey was finally received from CAPMAS. Since that time, questionnaires have been printed, work has started on the listing of households in primary sampling areas, and field staff have been recruited and trained. Field work in Qalyubia and Minia has been underway since July 1995. Data entry and processing has been completed for the first survey round in Qalyubia and is well underway for Minia. A draft comprehensive report on the first round has been prepared.

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Appendix II

List of Publications

1. Herman E, Wahba S. The perception and treatment of acute respiratory symptoms in young Egyptian children, Final report.

2. Herman E. Comparison of ethographic data from two research sites in Egypt, Final report.

3. Khallaf N, Wahba S, Herman E, Black R. Recommendations from Egyptian pharmacies for children with acute respiratory illnesses. Lancet 388: 248, 1991.

4. Herman E, Wahba S, Khallaf N, Black RE. Developing strategies to encourage appropriate care-seeking for children with acute respiratory infections: An example from Egypt. Int J Health Planning and Management 9:235-243, 1994.

5. Gadomski A, Khallaf N, El Ansary S, Black R. Assessment of respiratory rate and chest indrawing by primary care physicians in Egypt. Bull WHO 71: 523-527, 1993.

6. Gadomski A. The signs and symptoms of acute respiratory infecetion in Egyptian children: Caretaker recognition of ARI signs and symptoms with pediatrician examination and pulse oximetry, Final report 1992.

7. Gadomski A. The signs and symptoms of acute respiratory infectionb in Egyptian children in correlation of caretaker report and pediatrician observation of ARI signs and symptoms with radiologic diagnosis. Final report 1992.

8. Gadomski A, Aref GH, Hassanien F, El Ghandour S, El-Mougi M, Harrison L, Khallaf N, Black RE. Caretaker recognition of respiratory signs in children: correlation with physical exam findings, radiologic diagnosis, and pulse oximetry. Int J Epidemiol 22:1166-1173, 1993.

9. Harrison LH, Khallaf N, El Mougi M, Koura H, Shobair I, Terreri N. An instrument to assess acute respiratory infection case management in Egypt. Quality Assurance in Health Care 5:67-73, 1993.

10. Gadomski AM, Aref GH, El Din OB, El Sary IH, Khallaf N, Black RE. Oral versus nebulized albuterol in the management of bronchiolitis in Egypt. J Pediatr 124: 131-138, 1994.

11. Harrison LH, Moursi S, Guinena AH, Gadomski AM, El-Ansary KS, Khallaf N, Black RE. Maternal reporting of the signs and symptoms of acute respiratory infection in Egypt two and four weeks after diagnosis. Int J Epidemiol 24:1058-1063, 1995.

12. Harrison L. Report of the Egypt Acute Respiratory Infectious Control Program Five Governorate Health Facility Survey, Final report, 1992.

13. Ellerbeck E, Khallaf N,. El Ansary KS, Moursi S, Black R. Caretaker compliance with different antibiotic formulations for treatment of childhood pneumonia. J Trop Pediatrics 41:103-108, 1995.

14. Becker S. Estimation of completeness and accuracy of under-five death registration (in Egypt). Final report, 1995.

15. Becker S, Waheeb Y, el Deeb B, Khallaf N, Black R. Estimation of completeness and accuracy of under-5 death registration in Egypt. Demography (in press).

16. Ostroff SM, Harrison LH, Khallaf N, Assad M, Guirgus N, Harrington S, el-Alamy M. Antimicrobial susceptibilities of *Streptococcus pneumoniae* and *Haemophilus influenzae* isolates from children with pneumonia in Egypt. (submitted)

17. Harrison LH, Steinhoff MC, Sridhaner G, Castelo A, Khallof N, Ostroff S, Arthur RR. Monovalent latex agglutination reagents for the diagnosis of non-meningitis pneumococcal infection. Diagnostic Microbiology and Infectious Disease (in press).

18. Steinhoff MC, El Khalak KA, Khallaf N, Hamza HS, Elayadi A, Orabi A, Kamel M. Prospective evaluation of clinical guidelines for presumptive treatment of streptococcal pharyngitis in Egyptian children. (submitted).

