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Child Survival Project



1993 Annual Report

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Egypt Ministry of Health
in cooperation with USAID

Preface

On behalf of the Child Survival Project (CSP), we would like to acknowledge the efforts during 1993 of our Ministry of Health colleagues in the implementation of Child Survival interventions. This annual report reflects the work of the CSP and the progress achieved in 1993 towards improving the health of children and women.

Special thanks are given to the governorate health personnel who have made important contributions to the welfare of children and women through the management of Child Survival and Safe Motherhood Programs.

Sincere thanks are expressed to the United States Agency for International Development for their strong support and also to UNICEF and WHO, as well as to Clark Atlanta University for their technical assistance.

Dr. Esmat Mansour
Project Executive Director

Table of Contents

<i>List of Figures</i>	v
<i>List of Tables</i>	vii
<i>List of Abbreviations and Acronyms</i>	ix
1. General Overview	
1.1 Introduction	1-1
1.2 Achievements in 1993	1-5
2. Expanded Program of Immunization (EPI)	
2.1 Introduction	2-1
2.2 Routine Vaccination Program	2-4
2.3 Vaccine Procurement and Supplies	2-7
2.4 Cold Chain Development	2-8
2.5 Supervision and Monitoring	2-9
2.6 Training	2-11
2.7 Disease Surveillance and Control.....	2-12
2.8 Field Epidemiological Training.....	2-16
2.9 Polio Eradication Program	2-16
2.10 Neonatal Tetanus Elimination Program	2-19
2.11 Measles Control Program	2-21
2.12 Operations Research, Studies, and Evaluations	2-23
3. Acute Respiratory Infection Control Program (ARI)	
3.1 Introduction	3-1
3.2 Acute Respiratory Infection Training Program	3-7
3.3 Management and Supervision	3-9
3.4 Procurement and Supplies of Clinical Equipment	3-10
3.5 Drug Supply	3-10
3.6 Laboratory Upgrading	3-11
3.7 Management and Health Information System.....	3-12
3.8 Health Promotion and Education	3-12
3.9 Operations Research and Studies	3-15
4. Child Spacing and MCH Improvement Program (CS/MCH)	
4.1 Introduction	4-1
4.2 MCH Service Delivery Improvement	4-6
4.3 Daya (Traditional Birth Attendant) Program	4-12
4.4 Neonatal Intensive Care Program.....	4-15
4.5 Natal Program.....	4-19
4.6 Promotion of Improved Infant Nutrition	4-22

5. Diarrheal Disease Control Program (GDDDC)	
5.1 Introduction	5-1
5.2 Accomplishments in 1993	5-3
6. Project-Wide Activities and Administration	
6.1 Staffing	6-1
6.2 Technical Assistance (USAID-Funded)	6-1
6.3 US Procurement (USAID-Funded)	6-2
6.4 Local Procurement in 1993	6-2
6.5 In-Country Training	6-2
6.6 US Training	6-5
6.7 Health Promotion and Education	6-5
6.8 Health Information System	6-7
6.9 Decentralized Planning and Management	6-8
6.10 CSP Research Committee	6-9
6.11 Monitoring and Evaluation	6-9
6.12 Financial Report for 1993	6-10

Annexes

- Annex A:** Child Survival Project Reports and Documents, 1993
- Annex B:** Analysis of Child Survival Goals, Targets, and Indicators of Achievement
- Annex C:** Assessment Report of EPI Disease Surveillance and Control
- Annex D:** Technical Assistance in 1993
- Annex E:** Summary of FETP Field Work Completed in 1993

List of Figures

1-1	CSP Level of Program Activity	1-4
1-2	Declines Recorded in Infant and Child Mortality	1-8
2-1	Key EPI Activities	2-2
2-2	Key Objectives and Indicators	2-2
2-3	Childhood Vaccinations Included in the EPI Routine Program	2-4
2-4	Immunization Coverage of Hepatitis B, 1993	2-5
2-5	National Infant Vaccination Coverage Rates, 1984–1993	2-6
2-6	Findings of the 1993 Cold Chain Evaluation	2-8
2-7	Use of Temperature Monitor Cards	2-11
2-8	Personnel Trained in EPI in 1993	2-12
2-9	Posters and Books Distributed in 1993	2-13
2-10	Reported Cases of Communicable Diseases, 1988–1993	2-14
2-11	Measures for Polio Eradication in 1993	2-16
2-12	Suspected Poliomyelitis (AFP), 1974–1993	2-17
2-13	Monthly Reported AFP Cases, 1990–1993	2-18
2-14	CSP Actions in 1993 for the Elimination of Neonatal Tetanus	2-20
2-15	Tetanus Toxoid Immunization Coverage, 1987–1993	2-20
2-16	Reported Cases of Neonatal Tetanus, 1986–1993	2-21
2-17	Elements of the National Measles Control Program	2-22
3-1	Facts about the Epidemiology of ARI	3-1
3-2	Infant Mortality Rate Due to ARI and All Causes, 1983–1990	3-2
3-3	Standard Case Management in Egypt	3-4
3-4	Access of Egyptian Population (Under 5) to ARI SCM	3-7
3-5	Percent of Original Training Targets Achieved, 1993	3-8
3-6	Training Carried Out in 1993 Compared to Previous Years, and Planned for 1994–1995	3-8
3-7	Areas for ARI Home Care Counseling	3-13
4-1	Purpose and Output Indicators for the CS/MCH Program	4-3
4-2	Training Carried Out in 1993	4-5
4-3	Physicians Manual Table of Contents	4-7
4-4	Training of Supervisors for the Daya Program	4-9
4-5	Classification of the Causes of Maternal Deaths	4-10
4-6	Maternal Mortality Ratio, by Governorate	4-11

4-7	Dayas Trained by the CSP	4-13
4-8	Daya Training by the CSP, 1989–1993, and Projections	4-13
4-9	Components of the Daya Program	4-14
4-10	Components of the Neonatal Care Program	4-15
4-11	Training of Health Providers in Neonatal Care in 1993	4-16
4-12	Procurement for NIC Units Initiated in 1993	4-17
4-13	Procurement for NICUs in 1992–1993 (Placed into Service During 1993)	4-19
4-14	Components of the Natal Program	4-20
4-15	Maternity Care Manual Topics	4-21
4-16	Delivery Room Equipment Procurement Initiated in 1992–1993 ...	4-21
5-1	GDDDC Program Targets and Performance Indicators	5-2
6-1	CSP Staffing Plan	6-1
6-2	1993 Field Studies Carried Out by the FETP	6-3
6-3	CSP Level of Program Activity, by Estimated Expenditures	6-11

List of Tables

2-1	National Infant Vaccination Coverage Rates, 1984–1993	2-25
2-2	Vaccine Supplies Distributed Through VACSERA Including Polio and TT Campaigns, 1992–1993.....	2-26
2-3	Estimated Vaccine Supplies Required for 1994 and 1995	2-26
2-4	EPI Monitor Cards, 1993	2-27
2-5	Training Accomplished by EPI in 1993.....	2-27
2-6	Materials Used in Training and for HP and Education, 1990–93	2-28
2-7	Polio Campaigns and Mop-Ups, Egypt, 1990–1993.....	2-29
2-8	Decline in Reported NNT Cases in Egypt, 1987–1993	2-29
3-1	Training Carried Out in 1993 Compared to Previous Years, and Planned for 1994–1995	3-17
3-2	Staff Trained in ARI SCM in 1993	3-18
3-3	ARI Management Training, 1990–1993	3-19
3-4	ARI Specialist Training, by Governorate, 1991–1993	3-20
3-5	PHC Physicians Trained in ARI SCM, 1990–1993	3-21
3-6	ARI Training of Nurses, 1992–1993.....	3-22
3-7	Installation of SCM in MOH Health Facilities	3-23
3-8	Estimated Access of Egyptian Population to ARI SCM.....	3-24
4-1	Procurement by the Child Spacing Component, 1991–1992	4-24
4-2	Procurement Initiated for the CS/MCH Program in 1993	4-24
4-3	PHC Physicians Trained for Improved Quality of MCH Service Delivery	4-25
4-4	MCH Laboratory Upgrading Program	4-26
4-5	Trainers and Supervisors for the Daya Program	4-27
4-6	Dayas Trained by CSP in 10-Day Basic Course, 1989–1993.....	4-27
4-7	Status of Neonatal Intensive Care Centers, as of Dec. 1993.....	4-28
4-8	Renovation of Delivery Rooms During 1993	4-29
4-9	Renovation and Upgrading of First Referral Level Delivery Rooms	4-30
4-10	Documents Published and Distributed, 1989–1993	4-31

5-1	Training Carried Out for Diarrheal Disease Control in 1993	5-4
5-2	Commodity Procurement for Support of GDDDC Programs in 1993.....	5-5
5-3	Program Support for DDC Budgeted for 1994–1995	5-5
6-1	Technical Assistance Provided by Clark Atlanta University	6-12
6-2	Procurement Completed for the CSP in 1993	6-12
6-3	New USAID-Funded Procurement Initiated for the CSP in 1993 ...	6-13
6-4	Local Procurement Expenditures by the CSP for 1993	6-14
6-5	In-Country Training Funded by CSP, 1990–1993	6-14
6-6	CSP Expenditures in 1993 and in Previous Years	6-15

List of Abbreviations and Acronyms

ALRI	Acute Lower Respiratory Infection
ANC	Antenatal Consultations
ARI	Acute Respiratory Infections; ARI Control Program
AUC	American University in Cairo
BCG	Bacillus Calmette-Guérin
CAPMAS	Central Agency for Public Mobilization and Statistics
CAU	Clark Atlanta University
CDC	US Centers for Disease Control and Prevention
CDD	Ministry of Health Communicable Diseases Department
CS	Child Spacing
CSP	Child Survival Project
EPI	Expanded Program of Immunization
FETP	Field Epidemiology Training Program
FY	Fiscal Year
GDDDC	General Directorate for Diarrheal Disease Control
GOE	Government of Egypt
HB	Hepatitis B; Hepatitis B vaccine
HPEO	CSP Health Promotion and Education Office
IPV	Salk Polio Vaccine
IFB	Invitation for Bids
JHU	Johns Hopkins University
LE	Egyptian Pounds
MG	Milligram
MOH	Ministry of Health
NICU	Neonatal Intensive Care Unit
NNT	Neonatal Tetanus
O&M	Operation and Maintenance
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
PIL	Project Implementation Letter (USAID)
SCM	Standard Case Management
TA	Technical Assistance
TT	Tetanus Toxoid
TV	Television
US	United States of America
USAID	Mission in Egypt of the US Agency for International Development
WHO	World Health Organization
WRA	Women of Reproductive Age

1. General Overview

1.1 Introduction

1.1.1 Purpose of the Report

The annual report of the Child Survival Project is designed to record the activities of the Project during the year and to summarize accomplishments. It is a record of past action. This report draws directly on material included in reports already prepared by the Project covering progress in various subprograms.

1.1.2 Background of the Project

The Child Survival Project was designed in 1984–85 with the goal of reducing mortality and morbidity in children under 5 and in women of childbearing age. Special attention is addressed to prenatal care and infants under one year old. The purpose of the Project is specified as improved health services for child survival and safe motherhood to reduce rates of infant, child, and maternal mortality.

When the Project was in the design phase, in 1984, the main causes of mortality and morbidity in children under five years of age were: the high incidence of communicable diseases, diarrheal diseases and acute respiratory infections, high birth rates with short birth intervals, poor maternal care during pregnancy and delivery, poor health care during the prenatal period, and malnutrition due to poor weaning practice.

A health situational analysis determined that a large proportion of the morbidity and mortality could be prevented through the following health interventions: improvement in the immunization program, greater utilization of rehydration therapy, improved techniques for the diagnosis and treatment of acute respiratory infections, child spacing and family planning, improved antenatal, natal, and prenatal health care, and improved weaning and supplemental feeding practices.

The Project was developed based on this situational analysis. On August 15, 1985, representatives of the Arab Republic of Egypt and the United States of America signed a bilateral agreement to establish the Child Survival Project. The Government of Egypt committed \$34 million and the United States Agency for International Development agreed to contribute nearly \$68 million. There were extensive start-up delays. The Project was organized and staffed in 1988–89. Implementation started in 1989. The Project became fully operational in 1990.

1.1.3 Organization of the Child Survival Project

The CSP is currently organized into three technical components:

- Expanded Program of Immunization.
- Acute Respiratory Infections Control Program.
- Child Spacing and Maternal Child Health Care Program.

It includes three cross-cutting support divisions: Health Promotion and Education, Information Systems, and Research. In 1993, the Project initiated support for the General Directorate for Diarrheal Disease Control. The Project works directly with the Health Directorates of the 26 governorates and Luxor, and the more than 205 district and zone health offices of these directorates. The Project also works in partnership with the World Health Organization and UNICEF, and has received substantial support in the form of technical assistance and vaccine supply from these partners, as well as from USAID. Technical Assistance financed by USAID includes that provided by Clark Atlanta University and the US Centers for Disease Control.

1.1.4 Targets and Goals

In his declaration document proclaiming the 10 years 1989–1999 as the Decade for Egyptian Child Care and Protection, His Excellency President Mohammed Hosny Mubarak invited all individuals, official, non-official and private organizations, and charities to direct their efforts in this period to the following goals:

- Provide a higher priority to child projects in national planning.
- Dedicate more efforts to lowering infant and maternal mortality.
- Strive to achieve a better quality of life for Egypt's children.

The President also specified certain objectives to be achieved before the year 2000:

- To increase public awareness and foster the use of modern services and technologies for better health protection and care of the Egyptian Child.
- To completely eradicate poliomyelitis.
- To prevent tetanus incidence among newborns.
- To reduce infant mortality to less than 50 per 1,000 live births.

In 1989 Egypt formed a National Council for Children and Motherhood that is co-chaired by the Prime Minister and the First Lady. The 1992–97 National Plan identifies guidelines for MOH activities relevant to the CSP program:

- Emphasize the importance of MCH, family planning, and community health in all health development programs.
- Use the following selection criteria for new health projects and programs:
 - Emphasize primary health care.
 - Focus on underserved groups and areas.
 - Focus on preventive and emergency services.
 - Focus on implementation of on-going investment projects.
- Emphasize upgrading of health information systems and their use in health planning.
- Reduce maternal and child mortality due to preventable causes.

CSP has incorporated the goals and objectives of the President's Declaration, the National Council for Children and Motherhood, and the National Five-Year Plan into its work plans. A detailed outline of Program goals and targets is provided in Annex B.

1.1.5 Emphasis on Child Survival Sustainability

A significant development in 1993 has been an effort strongly supported by USAID and the MOH to insure the sustainability of child survival and safe motherhood interventions.

Sustainability, a complex and relative concept, is defined as the continuation of a Project's benefits and outputs after Project funding ends. The Mid-Term Evaluation carried out in the fall of 1992 noted that the Project was achieving significant contributions to the improvement of maternal and child health in Egypt, but urged that the MOH and USAID work toward the development of a Project sustainability strategy and plan.

Sustainability involves managerial, technical, institutional, and financial aspects. Of these, technical sustainability is the least problematic and will usually result if institutional and financial sustainability are secured. Institutionalization is required to develop an appropriate constituency and commitment to continued support for child survival services. Decentralization is needed to bring about a commitment at the Governorate level in order to insure mobilization of local resources. Integration of services is essential to improve client and provider satisfaction, efficiency, and productivity, and to generate local level commitment to and demand for child survival services.

During 1993, key issues for the sustainability of child survival and safe motherhood interventions were identified and a plan for 1994-95 that covers the areas of institutionalization, decentralization, and integration was developed. The MOH has under consideration

recommendations to institutionalize and integrate child survival and safe motherhood interventions, along with reinforcement activities for a continued healthy mother and healthy child effort, as part of a Directorate General for the Child Survival Program.

1.1.6 Level of Program Activity

The level of program activity has risen progressively each year since the Project initiated operations in 1989-90. In 1993, program expenditures financed by the USAID grant and the GOE cash contribution are estimated to have totaled \$18.5 million. In addition, \$2.9 million was funded under the MOH budget for vaccine. USAID grant assistance committed under Project agreements reached a total of \$61 million during 1993. A further \$6.9 million is to be provided by a Project agreement amendment during 1994, to bring the total to the planned \$67.9 million. GOE direct cash contributions under the Project rose in 1992 and again in 1993, amounting to LE 12 million (\$3.6 million) for the fiscal year 1993-94. UNICEF vaccine supply, which has been a major contribution, is being phased out in 1994, while the GOE budget for vaccine supply, also significant, is being increased.

**Figure 1-1. CSP Level of Program Activity,
by Estimated Expenditures (US\$ million)**

<u>Program Expenditures</u>	<u>'88-90</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>'88-93</u>
USAID Grant	5.5	8.3	10.7	16.0	40.5
GOE Cash Contribution	0.1	0.2	0.6	2.5	3.4
Subtotal	5.6	8.5	11.3	18.5	43.9
Vaccine Supply, GOE-Funded	8.7	2.9	7.9	2.9	22.4
Total	14.3	11.4	19.2	21.4	66.3

SOURCE: CSP. See also Chapter 6, Section 6.12.

1.2 Achievements in 1993

1.2.1 Expanded Program of Immunization (Chapter 2)

Routine Infant Vaccinations.

More than 4 million children benefited directly from the regular immunization program. These included nearly all infants under one year of age, as well as toddlers who received booster shots for polio and measles. Coverage rates for all immunizations exceeded 85% for the nation. The program for infant vaccinations against hepatitis B viral infection, a disease that kills over 20,000 persons per year in Egypt, was carried out countrywide, achieving rates of coverage of over 70% during the first full year of operation.

TT Immunizations for Pregnant Women

According to CSP estimates, over one million women received tetanus toxoid immunizations to protect their babies from neonatal tetanus (NNT) in 1993. The Project attained its target for immunization coverage of pregnant women against tetanus (TT2+) in 1992 and has exceeded this level in 1993. The high level of TT immunizations of pregnant women from 1988 to 1993 has greatly increased TT2+ coverage of all women of reproductive age.

Elimination of NNT

Nationwide a further dramatic decline in the number of NNT cases—which are nearly all fatal—occurred. Reported cases, which averaged over 6,000 in the period up to 1988, have declined by over 80% and are currently being reported at the rate of about 1,200 per year, despite much improved surveillance coverage. The reduction in NNT cases means the saving of thousands of infant lives each year. A further decline of NNT is expected to be registered in 1994 and 1995. Assuming a continuation of the policies and programs that have proven effective, the elimination of NNT, which used to account for 14,000 infant deaths per year, appears within reach during the life of the Child Survival Project. During 1994, a national survey will be carried out to derive better estimates of TT coverage among women of reproductive age, and of reductions in infant mortality due to NNT elimination.

Polio Eradication

The target is to achieve zero cases of confirmed indigenous poliomyelitis by 1995. The 1992 Annual Report noted a turning point, with a decline that year in the number of reported cases of acute flaccid paralysis, despite much improved surveillance and reporting of suspected cases. During 1993, continued progress was made in

immunization and control measures, with the result that the number of reported cases of AFP dropped markedly, from 671 to 196¹ cases. Analysis of the data shows that the number of districts that have been polio-free for one year increased from 47 in 1992 to 127 in 1993. The number of governorates reporting no cases of polio increased from two in 1992 to 10 in 1993.

EPI Disease Surveillance and Control

In November 1993, a joint national and international evaluation team surveyed the status of EPI Disease Surveillance and Control. The team, headed by a WHO representative, surveyed the situation in 19 governorates. The report² of the team concluded that tremendous progress has been made toward the Government of Egypt's goals of polio eradication and neonatal tetanus elimination and toward the development of an action-oriented disease surveillance system. The review confirmed that the very low reported incidence of polio is real and, during 1992-93, polio shifted from a widespread endemic disease to one with a limited focal distribution. The national incidence of reported NNT disease has fallen dramatically, with 23 governorates reporting less than one case of NNT per 1,000 live births.

1.2.2 Acute Respiratory Infection Control Program (Chapter 3)

Efforts to control acute respiratory infections represent a new program that began operating in 1990, based on a national plan developed with WHO assistance in 1989. As a recent program, it is only beginning to show results. Attaining full impact in the reduction of mortality due to ARI will require several more years of sustained effort. The program is moving rapidly to achieve its goal of installing a national system for the diagnosis, treatment, and control of ARI in children under five, based on the WHO criteria for standard case management. During 1992, the system was developed to cover 19 governorates and was providing access to standard case management for approximately 45 to 50% of the population under 5 years old.

The program was extended to all 26 governorates during 1993. Over 95% of the districts of the country have installed the program or are in the process of doing so. By the end of 1993, an estimated 70% of Egypt's children had access to standard case management, compared to 8% in 1990. Most hospital outpatient clinics and about two-thirds of

¹ Revised figure. The number of cases of polio reported in 1982, when national polio campaigns began, was 2,153 (with less complete coverage).

² Nick Ward, et al., *Assessment of EPI Disease Surveillance and Control with Emphasis on Polio Eradication and Neonatal Tetanus Elimination*, Egypt, 20-30 November 1993.

over 3,000 primary health care facilities are now staffed with physicians trained in ARI. A referral system for severe cases of ARI has been established. Hospitals staffed with specialists in the treatment of severe ARI increased from 45 at the end of 1992 to 128.

A standard case registration and reporting system has been installed by 15 governorates. It will be extended countrywide in 1994.

1.2.3 CS/MCH Improvement Program (Chapter 4)

The Child Spacing and MCH program extended its program to improve MCH service delivery from 20 to 25 governorates. As of December 1993, the CS component had provided assistance to most urban primary health care facilities and over half of rural facilities. The program will be further extended to all governorates and districts in 1994 and will reach some 80% of the primary health care facilities.

The program's efforts include increasing the outreach for maternal and child health care through a program to equip and train traditional birth attendants (TBAs) to improve management of normal deliveries and emphasize referrals of women for professional maternal services. The TBA or "daya" program is being carried out nationwide, with UNICEF working with the Ministry of Health in seven health directorates of Upper Egypt and CSP working with the health directorates of other governorates. Over 10,000 dayas, who count as clients some 500,000 pregnant women annually, have been trained and equipped in these joint programs. Along with providing birthing services, they are counseling their clients on antenatal care and TT immunizations, maternal nutrition and proper breast feeding practice, recognition of the signs and symptoms of severe ARI in neonates, and high-risk pregnancy. The goal of training and equipping 80% of the nation's dayas by 1995 appears to be within reach.

Progress has been made toward the development of a national prenatal program in which the efforts of pediatricians, obstetricians and gynecologists, and general practitioners will be better coordinated and combined to improve neonate and mother care during pregnancy, delivery, and the postpartum/neonatal period. The national maternal mortality study, completed in 1993 with the cooperation of 21 health directorates, has provided an invaluable database of the avoidable factors in maternal mortality and morbidity.

The natal program to upgrade first referral delivery rooms has been extended from seven to 16 governorates and is in the process of being expanded to all governorates. The neonatal intensive care program is operative in all governorates, with significant improvements having

taken place in the operation and maintenance of a number of MOH neonatal care units.

1.2.4 Impact on Infant and Child Mortality

Data from vital statistics and surveys substantiate important achievements: reductions in infant and child mortality during the past two decades. Demographic and Health Survey (DHS) data show that infant mortality declined by more than half between 1972 and 1992, and that child mortality declined by over three-quarters.³ These reductions have occurred primarily due to vaccination and diarrheal disease control programs, although improvements in quality of life (sanitation, education, etc.) have certainly contributed.⁴

It appears significant that major gains in child⁵ mortality reductions occurred during the first five years of the past twenty, whereas the major gains in reducing infant mortality have occurred during the last five years, when significant countrywide improvements in vaccination and oral rehydration therapy⁶ took place.

Figure 1-2. Declines Recorded in Infant/Child Mortality During Implementation of the CSP

	1973– 1977	1978– 1982	% Decline	1983– 1987	1988– 1992	% Decline
Infant Mortality	129	108	16	97	62	36
Child Mortality	91	55	40	36	25	31

SOURCE: *Egypt Demographic and Health Survey 1992, Summary Report*, February 1994.

³ *Egypt Demographic and Health Survey 1992, Summary Report*, Cairo, February 1994, p. 4.

⁴ The ARI and CS/MCH programs are expected to impact on child mortality during the later years of the Project, and after.

⁵ "Child" refers to those 1 to 4 years of age. "Infant" refers to those under 1 year of age.

⁶ The National Diarrheal Disease Control Project came to an end in 1991, but the program was continued under a General Directorate for Diarrheal Disease Control, supported by CSP since 1993.

Despite significant accomplishments in reducing diarrhea deaths among children and in improving immunization coverage, Egyptian women and children still continue to die from preventable causes. Child Survival Project interventions will contribute further to reducing mortality from acute respiratory infections and from complications during pregnancy. High maternal mortality rates and an increase in the proportion of infant deaths due to pregnancy complications indicate that continued priority must be given to maternal and neonatal health, and to birth spacing.

2. Expanded Program of Immunization (EPI)

2.1 Introduction

2.1.1 Background

Although immunization has long been carried out in Egypt,¹ it has only been since the establishment of the Expanded Program of Immunization in 1980, and especially since an accelerated program was implemented beginning in 1984, that immunization services have reached the great majority of infants throughout the country. EPI was incorporated as a major component in the Child Survival Project by the Ministry of Health and USAID in 1985, with substantial inputs by UNICEF, WHO, and Rotary International.

Each year the program reaches over 4 million children under 5, and over one million women. Present coverage rates for all immunizations in the first year of life are over 85%. The last five years have seen a progressive decline in cases of childhood EPI diseases and in resulting deaths.

2.1.2 Objectives , Strategy, Policy, and Program

EPI's goal is to reduce morbidity and mortality resulting from seven diseases: tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, measles, and hepatitis B. The national strategy adopted is to:

- Increase and sustain high immunization coverage nationwide.
- Upgrade the quality of the cold chain to assure vaccine efficacy.
- Perform EPI disease surveillance and applied research.

This strategy includes a policy of decentralization of EPI program implementation to health directorates in the 26 governorates and in Luxor. The governorate health directorates are responsible for managing the program in their jurisdictions, with technical assistance, vaccine, and other program supplies provided from the central level.

¹ Immunization in Egypt began as early as 1890, with routine vaccinations of newborns for protection against small pox. Vaccinations against childhood diseases became obligatory by law in 1956 (BCG), 1959 (diphtheria), 1964 (polio), 1968 (DPT), and 1977 (measles and TT [for pregnant women]). Hepatitis B immunizations began in 1992.

EPI includes a number of activities and subprograms including: immunization, logistics, management, training, surveillance, cold chain operations, health promotion and education, and research and evaluation (Figure 2-1).

Figure 2-1. Key EPI Activities

- Immunization coverage.
- Vaccine supply and distribution.
- Supervision and monitoring.
- Training.
- Health promotion and education.
- EPI disease surveillance and applied research.
- Cold chain management and improvement.
- Cold chain maintenance and repair.

2.1.3 Key Targets and Indicators

Figure 2-2. Key Objectives and Indicators

- 90% immunization coverage against targeted diseases by 1995.
- Eradication of poliomyelitis by 1995-96.
- Elimination of neonatal tetanus by 1995.
- 90% reduction of measles cases by 1995.
- 80% immunization coverage of pregnant women by 1995.
- Strengthening of primary health care delivery services through integration with EPI activities.

2.1.4 Inputs

Inputs in 1993 included procurement and distribution of vaccines, disposable syringes, cold chain equipment, training, management resources, production and distribution of manuals, mass media, technical assistance, advisory services, operations research, studies, and evaluation.

2.1.5 Accomplishments in 1993 (Highlights)

Routine Infant Vaccinations

More than 4 million children benefited directly from the regular immunization program.

Hepatitis B Infant Vaccination

This program, designed to protect against hepatitis B viral infection—a disease that kills over 20,000 persons per year in Egypt—was successfully introduced as part of the routine vaccination program, achieving a national coverage rate of over 70% in its first full year.

Polio Eradication

The number of cases of polio reported in 1982, when national polio campaigns commenced, was 2,153. A turning point was noted in the 1992 Annual Report, with a decline in reported cases, despite improved surveillance. During 1993, the number of reported cases of acute flaccid paralysis (AFP) dropped from 671 to 196, of which 150 were confirmed polio cases. Polio-free districts increased from 47 in 1992 to 127 in 1993.

NNT Elimination

A further decline in cases of NNT took place: 1,277 reported cases represent a decline to less than 20% of pre-Project levels. The reduction of NNT cases means thousands of infant lives saved each year.

Disease Surveillance and Control

A joint national/international evaluation team surveyed the status of EPI Disease Surveillance and Control and concluded that tremendous progress has been made toward the Government of Egypt's goals of polio eradication and neonatal tetanus elimination and the development of an action-oriented disease surveillance system.

Pre-Service Training

CSP/EPI undertook work with universities to develop a curriculum for fourth- to sixth-year medical students and with nursing schools for training of nursing students.

Field Epidemiology Training

An MOH Field Epidemiological Training Program, with technical assistance provided by the US Centers for Disease Control, was initiated.

2.2 Routine Vaccination Program

The routine vaccination program seeks to achieve a sustainable national rate of vaccination coverage of 90% or more, with no district in the country falling below 80% coverage for the seven EPI diseases. The program operates through a decentralized health system that manages the cold chain and 3,400 fixed vaccination points² operated by governorate health directorates and over 200 district health offices. Vaccines and disposable syringes are supplied by the Ministry of Health.

Figure 2-3. Childhood Vaccinations Included in the EPI Routine Program in 1993

<u>Vaccine</u>	<u>Age</u>	<u>% Coverage</u>
BCG	Before 3 months	94
OPV-1	2nd month	97
OPV-2	4th month	92
OPV-3	6th month	88
OPV-4	9th month	79
OPV Booster	18–24 months	81
Quadruple*	2nd month	97
DPT-2	4th month	92
DPT-3	6th month	88
DPT Booster	18–24 months	81
HB-1	2nd month	94
HB-2	4th month	85
HB-3	6th month	73
Measles	9th month	89

Infants targeted in 1993: 1.63 million

* DPT-1 + IPV (Injectable Salk Vaccine against polio)

SOURCE: CSP Expanded Program of Immunization, 1993
Report on Egypt Immunization Coverage (1993) by Health Districts.

The EPI plan covering the period of 1993–95 is directed toward improved coverage in lagging districts, decentralization of program management to the

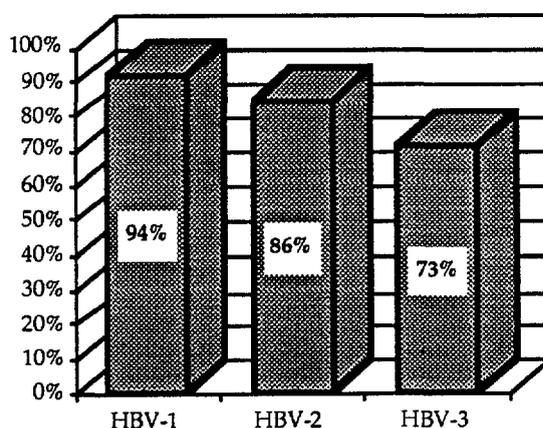
² Approximately 3,400, including all primary health care facilities and health bureaus (vital registrations, vaccination, and family planning).

governorates and districts, insured sustainability via repair and maintenance provisions for the cold chain, and pre-service training for health staff.

In 1993 the routine vaccination program included 14 immunizations against the seven diseases, targeted at all infants—estimated at 1.63 million in 1993—and at infants under 12 months. In addition, booster doses of DPT and polio were scheduled for children between 18–24 months of age (Figure 2-3). The program also included tetanus toxoid immunization of women (see Section 2.10). Routine immunization required a total of 39 million doses of vaccine in 1993.

Routine hepatitis B infant immunization, which was initiated in the fourth quarter of 1992, became fully operational in 1993.³ Results in the first year showed 73% coverage achieved for HB-3. The HB immunization schedule calls for three vaccinations during the first year, timed to coincide with the DPT vaccination schedule (during the second, fourth, and sixth months of age). It is projected that HB immunizations will approximate those of DPT, i.e., an HB-3 vaccination rate of 90%. It is expected that performance in HB-3 coverage will improve significantly in 1994–95.

