

**FINAL ASSESSMENT OF THE EGYPT
CHILD SURVIVAL PROJECT
(263-0203)**

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by

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The observations, conclusions, and recommendations set forth in this document are those of the authors alone and do not represent the views or opinions of POPTECH, BHM International, The Futures Group International, or the staffs of these organizations.

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ABBREVIATIONS

AFP	acute flaccid paralysis
ANC	antenatal care
ARI	acute respiratory infections; also Acute Respiratory Control Program
BCG	Bacillus of Calmette-Guerin, a vaccine to combat tuberculosis
CAPMAS	Central Agency for Public Mobilization and Statistics
CAU	Clark Atlanta University
CDC	US Centers for Disease Control and Prevention
CDD	control of diarrheal disease
COP	chief of party
CS	child spacing
CS/MCH	child spacing and maternal and child health
CSP	Child Survival Project
DCD	Department for the Prevention of Communicable Diseases (MOHP)
DecHIS	Decentralized Health Information System
DHS	Demographic and Health Survey
DID	Department of Information and Documentation
DPT	diphtheria, pertussis, tetanus vaccine
EPI	Expanded Program on Immunization
FETP	Field Epidemiology Training Program
FETU	Field Epidemiology Training Unit
GOE	Government of Egypt
GIS	Geographic Information System
HB	hepatitis B; hepatitis B vaccine
HEO	Health Education Office(r)
HIPH	High Institute of Public Health
HIS	health information system
HM/HC	Healthy Mother/Healthy Child Project
HRD	human resource development
IEC	information, education, and communication
IMR	infant mortality rate
ITU	Integrated Training Unit
JHU	Johns Hopkins University
KAP	knowledge, attitudes, and practices
LE	Egyptian pounds
LOP	Life of Project
MCH	maternal and child health
MIS	management information system
MOH	Ministry of Health
MOHP	Ministry of Health and Population (formerly the Ministry of Health)
NCDDP	National Control of Diarrheal Diseases Project
NIDs	National Immunization Days
NMMS	National Maternal Mortality Study
NNMR	neonatal mortality rate
NMTP	Nurse/Midwife Training Program
NNT	neonatal tetanus
OPV	oral polio vaccine

ORT	oral rehydration therapy
PHC	primary health care
PIL	Project Implementation Letter
PPA	Project Paper Amendment
RHU	Rural Health Unit
SCM	standard case management
SDP	Systems Delivery Project
TT	tetanus toxoid
TV	television
UCI	Universal Childhood Immunization
UNICEF	United Nations International Children Emergency Fund
US	United States of America
USAID	United States Agency for International Development
VACSERA	Egyptian Organization for Biological and Vaccine Products (MOHP)
WRA	women of reproductive age
WHO	World Health Organization

Definitions of child survival terminology*

Neonatal mortality:	the probability of dying within the first month of life
Postneonatal mortality:	the difference between infant and neonatal mortality
Infant mortality:	the probability of dying before the first birthday
Child mortality:	the probability of dying between the first and fifth birthday
Under-five mortality:	the probability of dying before the fifth birthday

*** Egypt Demographic and Health Survey, 1992**

EXECUTIVE SUMMARY

This report is a final assessment of the Egypt Child Survival Project (CSP) which concludes in August 1996 after 11 years. CSP began in 1985 when the United States Agency for International Development (USAID) and the Ministry of Health (now the Ministry of Health and Population or MOHP) signed the CSP Agreement with the purpose of reducing morbidity and mortality in infants, children, and women of reproductive age (WRA) in Egypt.¹ The key components were to be four vertical programs: an Expanded Program on Immunization (EPI), Acute Respiratory Infections (ARI), Child Spacing (CS), and Nutrition. In 1991, the MOHP and USAID agreed to restructure the budget to include hepatitis B vaccinations in the EPI program at a cost of US\$12 million, primarily at the expense of the nutrition component activities and some child spacing activities. In 1992 USAID and the MOHP made an additional budget adjustment with an agreement to finance antibiotics for the ARI at a cost of US\$3.6 million. One consequence of this decision was the elimination of nutrition as an administrative component of the project; however, some nutrition activities were incorporated into the child spacing component.

At US\$68 million, the project is the largest USAID Mission-funded child survival project in the world. The MOHP manages and implements CSP through a project secretariat established specifically for that purpose. Clark Atlanta University (CAU), a historically black university, is the prime technical assistance contractor. Additionally, a number of US firms, the United Nations International Children Emergency Fund (UNICEF) and the World Health Organization (WHO) have provided technical assistance. In 1996 the project, operating nationwide, targeted 8 million children under five years, approximately 5 million mothers of children under five, and about 1.7 million newborns.