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APPENDIX I

JHU Consultant Visits in Support of Applied
Research for the ARI Control Program of Egypt
April 1, 1990 - March 31,. 1994

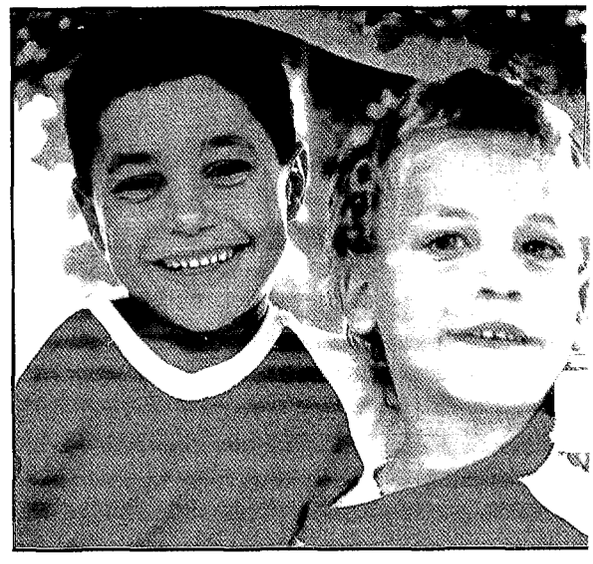
DATES	SITE	JHU FACULTY
YEAR 1		
6/06/90 - 6/20/90	Egypt	Lee Harrison
6/25/90 - 6/26/90	Atlanta	Robert Black
7/07/90 - 7/20/90	Egypt	Anne Gadomski
7/09/90 - 7/29/90	Egypt	Elizabeth Herman
7/17/90 - 7/28/90	Egypt	Lee Harrison
9/05/90 - 9/17/90	Egypt	Elizabeth Herman
10/05/90 - 10/11/90	Egypt	Robert Black
10/05/90 - 10/26/90	Egypt	Anne Gadomski
11/20/90 - 11/29/90	Egypt	Pat Charache
11/23/90 - 11/30/90	Egypt	Anne Gadomski
12/01/90 - 12/15/90	Egypt	Lee Harrison
1/03/91 - 1/15/91	Egypt	Anne Gadomski
2/26/91 - 2/28/92	Geneva	Lee Harrison

YEAR 2		
5/16/91 - 6/07/91	Egypt	Anne Gadomski
5/18/91 - 5/28/91	Egypt	Lee Harrison
7/10/91 - 7/28/91	Egypt	Ed Ellerbeck
9/05/91 - 9/11/91	Egypt	Robert Black
9/06/91 - 9/20/91	Egypt	Anne Gadomski
9/28/91 - 10/02/91	Chicago	Lee Harrison
10/18/91 - 10/28/91	Egypt	Patricia Charache
10/20/91 - 11/17/91	Egypt	Susan Harrington
11/03/91 - 11/17/91	Egypt	Lee Harrison
1/09/91 - 1/18/92	Egypt	Susan Harrington
1/10/92 - 1/17/92	Egypt	Patricia Charache
2/17/92 - 2/28/92	Egypt	Stan Becker
2/15/92 - 2/21/92	Egypt	Robert Black
YEAR 3		
5/29/92 - 6/12/92	Egypt	Anne Gadomski
6/25/92 - 7/05/92	Egypt	Stan Becker
7/28/92 - 9/07/92	Egypt	Mark Steinhoff
10/26/92 - 10/31/92	Egypt	Mark Steinhoff
10/26/92 - 10/31/92	Egypt	Robert Black

1/14/93 - 1/24/93	Egypt	Susan Harrington
1/24/93 - 1/30/93	Egypt	Stan Becker
YEAR 4		
10/24/93 - 11/06/93	Egypt	Stan Becker
YEAR 5		
4/14/94 - 4/27/94	Egypt	Stan Becker
6/20/94 - 6/23/94	Egypt	Robert Black
7/14/94 - 7/21/94	Egypt	Robert Black and Ken Hill
9/13/94 - 9/22/94	Egypt	Stan Becker
12/5/94 - 12/9/94	Egypt	Mark Steinhoff
YEAR 6		
4/6/95 - 4/8/95	San Francisco	Stan Becker
5/27/95 - 6/8/95	Egypt	Ken Hill
2/23/96 - 3/5/96	Egypt	Susan Harrington