Figure 2-4. Immunization Coverage of Hepatitis B
Egypt, 1993



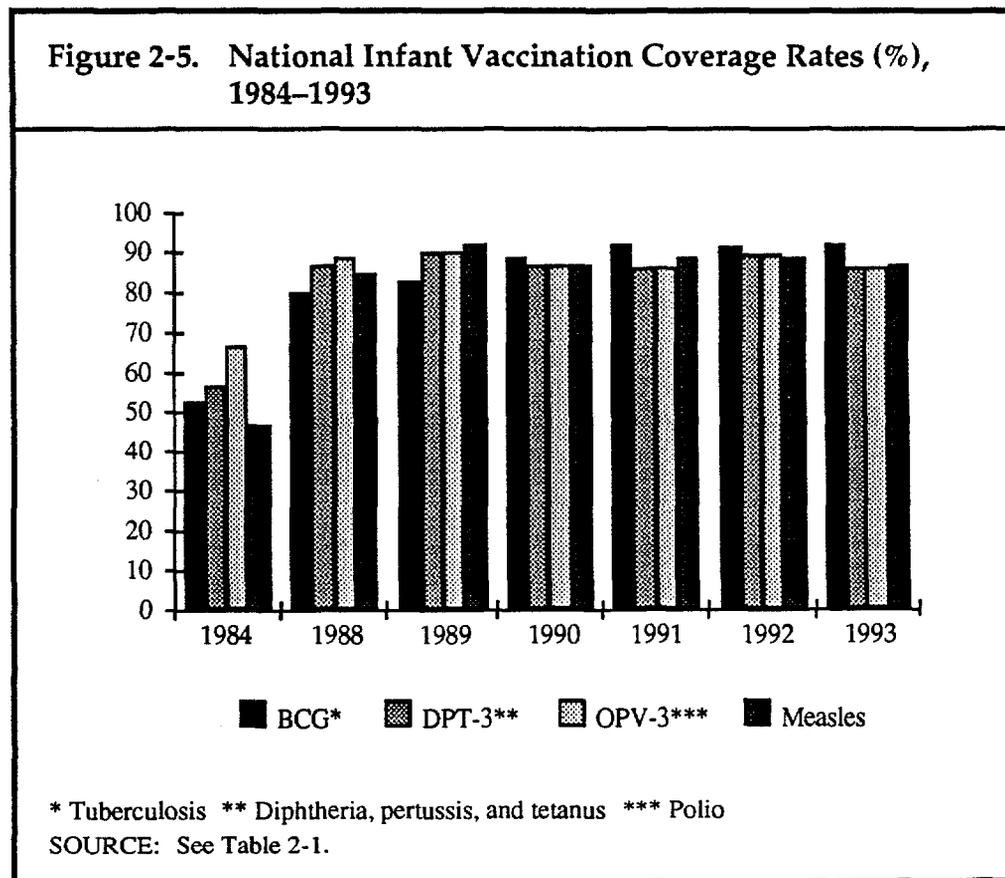
SOURCE: Expanded Program of Immunization.

³ The Ministry of Health, recognizing both technological advances that have improved the quality of hepatitis B vaccine (and lowered its price) and the seriousness of the disease, decided in 1991 to introduce HB infant vaccinations under the CSP, with assistance from USAID. Studies in Egypt show that up to 65% of Egyptians become infected and that the prevalence of HB virus is 7%. Because most infection occurs after the first year, vaccination of infants can provide almost total protection against hepatitis B disease, which causes tens of thousands of adult deaths each year.

Analysis of overall vaccination coverage performance shows that 77% of districts achieved a vaccination rate of over 80% for all antigens. Some 49 of the 210 districts failed to reach the 80% target for 1994-95 established by EPI. National infant immunization coverage between 1984 and 1993 has developed as shown in Figure 2-5.

The routine vaccination program is mandatory, and has a high degree of public understanding and acceptance. The program is a major factor in the decline of reported cases of childhood EPI illnesses and reported deaths from these illnesses observed in the past decade. Studies⁴ suggest that the large decrease in infant and child mortality in the last 10 years (Chapter 1, Figure 1-2) is due in large part to the national EPI program, the program for control of diarrheal disease, and improved standards of living.

Figure 2-5. National Infant Vaccination Coverage Rates (%), 1984-1993



⁴ For example, *Study on Child Survival in Rural Egypt*, conducted by the American University in Cairo and Johns Hopkins University, 1991-92, for CSP and the National Control of Diarrheal Diseases Project.

15

2.3 Vaccine Procurement and Supplies

2.3.1 Vaccine Supplies

In 1993, vaccines for routine immunizations and campaigns were provided by VACSERA with financial support from the Government of Egypt, and by imports provided by UNICEF and USAID. A total of over 65 million doses were distributed in 1993, compared to 48.5 million doses in 1992.⁵ The increase is due to the addition of hepatitis B vaccine to the program, and to increased requirements for polio vaccine for national and regional campaigns and containment programs.

The sustainability of the EPI program is critically dependent on assured supplies of vaccine and disposable syringes. The period 1993–1995 marks a transition from a time of dependence on donors for the funding of a significant proportion of vaccine supply requirements to one where sustainability of the EPI program is assured by local funding. Vaccine supplies required for 1994—totaling an estimated 72 million doses⁶—are being met in part by carry-over stocks from 1993, increased funding and procurement by GOE, and assistance by UNICEF to fund OPV requirements for the National Polio Campaign. For 1995, the MOH has advised the Minister of Finance of budgetary requirements, including hepatitis B vaccine, totaling an estimated cost of LE 47 million (\$14.2 million). A GOE 1994–95 budget allocation will be needed to assure vaccine supply in calendar year 1995.

2.3.2 Disposable Syringes

Disposable syringes procured during 1992 with USAID funding covered requirements during 1993. At the end of 1993, funding for syringes was shifted to the GOE account, with local procurement in process to meet 1994 needs. GOE funding for 1995 will depend on budget allocations requested for the 1994–95 fiscal year.

⁵ See Table 2-2.

⁶ See Table 2-3.

2.4 Cold Chain Development

The EPI Cold Chain Unit continued to work with governorates on management and development of the cold chain. Activities in 1993 included:

- Installation of four Cold Rooms for hepatitis B vaccine storage in the national storage facilities at VACSERA.
- Provision of motorcycles for use by sanitarians in every district (delivery and operator training will be completed in 1994).
- Distribution to governorates of cold chain equipment and supplies ordered in 1992 and received during 1993 (2,880 vaccine carriers, freeze temperature monitors, thermometers, spare parts for refrigerated trucks).
- Development and management of regional cold chain repair and maintenance centers (two centers for Cairo and South Sinai remain to be developed in 1994–95).
- Field supervisory visits to evaluate cold chain operations and efficiency (46 visits, at least one to every governorate).
- Training activities, including on-the-job training.
- Repair of 600 cold chain units by governorate facilities.

An evaluation carried out during the year examined closely the status of cold chain equipment, the actual capacity of regional stores, and the sustainability of the system through measures by governorates to insure cold chain equipment maintenance, repair, and replacement (Figure 2-6).

Figure 2-6. Findings of the 1993 Cold Chain Evaluation

- In general, the capacity of the system was adequate.
- Cases of improper cold chain operation and practice were infrequent; however, constant supervision and monitoring is essential.
- Expanded capacity was found necessary in nine governorates.
- The rate of disrepair and equipment awaiting repair was small.
- There is a need in all governorates to budget increased allocations for spare parts and other support for cold chain maintenance and repair.

As of the end of 1993, the cold chain system comprised 29 refrigerated trucks, 448 deep freezers, 6,570 electric compressor refrigerators, 453 gas and electric refrigerators, 668 RCW-42 refrigerators (gas and electric, including possible battery operation), 32 gas-only refrigerators, and 13 solar refrigerators. The

system also includes 523 older vertical absorptive refrigerators. The evaluation found that 97% of the deep freezers and 92.3% of the refrigerators were in good operating condition.

2.5 Supervision and Monitoring

The operation of the program is monitored for conformity to operating procedures and targets, and for quality control. In 1990 and 1991, central monitoring teams worked with governorate health departments to conduct regular inspections of program implementation at the district and vaccination-unit levels. In 1992, as part of an effort to strengthen and foster regional and local management of the program, responsibility for monitoring and supervision was passed to the governorates.

Decentralized supervision based on established checklists was in effect in all governorates during 1993. Decentralized monitoring is supplemented by central monitoring based on review of monthly reports received from the governorates, monthly and semi-annual meetings organized with the preventive health care officers of the governorate health departments, and central team visits. Despite these efforts, it has become apparent that management and supervision of primary health care facilities, including immunization units, needs strengthening. Measures to help governorate health directorates to accomplish this strengthening were devised during 1993, and will be carried out under the CSP 1994-95 Work Plan.⁷

The system of monitoring and supervision extends to cold chain operations and immunization practice and coverage for 3,400 vaccination points established throughout the country, including all health bureaus, MCHs, urban health centers, rural hospitals, rural health centers, and rural health units. The EPI component continued to work closely with governorate health departments to supervise and monitor the program to improve and extend cold chain operations. EPI assures the supply of log books for recording temperature and for keeping track of daily vaccine distribution.

In order to deal with the constraint of a limited transportation budget for monitoring and supervision, CSP continued to fund, from its GOE cash contribution, a special allocation for the purchase of carburant by governorates. In addition, the decision taken in 1992 to provide motorcycles (provided by UNICEF) to every district to facilitate transport, especially of the sanitarian supervisors, was implemented. During the year, over 100 motorcycles were put into service, and training was provided for their operators, increasing the total in use to about 130. The remaining 75 are to be put into operation, with trained operators, during 1994.

⁷ See Chapter 6, Section 6.9.

2.5.1 Health Information System

During 1992, an important advance was made in the EPI health information system by the preparation for the first time of a detailed analysis of immunizations carried out by the districts. This work was done by the EPI Central Office based on reports provided by the governorates and was continued in 1993. In 1994-95, CSP will implement arrangements to strengthen governorate health information systems and enable governorates to undertake their own analysis of immunization operations at the district and vaccination-unit levels.

2.5.2 Use of Monitor and Freeze Watch Cards

An important tool for monitoring the program has been the use of temperature monitor cards. These cards, introduced in 1991, monitor proper temperature maintenance by the cold chain system in the storage and transport of vaccine. Results in 1993 showed that 99% of vaccine distributed was shipped and stored at the proper temperature (0-8 degrees C).

Use of monitor cards is portrayed in Figure 2-7.⁸ Their use extends throughout the system, from the national store at VACSERA, to regional stores, and finally to district stores. Delivery of monitor cards is part of vaccine distribution, usually carried out monthly by VACSERA. Two cards are allotted per scheduled delivery to each governorate store and two to each district health store, one covering oral polio vaccine, BCG, and measles, the other covering shipment of other EPI vaccines. The governorate stores receive shipments with the monitor cards and forward them with the cards to the district stores, with instructions to keep one card with the polio and measles vaccines and the other with the DPT and tetanus toxoid vaccines.

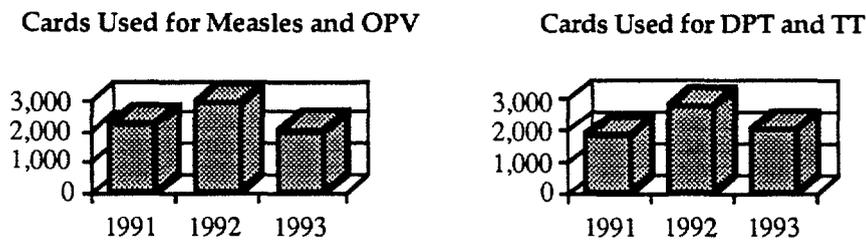
When the district stores request new vaccine supplies, they return the monitor cards of the previous batch to the governorate store, which in turn sends them to VACSERA. In the few cases of cold chain breakdown reported, central supervisory teams along with the cold chain engineers visit the location to identify the cause and to make repairs.

Refrigerators in immunization units are all provided with a thermometer and temperature control chart. In addition, starting in 1992, freeze watch monitors have been supplied to immunization units to detect

⁸ See Table 2-4.

instances of freezing. During 1992–93, 3,000 freeze watch monitors were distributed to immunization units in 22 governorates. Coverage for all governorates is planned to be completed during 1994.

Figure 2-7. Use of Temperature Monitor Cards



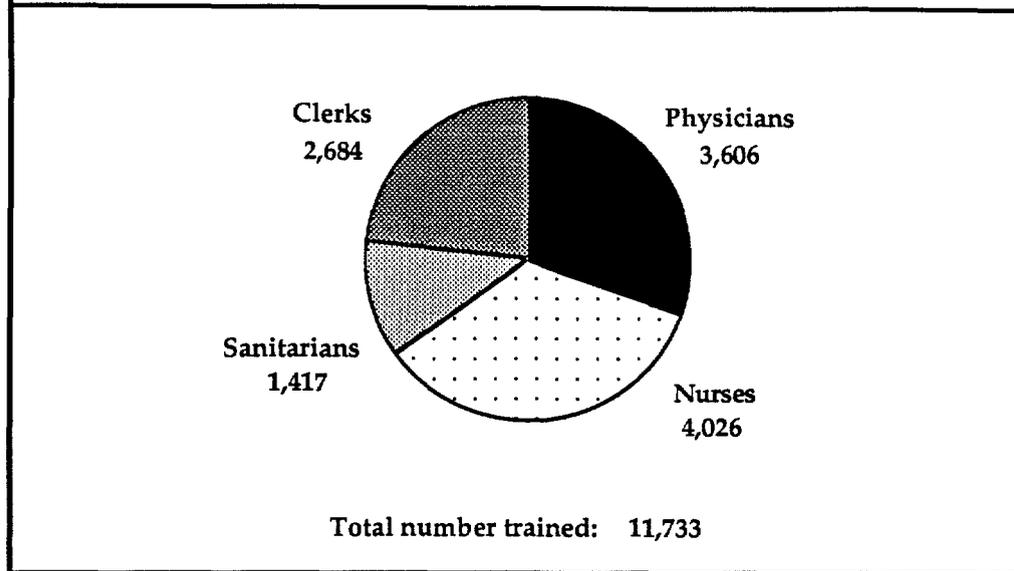
SOURCE: EPI Immunization Monitoring Unit.

2.6 Training

In 1993, the EPI Training Office, in collaboration with governorate health directorates, trained 11,733 health agents in 423 courses. This compared to 11,904 trained in 1992 (Figure 2-8). Training was carried out in every governorate. The bulk of training was directed at the staff of vaccination units. Peripheral training covered operations of the program, including immunization practice, cold chain operation, and reporting. A large quantity of posters and books were distributed in 1993 (Figure 2-9).

The 1993 training program largely completed the task of upgrading the EPI skills of PHC staff at the peripheral level. With this training, the performance of health workers in immunization units has improved markedly. Improvement has been observed since 1992 in several aspects, including: increased immunization coverage, improved disease surveillance, improved use of the cold chain, and improved ability of health workers to maintain the effectiveness of vaccines supplied to them.

Figure 2-8. Personnel Trained in EPI in 1993



A constraint to sustained performance of immunization lies in the frequent transfer of trained PHC physicians and their replacement by other physicians not trained in EPI, and the assignment of new and untrained staff. In order to address this constraint, EPI worked in 1993 to:

- Support decentralized training by assisting governorates in carrying out assessments of their training needs and in developing facilities and programs to address these needs. This activity was carried out in Giza and Damietta.
- Conduct training-of-trainers courses for 820 nursing school teachers in 15 governorates.⁹
- Collaborate with the project-wide effort initiated early in 1993 to develop a curriculum for fourth- to sixth-year medical students¹⁰ covering child survival and safe motherhood.

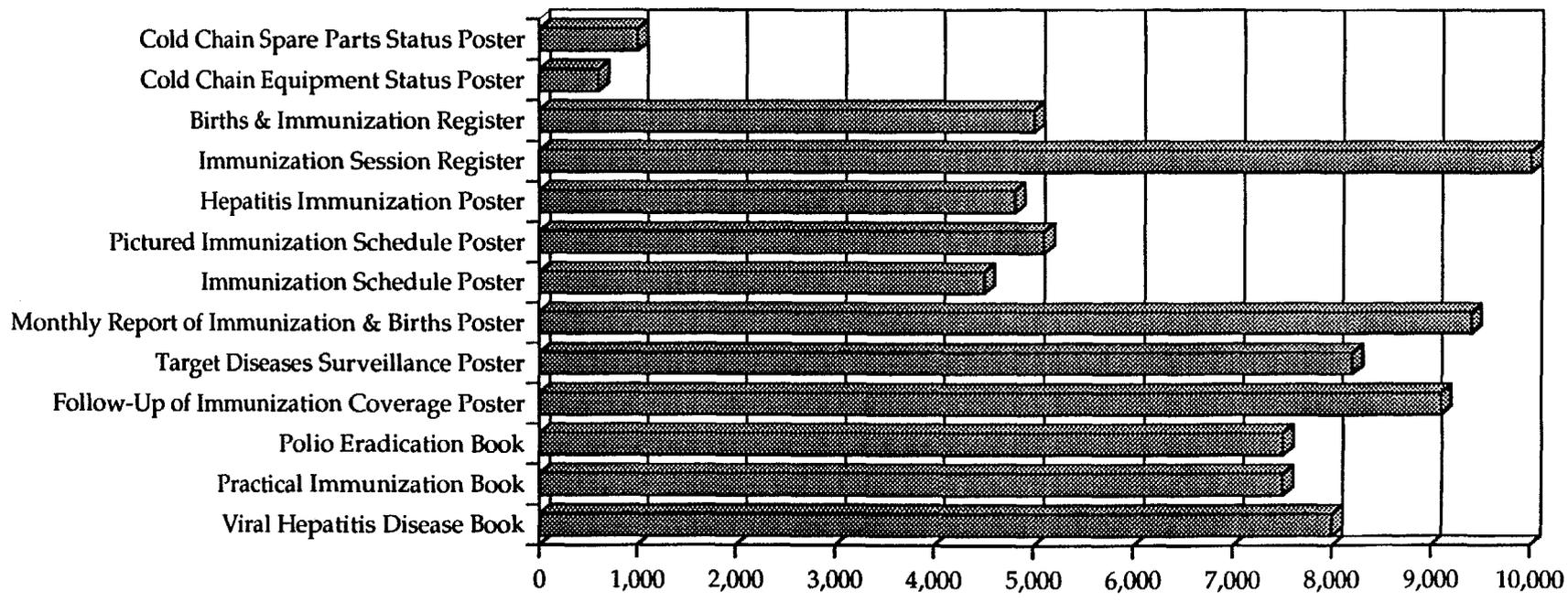
2.7 Disease Surveillance and Control

The MOH Communicable Diseases Department (CDD), in collaboration with the Child Survival Project and the governorates, manages EPI disease surveillance and control. Reporting of acute flaccid paralysis is required daily. Polio surveillance includes national reporting by the primary health care system, private clinics, MOH and university hospitals, as well as the National

⁹ This program will be completed in 1994–95, by extension to remaining governorates.

¹⁰ See Chapter 6, Section 6.5.

Figure 2-9. Posters and Books Distributed in 1993



2-13

21

Polio Institute. Surveillance of neonatal tetanus, also daily, is based on reports from the nation's 92 fever hospitals (which receive nearly all reported cases). Cases of measles, diphtheria, pertussis, tuberculosis, and tuberculous meningitis are reported weekly. In 1994, EPI plans to establish sites to monitor hepatitis B cases.

In 1993, active surveillance of polio and neonatal tetanus was continued, and steps were taken to strengthen measles surveillance and control. A project-wide activity to improve governorate capacity to collect, process, and use data for health planning and management, facilitate governorate reporting to the central level, and integrate child survival reporting into the MOH's health information system¹¹ was begun. This system, to be installed during 1994, will enhance the governorates' capacity to store, analyze, and use surveillance and immunization data for EPI disease control. A key development in 1993 was the establishment of a field epidemiological training program (see Section 6.5.2).

A joint national/international team surveyed the status of EPI disease surveillance and control in 1993. It noted "tremendous progress towards Egypt's goals of polio eradication and neonatal tetanus and the development of an action-oriented disease surveillance system."¹² The team's review confirmed that the very low reported incidence of polio is real and that, during 1992-93, polio shifted from a widespread endemic disease to one with a limited focal distribution. National incidence of NNT has fallen dramatically, with 23 governorates reporting less than one case of NNT per 1,000 live births. Reported cases of communicable diseases are summarized in Figure 2-10.

Figure 2-10. Reported Cases of Communicable Diseases, 1988-93

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Measles	3,672	4,057	887	1,231	4,403	2,874
Tuberculosis	1,378	1,487	2,742	3,634	8,876	3,416
TB Meningitis	100	72	35	51	39	47
Diphtheria	184	110	59	55	44	29
Pertussis	22	9	1	4	19	3
AFP	550	474	565	712	671	196
Neonatal Tetanus	6,554	3,448	3,275	2,728	1,823	1,277

SOURCE: Ministry of Health, Surveillance System.

¹¹ Chapter 6, Section 6.8.

¹² Nick Ward, et al., *Assessment of EPI Disease Surveillance and Control with Emphasis on Polio Eradication and Neonatal Tetanus Elimination*, Egypt, 20-30 November 1993. The report also made a number of recommendations for further strengthening disease surveillance and control.

2.7.1 Tuberculosis and Tuberculosis Meningitis

There is a downward trend over the period 1985–93 in the incidence of tuberculosis, which particularly afflicts infants and children. The number of cases of TB meningitis reported in 1993 was 47, compared to 100 in 1988. For the period 1990–93, the TB meningitis incidence rate is calculated at about 0.2 per 100,000 children under 15 years old, compared to about 0.5 per 100,000 in 1985–87.

However, an increase in the total number of cases of tuberculosis reported in the country occurred during 1992 and 1993. This increase appears to parallel trends in other countries and to represent a general phenomenon worldwide. Causes for this increase may be due to improved diagnosis and reporting, and are being studied.

BCG coverage in 1993 amounted to 92% nationally. Some 88% of districts, or 184, reported BCG coverage greater than 80%. The districts failing to reach 80% were located in 14 governorates; half of these 36 districts were located in the governorates of Cairo, Menia, Sohag, and North Sinai.

2.7.2 Diphtheria

Diphtheria cases reported in the country in 1993 were 29, compared to 44 in 1992 and 55 in 1991. Approximately 75% of reported cases were from five governorates: Qena, Beheira, Assiut, Sohag, and Beni Suef.

In 1993, the rate of diphtheria incidence fell below 0.1 per 100,000 population, the rate calculated for the three-year period 1991–93. By comparison, the incidence rate for the three-year period 1985–87 is calculated at 1.1. This decline in diphtheria incidence over the period 1985 to 1993—more than tenfold—is attributed in the main to the Expanded Program of Immunization.

2.7.3 Pertussis (Whooping Cough)

The total number of cases is very small: 3 reported in 1993, 19 in 1992, and 4 in 1991. There is probably some under-reporting. Taking into account the increased rates of DPT coverage achieved since 1985, it is considered that the immunization program may have reduced the incidence of this disease.

2.8 Field Epidemiological Training

See Section 6.5.2

2.9 Polio Eradication Program

In May 1988, WHO passed a resolution for the eradication of poliomyelitis by the year 2000 in ways which would strengthen the worldwide Expanded Program of Immunization and foster primary health care development. In 1989, President Mubarak declared a decade for the protection and development of the child in Egypt, and included among its goals the eradication of polio. In July 1989, the MOH established a national committee for polio eradication which developed a national plan of action published in 1990. The national plan calls for a coordinated effort by the EPI, the MOH Department of Communicable Diseases, and the 26 governorates.

The national program is based on strengthened surveillance and control measures. Surveillance has been steadily improved over the past three years, with polio reporting on a daily basis beginning in 1990. National immunization campaigns and containment measures were re-initiated starting in 1990.¹³ A turning point in the number of cases reported was noted in 1992, when a decline was registered in the number of cases of acute flaccid paralysis despite improved surveillance and reporting.¹⁴ During 1993, immunization and control measures were further strengthened (Figure 2-11).

Figure 2-11. Measures for Polio Eradication in 1993

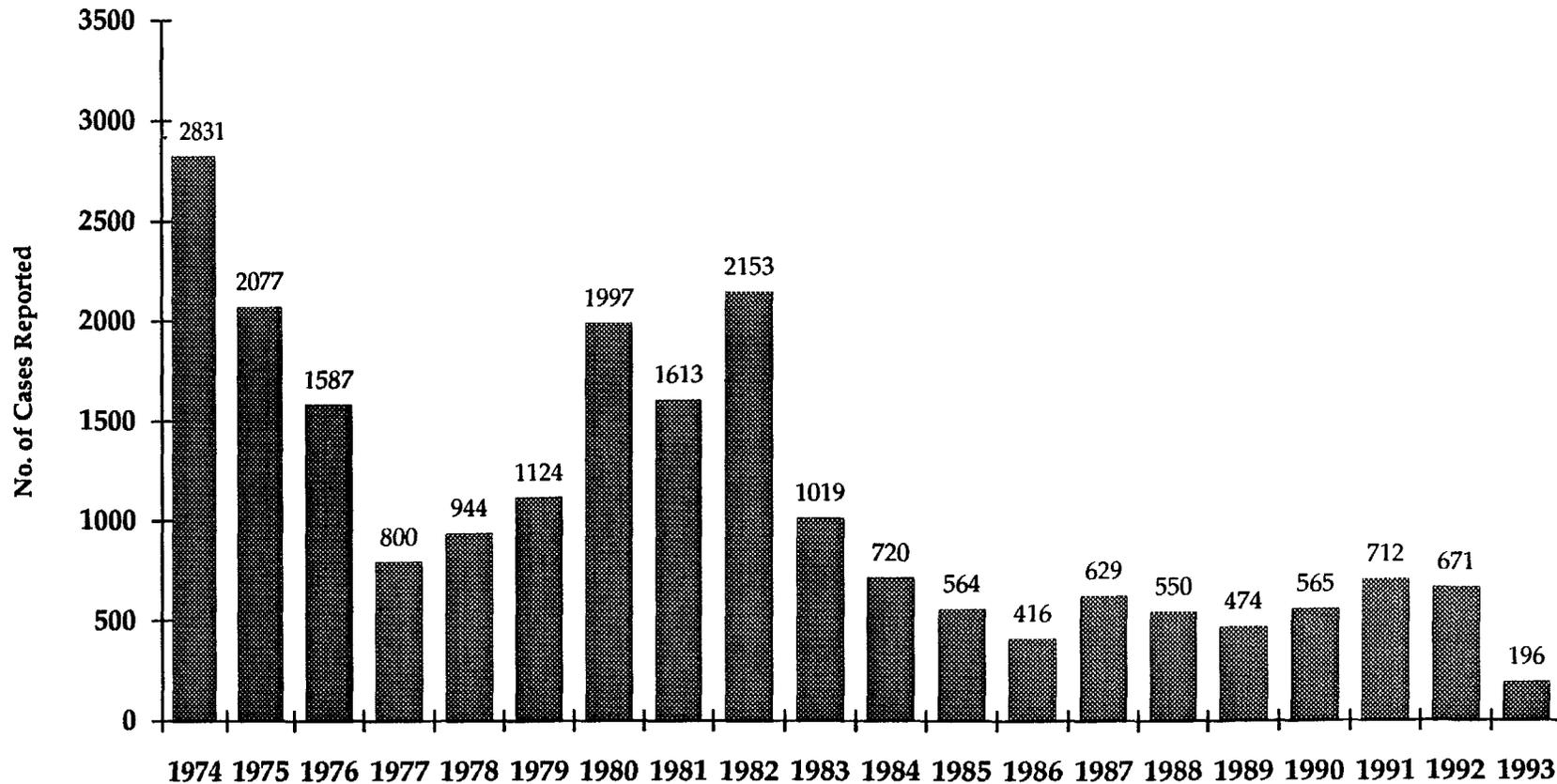
- National campaigns carried out in January and again in February.
- Addition of OPV-4 at age 9 months to the routine immunization program.
- Continuation of IPV at age 2 months (with DPT-1) in the routine immunization program.
- Containment measures for each reported outbreak.
- Routine immunization system to improve the detection of unimmunized children by the use of birth registry information.
- Regional Mop-Up Operations in 15 governorates in September and again in October.
- Research on the effectiveness of fixed versus house-to-house immunization.

SOURCE: Expanded Program of Immunization.

¹³ National polio immunization campaigns had been undertaken previously, the last in 1987.

¹⁴ Table 2-7 provides a summary of polio campaigns and mop-ups by year, since 1990.

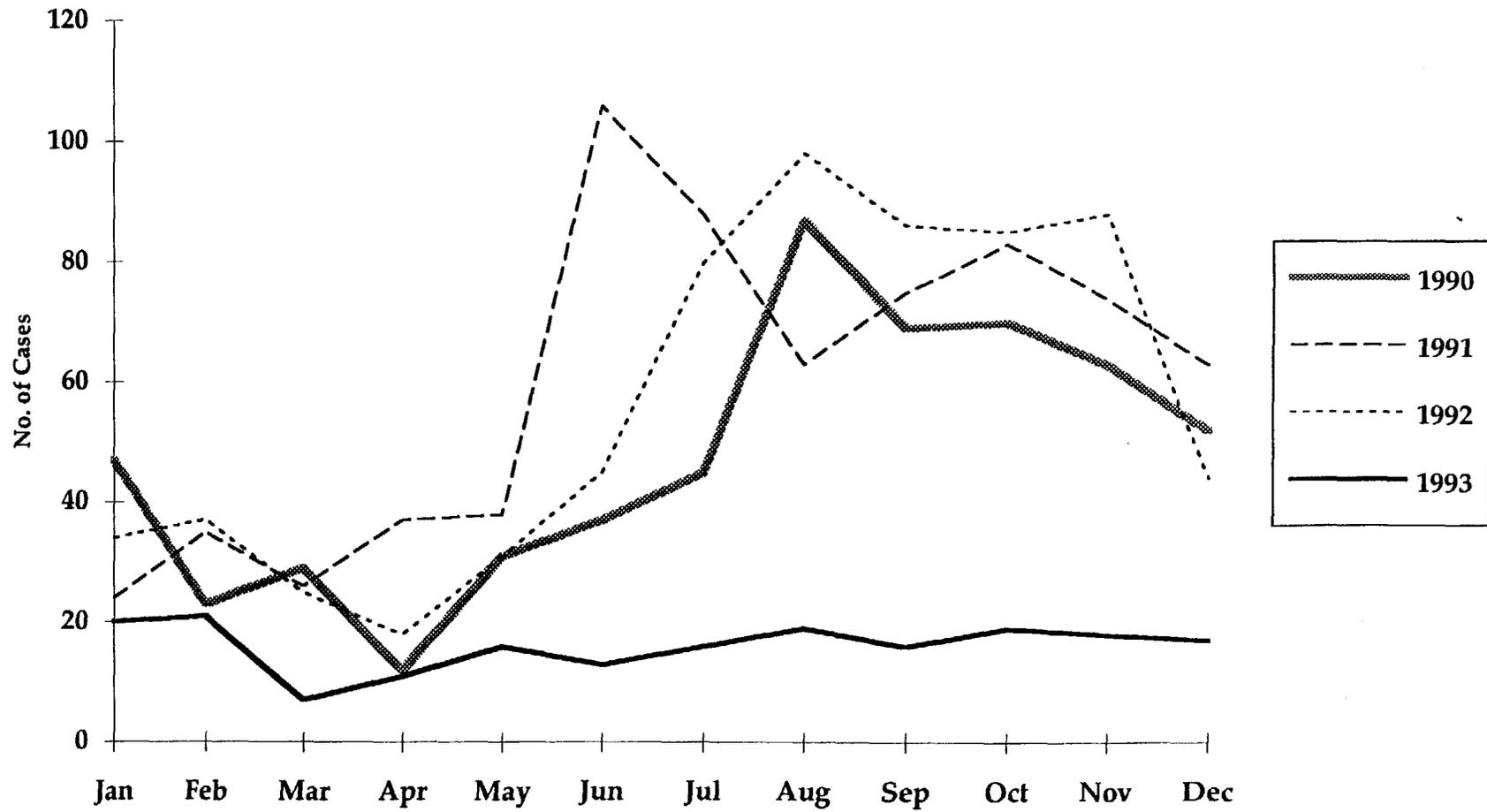
Figure 2-12. Suspected Poliomyelitis (AFP*), 1974-1993



* AFP: Acute Flaccid Paralysis, in a child below 15 years of age without any other cause.

20

Figure 2-13. Monthly Reported AFP Cases, 1990-1993



2-18

As a result of improved surveillance and control measures, the number of reported cases of AFP dropped markedly in 1993, from 671 to 196 cases. Figures 2-12 and 2-13 show trends in cases of AFP reported, 1974-93, and declining monthly cases reported over the past four years. Analysis shows that the number of districts which have been polio-free for one year increased from 47 in 1992 to 127 in 1993.

The number of governorates reporting no cases of polio increased from two in 1992 to nine in 1993. The assessment of EPI disease surveillance and control, previously cited, noted that the reported low incidence of polio was real and that the data suggested that the combination of properly conducted national immunization days and focused mop-up immunization in high-risk districts had been responsible for bringing polio to the brink of eradication in Egypt.¹⁵

A weakness noted in the polio surveillance system in 1993 is the frequent omission in reporting on non-polio cases of acute flaccid paralysis, especially Guillain-Barré syndrome in children under 15. Steps have been taken by EPI and CDD to recover such reports for 1992 and 1993, and to insure reporting of these cases in the future.¹⁶

2.10 Neonatal Tetanus Elimination Program

The EPI strategy of immunization of pregnant women to protect newborns against neonatal tetanus was included in the Child Survival Project as adopted in 1985.¹⁷ In 1988, the program was enlarged to encompass both routine immunization of pregnant women and an annual national TT immunization campaign.

In 1990 the MOH drew up, with assistance from WHO, the "National Plan for the Control of Neonatal Tetanus, 1991-92", which was adopted by the EPI National Steering Committee. The plan's strategy includes, along with immunization of currently pregnant women, measures to promote antiseptic birth deliveries and antenatal care.

In 1991, Egypt adopted the goal of the World Summit for Children for the elimination of NNT by 1995. In the fall of 1991, the MOH/CSP decided to increase active surveillance of NNT deaths to determine areas requiring more TT

¹⁵ Op cit., p. 2.

¹⁶ Additional information on the program is available in the publication, *Ten Years of EPI*, Cairo, March 1994.