USAID and the MOHP designed CSP to operate as vertical programs and the project has functioned as such: EPI, ARI, and Child Spacing/Maternal and Child Health (CS/MCH). Additionally, in 1994 in response to the midterm evaluation which highlighted the issue of sustainability, CSP initiated the following crosscutting programs to foster the sustainability of project activities: Decentralized Health Planning and Management, a Decentralized Health Information System, a Clinic Improvement Program (Model Clinics), Undergraduate Training in Child Survival for Medical and Nursing Students, and Mass Media and Health Education.

CSP has contributed to reduced infant, child, and maternal mortality in Egypt. The 1995 Demographic and Health Survey (DHS) showed an average of 35 percent decline in infant mortality and 59 percent decline in child mortality over a 10-year period. This decline was concomitant to the development of several child survival interventions and successes: increased immunization rates, increased use of oral rehydration therapy, and increased appropriate treatment of ARI. The 1995 DHS infant and child mortality estimates for the five years preceding the survey are 63 infant deaths per thousand live births, and 19 deaths between age 1 and 4 per thousand infants surviving the first year of life. The corresponding under-five mortality was 81 deaths of children between age 0 and 4 per thousand live births. The estimates of these rates for the period 1980-1985 were 97, 46, and 139, respectively.

Hereafter we refer to the MOH as the MOHP although the merger of the Ministry of Health and Ministry of Population did not occur until December 1995.

CSP has been a very successful project and has achieved most of the objectives established in the Project Paper. The EPI component is acknowledged to be the most successful of the three components. It has either attained, or nearly attained, all of its objectives.

- C** Currently, 79 percent of health districts are polio-free, with only 71 reported confirmed cases found in 1995 (down from 550 in 1988). If current strategies, including National Immunization Days and Polio Mop-up campaigns are sustained and a sensitive surveillance system that is capable of detecting all acute flaccid paralysis cases continues to improve, Egypt should attain its “zero confirmed cases of polio” objective by 1997.
- C** Vaccination coverage has been maintained at more than 80 percent since 1988. At least 83 percent of 231 health districts have achieved 80 percent coverage. The 1995 Egypt Demographic and Health Survey noted 79 percent fully immunized coverage (excluding hepatitis B3 [HB3]).
- C** An 89 percent reduction has been achieved in neonatal tetanus since 1986. Seventy-six percent of districts have <1 reported case/1,000/live births.

A highlight of the EPI program, and of the development of Egypt's support for it, is the Government of Egypt's (GOE) assumption of financial support for the program. In 1992 the GOE had zero funding for the imported EPI vaccines (polio, DPT, measles, and part of BCG) which were provided mainly by UNICEF.² However, at this point, the GOE is picking up total support: vaccine costs alone in 1996/1997 are US\$28 million and will be borne by the GOE.

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

The Child Spacing/Maternal and Child Health component conducted varied and often innovative activities and programs in association with different MOHP departments, and with varying levels of success. These included an important Maternal Mortality Study in 1992, the development of 100 neonatal care centers, *daya* (traditional birth attendant) training and linkage with MOHP health centers, and upgrading of delivery rooms and laboratories. There was, however, relatively little of the desired collaboration between this component and the USAID-funded MOHP family planning program.

USAID provided hepatitis B vaccine for two years.

CSP is ending before the crosscutting programs, initiated several years ago, can show final results. CSP has laid the framework for a national decentralized computerized health information system (HIS); supplied hardware, developed software, and provided some training; as yet, only a few governorates are using the new system called DecHIS. Training curriculum has been developed for decentralized health planning and management; four of 27 governorates have received such training so far. A clinic improvement program (Model Clinics) has begun and the service standards developed for these 15 clinics are in use there, but not beyond. Very recently the mass media program developed a series of 12 TV spots on priority MCH topics that have aired in the last several months. A revision of the curriculum for nurses has been completed, and that for physicians has been delayed by agreement between MOHP and USAID. The Field Epidemiology Training program has started to supply trained MOHP epidemiologists, conducted numerous studies related to public health problems in Egypt, and made significant progress in the institutionalization of the program.

In the final two years of the project, CSP focused effort on two areas that it recognized needed strengthening: training and mass media/health education. The training and mass media materials in the last two years are well done and will be very useful in the years to come.

The midterm evaluation identified sustainability, which had not been identified as a priority in the project design, as an issue. While CSP activities to institutionalize the three project components (to find a home and build constituents) were successful, CSP efforts in achieving sustainability through decentralization and integration are too recent to show results.

CSP ends after 11 years, leaving behind very significant improvements in the health status of children and a foundation for improved maternal health. The successor program, the upcoming Healthy Mother/Healthy Child Project (HM/HC), will initiate national level efforts to reduce maternal and neonatal mortality with special emphasis on Upper Egypt and will support the established national programs such as EPI, ARI, and control of diarrheal disease (CDD). Following are the team's recommendations for USAID and the MOHP as CSP ends and a new project begins.