The Child Survival Project, Egypt—1985–96

The Problem



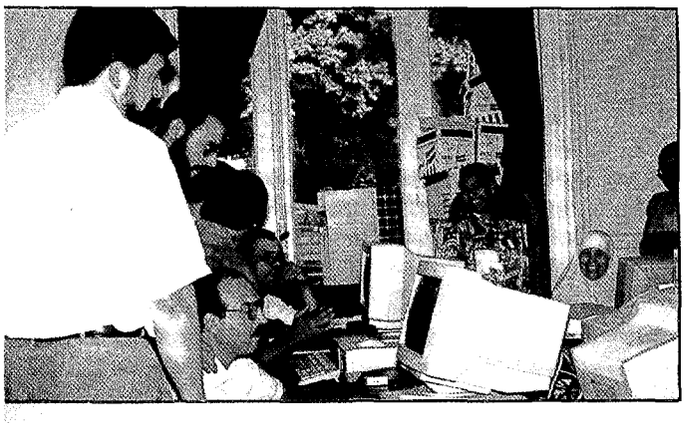
In the mid-1980s, about 1.8 million births occurred each year. Annually, approximately:

- 174,000 infants died before their first birthday
- an additional 65,000 children died before the age of five

During this period the infant, child, and maternal mortality rates were high: 97 and 36/1000 live births, and 220/100,000 live births, respectively.

Children under five were becoming ill and dying from communicable childhood and diarrheal diseases, and from acute respiratory infections. They were also at risk because of poor health care during the perinatal period and malnutrition due to poor weaning practices.

Women of childbearing age were at risk due to poor maternal health care during pregnancy and delivery as well as inadequate time for recovery between pregnancies.



The Solution

Prevention of deaths and illnesses in infants and children through the use of proven interventions in the immunization program; treatment of acute respiratory illnesses, particularly of pneumonia; more widespread use of oral rehydration therapy; improved prenatal, natal, and perinatal health care; and better weaning and supplemental feeding practices.

Reduction of maternal mortality through enhanced maternal care during pregnancy, delivery, and the postpartum period and through child spacing to lengthen the time between pregnancies.

The CS Project

The Child Survival Project (CSP), funded by the Government of Egypt and USAID, was designed to reduce morbidity and mortality in infants, children under the age of five years, and women of childbearing age.

The CSP worked directly with the health care services system of the Ministry of Health and Population to address the problems related to infant, child, and maternal morbidity.

The Project trained many health workers; assured the provision of antibiotics and equipment; conducted research; and worked with medical, nursing, and pharmacy schools and private physicians in the following health programs:

- Expanded Program on Immunization (EPI)
- Acute Respiratory Infections (ARI)
- Child Spacing and Maternal and Child Health Program (CS/MCH)

Six cross-cutting support areas were also included in Project activities:

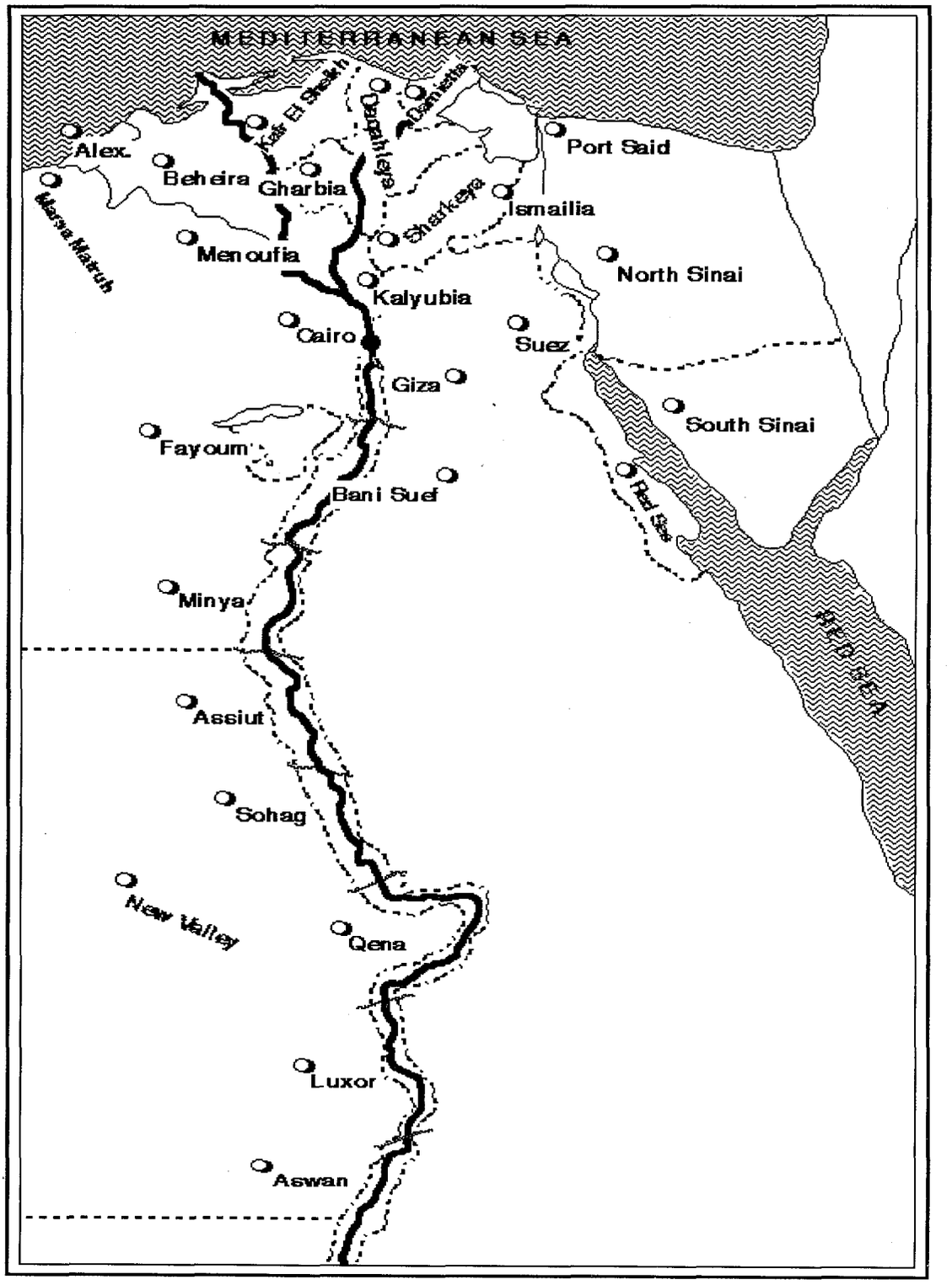
- Health Information Systems and Indicators
- Health Education and Mass Media/Communications
- Model Clinics/Strengthening Clinic Management
- Decentralization/Field Management Support
- Field Epidemiology Training Program
- Training for Medical and Nursing Students

The Impact

As one of the largest and most comprehensive programs in the world, the CSP has made a major contribution to the child survival revolution and leaves a legacy of sustainable improvements in the Egyptian health care system.

In its 11 years of official operation (1985–96) the Child Survival Project has made a significant impact on maternal and child health in Egypt. The CSP has affected nearly every family with young children and Project activities have extended the reach of services to 8 million children under five, to 5 million mothers of under-fives, and to 1.7 million newborns each year. Within the Ministry of Health and Population, the CSP has worked directly with the Health Directorates of the 27 governorates, their 231 District Health Offices, and with more than 300 hospitals and 3500 primary health care facilities.

Overall, infant mortality in Egypt decreased by 35 percent between 1988 and 1994 (from 97 to 62.6/1000 live births), and child mortality by 47 percent in the same period (from 36 to 19.2/1000), according to 1995 DHS statistics. The activities of the Child Survival Project and its EPI, ARI, and CS/MCH program components have made a major contribution to this significant reduction in childhood death in Egypt—in 1994 it was estimated that Project activities were saving the lives of more than 20,000 young children a year, which translates into saving more than 120,000 children's lives during the life of the Child Survival Project.



Computerized map by Hosam Lasheen