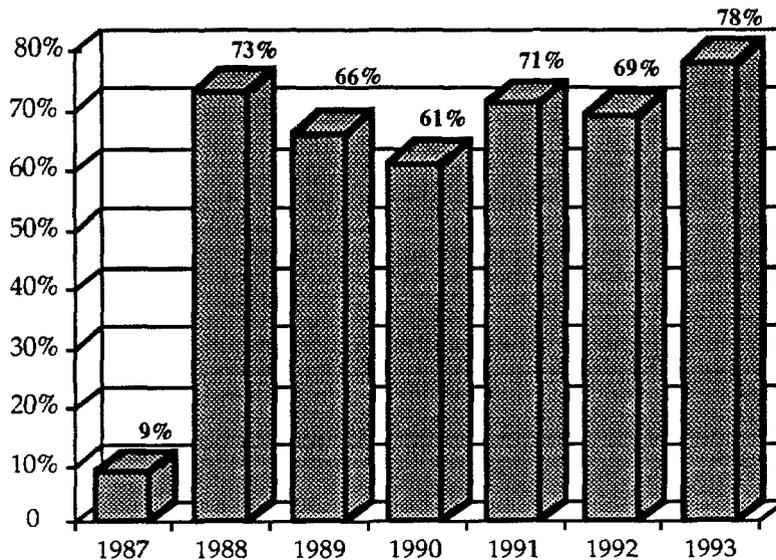
¹⁷ Since 1984, the EPI program has included infant immunization by DPT and a booster DPT immunization at age 18-24 months. The MOH school health program provides a fifth immunization for girls. As a result, by 1998-2000 a majority of young women reaching reproductive age will have received the recommended series of five TT immunizations.

TT immunization coverage and control. During 1992, routine immunizations in eight high-risk governorates were extended to cover all women of reproductive age visiting immunization units. Control measures were further strengthened in 1993 (Figure 2-14).

Figure 2-14. CSP Actions in 1993 for the Elimination of Neonatal Tetanus

- Continued the routine TT immunization program.
- Conducted regional TT immunization programs in 13 high-risk governorates.
- Conducted the 1993 national campaign (Round 1 in November, Round 2 in December).
- Continued the program of training traditional birth attendants to refer clients for TT immunizations and to ensure antiseptic birth deliveries.

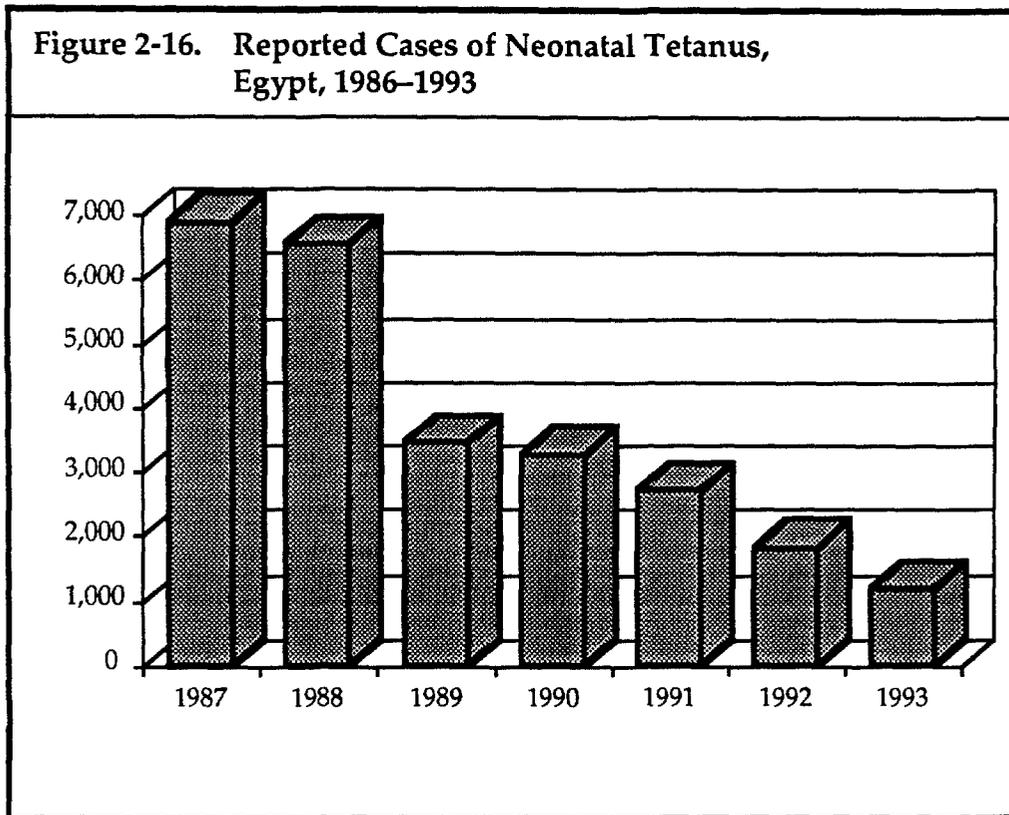
Figure 2-15. Tetanus Toxoid Immunization Coverage,* Egypt, 1987-1993



* Percent annual immunization of pregnant women.

The result has been a steady rise in the proportion of pregnant women immunized with two or more doses of TT, from about 9% in 1987 to 78% in 1993, as shown in Figure 2-15. There were 1,277 cases of NNT reported in 1993, compared to an average of over 6,000 in the period up to 1988. This represents a reduction of more than 30% compared to 1992 (1,830 cases), a decline that has been registered despite greatly improved surveillance coverage. The reduction of NNT cases translates into savings of thousands of infant lives each year.

Figure 2-16. Reported Cases of Neonatal Tetanus, Egypt, 1986-1993



2.11 Measles Control Program

Although there has been improvement in measles immunization coverage in Egypt (1984: 67%, 1990: 87%, 1993: 89%), the disease has continued to be widespread. Reported cases in 1993 numbered 2,874. Complications of measles include diarrhea, pneumonia, otitis media, blindness, and encephalitis. The longer term impact of these complications on reduced survival rates of infected infants is recognized as a serious concern. WHO is working with countries to keep the incidence of measles as low as possible and to reach the ultimate goal of its eradication.

In 1992, EPI developed, with WHO assistance, a national measles control program designed to address the following problems:

- Under-reporting of the disease.
- Failure of parents, especially in rural and in urban slum areas, to seek medical care for infected children.
- Low immunization coverage and high drop-out rates in many areas.
- Inadequate data and analysis on the impact of measles on infant/child mortality and morbidity, and on the efficacy of measles vaccination.

The program includes measures to improve active surveillance and case reporting, standardize case management of measles in MOH facilities, inform the public of the need to treat measles promptly, and increase vaccination rates in lagging areas (Figure 2-17).

Figure 2-17. Elements of the National Measles Control Program

- Raise and sustain measles vaccination coverage as part of the routine program.
- Conduct analysis and research on measles mortality and morbidity, measles vaccine efficacy, the possible need for a two-dose strategy, and the effect of 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 with pediatricians, to enlist their cooperation in the program.
- Introduce standard case management by training MOH health agents.
- Educate the public on 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 (e.g., more airing of TV spots on measles, including an existing one).

2.11.1 Measles Surveillance and Control Measures in 1992 and 1993

During 1992, the MOH Department of Communicable Diseases (CDD) worked with physicians in all governorates to introduce a standardized case definition and standardized case management in MOH facilities, and to develop surveillance sites in four governorates for reporting both in-patient and out-patient cases.

In 1993, the surveillance sites were extended to all fever hospitals in 14 governorates. A case surveillance form was circulated to all governorates; weekly reporting is required. Training courses for surveillance were held for more than 350 physicians working in fever hospitals. An improvement in surveillance and reporting has been noted in several governorates.

The CDD and EPI will extend the surveillance system to all governorates during 1994–95. Analysis of case data reported in 1993 by fever hospitals from 13 governorates indicates that a smaller proportion of cases occurred among infants and children under 5 than in 1985 (when coverage was less). The same data show that the bulk of cases occurred in the period from March to May.

2.11.2 Measles Coverage and Control

National coverage in 1993 averaged 89% of infants. However, 21% of districts failed to reach the target of 80% coverage. Three governorates—Cairo, Sohag, and Aswan—accounted for 20 of the 44 districts failing to reach the target.

During 1994–95, EPI plans to work with governorates to increase coverage in lagging districts and identify high-risk areas. EPI also plans to prepare and disseminate educational materials on measles to the public. Research on measles vaccine efficacy initiated in 1993 will be completed in 1995.

2.12 Operations Research, Studies, and Evaluations

2.12.1 Study of Measles Data

This was carried out by the CDD. Results are noted in Section 2.11.

2.12.2 BCG Adverse Effects Study

The field work for this study, carried out by the Faculty of Medicine, Benha University, was completed in 1993. The final report will be issued in the first quarter of 1994. The study found adverse effects in 12.9% of newborns in the sample surveyed. The conclusion of the study is that nurses require more training and supervision in managing BCG immunizations. The study also recommended health education for mothers in rural areas about the importance of early BCG immunization to avoid adverse reactions.

2.12.3 Polio Reverse Cold Chain Study

Work on this study, to assess compliance of the reverse cold chain with WHO specifications, was initiated in January 1992. The study was continued during 1993. The study has shown that the reverse cold chain in Egypt is functioning adequately in accordance with established procedures and WHO specifications. A final report will be published early in 1994.

2.12.4 Studies of Vaccine Efficiency

A study to analyze seroconversion rates for measles, OPV, and hepatitis B vaccines began early in 1993 with the collaboration of three universities (Ains Shams, Cairo, and Assiut). The study is divided into three stages. The first stage, examining infants of 2 months or under, was carried out by Ains Shams University in 1993. The first-stage studies by the other two universities are in progress. The study is scheduled to be completed in 1995.

2.12.5 Evaluation of House-to-House Versus Fixed-Site Polio Vaccine Delivery in Mass Campaigns

This study to estimate vaccine coverage achieved in house-to-house versus fixed-site vaccine delivery strategies, and relative costs, was initiated in December 1992 with technical assistance from the US Centers for Disease Control and Prevention. Field work was completed with the second round of vaccinations in the national polio campaign carried out in the first quarter of 1993. The final report, issued in 1993, showed that the strategy of house-to-house immunization is more effective than immunization at fixed sites, assuming that cold chain equipment is available and mobile vaccination teams can be provided. The house-to-house strategy is being followed in the national campaigns and in regional mop-ups.

2.12.6 Governorate-Level Household Surveys

EPI has earmarked resources to enable governorates to conduct household surveys in low coverage and high-risk areas to verify coverage of polio and other EPI disease immunization, and to evaluate missed vaccination opportunities. The first study was initiated in Qalyubia Governorate in the fourth quarter of 1993. The results of the Qalyubia survey will be available in the first quarter of 1994. A schedule of surveys, by governorate, has been established. Twelve districts in six governorates will be targeted during 1994.

2.12.7 Evaluation of the EPI Cold Chain

EPI conducted an assessment of cold chain operations and maintenance in all 210 districts during the latter part of 1993. Results are noted in Section 2.4.

2.12.8 Evaluation of EPI Disease Surveillance and Control

A joint national/international team surveyed the status of EPI disease surveillance and control in 1993. Results are noted in Section 2.7.

Table 2-1. National Infant Vaccination Coverage Rates, 1984-1993

Immunization	Percent Coverage						
	1984	1988	1989	1990	1991	1992	1993
BCG (Tuberculosis)	53	80	83	89	92	91	95
DPT-3 *	57	87	90	87	86	89	89
OPV-3 (Polio)	67	89	90	87	86	89	89
Measles	47	85	92	87	89	89	89

* Diphtheria, pertussis, and tetanus

SOURCE: CSP/Expanded Program of Immunization, March 1993.

Table 2-2. Vaccine Supplies Distributed Through VACSERA Including Polio and TT Campaigns,* 1992-1993 (million doses)

Vaccine	Distributions	
	CY 1992	CY 1993
BCG	2.5	3.04
DPT	6	** 7.35
HB	0.6	4.49
OPV Routine		14.41
Campaign (Jan 93)		10.49
Campaign (Feb 93)	30	10.58
Mop-Up (Sep 93)		2.69
Mop-Up (Oct 93)		2.72
IPV	2	1.62
Measles	2	2.08
TT		
TT Campaign	6	5.75
Total	49.1	65.22

* Distributions to governorates; includes losses and wastage.

** DPT distributed for DPT-1, -2, and -3 came to 5.73 million doses; DPT distributed with IPV in the quadruple dose came to 1.62 million doses.

SOURCE: CSP/EPI, Vaccination Monitoring Unit.

Table 2-3. Estimated Vaccine Supplies Required for 1994 and 1995 (million doses)

Vaccine	1994	1995
BCG	3	3
DPT	9	9
Polio/OPV	50	50
Measles	2.5	2.5
TT	5	5
Hepatitis B	6	6
IPV	2	2
Total	72.5	72.5

SOURCE: CSP/EPI.

Table 2-4. EPI Monitor Cards, 1993

Month	Distributed			Returned		
	Polio	BCG	No. of Gov.	Polio	BCG	Result *
January	214	214	23	75	57	...
February	241	241	26	170	115	Menoufia
March	226	226	24	73	70	...
April	197	197	20	163	139	Alexandria
May	226	226	22	129	136	...
June	107	107	12	141	166	
July	214	214	21	178	148	Dakahlia
August	175	175	20	78	77	...
September	...	...	...	107	100	Gharbia
October	...	...	...	152	148	...
November	189	189	22	104	97	...
December	211	211	19	23	20	...
Total	2,000	2,000	26	1,393	1,273	

* Cards showed proper temperature maintained in all governorates except those named.

Table 2-5. Training Accomplished by EPI in 1993*

Category	Number Trained
Trainers	266
Refresher Training	4,932
Pre-Service Training/Physicians	599
BCG Training/Nurses	291
Clerk Training	2,684
EPI/UNICEF University Seminars	1,700
Nursing Teachers	820
Workshops/Physicians	397
Total	** 11,689

* Training of Cold Chain Technicians (not shown) amounted to 156.

** Comprising about 18,000 person-days of training.

SOURCE: CSP/EPI Training Unit.

Table 2-6. Materials Used in Training and for Health Promotion and Education, 1990-1993

Posters and Books Distributed	Number
Follow-up of Immunization Coverage Poster	19,100
Target Diseases Surveillance Poster	18,200
Monthly Report for Immunization and Births Poster	19,400
Temp. Recording Board Showing Quantities of Vaccines	4,000
Immunization Schedule Poster	10,000
Pictured Immunization Schedule Poster	5,100
Hepatitis Immunization Poster	5,000
Polio Immunization Poster	8,000
Immunization Session Register	30,000
Births and Immunization Register	10,000
Cold Chain Equipment Status Poster	1,600
Cold Chain Spare Parts Status Poster	2,000
Practical Immunization (Book)	36,056
Polio Eradication (Book)	35,556
Immunization of Children Booklet	39,000
Viral Hepatitis Disease (Book)	20,000
Increase Immunization Coverage (Book)	650
Disease Surveillance (Book)	650
Control of Communicable Diseases in Man (Book)	100
The Child Primary Care Book (Parts 1 and 2)	26
Development of Teaching Health Care Employees (Book)	26
Family Health Guide (Book)	26
Epidemiology in Medicine (Book)	50
Principles of Epidemiology (Book)	50
Bibs	5,000

SOURCE: CSP/EPI Training Unit

Table 2-8. Decline in Reported NNT Cases in Egypt, 1987-1993

	1987	1988	1989	1990	1991	1992	1993
8 High-Risk Governorates	4,810	4,757	2,561	2,479	2,094	1,373	857

Table 2-7. Polio Campaigns and Mop-Ups, Egypt 1990-1993

Dose	No. of Gov.	Target (2M-3Y)	Vaccinated Children	Coverage (%)
1990				
National Day (Jun)	26	8,702,944	8,676,293	100
1991				
National Day (May)	26	8,487,734	8,459,373	100
Mop-up Rnd. 1 (Feb)	13	1,704,740	1,053,194	109
Mop-up Rnd. 2 (Mar)	13	1,864,037	1,969,343	106
Mop-up Rnd. 1 (Jul)	7	1,108,361	1,109,744	100
Mop-up Rnd. 2 (Oct)	7	1,108,361	1,089,446	98
1992				
Mop-up Rnd. 1 (Mar)	16	2,857,000	2,832,352	99
Mop-up Rnd. 2 (Apr)	16	3,056,000	3,066,351	100
1993				
National Day 1 (Jan)	26	8,247,547	8,373,730	101
National Day 2 (Feb)	26	8,373,730	8,615,407	103
Mop-up Rnd. 1 (Sep)	15	2,296,367	2,378,167	104
Mop-up Rnd. 2 (Oct)	15	2,384,000	2,435,792	102

Table 2-8. Decline in Reported NNT Cases in Egypt, 1987-1993

	1987	1988	1989	1990	1991	1992	1993
8 High-Risk Governorates	4,810	4,757	2,561	2,479	2,094	1,373	857
Other Governorates	2,091	1,797	887	796	634	457	394
Total	6,901	6,554	3,448	3,275	2,728	1,830	1,277
Incidence Rate*	3.4	2	1.9	1.6	1.2	0.9	0.7

* Incidence rate per 1,000 neonates.

SOURCE: MOH, Table 5 (updated), *Neonatal Tetanus Program in 1991, An Interim Process Evaluation for the Child Survival Project*, February 1992.

3. Acute Respiratory Infection Control Program (ARI)

3.1 Introduction

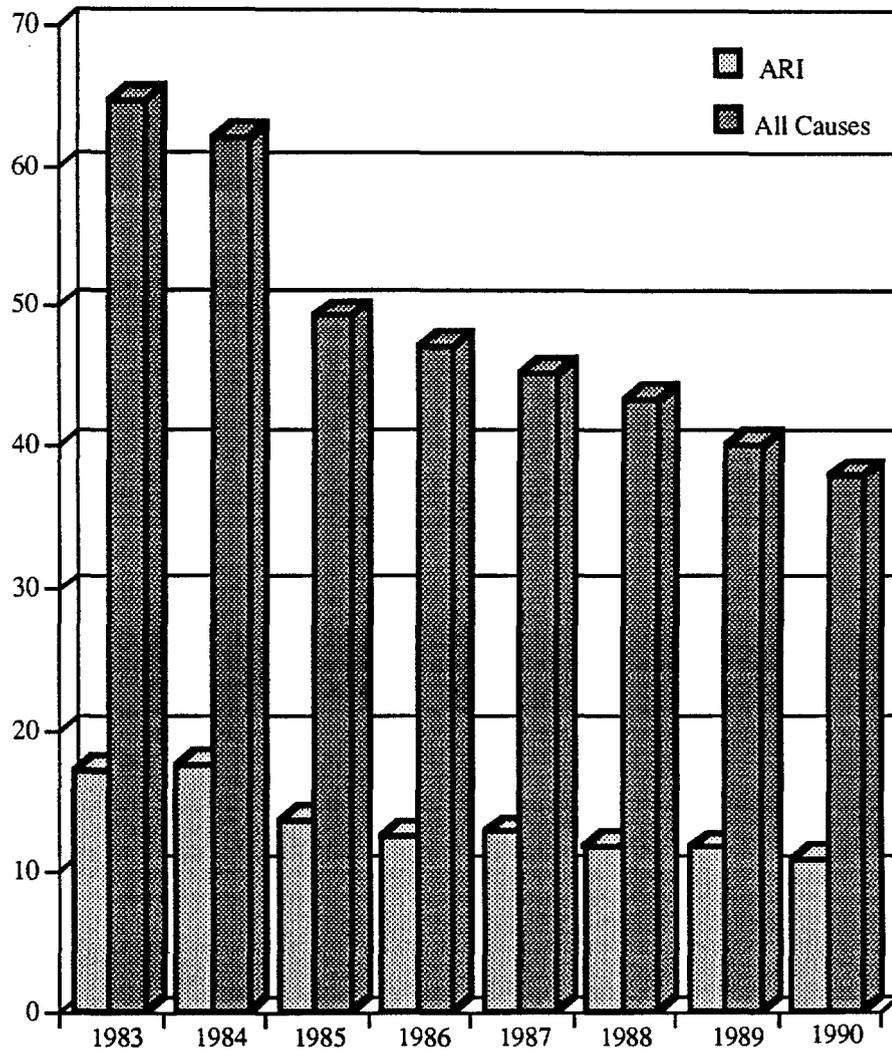
3.1.1 Background

Acute respiratory infections (ARI), particularly pneumonia, are a leading cause of death for infants and young children in Egypt (Figures 3-1 and 3-2). CAPMAS estimates infant mortality due to ARI at about 10.9 deaths per thousand live births (1990). ARI is also a

Figure 3-1. Facts about the Epidemiology of ARI

- **Episodes of ARI Per Year**
WHO data show that children throughout the world experience four to six episodes of ARI per year, more in urban than in rural settings. Episodes of ARI in urban areas average five to eight per year; in rural areas, three to five. These data are valid for both developed countries and developing countries.
- **Cases of Pneumonia Per Year**
Pneumonia is life-threatening. WHO data from developing countries show a range of 8–18 cases of pneumonia each year per 100 children. Egypt is at the high end of the range. These cases are mainly bacterial in cause, and can be treated successfully with antibiotics. In developed countries, the number of cases of pneumonia per 100 children ranges between three and four. Most of these cases are viral.
- **Percent of Sick Children Presenting With ARI**
WHO data show that of 100 children brought to a health clinic for diagnosis and treatment, 25–42% present acute respiratory infections. Children presenting ARI account for 31–36% of hospitalizations.
- **Infant Mortality and ARI in Egypt**
In Egypt, ARI has become a leading cause of infant and child mortality. Statistics indicate that ARI-related deaths in infants approximate those attributed to diarrheal disease. (The third major cause of infant deaths is complications associated with pregnancy and delivery.) Diarrhea-caused deaths registered a sharp decline during 1982–90. The ARI control program is expected to result in similar reductions of mortality from pneumonia during the 1990s.

Figure 3-2. Infant Mortality Rate Per 1,000 Live Births Due to ARI and All Causes, 1983-1990



SOURCE: CAPMAS

principal cause of morbidity in infants and children, accounting for 25–35% of sick children attending first level health facilities.

By taking advantage of the extensive primary health care network and the proven capability of the mass media system to improve the health practices of mothers, MOH judges that an ARI program can have a dramatic impact on childhood mortality and save the lives of thousands of infants and young children. With the Child Survival Project, the Ministry of Health determined to undertake a national program to reduce ARI-caused infant mortality.

3.1.2 Objectives, Strategy, Policy, and Program

After a study of the epidemiological situation and the feasibility of available control measures, the ARI national program plan was developed in 1989 with assistance from the World Health Organization. The national program has the following objectives related to children under 5 years of age:

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

ARI strategies fall in three main areas: standard case management (SCM) of ARI; immunization through the EPI program, particularly measles and pertussis¹; and other measures to avoid risk factors.

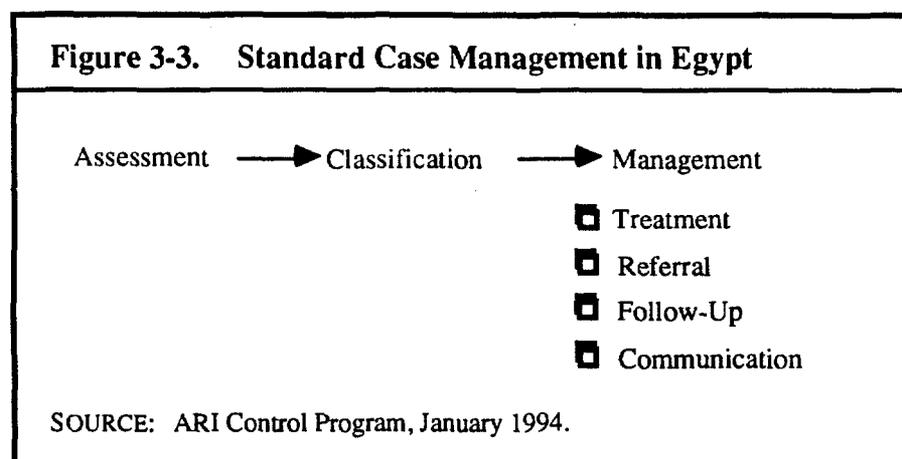
National ARI policy involves four main points:

- Use the SCM (WHO guidelines).
- Use amoxicillin syrup for treatment of pneumonia and otitis media and make it readily available at affordable rates to PHC facilities.
- Standardize management of ARI at different levels (hospitals, PHC facilities).
- Emphasize the role of nurses in the program.

Operationally, the ARI program is introducing standard case management in all MOH facilities, including general, district, and fever

¹ Against measles and pertussis (whooping cough), vaccination coverages average over 80% nationally.

hospitals, and including all primary health care centers and units. SCM involves assessment, classification, and management, including treatment, referral, follow-up, and communications (Figure 3-3). Standard case management also includes health promotion and education to increase the proportion of mothers and other care providers of children under 5 who know the signs of severe ARI and who know that the sick child needs to be taken quickly to a physician for diagnosis and treatment.



USAID support for the ARI program was broadened in 1991 with the decision to help the Ministry ensure antibiotic supplies for the program. The decision to ensure antibiotics for PHC facilities was considered critical to the introduction of standard case management. These supplies became available during 1992 and have been programmed for use in the primary health care system through 1995.

From its first years, the ARI program included applied research as an integral part of the program. Between 1989 and 1992, a substantial applied research program was undertaken with the help of the Department of International Health, Johns Hopkins University. This research forms the underpinnings for the program. Since 1992, research and studies have been selected based on the need to address operational problems and assess program status.

3.1.3 Key Targets and Indicators

- Proportion of the population of children and infants under 5 years of age who have access to SCM through the national ARI program at MOH health facilities (target for 1995: 80%, or nearly 7 million children and infants).
- Development of a referral system for hospital treatment of severe ARI by SCM, supervised by trained specialists (target for 1995: national system, with 80% of hospitals having trained specialists).
- Essential equipment required for diagnosis and treatment available in all MOH facilities included in the national program.
- Recommended antibiotics readily available for treatment as needed.
- Eighty percent of primary health care physicians and nurses trained to recognize symptoms of severe ARI; at least 60% of physicians prescribing and treating according to SCM.
- Proportion of mothers with children under 5 who are aware of the risks of ARI and know the signs and symptoms of severe ARI (target for 1995: 70%).
- Proportion of mothers with children under 5 who seek timely care and comply with treatment (normally hospitalization) for children with severe ARI (target for 1995: 50%).
- Twenty-five percent reduction of infant mortality due to ARI by 1995 (baseline: 13 per 1,000 in 1989).

3.1.4 Inputs

Inputs include training, management resources and technical assistance, equipment, drugs, advisory services, health promotion and education, and operations research studies. Technical assistance is received under USAID financing from Clark Atlanta University and the US Centers for Disease Control and Prevention, including locally recruited technical staff and consultants, and from WHO and UNICEF.

3.1.5 Accomplishments in 1993 (Highlights)²

Full impact of the ARI control program, particularly in terms of reductions in infant and child mortality, will require several more years of sustained effort. Nevertheless, the program is moving rapidly to achieve its Child Survival goal of installing a national system for the prevention, diagnosis, and treatment of ARI illness for children under 5 based on the WHO criteria for ARI standard case management.

During 1993, the program was extended to all 26 governorates. Over 95% of the districts of the country have installed the program or are in the processing of doing so. Most district health officers have been trained in management and supervision of the program. The ARI case registration system was installed in some 15 governorates and 124 districts, covering over half the health system.

Most hospital out-patient clinics and about two-thirds of over 3,000 primary health care facilities are now staffed with physicians trained in ARI. A referral system for severe cases of ARI has been established. Hospitals staffed with specialists in treatment of severe ARI have increased from 45 at the end of 1992 to about 128.³

It is estimated that about 70% of Egypt's children had access to standard case management by the end of 1993, compared to 8% in 1990 (Figure 3-4).

ARI drugs were available in all governorates and most PHC facilities during most of 1993 (outages which occurred in the fourth quarter were remedied in the first quarter of 1994). Significant quantities of clinical equipment for diagnosis and treatment (oxygen concentrators, nebulizers, timers) were supplied to hospitals and primary health care centers throughout the country. Arrangements were made for procurement to complete the equipment supply program in 1994-95.

Training of nurses expanded from 1,445 trained in 1992 to 4,101. Training of specialist and managers increased sharply.

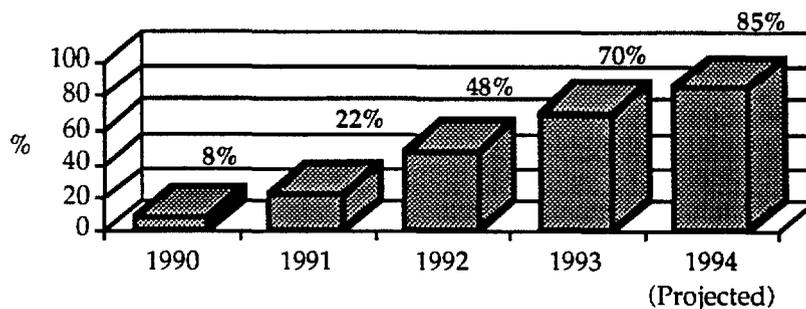
Universities have been important resources in developing the ARI control program, both in terms of training of specialists and research.⁴

² Based on the evaluation of the ARI control program, prepared at the end of 1993, *Review and Appraisal of the ARI Program-1993*, CSP, Cairo, January 1993.

³ See Table 3-7.

⁴ E.g., the Universities of Cairo, El-Azhar, Alexandria, Assiut, Menia, and Suez.

Figure 3-4. Access of Egyptian Population (Under 5) to ARI Standard Case Management



SOURCE: ARI Control Program. See Table 3-8.

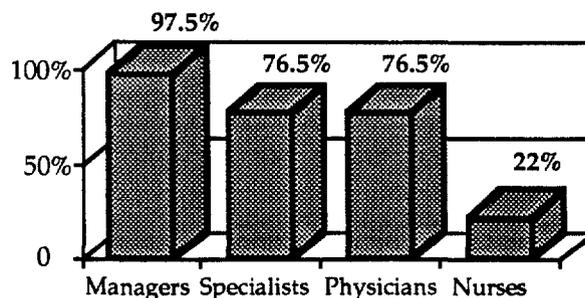
3.2 Acute Respiratory Infection Training Program

In 1993, the ARI component trained a record number of managers, specialists, and nurses, and maintained training of PHC physicians at a high level. A total of 7,730 people were trained, 122% of the 1993 Work Plan target. The training totaled 20,600 person-days and was carried out in all governorates, including Luxor. USAID funding for training amounted to LE 720,100 (\$218,000). UNICEF assisted with the training in four governorates. Original targets for the training of PHC physicians established at the beginning of the program were reached in 18 Governorates. Percent accomplishment of original targets, established in 1989, is shown in Figure 3-5.

Revisions in the training plan were made for the 1994-95 Work Plan, due to turnover of personnel, revision in the number of nurses targeted by 1995, and a decision to train some specialists for university hospitals. Figure 3-6 outlines the revised training plan.

Training courses were revised and improved in 1993, based in part on recommendations of the 1992 Mid-Term Evaluation. The five-day training course for managers was modified to provide practical work in district planning, supervision, reporting, and evaluation. The course for PHC physicians was lengthened from two to three days, and expanded to include counseling techniques, case registration, and practical training in diagnosis.

Figure 3-5. Percent of Original Training Targets Achieved, 1993



SOURCE: ARI Control Program, January 1994.

Figure 3-6. Training Carried Out in 1993 Compared to Previous Years, and Planned for 1994–1995

	<u>1990-91</u>	<u>1992</u>	<u>1993</u>	<u>1994-95 (20 months)</u>	<u>Total Planned</u>
Managers	(r) 21	(r) 48	202	120	391
Specialists	* 47	181	461	500	1,189
Nurses	...	1,445	4,121	6,000	11,566
Physicians	3,036	3,212	2,877	3,600	12,725
Nurse Trainers	...	50	88	100	238
Total	3,104	4,936	7,749	10,320	26,109

(r) Revised.

* Including training in previous years.

SOURCE: ARI Control Program, January 1994.

An important aspect of training is the regular publication since the beginning of 1992 of the *ARI Newsletter*, which is designed as a vehicle for the continuing education and motivation of managers and practicing physicians and specialists. During 1993, four issues were printed (10,000 copies) and distributed via the governorate health departments to every district office and health facility, as well as internationally.

The 1994-95 CSP Work Plan provides for training in ARI control for 10,324 health staff. An important element of the project-wide training program in 1994-95 is continued collaboration with universities and nursing schools to develop capacity in those institutions for pre-service training of medical and nursing students.⁵

3.3 Management and Supervision

Training of managers, particularly district health officers has been a major element in the 1993 training activities discussed above. In addition, during the year the Project conducted workshops for ARI coordinators and district health officers. These workshops covered planning, supervision, monitoring, and the installation and use of the case registration system. A total of 106 participants from nine governorates⁶ participated in the workshops, which were organized during the second half of the year. The workshops are being continued in 1994 and will complete coverage of all governorates and districts.

ARI developed a database covering all MOH health facilities involved in diagnosis and treatment of ARI. This database lists, by name and district, a total of over 3,300 facilities, including hospitals and primary health care facilities, targeted by the ARI control program.