The GOE/MOHP should provide for the full costs of the EPI and ARI programs:

- C While the MOHP has only budgeted 50 million LE for 1996, total vaccine costs in 1996/1997, which the GOE has promised to assume, are 96 million LE; and
- C The MOHP must ensure that budgeting and monitoring by governorates and districts maintain the cold chain, which is functioning well;
- C The MOHP should review existing ARI treatment protocols, and the ARI cost-recovery policy, to decrease the recurrent costs for ARI drugs, especially amoxicillin.

Given the different objectives of the Healthy Mother/Healthy Child Project, USAID should reduce central level support of several CS/MCH programs, namely the daya program, the

Nurse-Midwife Training program, the delivery rooms and MCH laboratories upgrading programs, and the Baby-friendly Hospitals Initiative. The responsible MOHP department should only maintain a minimum capacity for monitoring, evaluation, research, and technical assistance to the governorate level because these programs are now established in most governorates where CSP introduced systems and trained the local staff. Further progress relies on improved contributions of the local health authorities. Given its innovative character and higher level of technicality involved, the Neonatal Program should be continued at the central level and USAID support should be provided at this level.

As the Healthy Mother/Healthy Child Project moves into reproductive health, the MOHP should take the lead in national planning for safe motherhood and maternal mortality reduction while emphasizing decentralized programming, and HM/HC should ensure basic supplies (e.g. Clorox bleach, betadine, and disposable rubber gloves) for MCH and family planning before incurring new significant commitments and costs. Collaboration between the new Healthy Mother/Healthy Child Project and the MOHP family planning program is essential. This should include collaborative training, cross-referrals, and the development of common service standards and IEC materials and campaigns.

Policy issues related to human resource management

- C had a strong influence on the capacity of this project to achieve sustainable impact;**
- C will have a strong influence on the upcoming project, to achieve sustainable impact; and**
- C will impact the Healthy Mother/Healthy Child Project's ability to decentralizeCa key strategy of the project.**

We recommend that the MOHP and USAID examine ways in which the Healthy Mother/Healthy Child Project and the prospective USAID health policy project might collaborate. HM/HC might pilot-test changes in personnel policies so as to support the recruitment and retention of well qualified and motivated personnel, particularly women, in adequate numbers and appropriate distribution in Upper Egypt.

The MOHP and HM/HC should further develop decentralization and integration by

- C building on the existing decentralized structure of the EPI program;**
- C expanding the ARI component into an integrated treatment of the sick child strategy, emphasizing operations research as a problem-solving management tool for the health district management teams;**
- C integrating on-the-spot training into the supervision process; and**
- C involving all health workers in the provision of health services.**

MAJOR CONCLUSIONS AND RECOMMENDATIONS

All the major conclusions and recommendations are also listed under each section of the report where there are, in some cases, also secondary recommendations.

EPI

Lessons learned from EPI which are particularly relevant to the Healthy Mother/Healthy Child Project include the following:

- **Training, and division of responsibility, in technical and management skills should involve all personnel (sanitarians, clerks, nurses, and physicians) to avoid an overdependence on “short-term” physicians. This strategy could be applied to other elements of primary health care, e.g., integrated treatment of the sick child.**
- **EPI ensures a fixed number of opportunity contacts with mothers. These could be used as points of integration for other maternal and child health (MCH) services, e.g., health education, growth monitoring, nutritional surveillance, and child spacing.**
- **The strengthened disease surveillance capacity of the MOHP for acute flaccid paralysis (AFP) and neonatal tetanus (NNT) could be extended to other diseases and conditions, e.g., measles and tuberculosis.**
- **EPI is more decentralized than any other primary health care component. However, given the geography, demography, and economics of the health system, it will be important to further decentralize authority for PHC program planning and implementation. EPI provides a starting point for decentralization of MCH activities.**

Major EPI Recommendations:

1. **CSP should document, and the Healthy Mother/Healthy Child Project should take into account, the potential for using the existing physical, administrative, and personnel structure of EPI, particularly, at the district and health facility levels, as a starting point for decentralization, coordination, and integration of MCH services.**
2. **USAID should assist EPI activities (training, cold chain maintenance, supervision, IEC, and operations research) within governorates assisted by the Healthy Mother/Healthy Child Project, as part of the basic package of services, and should continue to support disease surveillance, health information system, mass media/IEC, donor coordination, and appropriate research at the national level.**
3. **The GOE/MOHP should provide for the full costs of the EPI programs:**
 - **While the MOHP has only budgeted 50 million LE for 1996, total vaccine costs in 1996/1997, which the GOE has promised to assume, are 96 million LE; and**

- **The MOHP must ensure that budgeting and monitoring by governorates and districts maintain the cold chain, which is functioning well.**

ARI

The ARI program will need continued support from USAID to ensure that it becomes fully integrated within the MOHP. USAID support within the Healthy Mother/Healthy Child Project for training, supervision, and equipment can easily be justified at the district level in the governorates assisted by HM/HC. USAID support for communication, monitoring, surveillance, and selected evaluation and research can be justified on a national scope. It is particularly noteworthy that the successful implementation of standard case management for ARI means that a second component of an “integrated treatment of the sick child” strategy is in place, in addition to oral rehydration therapy (ORT). The Healthy Mother/Healthy Child Project should build on this strong foundation laid by the ARI program.

Major ARI Recommendations:

- 1. CSP should document, and the Healthy Mother/Healthy Child Project should take into account, how an integrated treatment of the sick child strategy can be developed around existing ARI and ORT activities.**
- 2. The MOHP and the Healthy Mother/Healthy Child Project should decentralize ARI supervision to the district level while strengthening on-the-spot training.**
- 3. The HM/HC project should emphasize operations research as a problem-solving and management tool to assist in strengthening and supervising health district management teams.**
- 4. CSP and the MOHP should review existing ARI treatment protocols and the ARI cost-recovery policy with respect to the cost-saving treatment strategies proposed by the *ARI Plan of Action for the Period 1996-2000*.**
- 5. USAID should assist ARI activities (training, supervision, purchasing equipment, IEC, and operations research) within governorates that are assisted by the Healthy Mother/Healthy Child Project, as part of the basic package of services, and support ARI surveillance, mass media, and appropriate research/evaluation at the national level.**
- 6. The GOE/MOHP should budget for the full costs of the ARI program.**

Child Spacing/Maternal and Child Health

The Child Spacing/Maternal and Child Health component conducted a series of varied and often innovative programs over the life of the project, in association with different MOHP departments, and with varying levels of success. Given the change in the structure of the Healthy Mother/Healthy Child Project as compared to CSP, USAID should reduce central level support of several programs conducted so far by the CS/MCH component, namely the daya program, the Nurse-Midwife Training Program, the delivery rooms and MCH laboratories upgrading programs, and the Baby-friendly Hospitals Initiative. The MOHP departments responsible for these activities should maintain only a minimum capacity for monitoring, evaluation, research, and technical assistance to the governorate level because these programs are now established in most governorates where CSP introduced systems and trained the local staff. Further progress relies on improved contributions of the local health authorities. Given its innovative character and the higher level of technicality involved in its development, USAID should support the Neonatal Program at the central level.

The National Maternal Mortality Study should be translated into Arabic and distributed. The MOHP, with USAID support, should make sure that appropriate secondary analyses and evaluative research are performed, given the innovative activities carried out by the CS/MCH component and the large amount of valuable information collected by the program. The Healthy Mother/Healthy Child Project should follow up some of them. Areas of emphasis should include

- C Analysis of local level data on levels and trends in the activities of dayas**
- C Completion of the evaluation initiated by CSP of the performance of the neonatal units and analysis of the impact of the program (see details under Section 5.3)**
- C An evaluation of the determinants of the use and effectiveness of MCH laboratories**
- C Further analysis of the National Maternal Mortality Study data**
- C Further analysis of the national studies on Low Birth Weight and Anemia**
- C Completion and follow-up of the Child Survival Impact Evaluation (Two Governorate Linkage Survey).**

In this project, CSP and the Systems Delivery Project did not collaborate and coordinate sufficiently. The MOHP and USAID should ensure that the Healthy Mother/Healthy Child Project and the Systems Delivery Project collaborate in training, IEC, service standards, and HIS in order to foster mutual collaboration and support between the maternal and child health and family planning service delivery.

Crosscutting Activities

Undergraduate Medical Curriculum

The delay of the publication and broad distribution of the book, *Child Survival A Rational Approach*, until the manual can be strengthened is, and was, wise. Because such revision and university approval of new curriculum is expected to take some time, and because it is important that new primary health care physicians master child survival material, the MOHP should use modules from the manual to train medical graduates within the obligatory preservice training.

Training

Although CSP has trained a great many people, it is doubtful that in all governorates 80 percent of primary health care physicians have received training in each of the three project components, due to the mandatory year of public service and the high rates of turnover. To achieve the desired levels of competence in EPI, ARI, and CS/MCH among primary health care physicians, given the current physician assignment policies and high rates of turnover and leave taking, the MOHP would have to

- Ⓒ Ensure, on a governorate and district level, that 80 percent of the newly graduated physicians assigned to it twice a year had either received training in medical school or received such training during the obligatory preservice training program; and
- Ⓒ Train about 2,500 new, young physicians on a national level each and every year.

CSP training efforts undoubtedly contributed to the success of the project. Unfortunately, the training data available to the team do not allow it to make the correlation between training and project success which might have been possible if such data had been collected systematically. It appears that the training effort was strongest in EPI and ARI.

The Healthy Mother/Healthy Child Project should develop and the MOHP should distribute an integrated HM/HC bulletin covering all the technical/administrative elements of the program addressed to the primary health care physician. This integrated bulletin would grow out of, and substitute for, the separate bulletins currently produced by the three project components.