The case registration system was introduced starting in 1993. It provides an important tool for district and governorate managers to monitor the program in their areas. Log books for case registration and reporting by clinics were designed, tested, and printed. Some 3,530 daily registration log books and 249 registers for monthly reporting were distributed during the second half of the year. By the end of the year, reporting had been initiated by 124 districts in 15 governorates. An initial analysis of the reports received during 1993 was made by a consultant during November. ARI is in the process of recruiting for a full-time staff member to manage the case registration program, including analysis and feedback to governorates.

ARI developed and distributed standard forms for monitoring the status of the program in particular districts and governorates. These provided program information and supplement a form, developed in 1992, for monitoring SCM practice at the clinic level. In 1992, ARI began systematic compilation of information on the status of the ARI control program by governorate and district.

ARI staff continued to make advisory and monitoring visits during the year. The staff was increased by the assignment in September of an advisor located

⁵ See Chapter 6, Section 6.5, on project-wide training activities.

⁶ The governorates are: Giza, Qalyubia, Dakahlia, Beheira, Assiut, Sohag, Qena, Luxor, and Aswan.

in Upper Egypt and covering Aswan, Luxor, Qena, and Sohag. Arrangements were made in December 1993, to hire additional part-time staff to serve as field monitors and advisors, covering the Canal area (Port Said, Suez, Ismailia), Greater Cairo, Giza, and the Delta governorates.

3.4 Procurement and Supplies of Clinical Equipment

In 1992-93, the ARI program completed distribution to health facilities of the following:

- 105 oxygen concentrators (distributed in 1993).
- 30 oximeters (distributed in 1993).
- 186 nebulizers (distributed in 1993).
- 8,000 timers (distributed in 1993).
- 100,000 tongue depressors (distributed in 1992).
- 50,000 oxygen masks (distributed in 1992).

The oxygen concentrators and nebulizers are used for treatment of hospitalized cases of severe pneumonia. The timers are used by health staff for diagnosis (to detect fast breathing). The oximeters are used by hospital clinicians as a non-intrusive method to measure oxygen content in the blood of infants and children.

Procurement of additional equipment in 1993 was initiated (under IFB-6) covering 6,000 pneumatic otoscopes (to diagnose otitis media), 20,000 electronic respiratory timers, 100 oxygen concentrators, and 190 nebulizers. In addition, local procurement was initiated for 230 oxygen cylinder sets and 100 nebulizers. This equipment will be delivered and put into service in 1994.

3.5 Drug Supply

During 1993, ARI supplied a total of 1.01 million pediatric treatments of amoxicillin⁷ and 225,000 treatments of paracetamol (for the treatment of fever in children) to primary health facilities and hospitals. Logistics supply was transferred to the MOH Drug Supply Directorate in the first quarter of the year.

An important development during the year was agreement by the drug industry to produce a smaller, standardized vial for antibiotics for the five-day treatment course.

⁷ In two formulations, one for infants under 2 months and one for children under 5.

The amount of amoxicillin supplied by ARI for 1991 and 1992 totaled 307,000 treatments. As of March 1993, the drug supply situation throughout the country was good, with ample supplies having been distributed to all governorates, nearly all districts, and to primary health facilities with trained staff. During the year, ARI authorized governorate health directorates to distribute supplies to out-patient clinics of hospitals staffed with trained doctors for the treatment of infants and children with ARI.

By the fourth quarter, supplies began to run out in many areas. In October 1993, CSP initiated a local procurement using GOE funds (LE 1,000,000 or the equivalent of \$300,000) of 360,000 treatments of amoxicillin scheduled to be distributed early in the first quarter of 1994. First deliveries from this local procurement were received by the Project in January 1994 and sent to the governorates.

USAID procurement scheduled to be completed during 1994 will provide some 2 million pediatric treatments of amoxicillin⁸, most of which is expected to be delivered during the second half of 1994. This amount will be sufficient to cover program needs during 1994 and 1995, and possibly into 1996.

Analysis of case registration reports made in the fourth quarter of 1993 reveal a pattern of overprescription of ARI drugs, and a need for tighter supervision and counseling of PHC physicians by supervisors. This problem has been raised in the workshops organized with governorate management teams for the ARI program. It will require continued attention during 1994-95 and after.

Operations research on systems to insure sustainability of affordable supplies through cost recovery and resupply, using the proceeds of cost recovery, will be carried out in pilot areas during 1994-95.

3.6 Laboratory Upgrading

Studies were carried out in 1992 preparatory to implementation of a laboratory upgrading program to be carried out in 1993-95. The recommendation of the Evaluation Team⁹ to upgrade laboratories of larger fever and general hospitals to enable them to do blood cultures as a diagnostic tool for ARI was accepted.

The 1993 Work Plan provided for the initiation of a program to strengthen laboratories in selected general and fever hospitals with inputs which would include advisory services, training, and equipment. During the year, it was decided to target 10 hospital laboratories during 1993 and to add 20 more to be targeted during 1994-95. There is to be at least one MOH hospital laboratory

⁸ Funding of nearly \$2.9 million is available from a PIO/C issued by USAID in 1992.

⁹ USAID/MOH, *Mid-Term Evaluation*, Child Survival Project, Cairo, November 1992.

in each governorate. Laboratories are being equipped to handle advanced analysis for ARI diagnosis, and to conduct the laboratory work required for surveillance of bacterial resistance to ARI drugs.

Plans for equipment and supply for hospital laboratories, including detailed specifications for the equipment and supplies, were worked out. Procurement of laboratory equipment for the 10 hospitals was initiated locally and offshore. Local contracts financed by USAID total about LE 668,000 (\$202,000). This equipment will be delivered and installed during 1994. Equipment for the 20 additional centers will be ordered in the first half of 1994 and installed during 1994-95.

Training of laboratory technicians and supervisors, and advisory services, are programmed during 1994-95.

3.7 Management and Health Information System

During 1992, a comprehensive management and health information system covering the ARI control program was developed. The installation of the system was begun in 1992, continued in 1993, and is expected to be completed during 1994. The basis of the system is ARI case registration-recording by primary health care facilities. Other components of the system include a one-year sentinel survey to help determine the diagnostic patterns of ARI in Egypt, field monitoring to track installation of the ARI control program, and a system for reviewing mortality and cause of death data.

The case registration system is a clinic-based system. It records, by clinic, all cases of ARI presented to MOH physicians. Information recorded includes age of patient, diagnosis, antibiotic use, and referrals. The case registration system is a key element in the establishment of standard case management and its monitoring and supervision. As of December 1993, the system was installed in 15 governorates and 124 districts, covering over half the health system.

Field work for the sentinel diagnostic survey was completed during 1993. A final report is expected to be published in the second quarter of 1994. The data collected will enable the Project to determine the incidence of ARI episodes in Egypt, since the clinics were selected by representative sampling.

3.8 Health Promotion and Education

Standard ARI case management can avert most deaths due to pneumonia in children, but—considering the rapid onset of pneumonia and the short course of the disease—only if families recognize signs of severe ARI and seek care promptly. While most mothers do refer their children to physicians for treat-

ment, in practice referrals in cases of severe ARI do not happen early enough. Three approaches have been adopted for health education of mothers:

- Counseling of mothers by service providers.
- Use of MOH health education offices and officers.
- Use of mass media.

3.8.1 Counseling of Mothers

An aim of the program is to achieve a higher degree of effective counseling by service providers of mothers and other caregivers in the home care of ARI. The opportunities are large, since over 1.5 million mothers visit PHC clinics each year for infant vaccinations, and an estimated 1.3 million visit clinics with a child suffering from an ARI.

In 1992 and 1993, health promotion was in the main approached by interpersonal communications by health providers with the mother or other caregiver. The curriculum of the training courses for primary health care physicians and nurses included (and includes) training in the four areas of ARI home care for use in counseling (Figure 3-7). In addition, the extension in 1993 of the physician training course from two to three days allows time for training in interpersonal communication techniques (as well as case registration, and practical training in diagnosis). The numbers of nurses and PHC physicians trained in counseling for home care increased from 7,700 in 1992 to over 14,000 at the end of 1993.

The ARI manuals for physicians (in English) and for nurses (in Arabic) contain guidance on ARI counseling. During 1992 and 1993, ARI management wall charts showing the counseling to be given for home care were distributed to thousands of primary health care facilities. During 1994-95, the Child Spacing component plans to produce and distribute counseling cards to service providers in out-patient clinics.

Figure 3-7. Areas for ARI Home Care Counseling

- Food and feeding
- Fluids and drinking
- Soothing the throat
- When to seek care

SOURCE: ARI Control Program.

The check list for supervision of PHC clinics, developed in 1992, includes a question on communications with the mother, to be checked by the supervisor. District health officers are taught in the ARI management course to emphasize counseling of mothers in their supervision of clinic compliance with the ARI program. The ARI newsletter, which targets primary health care physicians and private practitioners, carries articles regularly on the importance of counseling.

The CS/MCH program also includes training of traditional birth attendants (dayas) in counseling mothers to recognize the signs and symptoms of severe ARI in their newborns. CS trained nearly 2,000 dayas during 1993. (Nationally, there are an estimated 10,000 trained dayas in practice, servicing an estimated half-million pregnant women; this number is projected to increase to about 16,000 by 1995.¹⁰)

3.8.2 Mobilization of MOH Health Education Offices

In 1993, the Project initiated a program with the MOH Health Education Directorate to mobilize MOH health education officers to disseminate child survival and safe motherhood messages. The program which includes actions by the health education officers in all governorates and some 130 districts was developed as a project-wide activity in the fourth quarter, and will be carried out during 1994-95.¹¹

3.8.3 Mass Media

The 1993 Work Plan provided for the production and dissemination, as a project-wide activity, of a large number of TV and radio spots, and the development on a project-wide basis of a TV drama and a radio drama to depict child survival and safe motherhood messages to the public. Implementation of the mass media program has been slow. During the year, the component was able to produce only one TV spot on ARI. This spot was aired beginning in the second half of 1993. The Executive Director of the component also appeared on three TV health talk shows and several times on radio. The 1994-95 Work Plan again provides for the production of several TV and radio spots for ARI.

¹⁰ See Chapter 4, Section 4.3.

¹¹ See Chapter 6, Section 6.7.

3.9 Operations Research and Studies

Research was concentrated on the activities described below. Local costs, borne largely under the USAID grant, amounted to LE 346,700 (\$105,000).

3.9.1 Bacterial Resistance Study

This study is examining the proportion of isolates of *Hemophilus influenzae* and *Streptococcus pneumoniae* that are susceptible to the antibiotics used by the ARI control program. Data collected at the Imbaba and Abbassia fever hospitals in Cairo in 1992-93 are in analysis. The study is being conducted collaboratively by CSP, CDC, and JHU. A final report will be made available in 1994.

3.9.2 Pharyngitis Study

This study is designed to

- Determine the incidence of group A beta hemolytic streptococcal (GABHS) pharyngitis in Egyptian children aged 2-8 who present to PHC clinics with acute sore throats.
- Compare the sensitivity and specificity of clinic criteria for the prediction of GABHS in younger vs. older children.
- Determine the proportion of GABHS pharyngitis cases missing the WHO-recommended criteria treatment, and the proportion of non-GABHS pharyngitis unnecessarily treated using local criteria.

The study began in the fall of 1992 and was continued during 1993. Data collected are in analysis, which is expected to be completed in the first half of 1994. The study will provide data to revise the criteria for the prescription of antibiotics to children with sore throat as a preventive measure against rheumatic fever complications.

3.9.3 Sentinel Survey

This survey covered 110 reporting units in five governorates. Reporting by the units was completed in 1993. An interim report providing an analysis of the field data collected during the first six months was released in the third quarter of 1993. Analysis of additional data collected will be completed in the first quarter of 1994. The final report is to be released in the second quarter of 1994. The findings provide reliable information on the incidence of pneumonia and other acute respi-

ratory infections in Egypt, and requirements for antibiotics for treatment in accordance with good standard case management practice.

3.9.4 Health Facility Survey

Field work on this survey, which samples a total of 65 facilities in nine governorates, was initiated in the fourth quarter of 1993. The study will be completed in the first quarter of 1994. The final report is scheduled to be distributed in April 1994. It will provide information on the extent to which SCM is practiced and the observable quality of ARI service delivery. Initial results suggest that while most facilities are becoming staffed with physicians trained in ARI and training appears effective in improving diagnosis for ARI control, many physicians are overprescribing drugs.

3.9.5 Completeness of Vital Registration Data on Infant and Child Death

This study is designed to estimate levels of coverage and content errors of child death registration data (especially, but not limited to, ARI) for Egypt. The study started in the fall of 1992. Data collection is to be completed in the first quarter of 1994. Analysis is expected to be completed by the second quarter of 1994. A preliminary finding is that infant death registration data does not appear to be sufficiently reliable in determining cause of death to warrant its use in guiding program development.

3.9.6 Management of Wheezing in Infancy

This study is designed to determine the usefulness of albuterol in reducing respiratory distress of wheezing infants and to compare the effectiveness of oral versus nebulized administration of albuterol. It also examines the use of foot-operated nebulizers. The analysis and final report of findings became available in 1993. A conclusion is that nebulized albuterol is effective in the treatment of infants with recurrent wheezing, but that there was no demonstrable efficacy of orally administered or nebulized albuterol in relieving the respiratory distress of infants with bronchiolitis in Egypt. A paper on the findings was published in the *Journal of Pediatrics* (J Pediatr 1994; 123:131-B).

3.9.7 CSP Impact Study

This is a project-wide assessment of the impact of the CSP program, which is being managed on behalf of the Project by the ARI component. The protocol for the study was completed during the fourth

quarter of 1993. It will be carried out in two governorates, Menia and Qalyubia. Data will be collected both retrospectively and prospectively. Field work is to begin in May 1994 and be carried out over a 12-month period. This study, combined with other data, will be useful in evaluating the impact of the ARI control program, as well as other child survival interventions.

3.9.8 Operational Research on ARI Drug Supply

This study was decided upon in the third quarter of 1993 and included in the 1994-95 Work Plan. Its aim is to examine possibilities for providing affordable supplies of ARI drugs in PHC facilities and outpatient departments by devising systems for cost recovery, with local use of proceeds to replenish supplies, in a way that assures adequate supplies of antibiotics for the treatment of pneumonia.

Table 3-1. Training Carried Out in 1993 Compared to Previous Years, and Planned for 1994-1995

	1990-91	1992	1993	1994-95 (20 months)	Total Planned
Managers	(r) 21	(r) 48	202	120	391
Specialists	* 47	181	461	500	1,189
Nurses	...	1,445	4,121	6,000	11,566
Physicians	3,036	3,212	2,877	3,600	12,725
Nurse Trainers	...	50	88	100	238
Total	3,104	4,936	7,749	10,320	26,109

(r) Revised.

* Including training in previous years.

SOURCE: ARI Control Program, January 1994.

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Table 3-2. Staff Trained in ARI Standard Case Management Through 1993, by Governorate and Category

Governorate	*	**	***	****	Total
	Managers	Specialists	Physicians	Nurses	
1. Alexandria	9	58	898	380	1,345
2. Assiut	19	59	442	80	600
3. Aswan	6	4	245	414	669
4. Beheira	14	14	638	390	1,056
5. Beni Suef	8	21	120	79	228
6. Cairo	26	134	2,548	699	3,407
7. Dakahlia	13	17	433	169	632
8. Damietta	7	7	94	240	348
9. Fayoum	7	7	32	124	170
10. Gharbia	12	19	156	148	335
11. Giza	21	87	603	521	1,232
12. Ismailia	5	10	140	80	235
13. Kafr El-Sheikh	12	13	212	300	537
14. Marsa Matrouh	3	*****	51	20	74
15. Menia	12	115	118	0	245
16. Menoufia	7	20	521	140	688
17. New Valley	2	*****	89	147	238
18. North Sinai	5	6	82	0	93
19. Port Said	5	7	91	198	301
20. Qalyubia	13	12	347	364	736
21. Qena/Luxor	24	5	493	472	994
22. Red Sea	5	*****	32	50	87
23. Sharkia	12	12	192	20	236
24. Sohag	13	22	467	396	898
25. South Sinai	6	2	20	21	49
26. Suez	5	7	61	114	187
Other	...	31	...	...	31
Total	271	689	9,125	5,566	15,651

* Five-day course in ARI program management and standard case management for district health officers and governorate-level managers. Training was largely completed in 1993.

** Five-day course in the ARI control program and in the diagnosis and treatment of severe ARI. Target is all MOH pediatricians. Training will be largely completed during 1994.

*** In-service training of primary health care physicians in standard case management of ARI commenced in 1989. It will be largely completed during 1994.

**** In-service training of PHC nurses in standard case management of ARI and counseling of mothers commenced in 1992. It will be largely completed in 1995.

***** A few pediatricians trained on the job in ARI control.

SOURCE: ARI Control Program, January 1993.

Table 3-3. ARI Management Training for Governorate-Level Managers and District Health Officers, 1990-1993 *

Governorate (No. of Districts)	Number of Managers Trained			
	Through 1992	1993	Through 1993	Planned 1994-95**
1. Alexandria (7)	5	4	9	2-5
2. Assiut (13)	5	14	19	5-7
3. Aswan (5)	3	3	6	2-5
4. Beheira (15)	2	12	14	5-7
5. Beni Suef (7)	0	8	8	2-5
6. Cairo (16)	7	19	26	5-7
7. Dakahlia (13)	2	11	13	5-7
8. Damietta (4)	0	7	7	2-5
9. Fayoum (5)	0	7	7	2-5
10. Gharbia (8)	0	12	12	2-5
11. Giza (14)	6	15	21	4-7
12. Ismailia (5)	5	0	5	2-5
13. Kafr El-Sheikh (9)	0	12	12	4-6
14. Luxor (0)	1	1	2	2-3
15. Marsa Matrouh (5)	0	3	3	2-5
16. Menoufia (9)	5	2	7	6-9
17. Menia (9)	0	12	12	3-5
18. New Valley (2)	0	2	2	2-5
19. North Sinai (6)	3	2	5	2-5
20. Port Said (0)	4	1	5	2-3
21. Qalyubia (9)	6	7	13	5-7
22. Qena (12)	8	14	22	5-7
23. Red Sea (4)	0	5	5	2-5
24. Sharkia (13)	0	12	12	5-7
25. Sohag (11)	5	8	13	5-7
26. South Sinai (5)	0	6	6	2-5
27. Suez (4)	2	3	5	2-5
Total	69	202	271	120

* The management training program in 1994-95 is to provide training sessions for up to 120 managers for the standard five-day course. Approximately half the participants are expected to be replacements, with remaining spaces for refresher training. In addition, one- and two-day workshops will be organized, normally at the governorate level, on ARI planning, supervision, and evaluation.

** Planning figures for governorates are presented as ranges.

SOURCE: ARI Control Program, January 1994.

Table 3-4. ARI Specialist Training, by Governorate, 1991-1993

Governorate	No. of Specialists					No. of Hospitals		
	1991	1992	1993	Total	'94-95 Plan*	Est.**		Planned by 1995
						1992	1993	
1. Alexandria	8	50	...	58	70-90	8	8	13
2. Assiut	5	6	48	59	3-5	1	13	13
3. Aswan	...	...	4	4	15-25	0	3	7
4. Beheira	...	6	8	14	20-30	2	6	18
5. Beni Suef	...	4	17	21	10-15	1	5	9
6. Cairo	14	29	91	134	20-30	13	13	13
7. Dakahlia	...	3	14	17	50-60	1	4	16
8. Damietta	...	...	7	7	15-20	0	2	8
9. Fayoum	...	...	7	7	15-20	0	2	9
10. Gharbia	...	...	19	19	40-60	0	6	8
11. Giza	4	35	48	87	30-40	10	14	14
12. Ismailia	6	...	4	10	5-10	2	2	7
13. K. El-Sheikh	...	...	13	13	20-30	0	3	12
14. Luxor	...	...	1	1	5-10	0	1	3
15. M. Matrouh	...	***	***	***	5-7	0	0	8
16. Menoufia	7	7	6	20	10-20	2	4	14
17. Menia	...	...	115	115	...	0	15	15
18. New Valley	...	***	***	***	2-4	0	0	3
19. N. Sinai	...	2	4	6	3-5	1	3	4
20. Port Said	...	4	3	7	5-10	1	2	3
21. Qalyubia	...	...	12	12	20-25	0	4	15
22. Qena	...	...	4	4	10-20	0	3	16
23. Red Sea	...	...	***	***	3-5	0	0	4
24. Sharkia	...	...	12	12	20-25	0	4	23
25. Sohag	3	...	19	22	5-10	1	9	18
26. South Sinai	...	...	2	2	2-4	0	0	1
27. Suez	...	4	3	7	5-10	2	2	3
Other	...	31	...	31	...	...	...	4
Total	47	181	461	689	500	45	128	281

* Planning numbers for governorates are presented as ranges.

** Estimated number of hospitals with pediatricians trained as ARI control specialists in severe ARI disease management.

*** On-the-Job training as trainers for a few pediatricians.

SOURCE: ARI Control Program, January 1994.

**Table 3-5. PHC Physicians Trained in ARI
Standard Case Management, 1990-1993**

Governorate	1990	1991	1992	1993	Cum. Total
Alexandria	280	425	135	58	898
Assiut	145	153	126	18	442
Aswan	0	0	139	106	245
Beheira	0	0	226	412	638
Beni Suef	0	0	51	69	120
Cairo	487	619	968	474	2,548
Dakahlia	0	0	198	235	433
Damietta	0	0	0	94	94
Fayoum	0	0	0	32	32
Gharbia	0	0	0	156	156
Giza	0	160	443	0	603
Ismailia	100	0	40	0	140
Kafr El-Sheikh	0	0	0	212	212
Luxor	0	0	68	21	89
Marsa Matrouh	0	0	33	18	51
Menia	0	0	0	118	118
Menoufia	351	170	0	0	521
N. Sinai	0	56	26	0	82
New Valley	0	0	49	40	89
Port Said	0	0	91	0	91
Qalyubia	0	0	166	181	347
Qena	0	0	207	197	404
Red Sea	0	0	0	32	32
S. Sinai	0	0	0	20	20
Sharkia	0	0	84	108	192
Sohag	0	60	148	259	467
Suez	0	30	14	17	61
Total	1,363	1,673	3,212	2,877	9,125

Table 3-6. ARI Training of Nurses, 1992-1993

Governorate	1992	1993	Cum. Total
Alexandria	60	320	380
Assiut	0	80	80
Aswan	146	268	414
Beheira	0	390	390
Beni Suef	0	79	79
Cairo	377	322	699
Dakahlia	0	169	169
Damietta	0	240	240
Fayoum	0	124	124
Gharbia	0	148	148
Giza	181	340	521
Ismailia	0	80	80
Kafr El-Sheikh	0	300	300
Luxor	0	24	24
Marsa Matrouh	0	20	20
Menia	0	0	0
Menoufia	0	140	140
N. Sinai	0	0	0
New Valley	55	92	147
Port Said	118	80	198
Qalyubia	120	244	364
Qena	132	316	448
Red Sea	0	50	50
S. Sinai	0	21	21
Sharkia	0	20	20
Sohag	216	180	396
Suez	40	74	114
Total	1,445	4,121	5,566

SOURCE: ARI Control Program.

**Table 3-7. Installation of SCM in MOH Health Facilities
(Estimated as of December 1993) ***

Governorate	PHC Facilities with Trained Physicians **	Hospital Out-Patient Clinics with Trained Physicians ***	No. of Trained Specialists ****	Hospitals with Trained Specialists
1. Alexandria	44 / 44	11 / 13	58	8 / 13
2. Assiut	166 / 166	13 / 13	59	13 / 13
3. Aswan	95 / 95	7 / 7	4	3 / 7
4. Beheira	235 / 256	18 / 18	14	6 / 18
5. Beni Suef	71 / 129	9 / 9	21	5 / 9
6. Cairo	65 / 65	13 / 13	134	13 / 13
7. Dakahlia	150 / 300	16 / 16	17	4 / 16
8. Damietta	72 / 77	8 / 8	7	2 / 8
9. Fayoum	17 / 120	7 / 9	7	2 / 9
10. Gharbia	50 / 162	8 / 8	19	6 / 8
11. Giza	160 / 174	14 / 14	87	14 / 14
12. Ismailia	30 / 35	6 / 7	10	2 / 7
13. Kafr El-Sheikh	71 / 166	10 / 12	13	3 / 12
14. Luxor	8 / 8	3 / 3	1	1 / 3
15. Marsa Matrouh	18 / 19	5 / 8	...	0 / 8
16. Menoufia	173 / 191	8 / 14	20	4 / 14
17. Menia	52 / 225	15 / 15	115	15 / 15
18. New Valley	28 / 28	3 / 3	...	0 / 3
19. N. Sinai	33 / 35	4 / 4	6	3 / 4
20. Port Said	9 / 10	3 / 3	7	2 / 3
21. Qalyubia	100 / 137	15 / 15	14	4 / 15
22. Qena	100 / 147	10 / 16	4	3 / 16
23. Red Sea	9 / 13	4 / 4	...	0 / 4
24. Sharkia	80 / 272	15 / 23	12	4 / 23
25. Sohag	172 / 198	18 / 18	22	9 / 18
26. S. Sinai	5 / 12	3 / 3	...	0 / 3
27. Suez	15 / 15	4 / 4	7	2 / 4
Total	2,028 / 3,099	250 / 280	658	128 / 280

* Data on numbers of facilities with trained staff are estimates based on field monitoring reports, training, reports from the governorates, and the 1992 Mid-Term Evaluation. These data are indicative. See also governorate data sheets.

** Urban PHC facilities: 438 of 445 (MCH Centers and Urban Health Centers)

Rural PHC facilities: 1,590 of 2,654 (Rural Hospitals, Rural Health Centers, Rural Health Units).

*** Hospital numbers include general, district, and fever hospitals.

**** "Trained specialists" refers to MOH pediatricians trained during a five-day course in the ARI control program and standard case management of severe ARI.

SOURCE: ARI Control Program, January 1994.

Table 3-8. Estimated Access of Egyptian Population to ARI Standard Case Management (Evaluation of Program, 1989-1993)

Governorates (1992 population, thousands)	Est. Rate of Population Access (%)				Children < 5 (thousands)
	Dec 1990	Dec 1991	Dec 1992	Dec 1993	
First Group: 1989-1990					
1. Alexandria (3,293)	30	75	90	≥ 90	410
2. Assiut (2,522)	31	63	90	≥ 90	600
3. Cairo* (6,664)	25	51	90	≥ 90	816
4. Ismailia (662)	61	85	85	90	100
5. Menoufia (2,521)	61	90	90	85	330
Second Group: 1991					
6. Giza (4,534)	0	24	90	90	700
7. North Sinai (200)	0	55	(r) 65	65	31
8. Sohag (2,758)	0	15	50	≥ 80	471
9. Suez (414)	0	61	90	≥ 90	55
Third Group: 1992					
10. Aswan (922)	0	0	90	≥ 90	150
11. Beheira (3,712)	0	0	(r) 30	≥ 80	600
12. Beni Suef (1,644)	0	0	15	50	300
13. Dakahlia (3,928)	0	0	(r) 30	55	600
14. M. Matrouh (195)	0	0	56	80	40
15. New Valley (104)	0	0	40	90	20
16. Port Said (485)	0	0	90	90	56
17. Qalyubia (3,023)	0	0	25	75	471
18. Qena/Luxor (2,587)	0	0	45	75	452
19. Sharkia (3,894)	0	0	15	30	647
Fourth Group: 1993					
20. Damietta (833)	0	0	0	75	120
21. Fayoum (1,798)	0	0	0	15	340
22. Gharbia (3,282)	0	0	0	40	410
23. K. El Sheikh (2,047)	0	0	0	50	325
24. South Sinai (34)	0	0	0	40	5
25. Red Sea** (134)	0	0	0	75	17
26. Menia** (2,995)	0	0	0	15	535
EGYPT (55,163)	8	22	48	70	8,600

(r) Revised

* Cairo Governorate (100% urban). Metropolitan Cairo also includes neighboring urban areas of Cairo/Giza and Cairo/Qalyubia.

** Program initiated in second half of 1993.

SOURCE: CSP Evaluation Office, January 1993.

4. Child Spacing and MCH Improvement Program (CS/MCH)

4.1 Introduction

The CS/MCH program covers five areas:

- Improved MCH Service Delivery.
- The Daya Program.
- Improved Natal Care.
- Development of Neonatal Care.
- Infant Nutrition.

Research supports these programs.

During 1993, a major achievement was the completion of a national maternal mortality study. This provided important data, based on survey work conducted with the help of 21 governorates, on avoidable factors in maternal mortality and measures to promote safe motherhood.

The development of the neonatal intensive care system progressed. Further advances have been achieved toward the development of a national perinatal program in which the efforts of pediatricians, obstetricians and gynecologists, and general practitioners are better coordinated and combined to reduce mortality for the neonate and mother through better care during pregnancy, delivery, and the postpartum/neonatal period.

Training activities reached nearly 4,500 persons. A total of almost 2,500 physicians and nurses in the primary health care system were trained, contributing to governorate efforts to improve MCH service delivery. Increased outreach for MCH and family planning/child spacing was achieved by training and integrating nearly 2,000 traditional birth attendants into the national effort for maternal child care. Training activities continued to support improved infant as well as maternal nutrition.

4.1.1 Objectives, Targets, and Indicators

The CSP goal is the improvement of the health of Egyptian women of childbearing age and of children. Indicators applicable to the CS//MCH program are:

- Reduction in maternal mortality.
- Reduction in neonatal tetanus (in conjunction with EPI).
- Reduction in infant and child mortality (in conjunction with EPI and ARI).

Considerations in the design of the Child Spacing and MCH Program include:

Potential to Reduce Infant Mortality. With 88,000 infant deaths in 1991, of which up to 40% occurred in the first month of life, significant decreases in infant and neonatal mortality are possible by identification and referral of high-risk pregnancies and improvements in neonatal and infant care.

Need and Potential to Reduce Maternal Mortality. Important contributions to the reduction of maternal mortality can be made through increased and improved quality of antenatal care, delivery services, and postpartum care, and through promotion of child spacing.

Need to Improve Skills of Dayas. Traditional birth attendants in Egypt need basic training in essential midwifery skills and in child spacing and maternal counseling. Daya training and support represents an opportunity to increase referrals for ANC, TT immunizations, obstetrical services, and family planning, and to improve counseling in maternal and infant nutrition and the need for birth spacing.

Need to Develop a National Strategy and Plan for Perinatal Care. Activities aimed at improving health services and furthering the protection of pregnant women and neonates are fundamental to achieving this objective.

Strategy to Improve Infant Nutrition. Improved knowledge and attitudes of mothers about breast feeding and weaning, anemia, and growth monitoring of infants can best be approached by public information and mass media messages addressed to mothers and influentials, supported by health education counseling by PHC staff in the clinics.

The overall output target of the component is the development of an expanded and improved MCH system reaching pregnant women. The system comprises governorate health directorates, district health officers, over 3,000 primary health care centers, and about 300 first referral level services provided by district and general hospitals.

Figure 4-1. Purpose and Output Indicators for the CS/MCH Program

- Proportion of pregnant women receiving prenatal care (Target: 60%).
- Proportion of mothers correctly breast feeding their babies at least 4-6 months and utilizing appropriate weaning foods in addition to breast feeding (Target: 70%).
- PHC physicians trained in providing improved MCH services (Target: 80%).
- Dayas in lower Egypt adequately equipped and trained in safe delivery, postnatal procedures, and referral for family planning, prenatal, and immunization services (Target: 80% of dayas in these areas).
- 200 hospital delivery rooms and 100 neonatal care centers providing improved obstetrical and neonatal care; 150 MCH laboratories to be upgraded.
- Development of a management information system for the neonatal care program.
- Primary health care physicians and nurses knowledgeable about proper maternal nutrition practices, including breast feeding, weaning, prevention of anemia, and diarrheal case management.

4.1.2 Program Activities in 1993

MCH Service Delivery

This program, initiated in the second half of 1989, aims to improve MCH service delivery in 3,000 primary health care facilities. Inputs include physician training, training for nurses and nurse midwives, upgrading of MCH laboratories, promotion of antenatal care, and training, and use of traditional birth attendants to increase outreach for maternal child services. Inputs include health education through counseling by health providers, and the development and dissemination of mass media materials.

The Daya Program

Underway since 1989, this program includes training and equipment of dayas and the establishment of collaborative mechanisms within primary health care facilities to support and monitor their work. The program improves basic skills of the daya in the management of normal deliveries. In addition, it teaches dayas counseling and referral of their clients to clinics for antenatal care, TT immunization, high-risk pregnancies, postpartum care, child spacing, and breast feeding.

Neonatal Care

This program, initiated in 1991, is developing a network of quality neonatal care centers in MOH hospitals. It is being developed as part of a national perinatal system that integrates maternal delivery services with those for neonatal care.

Natal Care

This program, initiated in 1992, includes the renovation and upgrading of 200 first referral obstetrical facilities in MOH hospitals.

Infant Nutrition

This program involves activities to encourage correct breast feeding and weaning. Activities have been directed mainly at improving health providers' knowledge of proper nutritional practices, including breast feeding, weaning, and prevention of anemia. During 1993, a study of low birth weight was designed, and activities were extended to the Baby Friendly Program in which hospitals and maternity rooms promote correct breast feeding.

4.1.3 Inputs

Inputs into the program include training, equipment, renovations, technical assistance, conferences and workshops, and operations research and studies.

4.1.4 Accomplishments in 1993

Coverage of the Program

The MCH Service Improvement Program was extended from 20 to 25 governorates. It is estimated that physicians in at least 80% of all primary health facilities have been trained in two-thirds of the governorates.

The Daya program was extended from 14 to 16 governorates and from 57 to 73 districts, and continued its collaboration with a joint MOH/UNICEF parallel effort to train and equip dayas in seven governorates of Upper Egypt. The Neonatal Care Program became operative in all governorates during 1993.

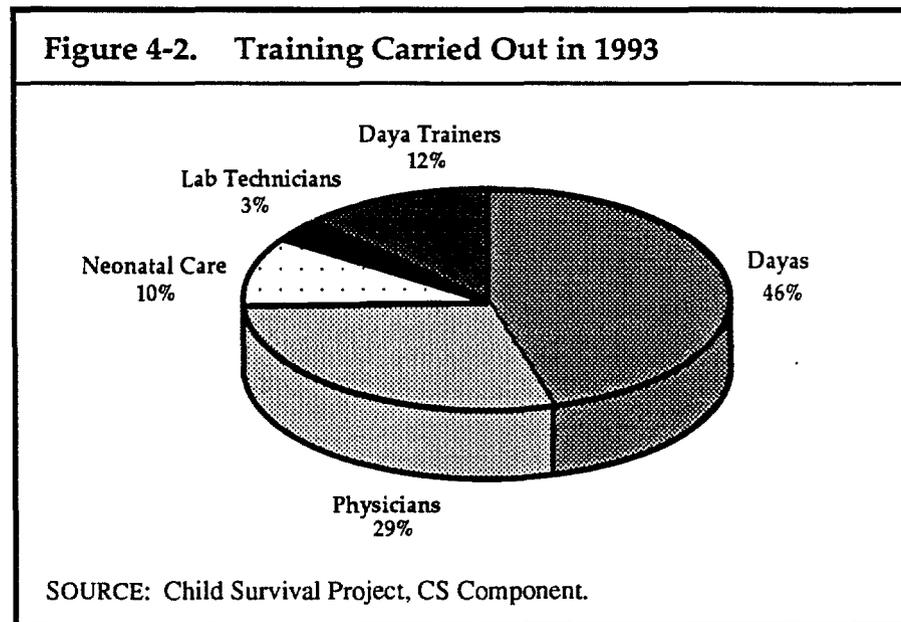
The Maternal Mortality Survey was completed in collaboration with 21 governorate health directorates during 1992-93.

The Natal Program to upgrade delivery rooms was initiated in seven governorates in 1992 and extended to a total of 18 governorates in 1993.

Infant and maternal nutrition is being promoted countrywide in training programs for health providers. The Baby Friendly Program to promote breast feeding in maternity wards has been initiated in five governorates and will be extended to 14 governorates during 1994-95.

Local Training

During the year, training was carried out for 4,257 health agents, as shown in Figure 4-2.



Equipment Procurement

Procurement was completed for equipment and supplies, as shown in Table 4-1. Additional procurement was initiated for the daya, neonatal intensive care, and natal programs, as shown in Table 4-2.

Research and Studies

The study of maternal mortality began in March 1992 and was completed in 1993. A Summary Report was prepared in the first quarter of 1994.

Arrangements were made during 1993 to carry out the first phase of a national study of low birth weight for the infant nutrition program. The pilot study started in February 1994.

Workshops and Conferences in 1993

CS held a national workshop on antenatal care and child survival and two workshops on the development of a national health information system covering neonatal intensive care.

4.2 MCH Service Delivery Improvement

This program seeks to increase the capacity for quality MCH service delivery by PHC facilities throughout the country. These facilities include over 200 MCH centers in the urban areas, about 500 rural and urban health centers, some 120 rural hospitals, and over 2,000 rural health units. Inputs to achieve this goal have included equipment,¹ training, problem assessment, and efforts to improve management and supervision at the district level.

Activities in 1993 were directed toward:

- Governorate-level training of PHC physicians.
- Upgrading of MCH laboratories.
- Midwifery training.
- Training of trainers and supervisors for the daya program.
- Assessment of maternal mortality and promotion of safe motherhood.
- Promotion of improved management.

4.2.1 Training of PHC Physicians for Improved MCH Service Delivery

During 1993, 1,229 physicians from 16 governorates were trained by CS in a revised five-day course. As of the end of December, the component had trained 8,692 physicians² in 25 governorates since August of 1990 (Table 4-3). In addition, the program has trained trainers³ in most governorates. It is estimated that over 80% of PHC facilities have trained physicians, in some two-thirds of the governorates.

The physicians training course was revised in 1993 to emphasize skills acquisition, particularly for health education and team building, and clinical skills for antenatal consultation. A revised manual used in the training and provided to each attendee was printed during the year (Figure 4-3).

¹ Equipment provided in 1990-92 included adult and child scales, autoclaves, laboratory equipment, demonstration kitchen equipment, and hemoglobin meters.

² In addition to this training, during 1989-91 the Nutrition component trained 5,071 physicians from 14 governorates in PHC nutrition.

³ 330 trainers have been trained: 75 in 1993; 80 in 1992; 95 in 1991; 80 in 1990.

Figure 4-3. Physicians Manual Table of Contents

- | | |
|---------------------------------------|--|
| 1. Child Spacing | 9. Neonatal Tetanus |
| 2. Role of Physician
in MCH Center | 10. Breast Feeding |
| 3. Antenatal Care | 11. Weaning |
| 4. High-Risk Pregnancy | 12. Birth Spacing Methods
for Lactating Mothers |
| 5. Normal Labor | 13. Counseling |
| 6. Postnatal Care | 14. Growth Monitoring |
| 7. Postpartum Hemorrhage | 15. Maternal Mortality |
| 8. Care of the New Born | 16. Infection Prevention |

SOURCE: CSP, *Primary Health Units Physicians Training Manual*.

Training courses have been managed on a decentralized basis by the Health Directorate of each governorate. The Health Directorate is responsible for selecting participants and organizing the courses. Training courses are conducted using local trainers and trainers made available from the staffs of the Faculties of Medicine of 10 universities.⁴

The CS component monitored the training and arranged for pre- and post-tests. Test results showed a satisfactory accomplishment of course objectives.

Continued training of trainers, and of PHC physicians, has been programmed in the CSP 1994-95 Work Plan. The training of PHC physicians, to be conducted over an 18-month period, is planned to reach 3,000 doctors, with refresher training for 1,000. Governorates being targeted in 1994-95 include Assiut, Beni Suef, Beheira, Dakahlia, Fayoum, Ismailia, Port Said, Qena, Sohag, and Suez. Some additional training or refresher training will be programmed in Cairo, Alexandria, Gharbia, Sharkia, and Menoufia.

4.2.2 Nurse Training for Improved MCH Service Delivery

During 1993, the Project decided to focus nurse training on improving skills and on increasing the supply of nurse-midwives available to the primary health care system. A plan of action was drawn up with the help of a consultant provided by Clark Atlanta University and an MOH advisory committee.

⁴ The universities of Cairo, Qalyubia, Gharbia, Menia, Alexandria, Dakahlia, Menoufia, Port Said, Assiut, and Giza.

A course to train trainers for the program was completed in the fourth quarter of the year. It was decided to pilot the training program in Menoufia in the first half of 1994. The pilot training program in Menoufia began in January 1994 and is scheduled to be completed and evaluated by May 1994.

In 1993, the CS component also conducted training for 345 chief nurses and inspectors in day training, supervision, and support (see Table 4-5), and for 108 nurses in intensive care of neonates, as outlined in Section 4.4.⁵

The 1994-95 CSP Work Plan includes:

- Completion and assessment of Midwifery Pilot Training Course in Menoufia.
- Completion of needs assessments in 10 governorates.
- Training of 15 trainers.
- Development of training facilities and programs in three other governorates.
- Completion of training for 100 midwives.
- Preparation of a National Plan for Midwifery Development (workshop).
- Reprinting of nurses PHC manual for use by nursing schools and governorates.
- Preparation of counseling cards for use by nurses and midwives in counseling mothers on ANC, delivery, postpartum care, breast feeding, and weaning.
- Production of a video for use by nursing schools and governorate health training departments for training nurses in counseling and interpersonal communications.

4.2.3 Upgrading of MCH Laboratories and Training of Laboratory Technicians

During the year, the CS component upgraded a total of 42 laboratories located in MCH or urban health centers in 16 governorates. During the same period, training of 134 laboratory technicians was carried out in five-day courses. As of December 1993, a total of 109 MCH laboratories had been upgraded (or installed) in 21 governorates and 357 laboratory technicians staffing these laboratories had been trained.

The improvements, including training of laboratory technicians and provision of equipment, supplies, and laboratory manuals, enable

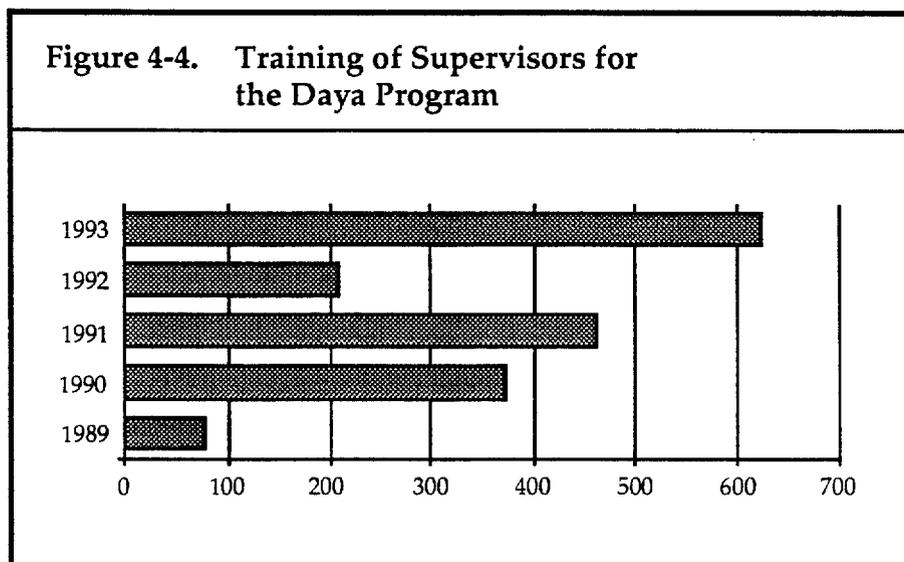
⁵ During 1992, 785 primary health care nurses from seven governorates participated in six-day training courses for improved MCH service delivery. During 1989-91, the Nutrition component trained a total of 8,807 nurses and dietitians from 16 governorates.

MCH laboratories to carry out a greater variety of tests for improved diagnosis and client care. The basic set of tests these laboratories are being improved to perform 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).

The 1994-95 CSP Work Plan provides for the upgrading of an additional 50 laboratories in MCH centers located in urban centers and rural hospitals, as shown in Table 4-4. All governorates will be reached.

4.2.4 Training of Trainers and Supervisors for the Daya Program

During 1993, the number of districts involved in the Daya Program was increased by 16, from 57 to 73. PHC physicians and nurses trained as trainers, supporters, and supervisors for the dayas numbered 525. As of December 1993, nearly 1,900 PHC agents had been trained for supervision and support of the Daya Program.

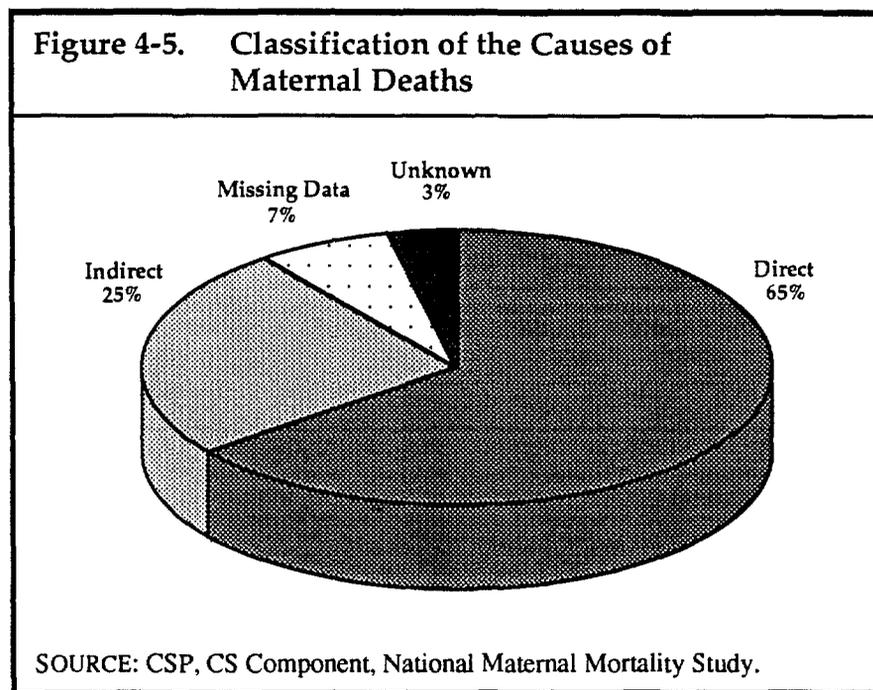


4.2.5 Assessment of Maternal Mortality and Promotion of Safe Motherhood

A nationwide study was launched in March 1992 to assess the extent and causes of maternal mortality and to promote understanding and action by governorates to reduce it. The program was carried out under the guidance of a national CSP committee and 21 governorate

committees. The governorate committees were established under the presidency of the Undersecretary of the Directorate General of the Health Department and were assigned the task of reviewing the cases of maternal mortality being surveyed.

Several thousand female deaths were surveyed and reviewed in the confidential inquiry that identified 718 maternal deaths and their causes. The field work was completed in March 1993. Analysis and drafting of the final report was largely completed by December 1993. A Summary Report was distributed in the first quarter of 1994.



The survey found that the national maternal mortality rate is about 174⁶ per 100,000 live births, considerably below estimates previously published. Variations among governorates are large, with Upper Egypt governorates showing the highest rates. The study's great value is to identify avoidable causes of maternal deaths and morbidity and provide a basis for health programming and management for maternal health. An important finding is the fact that postpartum hemorrhage is a main cause of maternal death, pointing to the need for a protocol for its management for attending physicians and nurses. The fact that the study was conducted by local committees with a large number of

⁶ The 90% confidence interval for the sample is 164-187.

Figure 4-6. Maternal Mortality Ratio, by Governorate

<u>Governorate</u>	<u>Live Births</u>	<u>FD</u>	<u>MD</u>	<u>MD/ FD</u>	<u>MMR</u>	<u>CIL</u>	<u>CIU</u>
Cairo	34,077	1,214	68	5.6	200	156	255
Alexandria	20,608	426	58	13.6	281	216	366
Port Said	4,600	22	7	31.8	152	67	328
Suez	1,597	40	9	22.5	564	275	1,108
Metropolitan	60,882	1,702	142	8.3	233	197	276
Damietta	10,248	162	15	9.3	146	85	247
Dakahlia	55,491	680	62	9.1	112	86	144
Sharkia	38,783	537	48	8.9	124	92	165
Qalyubia	26,174	297	27	9.1	103	69	152
Kafr El-Sheikh	30,064	314	29	9.2	96	65	140
Gharbia	15,529	504	33	6.5	213	148	302
Menoufia	23,935	300	28	9.3	117	79	171
Beheira	30,937	630	53	8.4	171	130	226
Ismailia	5,845	140	19	13.6	325	202	518
Lower Egypt	237,006	3,564	314	8.8	132	118	148
Giza	24,919	535	55	10.3	221	168	289
Beni Suef	11,274	199	17	8.5	151	91	247
Fayoum	17,724	181	26	14.4	147	98	218
Menia	49,642	431	75	17.4	151	119	190
Assiut	9,377	349	51	14.6	544	409	720
Sohag	13,667	227	42	18.5	307	224	419
Qena	9,841	191	38	19.9	386	277	535
Aswan	8,916	108	12	11.1	135	73	242
Upper Egypt	145,360	2,221	316	14.2	217	195	244
Total	443,248	7,487	772	10.3	174	162	187

FD: Female Death, MD: Maternal Death, MMR: Maternal Mortality Ratio, CIL: Lower Confidence Interval, CIU: Upper Confidence Interval.

SOURCE: Child Survival Project, CS Component, National Maternal Mortality Study.

obstetricians and gynecologists has helped to increase awareness of maternal health problems in the medical community.

Under the 1994-95 plan, provision has been made to fund study grants enabling governorate Health Directorates to carry out situational analyses of maternal health care services, both in primary health care facilities and in first level referral services in the district and general hospitals. Other actions to improve natal services are outlined in Section 4.5.

4.2.6 Promotion of Improved Management and Supervision

The CS component is working with other components in a project-wide activity to help governorates strengthen health services management and supervision. Pre-planning was carried out and a major effort is to be undertaken in 1994-95 (see Chapter 6, Section 6.9).

4.3 Daya (Traditional Birth Attendant) Program

The Daya program carried out by the CSP is part of a national effort by MOH that includes parallel support by UNICEF covering daya training in Aswan, Assiut, Qena, Menia, Fayoum, and Beni Suef. In addition, dayas were trained in 1986-87 in Beheira Governorate with the help of UNICEF, and later in Damietta and Beni Suef, with Dutch and Finnish bilateral aid. CSP estimates that as of December 1993, a total of 10,500 dayas had been trained country-wide.

In 1993, the CS component organized training for 1,950 dayas in 12 governorates. The program was extended to include four additional governorates and 16 new districts. As of the end of 1993, the CS component had trained and equipped 6,195 dayas in 73 districts in 16 governorates.

The program provides outreach to Egyptian women for improved maternal and perinatal care. The dayas trained and equipped to date are estimated to reach at least 500,000 women or over 30% of expectant mothers. Dayas are trained in practical skills and provided with equipment for carrying out hygienic and safe deliveries. In addition, the 10-day program of instruction, given to small groups of five dayas, trains them to counsel and refer women for antenatal care, TT immunizations, high-risk pregnancies, child spacing, and maternal nutrition and breast feeding.

The training program also teaches dayas to recognize the signs and symptoms of severe ARI in the neonate and to pass this information on to the mother, and about oral rehydration therapy.

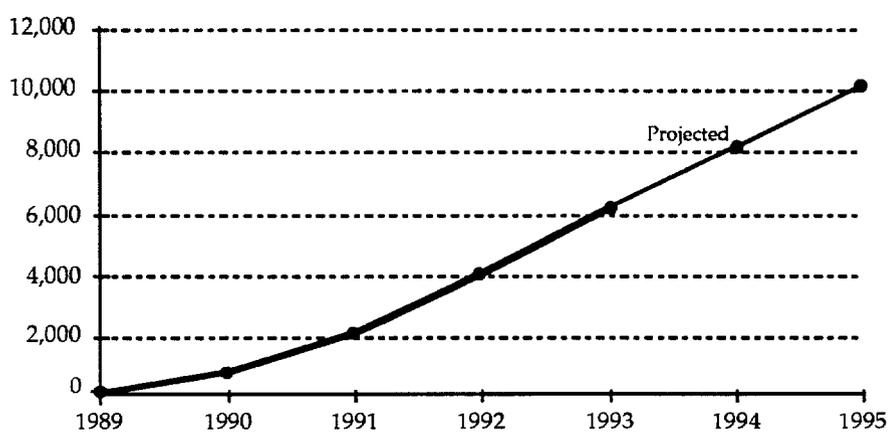
Figure 4-7. Dayas Trained by the Child Survival Project

<u>Year/Period</u>	<u>Number Trained</u>	<u>Governorates</u>	<u>Districts</u>
1989-90	(r) 890	7	...
1991	1,360	10	...
1992	1,995	11	...
1993	1,950	12	...
Subtotal	6,195	16	73
1994-95 (Projected)	3,805	18	111
Total Project	10,000	18	111

(r) Revised

SOURCE: Child Survival Project, Child Spacing Component, Table 4-6.

Figure 4-8. Daya Training by the Child Survival Project, 1989-1993, and Projections



SOURCE: Child Survival Project, Child Spacing Component.

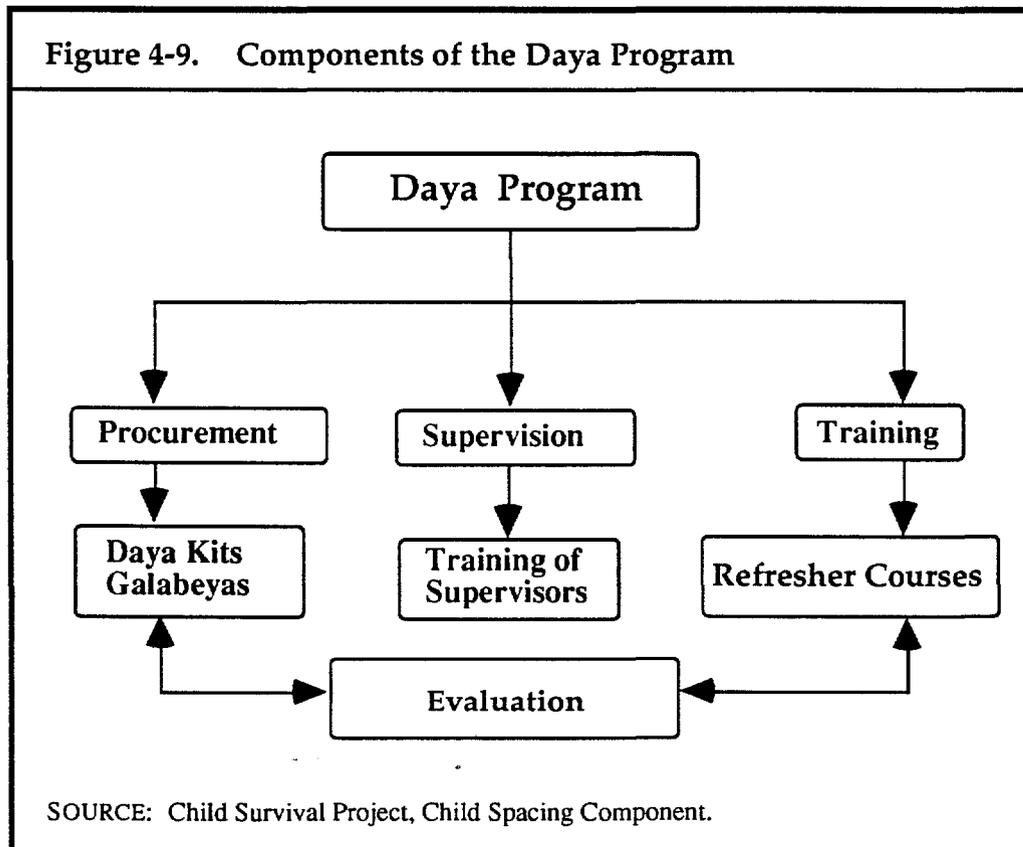
In 1994-95 CS will target nine governorates, including Beheira, Giza, Kafr El-Sheikh, Marsa Matrouh, New Valley, North Sinai, the Red Sea, Sharkia, and South Sinai, and districts in other governorates not previously covered.

By the scheduled end of the Project in 1995, it is planned that at least 16,000 dayas, about 80% of the total number believed to be practicing, will have been trained, about 10,000 of these under the CSP program.

The CS component expects to carry out the following activities in 1994-95:

- Train an estimated 280 trainers and supervisors/supporters in 38 districts.
- Train 3,000 previously untrained dayas.
- Train 1,000 dayas previously trained and requiring the 10-day basic training course.
- Provide refresher training for 3,000 previously trained dayas.
- Procure equipment and equip dayas with kits and birth weight scales.
- Distribute 10,000 birthing kits.
- Evaluate the program.

Figure 4-9. Components of the Daya Program

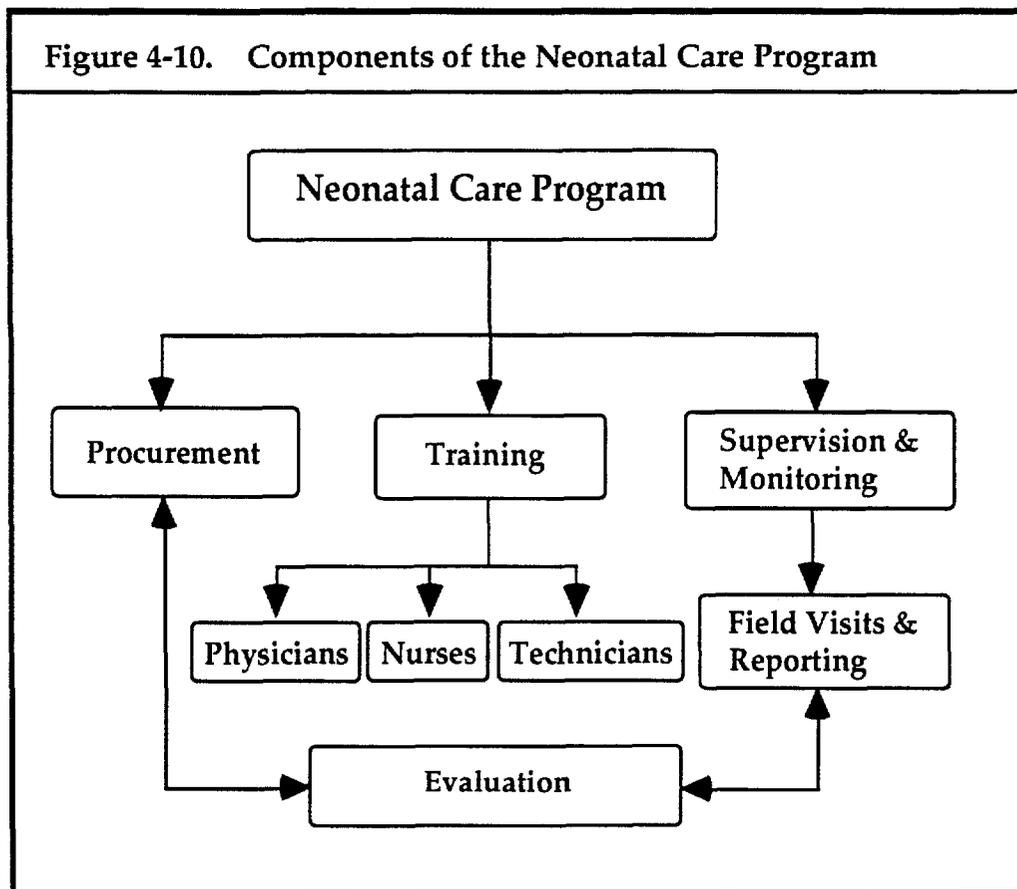


SOURCE: Child Survival Project, Child Spacing Component.

4.4 Neonatal Intensive Care Program

The Neonatal Care Program was developed during 1990–91. It aims to establish a network of quality neonatal intensive care centers in MOH hospitals distributed throughout the 26 governorates and Luxor. Initial procurement was carried out in 1990. The location of centers and the delivery of basic incubator equipment was accomplished in 1991.

In 1992–93, the CS/MCH program assisted in establishing these intensive care units as effective operations. The program is moving to a national perinatal system that integrates maternal delivery services with those for neonatal care. Inputs have included the provision of additional equipment, training, and advisory services by experienced neonatologists. The program has also developed a national database and information system covering neonatal intensive care. Components of the program are illustrated by Figure 4-10. A list of working centers is provided in Table 4-7.

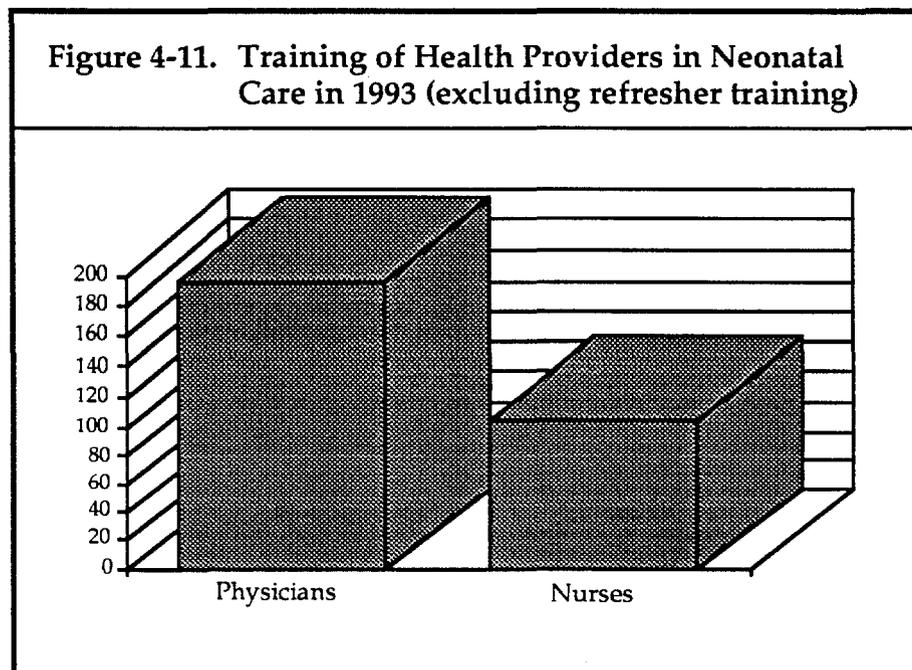


4.4.1 Training

The 1993 Work Plan called for the training of 200 physicians and 200 nurses on the care of neonates, including refresher courses and seminars at the governorate level. Training carried out in 1993 included:

- 10-day training courses for physicians (175) and nurses (160) organized in four university-based training centers.
- Two-day workshops, organized at a regional level and grouping neonatologists from several governorates, using audiovisual aids and neonate models.
- On-the-job training for nurses and physicians, during visits to centers by field advisors.

In 1993, CS trained 336 physicians (including refresher training in workshops) and 106 neonatal care nurses in 22 governorates on the functioning and maintenance of the incubators. Through 1993, a total of 640 doctors and 450 nurses had been trained. Despite turnover of personnel, each working center is now staffed with four to five trained physicians and several trained nurses. The 1994–95 Work Plan makes provision for continued training of staff and will introduce instruction in techniques and practices of neonatal resuscitation. The training in neonatal resuscitation will be conducted by certified trainers (who will complete a training program in the US in 1994). Centers with staff trained in neonatal resuscitation will be certified accordingly.



4.4.2 Monitoring and Supporting Activities

A system was established during 1992–93 for the supervision and monitoring of the neonatal care centers. This system provides for monitoring by assistant professors in neonatology (five specialists) who provide technical assistance on management of the centers, and on-the-job training, during their visits. Each of the field implementation groups is located in a regional university and is responsible for monitoring and assistance to neonatal care centers in adjacent governorates; each is responsible for monitoring and supporting operations in five to 10 units, through visits conducted at least every month. His/her hospital also functions as a referral unit for the neonatal care center. In the fourth quarter of 1993, nurses were also engaged as field monitors and advisors.

4.4.3 Procurement

The 1993 Work Plan provided for the procurement of additional equipment from both the US and Egypt, as shown in Figure 4-12.

Figure 4-12. Procurement for Neonatal Intensive Care Units Initiated in 1993 (Status as of Dec. '93)

<u>Item</u>	<u>Quantity</u>	<u>Source</u>	<u>Status</u>
Syringe Pumps	80	Egypt	Received
Laboratory Sets	80	Egypt	Being procured
Low-Cost Incubators	20	Egypt	Being procured
Phototherapy Units	70	Egypt	Being procured
Suction Machines	80	Egypt	Being procured
Infant Resuscitators	70	Egypt	Being procured
Oxygen Concentrators	30	US	Being procured
Pulse Oximeters	80	US	Being procured
Heart Rate Monitors	80	US	Being procured
Jaundice Meters	80	US	Being procured
Neonatal Scales (Portable)	100	Egypt	In service

SOURCE: Child Survival Project, CS Component.

4.4.4 Reporting and Information

A reporting system was initiated in 1992 and further developed during 1993 to include a registration system and monthly reporting system. Log books were printed and distributed to all collaborating centers in the last quarter of the year. The information being collected during 1993 and 1994 will provide a database needed at the national and the governorate level for neonatal care planning and management.

4.4.5 Low Birth Weight Study

The methodology for this study was reviewed and approved by the CSP research committee in the fourth quarter of 1993. The pilot phase of the study began in Qalyubia in February 1994.

4.4.6 Progress in Strengthening Service Delivery by NICUs

Most of the Neonatal Intensive Care Units in the country were established by the Project as new hospital-based services requiring the dedication of space, facilities, staff, and budget, and the provision of supplies and equipment (Figure 4-13) during the period 1991-92. The past 18 months have been a period of development, including training of staff, provision of equipment, development of operations manuals⁷, development of supporting services by field monitors and advisors, development of a registration and reporting system, and development of standards. There has been constant attention to quality of care.

Following the recommendations of an evaluation carried out in September/October 1992 by Dr. George Little (Director of the Neonatal Care Center, Dartmouth-Hitchcock Medical Center, New Hampshire), CS/MCH efforts have focused on the development of a comprehensive and systematic system of neonatal care, with high priority directed to the eight common clinical problems of Egyptian newborns for which there are available interventions.

During the period, some adjustments were made in the location of incubators and other equipment. As of December, all but three centers were operating (Table 4-7), with improved procedures for quality assurance and with progressively increasing patient loads.