USAID should ensure that the HM/HC project includes sufficient qualified managerial and technical staff and sufficient resources and project commitment to ensure high-quality professional training. There should be integrated training programs, using competency-based methodology, with a documented and unified training process. The MOHP and USAID should work together through the upcoming Health Policy Project to address some of the human resource management policies and traditions which make it difficult for the

MOHP to achieve its objective of having adequate numbers of personnel competent in EPI, ARI, and CS/MCH in most facilities in all governorates throughout the country.

Field Epidemiology Training Program

USAID and CDC-Atlanta should continue their efforts to assist the MOHP in defining and institutionalizing a field epidemiology function in the MOHP, at the central and governorate level.

Health Information System

CSP developed and implemented an excellent manual, vertical health information system for each of the three CSP components. These systems have provided the data which enabled the MOHP to plan and manage for the CSP achievements presented earlier in this report. The Decentralized Health Information System (DecHIS), initiated late in the project, needs further USAID support. While sustainability of the EPI, ARI, and CDD programs depends on reliable information systems, at this stage, none of these programs can rely fully on the DecHIS. USAID should continue support of the implementation of DecHIS in all governorate health information offices, with at least the minimum core of indicators directly related to child survival and MCH. USAID should provide support to the Department of Information and Documentation in its supervisory role of the governorate level, and in its coordination and regulatory role at the central level. The Department of Information and Documentation also needs to consolidate the data from the governorates, maintain master copies of those data and ensure the timely and coordinated distribution among the various MOHP departments. The Department of Information and Documentation must develop and maintain an overall health information system development plan in which the decentralized HIS under concern here is just a component. USAID should perform a complete assessment of the needs of the Department of Information and Documentation in terms of equipment, training, and technical assistance, in order to best define its support at this level.

USAID should provide fuller support to the DecHIS in the Healthy Mother/Healthy Child Project-targeted governorates, including training and technical assistance at the district level.

USAID should promote joint support of this new system by all the health and population projects involved in the development of information systems with the MOHP.

Mass Media and Health Education

Concerted, coordinated mass media/IEC efforts started late in this project. Mass media programs addressing some of CSP concerns, however, have been disseminated and heard recently by a majority of women throughout Egypt (1995 KAP). Messages on immunization and tetanus toxoid were viewed by 99 percent of women who were surveyed. There was relatively little recall, however, of messages on antenatal care, delivery care, care of the newborn, or ARI, all of which will receive focused attention in the Healthy Mother/Healthy Child Project, as appropriate. HM/HC should ensure a strong IEC program, and from the onset of the project, it should be led by personnel who have strong management and technical skills.

Model Clinic and Clinic Improvement Program

CSP has initiated an important process - improving the integration and quality of child survival services - through the model clinic program. The process is slow, however, and less well understood at the governorate/district and clinic level than is desirable in some governorates. Model clinics can be identified as any unit, urban or rural, proving successful in implementing the clinic improvement program. Training undergraduates could be an optional activity of Model Clinics (and probably would be for any rural health unit achieving model status). HM/HC can use the MOHP training sites which exist in each governorate, together with any clinic that achieves a high score in the clinic management improvement program, to train students.

Sustainability

The GOE and the project have taken valuable steps to improve the sustainability of child survival activities. Highly significant is the GOE move to assume a greater proportion of the costs every year. But now the GOE must pick up the full costs of vaccines, as it is clear that USAID will fund them no longer. In response to the midterm evaluation, CSP initiated three complex processes that will take many years to complete:

- **Integration:** CSP has made limited progress to date even in integrating CSP components, let alone integrating those components with other related MOHP activities such as family planning training or service standards.
- **Decentralization:** Decentralization to date has meant the development of governorate and district capacity to plan and budget. Decentralization as portrayed in the HM/HC project Paper with delegation to governorates and districts of real authority will require GOE and MOHP policy changes. The significant change identified in the Project Paper may well take far longer than five years.
- **Institutionalization:** Each of the three components has a home in the MOHP, but real institutionalization also means strong constituents and demand. HM/HC must develop a

demand for reproductive health both within the MOHP hierarchy as well as in the community.

Adequate numbers of trained, motivated, supervised, and sufficiently compensated personnel are essential to a sustainable public health program. USAID and MOHP can and are affecting, over the short-term, some of the factors which produce and maintain such personnel. Other factors evolve from public sector policies and traditions which will be changed more slowly; donor support for such change is essential to high-quality, cost effective, sustainable health services.

USAID and the GOE should negotiate pilot testing delegation of authority to the district level. HM/HC should collaborate with the upcoming Health Policy Project, perhaps pilot testing changes in MOHP personnel policies which would support the recruitment and retention of well-qualified personnel, particularly women, in adequate and appropriate numbers throughout Upper Egypt. USAID should work with HM/HC and the Systems Delivery Project to ensure some equity between projects on clinic-level incentives; HM/HC should provide for incentives for MCH personnel at the clinic level using GOE funds, or through clinic revenues, or cost-recovery mechanisms.

The Healthy Mother/Healthy Child Project should include activities to build constituencies for reproductive health within the GOE and MOHP as well as activities to develop demand in the community.

USAID and the MOHP should carefully plan the organizational structure and relationships desired in the new project, including collaboration with the Systems Delivery Project.

1 BACKGROUND

C Early Implementation of Project

In 1985 the United States Agency for International Development and the Ministry of Health (MOHP) signed the Egypt Child Survival Project (CSP) with the purpose of reducing morbidity and mortality of infants, children, and women of reproductive age (WRA). At US\$68 million, it is the largest USAID Mission-funded child survival project in the world. In early 1986 the MOHP and USAID initiated a protracted process to identify a contractor to implement the project under a host country contract with the MOHP. After two years the MOHP signed a contract with Clark Atlanta University (CAU). CAU is a historically black university established in 1988 out of the consolidation of Atlanta University and Clark College (both founded after the American Civil War). In February-March 1990 after the five long-term technical CAU advisors fielded in 1989 had departed, CAU's contract was revised to reduce the number of long-term advisors to the current two positions and to allow CAU to subcontract with other organizations.

The early years of the project were rocky and not productive. There was conflict between the MOHP and CAU; CAU personnel turnover was high. Serious project implementation did not start until mid-1990 after the Minister of Health reorganized the MOHP/CSP structure in October 1989 and the MOHP and CAU renegotiated a new contract in 1990.

The CSP Project Paper called for interventions in the Expanded Program on Immunization, Acute Respiratory Illness, child spacing, and nutrition. In February 1991, the MOHP and USAID agreed to restructure the budget to include hepatitis B vaccinations in the EPI program at a cost of US\$12 million, primarily at the expense of the nutrition component activities and some CS activities. That year USAID and the MOHP amended the Project Paper to “eliminate some activities which had long been considered unrealistic under the project. Activities such as the manufacture and marketing of weaning foods, iron, and micro-nutrient fortification of flour and the renovation of the National Nutrition Institute were dropped. The amendment also refined evaluation and implementation indicators for the EPI and developed new ones for the ARI, CS, and nutrition components in response to a project audit in 1990 that had pointed out the need to develop adequate indicators which would improve project monitoring and performance. An additional adjustment of the project focus was made in March 1992 and involves an agreement by USAID and the MOHP to finance antibiotics for the ARI at a cost of US\$3.6 million. A consequence of this decision has been the elimination of the nutrition component of the project as an administrative component; however, some nutrition activities were

incorporated under the CS component. This amendment also involved the extension of the project for another two years.”³

1 Midterm Evaluation

In November 1992 a nine-person team consisting of four expatriates, one WHO consultant, and four Egyptian experts, undertook a midterm evaluation. Their conclusions and recommendations were as follows:⁴

- 1. Need to plan for sustainability: “the major constraints to sustainability are institutional and financial, not technical.”**
- 2. Management capacity at governorate/district level needs to be strengthened: “The Project*s national approach is not meeting sufficient success at the lower levels of the health care system because of the Project*s centralized management...The Project needs to move more of its resources to provide greater support and flexibility in management, supervision and planning at the governorate/district level to assure smooth service implementation and to assure quality services.”**
- 3. Management information systems and indicators for monitoring project achievements need improvement: The report noted that CSP and MOHP information services are not fully coordinated; it went on to recommend that the two should consolidate disease and health services utilization reporting.**
- 4. Project management needs improvement: CSP should implement proposals to coordinate training by designating a CSP-wide training coordinator, establish a CSP-wide research review committee and use CSP resources to improve MOHP capacity in mass media and utilize as well private media sources.**
- 5. Training can be improved: The evaluators noted that “still more emphasis on practical skills and on-site training, team-building, and more involvement of the universities” was needed.**

1 Response to Midterm Evaluation

Following the midterm evaluation and the arrival of a new Clark Atlanta University chief of party (COP) in response to the midterm evaluation recommendations, CSP sought funding for six crosscutting programs. In 1994 CSP designed and began implementation of the programs which were designed to help achieve CSP*s program objectives and to sustain CSP component programs. USAID and the MOHP signed a second Project Paper

Scope of Work, Final Assessment, January 1996.
Berrawy, Helmy et al. USAID/Egypt Child Survival Project, Midterm Evaluation, DATEX Washington, DC, November 25, 1992.

Amendment which further modified the project indicators to incorporate the evaluation*s recommendations to reflect activities actually being undertaken. In 1994 USAID also agreed to a MOHP request to extend the project for an additional year through August 1996, thus bringing the total life of the project (LOP) to 11 years.

Five programs, presented below, were begun between 1993-1995; the last three were not part of the original Project Paper. This report discusses them in section 5.