⁷ Technical Monograph #1, issued on neonatal health, and a manual/course syllabus, *Care of the Egyptian New Born*, both prepared and distributed in 1993.

**Figure 4-13. Procurement for NICUs in 1992–1993
(Placed into Service During 1993)**

<u>Item</u>	<u>Quantity</u>
Photo Therapy Units	80
Resuscitation Units	10
Head Boxes	200
Laryngoscopes	50
Oxygen Refilling Hoses	80
Photo Therapy Lamps	1,500

Source: CSP/CS/MCH.

In 1994, a process of certification of units qualified for primary and, in some cases, secondary level neonatal care will be initiated. This certification will be based on consideration of such factors as:

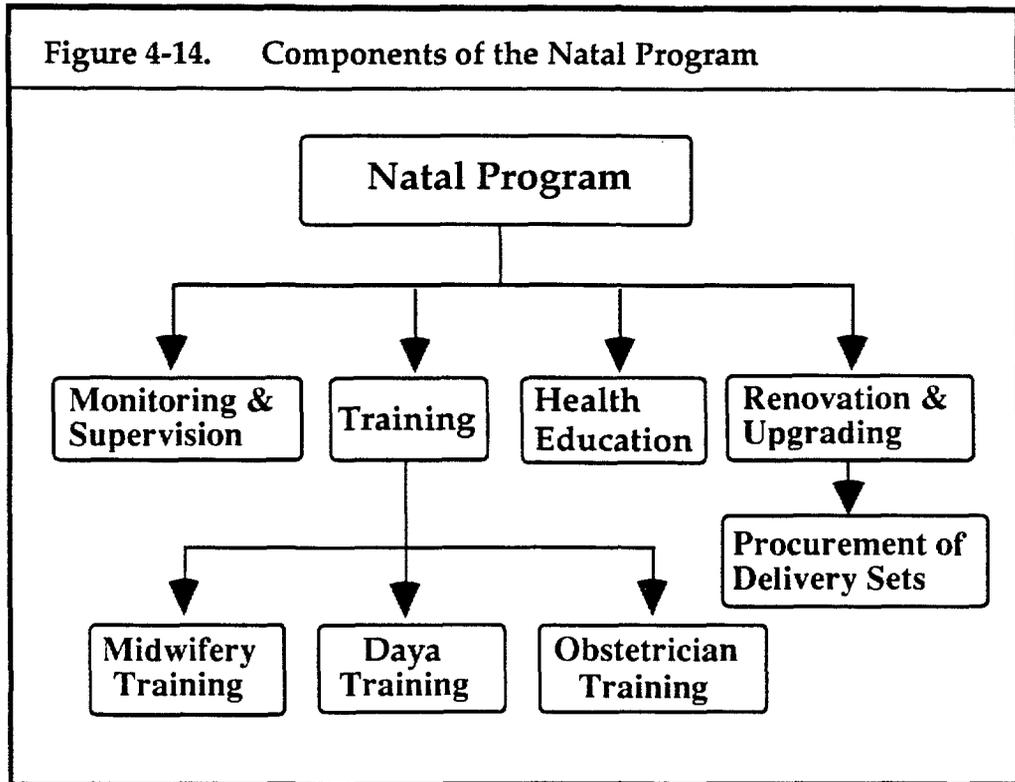
- Adequacy of space and facilities.
- Trained personnel.
- A registration and reporting system in place.
- Collaboration with the obstetrics departments.
- Capability to manage care of common neonatal clinical problems.
- Adequacy of resuscitation skills and equipment.

4.5 Natal Program

The CSP Natal Program addresses the need to upgrade and improve first referral delivery rooms and provide essential obstetrical services according to WHO standards.⁸ Figure 4-14 outlines components of the natal program.

A key element of the program is the upgrading of delivery rooms to meet the WHO standard of essential obstetrical services and respond to increasing demands for emergency obstetrical services as referrals increase. A secondary objective is health education to improve public understanding in Egypt that a significant percentage of births will require the skills of trained obstetricians and midwives, and that cases of high-risk pregnancy and difficult delivery should be referred to hospitals without delay. This second objective is to be accomplished through counseling and interpersonal communications by health

⁸ The need to provide expanded facilities for training in midwifery skills is addressed under the MCH Improvement Program. Daya training is managed under the Daya Program.



providers, including primary health care staff, private practitioners, and trained traditional birth attendants, and by the use of mass media.

A third activity, related to monitoring and supervision, is the development by governorates (during 1994–95) of an improved database and information system providing reliable data on maternal care services.

4.5.1 Delivery Room Upgrading

During 1992, the program to upgrade obstetrical facilities was initiated on a pilot basis in seven governorates. Twenty facilities were identified and arrangements for their renovation were made with the governorate health directorates and district health offices concerned. Specifications were worked out for equipment to be provided and the procurement process was started.

During 1993, the program was expanded to improve the operations of a total of 51 delivery room facilities in 18 governorates, including those identified in 1992. As of December 1993, all of these facilities had been or were in the process of being renovated. A manual covering the delivery of essential obstetrical services, *Maternity Care for*

the First Referral Level, was prepared and will be printed during 1994 (Figure 4-15). Equipment was procured as shown in Figure 4-16.

Figure 4-15. Maternity Care Manual Topics	
1.	Surgical Functions
2.	Control of Pain in Labor
3.	Medical Treatment Functions
4.	Blood and Fluid Replacement
5.	Manual Procedures and Monitoring Labor
6.	High-risk Pregnancy
7.	Family Planning
8.	Neonatal Care

SOURCE: CSP, CS Component.

Figure 4-16. Delivery Room Equipment Procurement Initiated in 1992-1993		
<u>Item</u>	<u>Number</u>	<u>Status</u>
Delivery Tables	60	Received
Vacuum Extractors	60	Re-Bidding
Neonatal Resuscitation Trolleys	60	Received
Sterilizers (Hot Oven)	60	Received
Fetal Stethoscopes	60	Re-Bidding
Trolleys for Instruments	60	Received
Umbilical Cord Scissors	60	Re-Bidding
Surgeons' Stools	60	Received
Suction Machines	60	Received
Light Source (Mobile Adjustable Angled Lamps)	60	Received
Wheel Chairs	60	Received

SOURCE: Child Survival Project, CS Component.

The need to coordinate the neonatal care provided by pediatricians in NICUs with the maternal care provided by obstetricians, gynecologists, and general practitioners during pregnancy, delivery, and the postpartum period was increasingly recognized during 1993. Thus efforts to develop improved procedures and facilities for neonate resuscitation are being made by CSP in neonatal intensive care units and in upgraded delivery rooms.

Under the 1994–95 Work Plan, a total of 200 delivery rooms will be upgraded with respect to facilities, equipment, training and management—representing about 75% of MOH first referral facilities. Ten governorates will be aided in conducting situational analyses of maternal health care services, and in developing plans to improve those services. The program assumes that:

- Demand for delivery room services will increase due to increasing referrals by dayas and PHC physicians and increasing public awareness and acceptance of the need for professional obstetrical services for high-risk pregnancies and home deliveries encountering difficulties.
- UNICEF will assist in four governorates of Upper Egypt.
- Governorate health directorates and district and general hospitals will support the program, including facility renovation and provision of staff.

The 1994–95 program will in particular provide for:

- Upgrading of 200 delivery rooms (Table 4-9), including neonate resuscitation procedures and certification.
- Procurement and installation of delivery room equipment.
- Training of 800 delivery room staff.
- Distribution of a manual on first referral delivery rooms operations and management.
- Provision of specialist advisory services on management and operations.
- Development of a database and HIS on maternal care services.
- Development of regional plans for improving maternal care services.
- Implementation of a survey to derive maternal mortality trend estimates in 1995.

4.6 Promotion of Improved Infant Nutrition

Since the beginning of Project implementation in 1989, CSP has sought to improve infant and maternal nutrition. Initially, during 1989–91, CSP trained over 15,000 health agents in nutrition, provided scales and other nutrition monitoring equipment to the 26 governorate health directors, distributed several thousand copies of a nutrition manual⁹ prepared in Arabic, and helped health directorates establish nearly 300 facilities to counsel mothers on infant feeding.

⁹ 5,000 copies of the manual were printed and 3,500 distributed among 16 governorates during 1990–91. The remaining copies are to be distributed during 1994–95 to governorates and nursing schools.

Activities of the nutrition component were transferred to the CS component at the beginning of 1992.

During 1992-93, the CS component has included training in maternal and infant nutrition in its programs for the training of PHC physicians (over 8,000) and for dayas (over 6,000). The component has also worked with an MOH task force and UNICEF for promotion of breast feeding and collaborated in the Baby Friendly Program, which enlists hospital/maternity ward cooperation in breast feeding promotion from the time of birth.

Under the 1994-95 CSP Work Plan, the infant nutrition program will cover:

- Mass media targeting mothers, particularly TV and radio spots on breast feeding, weaning, and growth monitoring.
- Use of health education offices in all governorates and over 125 districts.
- US training for trainers (Wellstart) and TA (Wellstart).
- Establishment of an advisory group to help hospitals (at least 40) install the Baby Friendly Program, including training for hospital staff (800), workshops, monitoring, and evaluation.
- Implementation of the national low birth weight survey.
- Continued training of PHC physicians and dayas in infant nutrition practices and counseling.
- Referral by dayas of low birth weight infants to PHC facilities for medical assessment.

Table 4-1. Procurement by the Child Spacing Component, 1991-1992

Item	Quantity	Source	Status
Autoclaves	1,000	US	Delivered/Distributed
Lab Equipment Sets	70	Egypt	Delivered/Installed
Daya Kits	4,000	Egypt	Delivered/Distributed
Portable Incubators	160	US	Delivered/Installed
Stationary Incubators	200	US	Delivered/Installed
Incubator Spares and Accessories	...	US	Delivered/Distributed
Oxygen Cylinders for Neonatal Care Centers	320	Egypt	Delivered/Distributed
Delivery Room Supplies	*	Egypt	Delivered/Distributed
Pelvic Models	500	US	Delivered/Part distributed
Birth Weight Scales	8,100	US	Delivered/Tested

* 5,000 masks, 1,000 plastic covers, 5,000 umbilical clips.
SOURCE: Child Survival Project.

Table 4-2. Procurement Initiated for the CS/MCH Program in 1993 (for Delivery in 1994)

Item and Amount	Program	Estimated Cost
Local Procurement (LE)		
50 Laboratory Sets	MCH Improvement	300,000
80 Syringe Pumps	Neonatal Care	552,000
70 Phototherapy Units	Neonatal Care	77,000
80 Suction Machines	Neonatal Care	188,000
70 Resuscitators	Neonatal Care	472,500
8,100 Slings for Birthweight Scales	Daya and Infant Nutrition	50,000
60 Delivery Room Sets	Natal	230,000
3,000 Galabeyas	Daya	59,850
Total		LE 1,929,350
Offshore Procurement (US\$)		
30 Oxygen Concentrators	Neonatal Care	60,000
80 Pulse Oximeters	Neonatal Care	160,000
80 Heart Rate Monitors	Neonatal Care	360,000
Jaundice Meters	Neonatal Care	315,000
200 Vacuum Extractors	Natal	60,000
Total		\$ 955,000

Table 4-3. PHC Physicians Trained for Improved Quality of MCH Service Delivery

Governorate	1990	1991	1992	1993	Total
Alexandria	210	267	120	70	667
Assuit	0	84	0	25	109
Aswan	0	0	82	0	82
Beheira	110	209	270	130	719
Beni Suef	120	115	0	0	235
Cairo	370	829	1,070	90	2,359
Dakahlia	0	122	272	140	534
Damietta	0	0	60	0	60
El-Wady El-Gedid	0	0	0	30	30
Fayoum	0	81	115	30	226
Gharbia	135	166	135	50	486
Giza	210	235	59	0	504
Ismailia	85	0	0	0	85
Kafr El-Sheikh	115	179	85	70	449
Marsa Matrouh	0	0	21	0	21
Menia	0	151	150	95	396
Menoufia	200	161	0	140	501
Port Said	0	118	0	0	118
Qalyubia	110	70	105	140	425
Red Sea	0	0	42	0	42
Sharkia	0	132	240	140	512
Sohag	0	0	0	50	50
South Sinai	0	0	0	9	9
Suez	0	34	19	0	53
Total	1,665	2,953	2,845	1,209	8,672

SOURCE: Child Survival Project, CS Component.

Table 4-4. MCH Laboratory Upgrading Program

Governorate	No. of MCH Laboratories*			Planned 1994-95	Total Staff Trained***
	1991-92	1992-93	Total **		
1. Alexandria	14	0	14	0	44
2. Assiut	14	0	14	0	36
3. Aswan	0	0	0	3-5	0
4. Beheira	0	5	5	4-8	20
5. Beni Suef	0	0	0	3-5	0
6. Cairo	3	3	6	8-10	23
7. Dakahlia	5	2	7	0	50
8. Damietta	0	2	2	0	0
9. Fayoum	0	5	5	0	20
10. Gharbia	10	0	10	0	10
11. Giza	0	5	5	2-4	5
12. Ismailia	3	1	4	0	6
13. K. El-Sheikh	0	5	5	1-3	20
14. M. Matrouh	0	2	2	0	8
15. Menia	0	4	4	3-5	15
16. Menoufia	11	0	11	0	23
17. New Valley	0	0	0	2	9
18. North Sinai	2	0	2	0	5
19. Port Said	1	1	2	0	10
20. Qalyubia	0	5	5	0	26
21. Qena	0	0	0	4-6	0
22. Red Sea	0	0	0	1-2	0
23. Sharkia	0	4	4	0	0
24. Sohag	0	5	5	1-3	20
25. South Sinai	0	1	1	0	7
26. Suez	4	0	4	0	0
27. Luxor	0	0	0	1	0
Other****	0	0	0	15-20	...
Total	67	50	117	50	357

* MCH and urban health centers.

** As of December 1993.

*** Training completed as of December 1993.

**** To be programmed for rural hospitals and rural health centers.

Table 4-5. Trainers and Supervisors for the Daya Program

	Number Trained					Total *
	1989	1990	1991	1992	1993	
Nurse Inspectors	10	75	75	70	73	303
Chief Nurses	20	100	150	110	272	652
PHC Physicians	50	200	240	260	280	930
Total	80	275	465	440	625	1,885

* Covering 17 governorates.

SOURCE: CSP, CS Component.

Table 4-6. Dayas Trained by CSP in 10-Day Basic Course, 1989-1993, by Governorate *

Governorate	1989	1990	1991	1992	1993	Total
Alexandria	10	100	30	40	65	245
Beheira	0	0	0	0	10	10
Cairo	0	385	325	580	260	1,550
Dakahlia	0	0	165	275	470	910
El-Wady El-Gedid	0	0	0	0	10	10
Gharbia	0	20	200	210	200	630
Giza	0	10	30	100	35	175
Ismailia	30	70	55	0	0	155
Kafr El-Sheikh	0	40	60	20	0	120
Marsa Matrouh	0	0	0	0	10	10
Menoufia	25	165	355	375	400	1,320
North Sinai	0	0	0	20	0	20
Port Said	0	0	0	0	60	60
Qalyubia	0	35	130	255	330	750
Sharkia	0	0	0	80	100	180
Suez	0	0	10	40	0	50
Total	65	825	1,360	1,995	1,950	6,195

* Does not include seven governorates of Upper Egypt being covered by a parallel MOH program supported by UNICEF, or Damietta, which was covered by MOH with the help of Dutch bilateral aid.

SOURCE: CSP, CS Component.

Table 4-7. Status of Neonatal Intensive Care Centers,
as of December 1993

Governorate	Total No. of Centers	No. of Incubators	Working Centers	No. of Incubators
Alexandria	5	22	5	22
Assuit	5	19	5	19
Aswan	2	13	2	13
Beni Suef	1	8	1	8
Cairo	8	34	8	34
Dakahlia	5	16	5	16
Damietta	3	16	3	16
Beheira	5	22	5	22
Gharbia	3	19	3	19
Menoufia	5	22	5	22
Menia	3	13	3	13
El-Wady El-Gedid	2	10	2	10
Fayoum	2	12	2	12
Giza	5	21	5	21
Ismailia	2	6	1	4
Kafr El-Sheik	2	12	2	12
Qalyubia	1	6	1	6
Luxor	1	4	1	4
Marsa Matrouh	1	4	1	4
North Sinai	3	7	1	4
Port Said	2	10	2	10
Qena	2	10	2	8
Red Sea	1	5	1	5
Sharkia	4	16	4	16
Sohag	1	13	1	11
South Sinai	1	2	1	2
Suez	1	8	1	8
Training centers	5	10	5	10
Total	81	360	78	351

Table 4-8. Renovation of Delivery Rooms During 1993

Governorate	Hospitals	No. of Hospitals
Assiut	Manfalot/Sahel Salem/El Kossia/ El -Badary/Abu Teig/Sodfa/Abnob	7
Beheira	Abu Homus/Rahmania/Mohamadia	3
Dakahlia	Mit Ghamr/Aga	2
Fayoum	Asta/Snoris/Tamia	3
Gharbia	Bassion/El-Senta	2
Giza	Imbaba	1
Ismailia	El-Tal El-Kebir/Riaah	2
Kafr El Sheikh	Motobas/Baltein	2
Marsa Matrouh	Marsa Matrouh	1
Menia	Matay/El-Adwa/Dir Mowas/Malawy	4
Menoufia	Tela/Ashmon/Berkit El-Saba/ El-Shohada/Bagour/Kouesna	6
North Sinai	Rafah	1
Port Said	El-Manakh	1
Qalyubia	Tokh/El-Knater/Nasser	3
Red Sea	Hurghada	1
Sharkia	Belbeis/Hehia/Hosinia/Zwamel/ Abu Kebir/Kafr Saqr/Ibrahemia	7
Sohag	Akhmem/Gohina/Sohag	3
Suez	El-Sabah/Central Hospital	2
Total		51

Table 4-9. Renovation and Upgrading
of First Referral Level Delivery Rooms

	Initiated (as of 12/93)	Neonatal Centers (as of 12/93)	First Referral Hospitals	Delivery Rooms Planned *
1. Alexandria	0	5	10	5-7
2. Assiut	7	2	12	3-5
3. Aswan	0	2	5	2-5
4. Beheira	3	5	15	5-10
5. Beni Suef	0	2	7	5-7
6. Cairo	0	8	11	6-9
7. Dakahlia	2	5	13	7-9
8. Damietta	0	2	7	3-5
9. Fayoum	3	4	7	3-4
10. Gharbia	2	4	8	2-4
11. Giza	1	5	11	6-8
12. Ismailia	2	2	4	1-2
13. K. El-Sheikh	2	2	10	4-6
14. Luxor	0	1	3	1-2
15. M. Matrouh	1	1	7	3-5
16. Menia	4	3	8	2-4
17. Menoufia	6	5	9	1-2
18. New Valley	0	2	3	2-3
19. N. Sinai	1	3	4	3-4
20. Port Said	1	2	3	1-2
21. Qalyubia	3	1	9	1-3
22. Qena	0	2	10	7-10
23. Red Sea	1	1	4	2-3
24. Sharkia	7	4	15	4-6
25. Sohag	3	2	11	6-8
26. S. Sinai	0	1	3	2-5
27. Suez	2	1	4	1-2
Other	...	...	...	30-40
Total	**51	77	***213	149

* Planning numbers for additional delivery rooms in governorates in 1994-95 are presented as ranges.

** District and General Hospitals renovated or in process of renovation as of Dec. 1993.

*** Total number of general and district hospitals. In addition, there are about 123 rural hospitals.

**Table 4-10. Documents Published and Distributed
by the CS and Nutrition Components, 1989-1993**

Publication	Number Printed	Number Distributed*
Physicians Training Manual (1993 Version)	5,000	2,000
Neonatal Care Technical Series (# 1)	2,000	1,692
Weaning Booklet	4,000	160
Lab Technicians Training Manual	2,000	800
Neonatal Care Manual	500	454
Nurse-Midwives Guide	4,000	750
Daya Training Manual	2,260	2,066
Daya Training of Trainers Manual	256	256
Daya Cards	3,400	2,770
Mother Card	2,000	560
Child Card	2,000	1,080
Partogram	50,000	46,800
Breast Feeding Poster	8,000	3,100
Breast Feeding Poster (2)	1,000	110
Weaning Practice Chart	500	378
Nutrition Poster	800	278
Neonatal Care Registration Book (English)	200	50
Neonatal Care Registration Book (Arabic)	200	50
Nutrition Manual (Arabic)	5,000	3,000

* As of December 1993

5. Diarrheal Disease Control Program (GDDDC)

5.1 Introduction

Based on an understanding reached in 1992 by the MOH and USAID, \$1.0 million of USAID grant funds were earmarked under the Project to strengthen national efforts for the control of diarrheal disease. Program support for the MOH General Directorate for Diarrheal Disease Control (GDDDC), which was established by a decree issued in 1991, was first budgeted in 1993. Support for the GDDDC is based on the five-year (1993-97) national plan for diarrheal disease control published in January 1993.

5.1.1 Program Strategy and Priority Activity Areas

The strategy is based on the following five principles:

- GDDDC will work for decentralization by supporting local planning, implementation, supervision, and evaluation.
- GDDDC will carry activities down to the grassroots level through community involvement, to create public awareness and demand for Oral Rehydration Therapy (ORT) and to ensure sustainability.
- GDDDC will coordinate CDD activities with related programs at the community level and in service-delivery units.
- In order to motivate full cooperation, the program will encourage and follow a team development approach involving other concerned central MOH Directorates and staff, local governorate authorities, university staff, donor agencies, and others, as appropriate, in planning, implementation, and evaluation.
- GDDDC will try to maximize the use of available resources and mobilize potential sources of funding, including cost recovery, and work for self-sufficiency.

Four priority activity areas are identified in the 5-year plan document:

- Program management.
- Communications with mothers.
- Training (pre-service for physicians, and in-service).
- Use of Oral Rehydration Salts (ORS) and drugs.

5.1.2 Targets and Indicators

Key targets and performance indicators are summarized in Figure 5-1.

Figure 5-1. GDDDC Program Targets and Performance Indicators

- Decrease diarrhea-related mortality by 50% by 1997 (compared to 1990).
- Decrease diarrhea morbidity by 25% in under-5 year olds (compared to 1990).
- Sustain self-sufficiency in ORS production.
- Sustain the accessibility rate of oral rehydration therapy (ORT) to cover 95% of the population.
- Maintain knowledge of ORS among 98% of mothers.
- Increase mothers' knowledge of proper preparation of ORS, to reach 90% by 1997.
- Increase the rate of exclusive use of ORS in the treatment of simple diarrhea, to reach 50% by 1997.
- Ensure continued access to IV fluids by all severely dehydrated children.
- Increase health workers' performance in proper case assessment and management, to reach 80% by 1997.
- Increase health workers' skills and attitudes towards interpersonal communications, to reach 80% by 1997.
- Increase mothers' knowledge, attitudes, and practices related to diarrhea prevention, to reach 50% by 1997.
- Increase managerial skills of all DDC-related staff at the central, governorate, and district levels.

5.1.3 Inputs

Under the USAID grant, assistance is available for procurement of equipment, training, and research and studies. In addition, technical assistance is available under the CAU contract, and overseas participant training through USAID.

5.1.4 Outputs Expected By 1995

GDDDC will join forces with CSP to strengthen governorate and district planning, implementation, monitoring, and supervision for child survival and safe motherhood. Plans for implementation and supervision of the national diarrheal disease control program will be developed for each governorate and district.

Pre-service training of new or graduating physicians in ORT by governorates will be strengthened. GDDDC working with the governorates will help organize training for PHC staff during 1994-95.

The operations of dehydration facilities throughout the country will be strengthened by an infusion of supplies and equipment, including ORT chairs, weighing scales and thermometers, cups and spoons, and IV supplies.

The health promotion program will be strengthened by the development and use of posters, TV and radio spots, and other promotional materials. Knowledge, attitudes, and practices of mothers will be strengthened through improved interpersonal communications by service providers and through mass media developed under the Project. Community participation will be extended and enhanced.

Governorate- and district-level capacity to manage the program will be improved.

The declines registered in the use of ORS between 1988-92 will be reversed. Progress will be achieved in further declines in infant and child mortality and morbidity associated with diarrheal disease.

Eighty percent of PHC physicians and nurses will be knowledgeable about diarrheal case management and oral rehydration therapy.

5.2 Accomplishments in 1993

The systems for Child Survival Project support for the GDDDC were established during 1993 and an initial support program was carried out. Work plans to expand support for 1994-95 were developed and adopted.

Inputs provided in 1993 included funding for training, procurement, mass media, and evaluation and research.

Local training and seminars financed under the Project involved about 5,200 people during 1993, as shown in Table 5-1. This represented an increase in

training and seminars from the 736 people reached during 1992. The training in 1993 involved nearly 2,500 nurses and over 1,400 PHC physicians. Training in management and supervision was provided to nearly 500 physicians.

Procurement of equipment and supplies for MOH dehydration therapy corners,¹ GDDDC training facilities, and administrative operations amounted to LE 226,725 (\$67,000), as shown in Table 5-2.

Six new TV spots were produced (or put into production) with the help of the MOH Department of Audio Visual Aids (LE 50,000).

A study of the knowledge, attitudes, and practices of mothers toward the management of diarrhea in children under 5 was initiated by household surveys carried out in Beni Suef and Menia governorates (LE 63,000).

Table 5-1. Training for Diarrheal Disease Control Carried Out by GDDDC in 1993

Category	Number
Training of Trainers	37
Training of CDD Managers	8
Physician Training in Supervisory Skills	62
Refresher Training for Supervisors (one day)	409
Training of Statisticians	66
In-Service Training of PHC Physicians	1,419
In-Service Training of PHC Nurses	2,484
Scientific Seminars on the Role of Drugs in Diarrhea Case Management	713
Educational Courses (one day—156)	...
Total	5,198

¹ There are over 3,000 areas set apart and equipped for oral rehydration therapy in the MOH primary health care system.

Table 5-2. Commodity Procurement for Support of GDDDC Programs in 1993

Category	Cost (in LE)
Lecture Chairs (Training Facilities)	41,000
Printing and Printing Materials	78,000
Overhead Projectors (Training Facilities)	29,500
Cups and Spoons (for Dehydration Centers)	66,900
Badges (for PHC Personnel)	9,750
Administrative Supplies	1,575
Total	LE 226,725
Total (US\$ equivalent)	\$67,000

Table 5-3. Program Support For Diarrheal Disease Control Budgeted for 1994-1995 (US\$)

Item	Estimated Cost
Offshore Procurement (Scales, Vehicle)	\$96,000
Local Procurement (Equipment for ORT Centers and GDDDC Training Centers)	\$148,000
Local Training	\$200,000
Participant Training	\$15,000
Scientific Seminars and Research	\$ 67,000
Mass Media and Health Promotion	\$ 98,000
Administration, Supervision, HIS, Evaluation, TA	\$148,000
Total	\$ 772,000
Total (LE Equivalent)	LE 2.5 million

SOURCE: Child Survival Project, Work Plan, Jan. 1994-Aug. 1995.

6. Project-Wide Activities and Administration

6.1 Staffing

Project staff numbered approximately 145 people during the year. The staffing plan developed as shown in Figure 6-1.

Figure 6-1. CSP Staffing Plan*

<u>Staff</u>	<u>Number Authorized</u>		
	<u>Dec. 1991</u>	<u>Dec. 1992</u>	<u>Dec. 1993</u>
MOH-Funded	39	50	57
Funded by PIL/USAID	26	43	46
Funded by CAU	33	38	64
Total Authorized Staff	98	131	167

* Including part-time staff and consultants.
SOURCE: Child Survival Project, Administrative Office, January 1994.

6.2 Technical Assistance (USAID-Funded)

Technical assistance (TA) is provided under the Ministry of Health's contract with Clark Atlanta University. In 1993, Clark Atlanta University's TA included two long-term expatriates, 33.5 person-months of short term expatriate consultancies, and 404 person-months of locally hired technical staff and consultants. Table 6-1 summarizes the technical assistance provided in 1993 and prior years. TA consultants for 1993 are listed in Annex D.

Technical assistance was also provided in 1993 by the US Centers for Disease Control and Prevention (CDC). The agreement between CSP, USAID, and the CDC provides in particular for technical assistance support for a field epidemiological training program to be carried out during 1993-95 (see Section 6.5.2 and Annex E).

6.3 US Procurement (USAID-Funded)

6.3.1 Deliveries of USAID-Financed Procurement Received in 1993

Deliveries during 1993 included approximately 6 million doses of hepatitis B procured by Clark Atlanta University through its subcontractor, TransCentury. The final shipments were received in Egypt in December 1993. Other procurements received during the year are listed in Table 6-2.

6.3.2 Procurement Initiated Under USAID Funding

Procurement of hepatitis B vaccine was contracted in January 1993. Procurement of equipment was begun by CSP under IFB-6 and IFB-7 for the items listed in Table 6-3. Bids for this procurement are expected to be issued early in 1994. Bids for USAID-initiated US procurement of amoxicillin antibiotic for the ARI Control Program (approximately \$2.9 million) are expected to be awarded in the first half of 1994. The value of procurement contracted and/or initiated in 1993 is approximately \$12.4 million.

6.4 Local Procurement in 1993

Local procurement funded under the USAID grant and through the GOE contribution amounted to the equivalent of \$2.6 million (see Table 6-4).

6.5 In-Country Training

6.5.1 Training by the Components

In-country training funded by the Project in 1993 targeted physicians, nurses, sanitarians, biomedical engineers, public health managers, and traditional birth attendants (dayas) and reached nearly 30,000 participants (see Table 6-5). Local training included health agents trained in diarrheal disease control.

Most of the training was organized at the governorate or district level and was practical, emphasizing skills acquisition. Universities have collaborated in specialist training, including training of pediatricians in the management of severe ARI and intensive neonatal care. Courses have been short-term, extending from a few days to one week. Daya

training courses take 10 days. The courses are estimated to have provided a total of over 66,000 person-days of training.

6.5.2 Field Epidemiological Training Program (FETP)

The Field Epidemiological Training Program was initiated by the Child Survival Project in April 1993 as a project-wide activity, with EPI acting as the lead component. The program comprises a two-year course designed to provide the Ministry of Health with a continuous supply of physicians trained in applied Field Epidemiology. Assistance is provided by the US Centers for Disease Control and Prevention (which provides a full-time advisor/trainer as well as short-term expatriate assistance) and by Clark Atlanta University.

Eight trainees were selected for the first course. They will complete their first year in April 1994. Eight to 10 more participants will be selected in the first quarter of 1994 to begin training in April 1994. The curriculum includes practical field work and theoretical work, and covers outbreak investigations, collection and analysis of surveillance data, establishment of surveillance and control procedures, case control or cohort studies, surveys, computer programming, data analysis, questionnaire design, principles of biostatistics, and health education. Lecturers for the FETP participants include professors from Egyptian universities and the Ministry of Health, Schools of Public Health in the United States, and epidemiologists from the US CDC.

Field work in 1993 included investigations and analysis of surveillance data for diseases (polio, rift valley fever [RVF], NNT, ARI) and for health conditions, such as pregnancy or injuries (see also Annex E). Eight field studies were carried out during 1993 (Figure 6-2).

Figure 6-2. 1993 Field Studies Carried Out by the FETP

- Active polio surveillance (10 governorates).
- Interviews to evaluate physician knowledge of poliomyelitis and the National Plan for Polio Eradication by 1994 (8 governorates).
- 2 serosurveys of the prevalence of RVF in Aswan governorate.
- 1 matched case-control study of RVF (Daraw, Aswan).
- 1 unmatched case-control study of risk factors for RVF (Kom Ombo, Aswan).
- 7 cross-sectional surveys of RVF in abattoir workers (Aswan, Qena).
- Surveillance for RVF established (Armant, Isna, Luxor City, Qena).
- Surveillance for RVF established at a religious festival (Armant).

6.5.3 Pre-Service Training of Medical Students

A problem common to all governorate health directorates is the arrival of new staff untrained in child survival interventions for primary health care. The problem is especially acute in the case of physicians, since approximately every six months there is a sizable turnover of primary health care physicians through the influx of newly graduated physicians and the corresponding departure of many who have been trained.

A solution to this problem would be collaboration between the MOH, represented by the CSP, and Egyptian universities, represented by the Faculties of Medicine, to introduce child survival and safe motherhood concepts, information, and training into the curricula of the medical schools, particularly for the fourth- to sixth-year medical students.

In January 1993, a joint university/MOH workshop was organized by the CSP to consider the problem and the solution. The workshop led to agreement on a common program to include the knowledge and information needed for curriculum revisions within one book, and a joint committee was established for this purpose.

As of the end of 1993, a resource manual, *Child Survival, A Rational Approach*, had been drafted and reviewed. The final version of this manual is expected to be completed and published during the first half of 1994 and used in developing an integrated university curriculum for child survival in the departments of Pediatrics, Obstetrics, Gynecology, and Community Medicine.

6.5.4 Pre-Service Training of Nurses

Steps to promote pre-service training of nurses in child survival activities were taken by the EPI and ARI components during the year. EPI conducted training courses for teachers and instructors of middle-level nursing schools in 15 governorates (see Chapter 2, Section 2.6) and planned its program to extend this training to other governorates during 1994. ARI organized a workshop for staff of the Higher Institute of Nursing in Alexandria (college level) in December 1993, and planned its program to continue to work with Higher Institutes of Nursing in Assiut, Cairo, and Alexandria during 1994.