- C Health Education and Mass Media**
- C Health Information System**
- C Decentralized Planning and Management**
- C Clinic Management Improvement**
- C Undergraduate Training for Medical Students and Nurses**

The year 1994 marked the initiation of concerted new efforts. Sixty-eight percent of the technical assistance days given to CS/MCH throughout the life of the project has been provided in the last two years. Seventy percent of the health information system/management information system, 61 percent of health education/communication (not including three contracts issued since 1994), and 72 percent of training technical assistance not allocated to specific components have been received during this time.

1 Project Organization and Management

CSP operates through a semiautonomous secretariat under the direction of the first undersecretary of Preventive and Basic Health in the MOHP. Project personnel include MOHP personnel seconded to the project and technical and support staff hired under a contract by both CAU and the MOHP. In April 1996 there were 188 technical and support personnel working full-time on the project and on the project payrolls. CSP also contracts out appropriate tasks to local private sector firms and provides grants to MOHP/GOE entities for specific purposes.

The primary function of the secretariat is to program project resources for use by the MOHP health infrastructure through which the project is implemented. A project director is responsible for all administrative and financial accountability of activities and coordinates crosscutting activities. Each of the three executive directors (of EPI, ARI, and CS/MCH) has authority for technical decisions and reports to the relevant undersecretary.

In addition to the technical assistance provided by CAU, the CSP receives specialized technical assistance from Johns Hopkins University (JHU), the Centers for Disease Control and Prevention (CDC), UNICEF, and WHO.

1 Child Mortality Trends, 1985-1995

Infant and child mortality trends in Egypt are well documented by several national household surveys conducted between 1982 and 1995. ⁵ These surveys provide a variety of estimates covering a period of nearly 40 years. Overall, under-five mortality decreased by 68 percent over the last 25 years, from about 250 per 1,000 live births around 1970 to 81 per 1,000 in the five-year period preceding 1995. The infant mortality rate was reduced by 59 percent over the same period, from 150 to 63 per 1,000 live births.

The table below presents infant and child mortality levels as estimated by the 1995 Demographic and Health Survey⁶ (DHS) for the three five-year periods preceding the survey and the percent decline between two of the five-year periods. The decline was higher for child mortality than for infant mortality. As a result, the proportion of under-five mortality occurring during the first month of life increased from 33 percent to 38 percent.

Table 1

Infant and Child Mortality Rates by Five-year Periods Preceding 1995 DHS, and Percentage Decline between Selected Five-year Periods

Type of Mortality	Years Preceding Survey			Percentage Decline between 10-14 and 0-4 Periods
	0-4	5-9	10-14	
Neonatal Mortality	30.4	43.5	45.4	33.1
Postneonatal Mortality	32.2	38.8	51.2	37.1
Infant Mortality	62.6	82.3	96.6	35.2
Child Mortality	19.2	30.2	46.4	58.6
Under-5 Mortality	80.6	110.0	138.5	41.8

Source: Compiled from 1995 EDHS unpublished preliminary data.

CSP combined the data sets from four household surveys⁷ to estimate recent mortality trends from the late 1970s to the early 1990s, and to document the differentials in levels and trends for the major socioeconomic groups. The pattern of decline was similar for all age groups, with a steady rate from the late 1970s but plateauing in the early 1990s. The decline of the neonatal mortality rate started a few years later than for the other age-groups; however, the rate declined sharply in the mid-1980s. Also, the neonatal mortality rate for the higher socioeconomic groups started to decline earlier, and from a lower initial level. As a result, the socioeconomic differentials were the highest during the mid-1980s, and narrowed in the early 1990s.

Table 2 presents some of these differentials for the ten-year period preceding the 1995 DHS. The most striking differences appear for child and postneonatal mortality and according to the levels for maternal education. A combination of these socioeconomic factors would yield even higher differentials. Given the large proportion of children born to mothers with no formal education and in rural areas, for instance, these data indicate where priority for further efforts to reduce infant and child mortality in Egypt might be directed.

Table 2

Infant and Child Mortality Rates for the Ten-year Period Preceding 1995 DHS, by Selected Background Characteristics

a) the 1980 World Fertility Survey, b) the 1988 Demographic and Health Survey, c) the 1991 Pan-Arab Project for Child Development, d) the 1992 Demographic and Health Survey, and e) the 1995 Demographic and Health Survey.

Unpublished preliminary data.

The 1995 DHS data were not yet available for this analysis. The inclusion of these data sets will allow the establishment of trends for three additional years, and make projections for the years to come.