6.6 US Training

USAID made arrangements to send Dr. Gawdat Shenouda Michail to attend a Health Management Course at the Boston University School of Public Health in February 1993, and to send another four participants—Dr. El Shirkaoui, Dr. N. Ismail, Dr. Y. Saad and Dr. F. Moussy—to a course on Epidemiology and Health Management organized by Clark Atlanta University, Atlanta, Georgia, which started on March 24, 1993.

During the year CSP worked to develop study program applications for over 100 candidates from the governorates. These candidates were screened and examined for English proficiency. Seven participants returned from training in Atlanta at the end of October 1993.

From October to December 1993, 13 people were processed for participant training, with departures to Atlanta scheduled for January 25, 1994. Four other participants were processed for training with Wellstart (Lactation Management Program), with departures to the US scheduled for February 7, 1994. Several participants were processed for US training in neonatology, scheduled for the first quarter of 1994.

6.7 Health Promotion and Education

6.7.1 Counseling and Interpersonal Communications by Health Staff

CSP continued to train primary health care staff in client counseling and interpersonal communications. This aspect of the health agent's duties has been increasingly stressed in the past two years. Training of PHC physicians for the ARI control program and for MCH service delivery was revised in 1992-93 to provide more information and training in these areas.

Plans for 1994-95 include the production, dissemination, and increased use of counseling cards by PHC agents. The opportunity for health education through interpersonal communications is large, since at least 1.5 million women visit clinics annually for infant immunization and an estimated 1.3 million women with children under 5 visit clinics for ARI consultations and treatment.

6.7.2 Mobilization of MOH Health Education Offices

In 1993, the Project initiated a program with the MOH Health Education Directorate to mobilize MOH health education officers to disseminate child survival and safe motherhood messages. The program, which includes actions by the health education officers in all governorates and some 130 districts, was developed as a project-wide activity in the fourth quarter and will be carried out during 1994–95.

6.7.3 Mass Media¹

During 1993, the Project published four issues of the ARI newsletter and three issues of the project-wide newsletter, each in print runs of 10,000, with wide distribution to MOH health facilities and internationally. The CSP publication *Doctors on Duty* was distributed in the spring (Issue #1) and summer (Issue #2). The CSP project-wide newsletter (Issue # 4) appeared in December.

CSP worked with the press to publish a number of articles in national newspapers and magazines. An article on breast feeding appeared in *Nisf Eldunia* (a national magazine) in August and one entitled “Acute Respiratory Infections in Children—Prevention and Management” appeared in the same publication in November. A third article, “Midwifery Training,” appeared in *Huwwa* magazine in November.

The ARI component was able to produce one TV spot on ARI. This spot was aired beginning in the second half of 1993.

Project Executive Directors appeared often on public TV and radio, and a half-hour health talk program on Channel 2 provided information on child survival on a weekly basis.

The 1994–95 Work Plan provides for an expanded mass media program, with the production of a large number of TV and radio spots and their dissemination.

¹ See also Annex B, Section 3.4

6.8 Health Information System

6.8.1 Decentralized Computer-Based Health Information System (DECIS)

In collaboration with MOH's Department for Information and Documentation, plans were prepared and procurement initiated for a program to assist Governorate Health Directorates to develop a computer-based capability for managing their health information systems, improve management through the use of health information, and integrate child survival health information with that of the Ministry of Health. The program will be implemented during 1994-95.

6.8.2 EPI

See Chapter 2, Sections 2.5 and 2.7

6.8.3 ARI

See Chapter 3, Section 3.7

6.8.4 CS/MCH

A national neonatal health care information system has been established based on monthly reporting by MOH neonatal intensive care units, supplemented by information provided by university hospitals and some private centers. The database being developed will provide a basis for assessing the system for neonatal health care services in Egypt in 1995, and after. The maternal mortality survey was completed in 1993, providing baseline data to monitor maternal care. Further development of a database and health information system on maternal care is planned in 1994-95.

The system for monitoring health care services provided by dayas (traditional birth attendants) was continued during the year and extended to new governorates and districts. During 1994-95, the database will be used to assess MCH services being provided by the dayas and the effectiveness of the system—being developed—of daya referrals to primary health care facilities and first level obstetric service facilities.

6.9 Decentralized Planning and Management

6.9.1 Governorate Steering Committees

Following the recommendation of the November 1992 Mid-Term Evaluation, the CSP National Executive Committee decided to reestablish CSP Governorate Steering Committees to be headed by the Undersecretaries of Health, with membership drawn from key staff members of the Health Directorates, hospitals, and governorate universities. A workshop with governorate health undersecretaries was held in May 1993 to review steering committee formation, membership, duties, planning, and reporting responsibilities.

The activities of these committees are more evident in some governorates than in others. Building on the experience gained, the CSP 1994-95 Work Plan provides for assistance to governorate steering committees to develop meaningful plans for decentralization, promotion, and monitoring of child survival programs.

6.9.2 Primary Health Clinic Management and Operations

During 1993, CSP developed a program to help governorates/health directorates and district health offices improve service delivery in primary health care clinics by improving work organization, management, and supervision. A standardized set of operation and management standards and procedures covering service provided by health centers was developed and incorporated into two manuals.² CSP also initiated collaboration with several governorates to incorporate these standards and procedures in pilot clinics and districts. The 1994-95 CSP Work Plan provides for the continuation and extension of this program into 10 or more governorates.

6.9.3 ARI

The component provided a five-day course for 203 district- and governorate-level health officers on management of the ARI program, including planning, techniques for supervision, the introduction of the case registration system, and the use of performance indicators for monitoring and evaluation. In addition, ARI planning and manage-

² *CSP Supervision Manual for Child Survival Clinics*, November 1993, and *CSP Service Standards Manual for Child Survival Clinics*, November 1993.

ment workshops with district health offices, covering nine governorates, were conducted. Workshops covering the rest of the governorates are scheduled to be carried out in the first half of 1994.

6.9.4 EPI

EPI continued to support steps to decentralize planning and management of the immunization program, including cold chain operations. In the fourth quarter of 1993, the component developed a project-wide activity to train district health officers in health planning, management, and supervision of child survival programs during 1994-95.

6.10 CSP Research Committee

Based on a recommendation of the CSP Mid Term Evaluation (November 1992), a project-wide CSP Research Committee, including senior staff of the Project and university representatives, was established early in 1993. Professor Ahmed Hanafi, senior consultant to the Project, was designated chairman. A meeting in June 1993 established procedures for the review and consideration of proposals for research and study. During the year, the Committee reviewed 12 on-going and proposed research studies. Further information on studies and research carried out and developed during the year is presented in Chapters 2, 3, and 4.

6.11 Monitoring and Evaluation

6.11.1 Monitoring

Systematic monitoring of work plan implementation was continued during the year and summarized in monthly and quarterly reports. End-use checks of equipment supplied to governorates and research facilities were continued.

The EPI program combining central field monitoring with decentralization of the monitoring function in the 26 governorates was continued. Monitoring of vaccination coverage, cold chain operations, and disease surveillance and control is closely tracked by both the governorate and central levels.

The ARI component continued close monitoring of drug distribution and use, and the installation of standard case management in MOH facilities. The introduction of the case registration system during the year is facilitating monitoring of the program in the governorates and districts. Central staff have also conducted regular visits to monitor

and provide advisory services to governorates and districts as they install the new program.

The CS/MCH component continued to monitor closely the development of the neonatal intensive care program, using neonatologists hired from medical faculties by Clark Atlanta University. The operations of the daya program and training have been monitored regularly by the central staff and by governorate and district health officers.

6.11.2 Evaluation

Four evaluations were conducted in 1993 (see Chapters 2, 3, and 4):

- ARI Installation of Standard Case Management (April).
- Cold Chain Status and Sustainability (June–November).
- EPI Disease Surveillance and Control (November).
- Development of the ARI Control Program (December).

6.11.3 Financial Management Reviews and Audits

USAID contracted the Arthur Andersen accounting firm to conduct a financial audit of the USAID funds managed locally by the Ministry of Health pursuant to the Project for PILs No. 4, 11, 13, 18, and 20. Audit objectives included:

- Checking the fund accountability statements for the PILs.
- Determining if the costs reported are allowable, acceptable, and reasonable in accordance with the terms of the PILs and USAID regulations.
- Evaluating the internal control structure and identifying reportable conditions.

The audit took place during November and December 1993.³

6.12 Financial Report for 1993

Program expenditures managed by the Child Survival Project during 1993 are estimated at \$18.5 million.

Expenditures under the USAID grant are estimated to have totaled \$16 million during the year. The cumulative total of USAID grant expenditures since the

³ Audit findings were provided in January 1994 and adjustments required were made in February 1994.

Project commenced in 1988 are estimated at \$40.5 million. USAID grant expenditures approved under the 1994–95 Work Plan period of 20 months total \$27.4 million. These expenditures will bring the total expenditures for the Project to the planned level of \$67.9 million.

The GOE cash contribution is provided on a fiscal-year basis. Amounts allocated through fiscal year 1993–94 (i.e., through June 30, 1994) total LE 19.2 million (equivalent: \$5.8 million). Expenditures under the GOE cash contribution total LE 8.2 million as of December 31, 1993 (\$2.5 million), and are expected to total LE 11 million between January and June, 1994. A GOE cash contribution of LE 13.3 million (\$4.0 million) for Child Survival Project support has been requested under the 1994–95 Work Plan.

**Figure 6-3. CSP Level of Program Activity,
by Estimated Expenditures (million \$)**

<u>CSP Program Expenditures</u>	<u>'88-90</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>'88-93</u>
USAID Grant	5.5	8.3	10.7	16.0	40.5
GOE Cash Contributions	0.1	0.2	0.6	2.5	3.4
Subtotal	5.6	8.5	11.3	18.5	43.9
GOE-Funded Vaccine Supply	8.7	2.9	7.9	2.9	22.4
Total	14.3	11.4	19.2	21.4	66.3

The Project also manages vaccines supplied for EPI. These vaccines have been supplied by UNICEF, USAID (hepatitis B), and the GOE. The GOE financial contribution through the budget of the Ministry of Health amounted to LE 9.6 million (\$2.9 million) in 1993.⁴ This amount was increased by the GOE for fiscal year 1993–94 (LE 17 million), and a further increase has been requested by the Ministry of Health for fiscal year 1994–95. GOE funding for vaccine supply during the years 1988 to 1993 is estimated at LE 22.4 million.

⁴ In 1992, the GOE/MOH budget allocation for EPI vaccine supply included an additional \$5 million (equivalent) for polio vaccine (IPV).

Table 6-1. Technical Assistance Provided by Clark Atlanta University * (in person-months)

	1989	1990	1991	1992	1993
Long-Term Expatriate	32.3	20.2	16.0	18.0	24.0
Short-Term Expatriate	15.0	59.0	77.0	121.0	33.5
Locally Hired Technical Staff and Consultants	95.0	270.0	414.0	529.0	404.0
Total	142.3	349.2	507.0	668.0	461.5
Total (equiv. person-years)	11.8	29.1	42.2	55.6	38.5

* Under a USAID-funded contract with the Ministry of Health, signed December 1988. Clark Atlanta also provided management assistance for offshore procurement through its subcontractor, TransCentury, Inc.

SOURCE: Child Survival Project, Administrative Office, January 1994.

Table 6-2. Procurement Completed for the CSP in 1993

Item	Quantity	Order	Cost in US\$
ARI			
Oxygen Concentrators	14	RFQ-20	17,934.20
Spare Parts for Oxygen Concentrators	12	RFQ-20	1,255.80
Oxygen Concentrators	15	RFQ-25	24,345.20
Oxygen Analyzers	17	RFQ-20	5,785.95
Oximeters	30	IFB-4	58,500.20
Lab Supplies	...	RFQ-22	9,526.93
EPI			
Walk-In Cold Rooms	4	IFB-4	70,122.05
Vaccine Carriers	2,850	IFB-4	54,720.00
Hepatitis B (doses)	6 million	RFQ-23	6,000,000.00
Project-Wide			
Vehicle Spare Parts	...	IFB-4	14,966.18

**Table 6-3. New USAID-Funded Procurement
Initiated for the Child Survival Project in 1993**

Item	Quantity	Reference
ARI		
Oxygen Concentrators	100	IFB-6
Pneumatic Oscopes	6,000	IFB-6
Nebulizers	190	IFB-6
Electronic Respiratory Timers	20,000	IFB-6
Laboratory Equipment	10 sets	IFB-6
CS/MCH		
Oxygen Concentrators	30	IFB-6
Pulse Oximeters	80	IFB-6
Heart Rate Monitors	80	IFB-6
Jaundice Meters	80	IFB-6
Vacuum Extractors	100	IFB-6
Resuscitation Bags and Masks	80	IFB-6
Phototherapy Lamps	1,000	IFB-6
EPI		
BCG Cold Room	1	IFB-6
Ultra-Cold (-70 degree C) Freezers	4	IFB-6
Ultra-Cold (-35 degree C) Freezer	1	IFB-6
2000 Liter Autoclave	1	IFB-6
Laminar Flow Cabinets	2	IFB-6
Spare Parts for Refrigerated Trucks	29 sets	IFB-2
Project-Wide		
Vehicles	28	IFB-7

SOURCE: CSP, January 1994

**Table 6-4. Local Procurement Expenditures
by the Child Survival Project for 1993**

Item	Amount in LE	Equiv. in US\$
USAID Grant Agreement		
Medical Equipment and Supplies	290,000.00	86,567.16
Daya Kits	710,000.00	211,940.30
Office Equipment and Supplies	270,000.00	80,597.01
Office Furniture	40,000.00	11,940.30
Computers, Printers and Accessories	295,000.00	88,059.70
Audio Visual Aids	75,000.00	22,388.06
Subtotal	1,680,000.00	501,492.54
GOE Contribution		
Plastic Syringes	4,137,528.00	1,235,082.99
Medicines	2,837,814.00	847,108.66
Medical Equipment	13,500.00	4,029.85
Subtotal	6,988,842.00	2,086,221.49
Total	8,668,842.00	2,587,714.03

Table 6-5. In-Country Training Funded by CSP, 1990-1993 *

Program	1990**	1991	1992	1993
EPI	(r) 1,732	(r) 7,224	11,904	11,733
ARI	1,312	(r) 1,900	4,927	7,642
Nutrition	4,772	(r) 1,100	...	...
CS/MCH	2,951	4,100	5,843	4,357
Other	...	...	60	***5,198
Total	(r) 10,767	(r) 24,225	22,734	28,930

(r) Revised.

* Number of participants. The training carried out is estimated to have amounted to over 66,000 person-days.

** Includes training carried out in 1989.

*** For the Diarrheal Disease Control Program (GDDDC).

SOURCE: Child Survival Project.

Table 6-6. Child Survival Project Expenditures in 1993 and in Previous Years, in Egyptian Pounds (LE) and Equivalent US\$ *

	Cum. to 12/31/92	1993	Cum. to 12/31/93	
			In LE	In US\$
CAU Technical Assistance	5,621,611	2,385,168	...	8,006,778
Offshore Procurement: CAU/TransCentury	11,318,212	7,879,107	...	**19,197,319
Subtotal 1 (CAU)	16,939,822	10,264,275	...	27,204,097
PIL-4: CSP Program Secretariat Support	4,921,575	98,889	5,020,465	1,798,848
PIL-6: Local Purchase of Plastic Syringes	4,471,622	0	4,471,622	1,355,037
PIL-9: Local Procurement	12,898,694	259,000	13,157,694	4,410,975
PIL-11: Belbeis Research Study	533,446	4,586	538,032	179,716
PIL-12: Nutrition Institute Renovation	13,500	0	13,500	5,082
PIL-13: Local Procurement	1,821,411	19,348	1,840,759	627,533
PIL-14: CS Local Training	2,192,442	57,490	2,249,932	711,615
PIL-15: EPI Local Training	1,000,391	35,215	1,035,606	321,616
PIL-16: ARI Local Training	438,400	40,921	479,321	156,770
PIL-17: Nutrition Local Training	695,739	0	695,739	218,167
PIL-18: Cold Chain Support (Renov. & Proc.)	257,726	0	257,726	74,409
PIL-20: Project-Wide Mgmt. Local Training	30,403	(681)	29,721	9,065
PIL-21: Secretariat and Other Support	0	576,290	576,290	172,027
PIL-22: Local Procurement	0	697,976	697,976	208,351
PIL-23: Training and Research	0	3,079,794	3,079,794	919,342
PIL-25: Local Purchase of Day Kits	0	710,000	710,000	210,274
Subtotal 2 (PILs)	29,275,348	5,578,829	34,854,176	11,378,827
GOE Cash Contribution	3,271,767	8,381,687	11,653,454	3,478,643
Grand Total (in US\$)				42,061,567

* Excluding expenditures managed directly by USAID (which include ARI drug procurement, certain technical assistance, and USAID-funded participant training).

** Including hepatitis B procurement in 1993.

Annex A: Child Survival Project Reports and Documents, 1993

CSP Project-Wide Documents and Reports

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Child Survival Project 1994-95 Plan of Implementation, draft document. CSP, Cairo, December 1993.

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Model Clinic Assessment Report. CSP, August 1993.

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Quarterly Report, Child Survival Project, January-March 1993. Cairo, April 1993.

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Annual Report: Applied Research for the Acute Respiratory Infections Program in Egypt, April 1, 1992–March 31, 1993. Johns Hopkins University (subcontract from the Clark Atlanta University), Baltimore, April 1993.

ARI Country Program Profile 1993—Egypt, report. Dr. Nagwa Khallaf for WHO, Cairo, October 1993.

Case Registration System—Acute Respiratory Infection National Control Program, consultant report. Moira Daniels, November 1993.

Control of Acute Respiratory Infections in Practice: A Manual for Physicians, revised manual. ARI, Cairo, December 1993.

Monitoring Indicators for the Egypt Child Survival Project and Evaluating Impact on Mortality, report. R. Black, K. Hill, S. Becker, and M. Steinhoff, prepared by the School of Public Health, Johns Hopkins University, April 1993.

Process Evaluation of the ARI Control Program Covering Installation of Standard Case Management in MOH Facilities, report. CSP Evaluation Unit, Cairo, April 1993.

Proposal: Health Facility Survey of the ARI Control Program (Second Round). Cairo, June 1993.

Research Proposal: Assessing the Achievements of the Egyptian Child Survival Project, proposal. The Institute for International Programs, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, October 1993.

Review and Appraisal of the ARI Program—1993, report. CSP Evaluation Unit, Cairo, January 1994

Six-Month Progress Report: The Sentinel Diagnostic Survey of the ARI Program. Cairo, July 1993.

The Effect of Physician Training on Treatment of Respiratory Infections: Evidence from Rural Egypt, manuscript (using data collected in the CSP Study of Child Survival in Rural Egypt, carried out in 1991–92). R. Langson, and K. Hill, Cairo, December 1993.

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Care of the Egyptian Newborn, course syllabus for training physicians in neonatal care (covering neonatal stabilization and resuscitation, prematurity and low birthweight, respiratory distress, glucose in the neonate, bilirubin in the neonate, neonatal infection, and the Egyptian systems of care of the newborn). CSP, 1993.

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Midwifery Training Program, report. Dr. Gail Allison, 1993.

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*Assessment of EPI Disease Surveillance and Control, Joint International—
With Emphasis on Polio Eradication and Neonatal Tetanus Elimination.* Dr.
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Vaccination Coverage in Egypt, by District, January–June 1993. CSP, Cairo,
1993.

Annex B

MINISTRY OF HEALTH
CHILD SURVIVAL PROJECT

ANALYSIS OF CHILD SURVIVAL GOALS, TARGETS AND
INDICATORS OF ACHIEVEMENT AS SET FORTH IN THE USAID
PROJECT PAPER

Covering Achievement Through the End of 1993

CSP Evaluation Office
February 1994

Summary List of Indicators (PP Paper, Revised)*

Goals, with Indicators

1. Improve Health of Egyptians Especially Children Under 5 and WRA
 - 1.1 Zero cases of confirmed indigenous poliomyelitis by 1995
 - 1.2 80% reduction in neonatal tetanus mortality by 1995
 - 1.3 25% reduction in infant mortality due to ARI by 1995
 - 1.4 15% reduction in maternal mortality by 1995
 - 1.5 50% reduction in infant mortality by 1995
 - 1.6 45% reduction in child mortality (1 through 4 years) by 1995.

Purpose Targets, with Indicators

2. Promote Safe Motherhood and Child Survival; Reduce Mortality and Morbidity Among Infants, Children and WRA
 - 2.1 90% infant immunization for 6 childhood diseases and Hepatitis B by 1995
 - 2.2 Immunization rate of TT2+ of pregnant women maintained at least at 70% by 1995
 - 2.3 70% of mothers aware of risks of ARI; 50% seek timely care
 - 2.4 60% of pregnant women receive prenatal care
 - 2.5 70% of mothers correctly breast feed their babies at least 4-6 months and utilize appropriate weaning foods in addition to breast feeding.

Outputs Indicators

- 3.1 An Expanded, Improved and Utilized National Immunization System
- 3.2. Established national system for prevention, diagnosis and treatment of ARI in children under 5 years
- 3.3 An Expanded and Improved MCH System Reaching Pregnant Women
- 3.4 Mass media/health education programs to promote all CSP interventions

*Performance indicators were revised initially in September 1991, by a revision of the Project Paper and logical framework, and again in February 1994 by a further revision of the logical framework.

Child Survival Project - Logical Framework
(Based on The CSP Project Paper, as revised)

1. Project Goal: Improve the health of the Egyptian people and particularly the health of children and women of childbearing age.

The project paper-logical framework, as amended, lists six indicators of achievement of the project goal¹:

- 1.1 Zero cases of confirmed indigenous poliomyelitis by 1995
- 1.2 80% reduction in neonatal tetanus mortality by 1995
- 1.3 25% reduction in infant mortality due to ARI by 1995
- 1.4 15% reduction in maternal mortality by 1995
- 1.5 50% reduction in infant mortality by 1995
- 1.6 45% reduction in child mortality (1 through 4 years) by 1995.

- 1.1 Zero cases of confirmed indigenous poliomyelitis by 1995 (baseline: 550 confirmed cases in 1988).²

The national program to eradicate polio was announced in 1989. Initial efforts involved measures to improve routine vaccination coverage, add Salk vaccination for infants, improve surveillance and case reporting, and development of national campaigns and local mop-up operations. An important factor was the revision in early 1992 of the formula for the oral polio vaccine. Improved surveillance resulted in an increase in confirmed cases reported in 1990 and 1991.

A turn-around occurred in 1992 when the number of confirmed cases decreased to 574 compared to 594 cases in 1991. As of December 1992, 47 of the 205 districts of the country reported no occurrence of polio during the year. In addition, Port Said and South Sinai governorates (which have no districts because of their size) were reported to be polio free for the year.

During 1993, further reductions in confirmed cases have taken place. Nationally, the number of cases of acute flaccid paralysis detected fell to 196 cases. A total of 147 districts reported zero cases in 1993. Ten governorates reported no cases.

Assuming continued supplies of polio vaccine, and continued attention to containment and mop up operations, the outlook in 1994 is for a continued increase in the number of governorates and districts reporting no occurrences of confirmed polio cases.

¹An indicator pointing to a reduction in the incidence of severe and moderate malnutrition among the under five population was omitted as a result of the decision in 1991 to replace the nutrition component by other activities, and to focus on infant and maternal nutrition through the Child Spacing component. An indicator pointing to a reduction in hepatitis carriage rates among children under 5 by 1995 was omitted in 1993 because of difficulties in measurement. An indicator pointing to reduction in infant mortality rates due to pregnancy complications by 1995 was dropped in favor of an indicator examining the total drop in IMR.

²This indicator was previously defined as the eradication of polio by 1994, reflecting the goal established by the Government of Egypt in 1989. The revision takes into account the decision to extend the life of the project through 1995, and a recognition that a more realistic indicator of eradication is the decrease - elimination of confirmed cases of indigenous poliomyelitis.

An assessment of the polio eradication effort was made in November 1993 by a joint national/international review team headed by the WHO which confirmed the real gains which have been achieved, and which endorsed the policies being followed by the government.³

**1.2 80% reduction in neonatal tetanus mortality by 1995
(baseline: 7,256 cases in 1986)**

The National Neonatal Care Program includes: i) one or several annual national campaigns; ii) routine immunization for all pregnant women with TT2+; iii) programs to improve birth management to prevent infection; iv) a special program to immunize all women of reproductive age in target governorates; v) routine EPI vaccination against childhood diseases which includes vaccination of all infants and children under 5 against tetanus through TT4 ; and vi) TT5 vaccination of school girls.

NNT cases declined from 7,256 in 1986 to 1,823 by 1992 to 1,184 in 1993.

In November 1993,⁴ international observers confirmed that national incidence of reported NNT had fallen dramatically, with the number of governorates reporting >1 case of NNT per 1000 live births having fallen from 23 to 7 during 1992-93. The WHO-led team recommended that NNT elimination activities should include identification and training of the birth attendant (as it does) and continuation of mopping-up immunization in high risk districts.

The outlook is to reduce neonatal tetanus by over 80% by 1995 compared to 1986, and to achieve a very high rate of TT vaccination of all women of reproductive age which will help insure virtual elimination. By 1998-99, most girls reaching reproductive age (about 800,000 per year) will be fully immunized through TT5.

A survey of the extent of TT coverage of women will be carried out by CSP during 1994.

**1.3 25% reduction in infant mortality due to ARI by 1995
(baseline: 13/1000 in 1989)**

The ARI program will decrease infant and child mortality by educating families about the necessity of recognizing symptoms of severe ARI in their infants/children, getting the child to a doctor immediately and by providing for timely case management of severe acute respiratory infections by the medical staff of the MOH and by private physicians. A contributing factor for reduction in infant mortality due to ARI is the EPI program and the infant vaccinations against Pertussis and measles.

The measurement of the reduction poses difficult problems. Vital statistics which are collected nationally in Egypt may be used to track trends in infant and child mortality. However, the reliability of vital statistics to track infant mortality by cause of disease is problematic. Moreover, the national data for 1995 will not become available until late in 1996. Vital statistics data for the period 1987-90 show little decrease in rates of infant mortality due to ARI.

³Ward, Nick, et al., *Assessment of EPI Disease Surveillance and Control with Emphasis on Polio Eradication and Neonatal Tetanus Elimination*, Cairo, November 1993.

⁴Ibid.

In 1994-95, CSP is undertaking a study which will help establish the impact of the CSP program in general and, in particular, the ARI control program on infant mortality, by retrospective and prospective surveys undertaken in two governorates. Results of this impact study will become available in July 1995.

CSP is also planning to work with CAPMAS to analyze infant and child mortality data by governorate, using both direct and indirect techniques. This study is expected to update and improve vital statistics data for 1985-93.

1.4 15% reduction in maternal mortality due to complications of pregnancy and childbirth by 1995 (baseline: 220/100,000 in 1988)

Reduced maternal mortality is expected as a result of several CSP interventions: i) actions to increase and improve ante natal consultations; ii) increased referrals of high risk patients and deliveries with complications to first referral obstetrical services, iii) increased recognition of the problem by governorate health directorates and study committees, and iv) actions to improve natal services - the daya program, up-grading delivery rooms facilities and obstetric management in first referral hospitals.

These interventions are expected to impact measurably on maternal mortality during the period 1992-95. The maternal mortality survey completed this year provide reliable baseline data (national rate, 1992/93 = 174). Base line data is also available from the 1992 Demographic and Health Survey which provides data for the five year period 1988-92.

CSP plans to conduct a survey of maternal deaths - with the collaboration of CAPMAS - in the period February -June 1995, which will correlate with the survey of Feb-Jun 1992 and provide a reliable estimate of the national mortality death rate observed in 1995 compared to that observed in 1992 (about 180 per 100,000 live births).

CSP will also correlate data from the DHS surveys of 1984-88 and 1988-92 and the PapChild survey of 1991/92 with future surveys to establish trend data.

1.5 50% reduction in infant mortality by 1995 as compared to 1988 (base line 97/1000 in 1988)

1.6 45% reduction in child mortality (1 through 4 years) by 1995 as compared to 1988 (base line 36/1000 in 1988)

Reductions in overall infant and child mortality (ICM) can be reliably tracked by the vital statistics collected by the MOH/CAPMAS. The trends over the period 1982-92 are downward, both nationally and for governorates. The IMR for the three year period 1984-85 averaged 60.5 deaths per 1000. In 1989, the IMR was reported by CAPMAS at 45 per 1000 and in 1990 at 38 per 1000. Preliminary vital statistics for 1991 and 1992 confirm the downward trend.

These trends are confirmed by the Egyptian Demographic and Health Surveys conducted in 1988 and in 1992. These surveys show a decrease in infant mortality of 36%, from 97 to 62 deaths per 1000 infants, between the survey periods 1984-88 and 1988-92. The related reduction recorded in child mortality is 31 % from an average of 36/1000 to 25. Since CAPMAS data are published with a delay of several years, CSP plans a special arrangement during 1994-95 with CAPMAS to provide ICM statistics as soon as possible (earlier than the usual three year delay in obtaining published annual data).

2. Project Purpose: Promote safe motherhood and child survival; reduce mortality and morbidity among infants, children and women of reproductive age

The project paper lists five indicators:

- 2.1 90% infant immunization for 6 childhood diseases/Hepatitis B by 1995
- 2.2 Immunization rate of TT2+ of pregnant women maintained at least at 70% by 1995
- 2.3 70% of mothers aware of risks of ARI; 50% seek timely care
- 2.4 60% of pregnant women receive prenatal care
- 2.5 70% of mothers correctly breast feed their babies at least 4-6 months and utilize appropriate weaning foods in addition to breast feeding.

2.1 90% infant immunization for 6 childhood diseases/Hepatitis B by 1995

Rates are 85-90% nationally except in a few lagging governorates. The CSP target is to achieve 90% coverage nationally and at least 80% coverage for every antigen in every district. In 1992, according to EPI service data, the national rate of infant immunization coverage averaged 90 % for eight vaccinations. These included: BCG; OPV 1,2 and 3; the Quadruple shot (second month); DPT 2; DPT 3; and Measles. 160 districts reported an infant vaccination rate \geq 80%. Only 45 districts reported a vaccination rate of less than 80% for any antigen. Hepatitis B vaccination for infants was introduced in the fourth quarter of 1992.

In 1993, preliminary data show national infant vaccination rates as follows: BCG - 93%; OPV-3, 87%; DPT-3, 87%, Measles, 89%, and Hepatitis B-3, 66%. EPI is taking steps to increase coverage for HB-3.

Data collected from PHC centers and health bureau will verify results.

2.2 Immunization rate of TT2+ of pregnant women maintained at least at 70% by 1995

This indicator is defined to be the percentage of pregnant women in any one year immunized for TT2+ (received at least two tetanus toxoid shots at least one month apart, or a booster shot). Verification of this goal is by coverage data collected from vaccination units, and by analysis of MCH data on antenatal consultations.

EPI data show that the percentage of pregnant women immunized increased from about 7% in 1984 to 71% in 1991 to over 70% in 1992. Data for 1993, show a TT2+ immunization rate during 1993 of 78%.

CSP plans to carry out a survey in 1994 to verify coverage which will be designed to provide precise information on this indicator.

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 of mild ARI.

The ARI program is seeking to increase the proportion of mothers who are aware of the risks of ARI, who recognize the signs of severe ARI and bring their children to a medical practitioner for timely diagnosis and treatment, and who comply with home treatment correctly. Interventions include counseling of mothers by health providers (nurses and physicians), and use of mass media.

It is estimated that there are 4 million mothers of children under five. Many of these women visit MOH units at least for infant immunizations. It is estimated that each year over 1.5 million mothers bring their child to MOH clinics for infant vaccinations. Moreover an estimated 1.3 million bring their child to an MOH clinic or outpatient department of a hospital for diagnosis and treatment of ARI and hence become available for counseling on the recognition of severe ARI and the treatment of ARI.

Millions of mothers, families and influentials are being targeted by social marketing and mass media, including TV, radio, journalism. The KAP survey in 1994/95 will be designed to provide precise information on this indicator.

As of the end of 1992, it was estimated that about 30% of mothers/families are aware of the danger of severe ARI and the need to seek timely medical opinion/treatment in such cases. During 1993, efforts were made to strengthen counseling of mothers by nurses and doctors about signs and symptoms, the need for early care and proper home care. The first ARI TV spot was aired during 1993. The ARI control program is also endeavoring to inform private practitioners (through its newsletter, and by seminars). Measures to strengthen ARI mass media/public health education are included in the 1994-95 program.

Rates and trends will be established by the KAP surveys in 1991-92 and 1994-95. Evaluation of mass communications messages will also provide data.

2.4 60% of pregnant women receive prenatal care

There are about 1.5 million pregnant women each year in Egypt (1993/94). CSP aims to increase the proportion of these women who seek prenatal care as a regular check up, whether from a private physician or private clinic or from an MOH health facility. This proportion is now estimated at about 30-35%. The indicator is understood to refer to pregnant women who seek prenatal care by a regular checkup (and not only for a medical problem) from either public or private health providers. DHS data indicate the proportion of women seeking prenatal consultation is increasing.⁵

The proportion of women seeking prenatal care as a regular check up is expected to increase further during 1994 and in 1995 due to increased private sector consultations and an increase in the numbers of women using MOH-MCH prenatal consultation services as a result of:

- * referrals by dayas;
- * efforts to improve quality of service in PHC facilities;
- * health staff counseling and health education; and
- * mass media social marketing.

The use of mass media is expected to be a critical factor in achievement of this target. The KAP survey in 1994-95 will provide precise information on this indicator. It will be designed to indicate the percentage of women who

⁵ The 1988 DHS showed for all births occurring during the five years before the survey, 38.9% of the women had consulted a doctor during pregnancy. The 1992 DHS found a corresponding percentage of 52.8%. These percentages cover women who consult a doctor during pregnancy for a medical complaint as well as for a prenatal consultation. The 1988 DHS shows that for women delivering in the previous 5 years, only 14% had had a regular check up for prenatal care. The 1991/92 KAP survey showed that of women surveyed, 25.9% had done so for prenatal care (rather than for treatment of a health problem or to verify a pregnancy).

consulted a doctor (or nurse/midwife) during pregnancy for any reason, and the proportion of those women who did so as regular prenatal check up.

- 2.5 70% of mothers correctly breast feed their babies at least 4-6 months and utilize appropriate weaning foods in addition to breast feeding.

CSP interventions for improved BF and weaning are based essentially on health education including training of physicians, interpersonal communications by health personnel with mothers and, during 1993-95, health education using mass media.

This indicator is considered in two parts:

- * percentage of mothers correctly⁶ breast feeding and for how long, with a goal of at least 80% correctly breast feeding for at least 4-6 months;
- * percentage of mothers who use appropriate weaning foods in addition to breast feeding.

As of August 1993, CSP estimates that about 60% of mothers are breast feeding correctly. The percentage of mothers weaning their children correctly is not known.

The KAP survey for 1994-95 will be essential to determine the situation reached by the end of the project.

3. Outputs

3.1 EPI Program - The Project paper defines EPI output targets as follows:

“An expanded, improved and utilized National Immunization System will be maintained and improved to provide 80% coverage for the six vaccines identified in the PP (polio, DPT, measles, BCG), and Hepatitis B, for children under one and a 70% coverage for tetanus toxoid immunizations for pregnant women.”

The situation at the start of the Project is outlined in an evaluation carried out by WHO in 1984. The status of the Cold Chain was reviewed and outlined in an evaluation prepared in 1989 by WHO and UNICEF. Cluster surveys to establish vaccination coverage were carried out by WHO and UNICEF in 1990. These documents provide a basis for establishing the extent of the expansion and improvement in the national system.

The CSP and the Department of Communicable Disease of the MOH, working with the 26 governorates and Luxor City, have improved significantly the national immunization system. Significant improvements have been made with respect to the cold chain, staffing, trained personnel, vaccine supply, quality of immunizations and quality control, monitoring and reporting, and disease surveillance. Staffing has been increased by the assignment of polio officers, cold chain officers, the recruitment or assignment of cold chain technicians to all districts, and the use of sanitarians as well as physicians, nurses and clerks. The system has been improved by use of national plans covering polio eradication, the elimination of NNT and the control of measles.

⁶By correct BF is meant BF right after birth, BF on demand and exclusive BF for 4 months

Virtually all children born are brought to an EPI clinic or vaccination center for immunization - most of the children receive the full schedule. EPI is taking steps with governorates to reduce the proportion of children who fail to receive the full schedule. Vaccination coverage for infants under one has increased from about 30% in 1994 to about 90% currently. Vaccination coverage in Egypt is much better than in the United States, or most countries.

The system has also been improved by decentralization: governorate capability to manage monitor, and implement the program of routine vaccinations and special programs and campaigns have been greatly strengthened. EPI is now working with governorates to strengthen their ability to sustain and manage staff training in EPI, and to analyze data on disease, vaccination coverage and cold chain operations for decision making. Vaccination sites are routinely offering BCG, OPV, DPT, Hepatitis, Measles and TT immunizations.

The Mid-Term Project Evaluation (November 1992) concluded that the EPI component had made remarkable achievements.

A November 1993 appraisal of Disease Surveillance by a joint national and international team headed by WHO concluded that "tremendous progress has been made toward the Government of Egypt's goals of polio eradication, neonatal tetanus elimination and the development of an action-oriented disease surveillance system." The review confirmed that the very low reported incidence of polio is real, and that polio is on the brink of eradication in Egypt.

The Project Paper defines four EPI output indicators:

- 3.1.1 National EPI program providing effective vaccine in all PHC clinics (app. 3,300)
- 3.1.2. Production capability and quality control for currently produced vaccine is updated to meet acceptable standards of good manufacturing practice in support of the EPI
- 3.1.3. 80% of EPI primary health care physicians, nurses and technicians in all governorates trained in EPI.
- 3.1.4 Improved EPI Management Information System

- 3.1.1 National EPI program providing effective vaccine in all PHC clinics (app. 3,300)

As of December 1993, the National EPI program is providing vaccine in virtually all PHC clinics, including 208 district offices, 365 health bureaus (where vital statistics are registered), 234 MCH centers, 139 urban health centers, 483 rural health centers (also termed combined centers⁷), 114 rural hospitals and 2,148 rural health units. The total comes to 3,483.

The system of fixed vaccination sites provides for excellent vaccination coverage except for a few areas where a relatively small population is very scattered (South Sinai, North Sinai, Marsa Matrouh, Red Sea).

⁷A rural health center located on the same premises as a social center.

Shipment of vaccine is well organized and managed by the EPI, DCD and VACSERA.⁸ Cold chain monitors and freeze watchers are used through out the system. Capability of shipment has been improved by the provision of cold storage vehicles, vaccine carriers and cold boxes. Vaccines are shipped regularly to governorates where they are stored for supply on a regular basis to districts and from districts to vaccination points.

Cold chain storage capacity has been expanded and improved by the provision of deep freezers and refrigerators and is considered excellent. The potency of vaccine supplied to vaccination units is ensured by VACSERA testing, and by the effectiveness of the cold chain.

Monitoring and evaluation show that the cold chain is being managed effectively and that the vaccine delivered is effective.

Studies are underway with the collaboration of the Universities of Assiut, Cairo and Ains Shams on vaccine efficiency for polio, neonatal tetanus and measles. Household surveys are being carried out in all governorates to verify areas of low and high coverage.

3.1.2. Production capability and quality control for currently produced vaccine is updated to meet acceptable standards of good manufacturing practice (GMP) in support of the EPI.

Studies were carried out in 1993 to determine requirements to strengthen production capability and quality control by VACSERA, the MOH facility for testing and production of vaccines. The 1994-95 plan calls for implementation of inputs both to help the Governorate place VACSERA on a sounder organizational basis as a public enterprise with a possible plan for privatization, and to implement measures to improve production capability and quality control.

Outputs will include a plan for VACSERA reorganization on a sounder footing, increased production capability for OPV and DPT, strengthened standards of good manufacturing practice, and strengthened quality control.

The indicator target will be based on consultant reports on production capability, quality control and GMP to be provided in 1995.

3.1.3. 80% of EPI primary health care physicians, nurses and technicians in all governorates trained in EPI.

EPI training also includes physicians, nurses, sanitarians and clerks in PHC facilities and cold chain maintenance and repair technicians. The target of 80% trained EPI staff has been met for physicians, nurses, sanitarians and technicians and is expected to be met during 1993-94 for clerks. However, there is a continual problem of training new personnel and a continual need for refresher training.

CSP/EPI training of EPI staff totaled over 34,000 participants in the period 1989-mid 1993. These participants include about 11,400 PHC physicians, 13,300 nurses, 7,700 sanitarians and 2,800 clerks.

⁸The National MOH Facility which produces, imports, tests, stores and distributes vaccine.

During 1994-95, CSP will work to develop a decentralized capacity by governorates for the training of newly assigned staff and for refresher training. CSP is also working with universities and nursing schools to develop pre-service training in EPI by these institutions.

Data collected regularly on training and the operation of the vaccination program will be sufficient to determine the situation in 1995.

3.1.4 Improved EPI Management Information System

The EPI management information program has been improved by:

- Strengthening disease surveillance, particularly for acute flaccid paralysis (AFP/polio), for neonatal tetanus and for measles.
- Follow up on each case of polio and neonatal tetanus reported.
- Improved collection, compilation and analysis of data on routine vaccination coverage and data on vaccinations through national and regional campaigns.
- Improved data on the cold chain system and on vaccine supply and stocks by governorate and district.

A further strengthening of the EPI management information system is underway through:

- 75 household surveys of immunization to be carried out in the latter part of 1993 in selected areas of presumed low and high vaccination coverage in order to determine: a) whether service statistics are reliably and correctly measuring coverage; and b) additional steps required to achieve desired coverage rates.
- The CSP decentralized computer based information program which will provide governorates with improved capabilities and training to analyze surveillance and vaccination coverage in their districts.

This output will be appraised by an end of project report and in evaluations scheduled to cover the polio, NNT, Hepatitis B and measles control programs.

3.2 ARI Program - The Project paper defines EPI output targets as follows:

“Established national system for the prevention, diagnosis and treatment of ARI illness for children under five.”

The National ARI Control Plan is to introduce SCM in all general and district hospitals, and in all primary health care facilities. Implementation of the plan will insure by 1995 access by 85% or more of population to standard case management. Inputs include research, training, equipment, management systems and the provision of ARI drugs. The Project Paper defines five ARI output indicators:

- 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.

- 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 SCM.
- 3.2.3 An effective management information system for the ARI Program.
- 3.4.1 Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminated regularly throughout Egypt.
- 3.4.2 The MOH Health Education Department is mobilized to support Child Survival through activities of the public health education offices located in all governorates and most districts.
- 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.

A series of sub indicators using service statistics and governorate reports is used to verify this output: a) proportion of targeted managers trained; b) proportion of MOH pediatric specialists trained; b) hospitals with pediatric specialists trained and with equipment available for the treatment of severe ARI; c) hospitals, and primary health care facilities, with physicians and nurses trained and supervised, providing ARI standard case management for out patients; d) introduction and utilization of the ARI case registration system.

An ARI health facility survey was carried out in 1991. An ARI health facility survey of 65 facilities in 5 governorates carried out in 1993-94 will also provide an objectively verifiable indicator of change as will the CSP impact study being carried out in 1994-95 in Qalyubia and Menia.

The national ARI detection and treatment program was further developed during 1993. The program was extended to all 26 governorates⁹ as compared to 19 at the end of 1992. Over 95% of the districts of the country have installed the program or are in the processing of doing so. Nearly all district health officers have participated in the ARI control program management course. The program has been accepted as part of the scope of work of all Governorate Health Directorates and nearly all District Health Offices.

As of December 1993, it is estimated (see Figure 1) that over 90% of urban health facilities, including outpatient clinics of district and general hospitals, and nearly 60% of rural health facilities are staffed with physicians trained in SCM.¹⁰ Monitoring suggests that facilities provided with trained staff and regularly supervised do practice proper SCM. A referral system for severe cases of ARI has been established. As a result of training of MOH pediatricians, the number of hospitals staffed with specialists in treatment of severe ARI for hospitalized children has increased from 45 at the end of 1992 to about 128 at the end of 1993.

⁹Governorates which began to participate in the program during the year are: South Sinai, Fayoum, Gharbia, Kafr El Sheikh, Damietta, Red Sea and Minia and Luxor (previously included with Qena).

¹⁰About 250 out of 280 hospital outpatient clinics are staffed with physicians trained in ARI SCM. About 2100 of 3100 primary health care facilities are staffed with ARI-trained physicians.

The outlook is the development of an improved system throughout the country by 1995 providing access to 85% or more of children under 5. The ARI Health Information System will determine the extent to which an improved system (the SCM system) has been installed effectively in MOH facilities.

A problem, pointed out by the Mid-Term Evaluation Team, is to locate responsibility for continuing promotion of the ARI control program within the organization of the MOH. This matter is under consideration by the MOH.

3.2.2 80% of PHC physicians, nurses and technical staff trained to recognize symptoms of severe ARI and at least 60% of these physicians prescribe on a regular basis approved drugs for treatment of ARI.

Training of primary health care physicians and nurses continued during 1993 and is programmed to continue during 1994-95. Physician training has reached 9,000 physicians, and is programmed to reach over 12,000 by June 1995. The training will ensure that physicians in every health facility providing outpatient pediatric care have been trained in standard case management of ARI. It is estimated that over 80% of PHC physicians will have been trained. ARI estimates that because of transfers and assignment of untrained replacements, over time this figure will drop.

ARI is exploring different options to maintain a high proportion of practicing PHC physicians trained in ARI. These options include measures to strengthen pre-service training of physicians (and nurses) in medical schools (and in schools of nursing) in SCM and work to strengthen the capability of governorate health directorates to provide pre-service training for new staff and refresher training for existing staff.

The extent to which physicians prescribe drugs according to SCM will become clearer during 1994 as the case registration system becomes fully operative. Preliminary data indicate that in many districts a large proportion of physicians who have been trained are not prescribing drugs appropriately.

The number of nurses involved in pediatric care is estimated at about 25,000. Training 80% of this number is not feasible during the life of the Project. The goal is to train at least five nurses in larger health facilities (outpatient clinics of hospitals, MCHs, UHCs, rural hospitals, rural health centers), and at least two per rural health unit (for a total of 12-13 thousand).

The verification of this output target will be based on data on training carried out, by health facility surveys and by monitoring of health facilities.

3.2.3 An effective management information system for the ARI control program.

The installation of the case registration system was well advanced in 1993 and will be completed in the first half of 1994. A data base has been established which provides easily accessed information on training accomplished, equipment and drug supplies. It also provides very complete data on health facilities involved in the program and the status of case registration by governorate.

Figure I: Installation of SCM In MOH Health Facilities
(Estimated As of December 1993)

Governorate	Primary Health Care Facilities With Trained Physicians	Hospital Out-Patient Clinics With Trained Physicians	Number of Trained Specialists	Hospitals With Trained Specialists
1. Alexandria	44 of 44	11 of 13	58	8 of 13
2. Assiut	166 of 166	13 of 13	59	13 of 13
3. Aswan	95 of 95	7 of 7	4	3 of 7
4. Beheira	235 of 256	18 of 18	14	6 of 18
5. Beni Suef	71 of 129	9 of 9	21	5 of 9
6. Cairo	65 of 65	13 of 13	134	13 of 13
7. Dakahlia	150 of 300	16 of 16	17	4 of 16
8. Damietta	72 of 77	8 of 8	7	2 of 8
9. Fayoum	17 of 120	7 of 9	7	2 of 9
10. Gharbia	50 of 162	8 of 8	19	6 of 8
11. Giza	160 of 174	14 of 14	87	14 of 14
12. Ismailia	30 of 35	6 of 7	10	2 of 7
13. Kafr El. Sheik	71 of 166	10 of 12	13	3 of 12
14. Luxor	8 of 8	3 of 3	1	1 of 3
15. M. Matrouh	18 of 19	5 of 8	#	0 of 8
16. Menoufia	173 of 191	8 of 14	20	4 of 14
17. Minia	52 of 225	15 of 15	115	15 of 15
18. New Valley	28 of 28	3 of 3	#	0 of 3
19. N. Sinai	33 of 35	4 of 4	6	3 of 4
20. Port Said	9 of 10	3 of 3	7	2 of 3
21. Qalyubia	100 of 137	15 of 15	14	4 of 15
22. Qena	100 of 147	10 of 16	4	3 of 16
23. Red Sea	9 of 13	4 of 4	#	0 of 4
24. Sharkia	80 of 272	15 of 23	12	4 of 23
25. Sohag	172 of 198	18 of 18	22	9 of 18
26. S. Sinai	5 of 12	3 of 3	#	0 of 3
27. Suez	15 of 15	4 of 4	7	2 of 4
Totals	2028 of 3099	250 of 280	658	128 of 280

Urban PHC facilities: 438 of 445 (MCH Centers and Urban Health Centers)

Rural PHC facilities: 1650 of 2654 (Rural Hospitals, Rural Health Centers, Rural Health Units)

Notes: (1) Data on numbers of facilities with trained staff are estimates based on field monitoring reports, training, and reports from the governorates, and from the 1992 mid term evaluation. These data are indicative. See also country data sheets, volume II. (2) Hospital numbers include general, district and fever hospitals. (3) Trained specialists refers to MOH pediatricians trained in a five day program in the ARI control program and in standard case management of severe ARI.

A few pediatricians have been trained on the job.

- 3.4.1** Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminated regularly throughout Egypt.

Development of mass media inputs for the program has lagged. This problem has been addressed in the CSP 1994-95 work plan and in the December 1993 review and appraisal of the ARI program. A major objective is to increase the proportion of mothers of children under 5 who know signs which indicate a child with ARI should be taken to a health provider. A mass media campaign plus interpersonal communication effort was developed to accomplish this objective.

- 3.4.2.** The MOH Health Education Department is mobilized to support Child Survival through activities of the public health education offices located in all governorate and most districts

This indicator and target was established in 1993. CSP began in 1993 a program to mobilize the MOH health education offices for child survival promotion. Continuing inputs are programmed to take place in 1994-95. This program is strongly supported by the MOH.

- 3.3 Child Spacing and MCH Program** - The Project paper defines CS/MCH output targets as follows:

“An expanded and improved MCH system reaching pregnant women.”

The Project Paper defines five output indicators:

- 3.3.1** 80% of PHC physicians trained in providing improved MCH services.
- 3.3.2** 80% of dayas in lower Egypt adequately equipped and trained in safe delivery, post natal procedures, and referral for family planning, prenatal and immunization services.
- 3.3.3** 200 hospital delivery rooms and 100 neonatal care centers providing improved obstetrical and neonatal care. 150 MCH laboratories will be upgraded.
- 3.3.4** Development of a management information system for the neonatal care program.
- 3.3.5** 80% of primary health care physicians and nurses knowledgeable of proper maternal nutrition practices, including breast feeding, weaning, prevention of anemia and diarrheal case management.

- 3.3.1** 80% of PHC physicians trained in providing improved MCH services

As of December 1993, the CS component PHC Physician training program for improved MCH services had been conducted in 25 governorates and provided to a total of about 8,700 PHC physicians. This training is being continued under the 1994-95 work plan. The outlook is that a total of nearly 12,000 physicians will have been trained, or about 80% of the total. The CSP is also helping develop a curriculum for fourth and fifth year medical students which provides for pre-service training in primary health care services.

CSP plans to conduct a survey in 1994/95 of service providers that will provide information on the extent to which this output target is attained (1994-95 work plan, pp. VII-16, 17). CSP is also surveying governorates to determine to what extent PHC facilities are staffed with physicians trained under the program.

3.3.2 80% of dayas in lower Egypt adequately equipped and trained in safe delivery, post natal procedures, and referral for family planning, prenatal and immunization services

CSP has established a target, and budget, to train 9000 dayas and to provide refresher training for about 1000 dayas trained in 1986/87 by UNICEF in Beheira. This program covers lower Egypt and the frontier governorates. Excluded are the governorates of Upper Egypt, where UNICEF is conducting a parallel daya program, and Damietta Governorate where Dutch Assistance provided for daya training. It is estimated that the program will reach approximately 80% of the dayas of lower Egypt.

CSP has trained and equipped over 6,000 dayas in 14 governorates. The program is being continued in 1994-95. UNICEF has trained over 4,000 dayas in Qena, Assiut, Sohag, Aswan and Menia and will conduct daya training in Menia, Beni Suef and Fayoum. CSP initiated the daya program in Beheira which includes first-time training of dayas, and refresher training, in December 1993. Data collected in 1993 indicate that trained dayas are making referrals for family planning, prenatal visits and vaccinations. The number of referrals is beginning to be significant.

The situation at the end of the project is expected to be as follows: About 16,000 trained dayas in 26 governorates, tied into an MOH support and monitoring program, with 6,000 of these dayas in 7 governorates trained by UNICEF, and 10,000 trained or retrained by CSP covering the rest of the governorates. While the number of dayas is not fully known, in most governorates the percentage of trained dayas is expected to be about 80%.

3.3.3 200 hospital delivery rooms, 100 neonatal care centers providing improved obstetrical and neonatal care, and 150 MCH laboratories will be upgraded.

A) The program to up grade 200 first referral hospital delivery rooms through a combination of renovation, equipment, technical assistance in management, and training has been established. Renovations have been carried out in 41 of these sites. Local and offshore procurement of required equipment is in process. The CS component is planning to carry out the program in about 90 MOH hospitals where neonatal care centers are or will be located, in about 60 - 70 other district or general hospitals being selected, and in 30 - 40 rural hospitals being identified, where obstetrical staff is available, and up-grading is needed. The program has been approved under 1994-95 CSP work plan.

B) A national system of 83 neonatal care centers has been developed. These include 5 University training centers. Technical assistance and training is being provided to strengthen neonatal care management in these centers. A management information system on neonatal care has been developed and is being implemented. Additional equipment is being procured for the centers. The 1994-95 CSP work plan provides for an expansion of the program to up to 100 neonatal care centers.

C) 109 MCH laboratories have been up-graded with equipment, training, local remodeling, and management advice. The 1994-95 CSP work plan provides for up- grading an additional 50 MCH laboratories. The CSP program has developed a plan which provides for up-grading laboratories in about 35 MCH or urban health centers (in 12 governorates), and in about 15 rural hospitals to be selected according to need and Governorate interest.

3.3.4 Development of a management information system for the neonatal care program.

The system was developed during 1993 and is being installed in all MOH neonatal care centers.¹¹

3.3.5 80% of primary health care physicians and nurses knowledgeable of proper maternal nutrition practices, including breast feeding, weaning, prevention of anemia and diarrheal case management.

Before the Nutrition Component was abolished, a significant amount of training on proper nutrition practices, including BF, weaning, and prevention of anemia was carried out in 19 governorates. The training carried out in 1989-91 was directed at over 5,000 physicians, some 8,000 nurses and dietitians and about 2000 food inspectors.

In addition, as of December 1993, The CS component PHC Physician training program, which covers maternal nutrition, proper BF, weaning and anemia, had been conducted in 25 governorates and provided to a total of about 8,700 primary health care physicians. This training is being continued under the 1994-95 CSP work plan. The outlook is that a total of nearly 12,000 physicians will have been trained, or about 80% of the total. In 1992, CS trained about 700 nurses in MCH services, including maternal and infant nutrition. Since 1993, CS component training of nurses has been limited to training for Daya supervision and support, neonatal care, and in midwifery practices.

In 1994-95, the CS program will provide training for hospital and MCH based physicians and nurses in the baby friendly program.

CSP is providing assistance to the General Directorate of Diarrheal Disease which is providing training of physicians and nurses in diarrheal case management, including nutrition.

Mass media, planned in the period 1994-95 to promote public education about maternal and infant health, will be a factor in increasing knowledge of health practitioners.

CSP plans to conduct a survey in 1994-95 of service providers which will provide information on the extent to which this output target is attained (1994-95 work plan, pages VII -16,17).

¹¹CSP is also working to improve the management information system for MCH service delivery. Data on MCH service delivery has been collected by the MOH using separate formats for the Departments of MCH, Urban Health and Rural Health. In 1994, MOH is to introduce a common format. In 1994-95, CSP will work with MOH departments and governorates to develop base line data and enable the MOH to assess the level of MCH service delivery by district and governorate. This data will focus on antenatal care.

3.4. Mass Media/Health Education Programs to Promote CSP Interventions

The situation as of December 1993 is as follows:

EPI: Mass Media, particularly TV, is used extensively to promote the EPI Program. This applies in particular to the national campaigns to immunize all children against polio and all pregnant women with tetanus toxoid. Television, print journalism and radio were also used to launch the infant Hepatitis B program. Mass media is used regularly to encourage families and mothers to observe the routine schedule of infant immunizations and booster shots for toddlers. Some new TV spots will need to be developed and aired during 1994-95. A special effort will be made to educate about the dangers of measles and the need to refer infants/children for diagnosis and treatment promptly.

ARI: CSP Interventions through mass media were postponed during 1989-92 pending development of increased access to standard case management. With access becoming widespread by the end of 1992, it was decided to initiate ARI mass media and intensify interpersonal communication for ARI health education starting in 1993 and extending during the period 1993-95. The mass media effort will involve several coordinated TV spots, one of which was developed and aired during 1992/93. The principal messages will be: a) the importance of recognizing signs of severe pneumonia; and b) the importance of getting the sick infant or child to a qualified doctor as soon as possible. Secondary messages will relate to: a) home treatment of mild ARI; and b) compliance with prescriptions. Print journalism and radio will be used to support TV marketing. The TV promotional campaign is also expected to help educate service providers (nurses, physicians).

CS/MCH: A number of TV spots were developed and aired during 1990-91 to explain and promote child spacing. However, there is a continued need for social marketing of child spacing. There is also a need for mass media promotion to educate families, influentials and women about safe motherhood. Messages will emphasize: a) the importance of routine prenatal consultation for all pregnant women, b) maternal nutrition; c) the risk of low birth weight babies; d) community/family assistance to ensure obstetrical services for high risk pregnancies and in the event of complications during delivery; and e) the importance of child spacing. There is also a need to develop and use mass media in support of improved infant nutrition during the 1993-95 period. Messages would focus on: a) correct breast feeding; b) correct weaning practice; c) prevention of anemia in young children; d) the importance of diets that include foods to provide adequate vitamin A intake; e) recognition of faltering growth; and f) the baby friendly hospital program.

3.4.1 Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminated regularly throughout Egypt.

See foregoing discussion. Also, ARI Section above.

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.

This is a new objective introduced in 1993. Planning and studies were carried out by CSP in 1993, and a program outlined for support under the 1994-95 work plan.

Annex C: Assessment Report of EPI Disease Surveillance and Control

With Emphasis on Polio Eradication and Neonatal Tetanus Elimination, Egypt, 20–30 November 1993

Executive Summary

Tremendous progress has been made toward the Government of Egypt's goals of polio eradication, neonatal tetanus (NNT) elimination, and the development of an action-oriented disease surveillance system. The reductions in polio and NNT have occurred despite marked improvements in the disease surveillance system.

The review confirms that the very low reported incidence of polio is real. During 1992–1993, polio shifted from being a widespread endemic disease to one with a limited focal distribution. The available data suggest that the combination of properly conducted National Immunization Days (NIDs) and focused mop-up immunization in high-risk districts has been responsible for bringing polio to the brink of eradication in Egypt. These policies are sound, and in governorates where effectively implemented, have led to zero cases of polio. It appears that a very high proportion of existing polio surveillance policies and proper documentation will be needed to confirm these achievements .

Using a high-risk approach for neonatal tetanus elimination, the national incidence of reported disease has fallen dramatically. The number of governorates reporting less than 1 case of NNT per 1,000 live births fell from 23 to 7 between 1992 and 1993. Cultural factors may be responsible for the fact that at least 40% of neonatal tetanus cases remain unreported.

Political commitment from the highest level has been critical in achieving the current very low polio incidence. Continuation of this commitment is essential in order to achieve poliovirus eradication.

Principal Recommendations

1. Achieving routine coverage of at least 90% with 3 doses of oral polio vaccine, as measured in the smallest administrative unit (i.e., village) should continue to be the priority of EPI.
2. National Polio Immunization Days should be conducted in 1994 and 1995, extending the target population to all children aged less than 5 years to ensure that transmission of wild poliovirus is interrupted. The need for further NIDs should be decided on the basis of the epidemiology in 1995.

3. Mop-up immunization with OPV should be extended to include all districts with confirmed cases in the previous 12 months.
4. Acute Flaccid Paralysis (AFP) surveillance must include the detection and investigation of all causes of AFP, especially Guillain-Barré syndrome, in children under 15 years of age. Extensive staff training and active hospital-based surveillance will be required for the proper implementation of this policy.
5. Polio laboratories should be supported to enable the timely processing of samples and reporting of results, and the development of intratypic differentiation capability at VACSERA.
6. Regular feedback mechanisms should be developed to update ministers, governorates/districts, laboratories, universities, and other reporting sites on polio eradication and investigations.
7. Neonatal tetanus elimination activities should include the identification and training of the birth attendant and continuation of mop-up immunization in high-risk districts.
8. The AFP/NNT detection, investigation, and response skills should eventually be extended to all major public health conditions.

Annex D: Technical Assistance in 1993

Consultant	From	Program	Purpose	Date
Dr. Stephen Ostroff	JHU	ARI	To monitor the status of the antimicrobial resistance surveillance study.	Jan 14-24
Dr. Stephen Ostroff	JHU	ARI	To determine the status of the antimicrobial resistance surveillance study.	May 21-29
Dr. Peter K. Saleh	CAU	CAU/ CSP	To provide CSP sustainability planning and management services.	Jun 21- Jul 19
Dr. Nick Ward	WHO	EPI	To provide assessment of EPI Disease Surveillance and Control with emphasis on polio eradication and neonatal tetanus elimination.	Nov 20-30
Dr. Laurie Krieger	PATH	HP	To provide technical assistance services and training materials on interpersonal communication as used by technical units and other related projects in Egypt.	Sep 27- Oct 18
Marcia Griffiths Michael Favin	PATH	HP	To prepare a communication strategy for the CSP.	Nov 6-21
Dr. Michael Dobson		ARI	To set up a field trial of WHO-approved oxygen concentrators in a suitable area of Egypt, visit the test sites, identify and begin training the team required to carry out the project.	Sep 27- Oct 15
Gail Allison		CS	Midwifery training program for nurses.	Sep 8- Oct 4

Consultant	From	Program	Purpose	Date
Dr. Frank Cummings	CAU	CSP	Home Office Visit.	Jun 13- Jul 9
John Weber	CAU	EPI	VACSERA: Polio and DPT.	Jun 6-1 Oct 8-14 Dec 6-13
B. Houtart	CAU	EPI	VACSERA Polio and DPT.	Jun 3-10
D. Stainer	CAU	EPI	VACSERA Polio and DPT.	Jun 1-8 Oct 1-8 Dec 6-13
Dr. O. Campbell	CAU	CS	Maternal Mortality Study.	Jun 6-18
Dr. George Little	Dart.	CS	Neonatal Program Review.	Jul 16-30
Dr. Stan Becker	JHU	ARI	Registration Study.	Oct 24- Nov 2
Dr. David Peel	CAU	ARI	Oxygen Concentrator Training.	Nov 25- Dec 5
Dr. R. Ainsworth	EP&A	CSP	Model Clinic Program Implementation.	Nov 6- Dec 16
Dr. K. Hill	JHU/ PASA	CSP	PASA/CSP Impact Evaluation.	Nov 23- Dec 16
N. Ward B. Alewood S. Cochi F. Verani	WHO WHO CDC Rotry	EPI	To review Polio Program, with UNICEF.	Nov 20-30
Dr. P. Brachman	FETP	EPI	Applied EPI Course.	Dec 2-17
Dr. L. Krieger	PATH	HP	HPO and Health Dept. Training.	Dec 2-30
Dr. Peter K. Saleh	CAU	CSP	To assist in Decentralization Implementation Program.	Dec 1-20

Annex E: Summary of FETP Field Work Completed in 1993

E.1 Active Polio Surveillance Projects (April–June)

The Field Epidemiology Training Program (FETP) conducted active surveillance of poliomyelitis in 10 governorates in Egypt during 1993. This activity was intended to evaluate the performance of governorates in complying with MOH policy regarding the National Plan for Polio Eradication in 1994.

Governorates visited included Cairo, Gharbia, Fayoum, Kafr El-Sheikh, Beheira, Beni Suef, Dakahlia, Qena, Menoufia, and Sohag. FETP participants reviewed hospital logs, polio officer records, and case investigation forms, and determined the number of unreported cases of suspected polio at various health facilities, the completeness of suspected polio case reporting, and the compliance of officers in the use of polio monitoring indicators suggested by the Communicable Diseases Control Department.

Polio-related data analysis completed included determining polio incidence (by governorate and district), mapping the incidence, and determining age, sex, and promptness and completeness of control measures.

E.2 Poliomyelitis Reporting by Physicians (April–June)

To determine physician compliance with the National Plan for Polio Eradication in Egypt in 1994, physicians caring for cases of suspected poliomyelitis were interviewed in eight governorates. Topics discussed included the official case definition for suspected polio and compliance with Ministry of Health Policy regarding reporting, confirmation, etc.

E.3 Rift Valley Fever (RVF) Investigations

RVF Outbreak—Aswan Governorate

During July 1993, an outbreak of hemorrhagic fever occurred for only the second time in the history of Egypt. In the 1978 epidemic, more than 18,000 cases occurred and 598 deaths were reported. In 1993, at least 40 persons in Aswan Governorate reported partial or total loss of

vision following RVF. Work by the FETP included the following studies:

- Survey of the prevalence of RVF infection in Naga El-Hagar village.
- Survey of the prevalence of RVF infection in Sabil Abu El-Maged.
- Cross-sectional study of high-risk abattoir workers (six locations).
- Risk-factor study of cases with loss of vision due to RVF.

RVF Outbreak—Qena Governorate

- Cross-sectional study of RVF in high-risk abattoir workers (Religious festival).
- Cross-sectional study of RVF in high-risk abattoir workers (Armant and Luxor).
- Establishment of RVF surveillance system (out-patient clinic in Armant).
- Establishment of RVF surveillance system in fever hospitals (e.g., Armant, Luxor, Qena, Isna).

E.4 Other Assistance to the Ministry of Health

A typhoid outbreak investigation was performed in Dakahlia.