Background Characteristics	Infant and Child Mortality Rates				
	Neonatal	Postneonatal	Infant	Child	Under-5
Place of Residence <i>Urban</i>					
Region of Residence <i>Urban Gov.</i>					
Maternal Education Completed <i>Secondary</i>					
Total	37.2	35.6	72.9	24.8	95.9

Source: 1995 EDHS

Household surveys do not provide reliable cause-specific mortality estimates. The Egyptian vital registration system does collect causes of death and produces trends in cause-specific infant mortality, but underreporting and misclassification problems make it difficult to interpret these data. CSP undertook a study to estimate these biases by comparing vital registration and household survey data coupled to verbal autopsies interviews. This study showed that after 1989 there was a significant decrease in diarrhea specific mortality for children 1 to 4 years old.

The data on trends and differentials in infant and child mortality raise the key question of their relationship with the child survival interventions. Historical trends in the coverage of tetanus immunization, use of oral hydration therapy, and treatment of pneumonia are consistent with the hypothesis of a direct causal relationship. More convincing evidence requires individual level data on the use of interventions and health outcomes, however. The CSP recently initiated a study⁸ to address this question. Several cross-sectional surveys will document the morbidity and mortality experience of about 6,000 households in two governorates, as well as the use and the quality of health services.

1 EXPANDED PROGRAM ON IMMUNIZATION (EPI)

An immunization program is one of the most cost-effective weapons for disease prevention. Egypt has used this weapon well. EPI is widely, and deservedly, recognized as the most successful component of CSP.

1 Goals and Outputs Review

The goal of the EPI program is to reduce morbidity and mortality resulting from the seven most dangerous diseases that affect children early in life: polio, diphtheria, tetanus, pertussis, measles, tuberculosis, and hepatitis B. The Child Survival Project objectives for the end of 1995 related to this goal were

- Zero cases of confirmed indigenous poliomyelitis;
- 80 percent reduction in neonatal tetanus cases;
- 90 percent immunization coverage nationwide and 80 percent coverage in each health district;
- 70 percent immunization coverage of pregnant women;
- A national program providing effective vaccines to 3,300 vaccination centers;
- Local production of EPI vaccines that meet standards set in the manual, "Good Manufacturing Practices";
- 80 percent of primary health care staff trained in EPI; and
- An improved EPI management and information system.

Managed by the communicable disease department of the MOHP and CSP, the EPI program has either attained, or almost attained, all of these objectives. Findings regarding each objective are included in Appendices B and C. Two noteworthy achievements are the following:

1. ~~Seventy-nine percent of health districts are polio-free. In 1995 only 71 confirmed cases were found, down from 550 in 1988. If current strategies, including National Immunization Days and Polio Mop-up campaigns, are sustained, and if the sensitive surveillance system that is capable of detecting all cases of acute flaccid paralysis continues to improve, Egypt should attain its "zero confirmed cases of polio" objective by 1997.~~
2. ~~Vaccination coverage has been maintained at more than 80 percent since 1988. At least 83 percent of 231 health districts have achieved 80 percent coverage. The 1995 EDHS reported 79 percent fully immunized coverage (excluding HB3). A comparison of the 1995 service and survey data are shown in table 3.~~

The Two Governorates Linkage Survey. The fieldwork of this study was started later than expected in November 1995 and will end in November 1996. Preliminary results from the first round survey are already available, but the first results on the impact of interventions are expected by mid-1997.

Table 3

1995 EPI Service Statistics and DHS Survey Data

	BCG	Measles	OPV3	DPT3	HB3	TT
EPI's IHS Service Statistics	94%	90%	91%	89%	91%	70% (TT2+)
DHS Survey Data	95%	89%	84%	83%	57%	70% (TT1+)

The reason for the 34 percent difference between service data and survey data for HB3 has not yet been satisfactorily determined. The difference may indicate a shortage (or underuse) of the hepatitis B vaccine by health units coupled with some over-reporting of vaccinations given. While EPI says that there has been no shortage of the hepatitis B vaccine, there was a temporary shortage of DPT when a vaccine shipment from abroad was returned. Since the hepatitis B vaccine and the oral polio vaccine are given at the same time as DPT, a shortage of DPT usually results in decreased HB3 and OPV3 coverage. The EPI executive director says that he is investigating this discrepancy and will take corrective action if necessary.

The long history and many achievements of the EPI program are too numerous to include in this report. They have been well documented in a report entitled *The Expanded Program on Immunization in Egypt - 1984 to 1994* (see Appendix G for excerpts from this report).

1 Effectiveness at the Clinic Level

EPI is effectively providing vaccines to 3,500 vaccination units including virtually all primary health care clinics. The *1993 EPI Cold Chain Evaluation* report (see Appendix G for a summary of findings and recommendations) noted that 95 percent of vaccination units surveyed were effectively maintaining the cold chain. Assessment team visits to health units confirmed this finding. The cold chain is currently in an excellent state of repair due in large part to CSP's provision of equipment, spare parts, training in cold chain maintenance, and some fuel for supervision purposes.

After the end of the CSP, governorates will be expected to maintain the cold chain from their own budgets. While the commitment to sustain EPI is strong at all levels of the health system, the lack of experience in decentralized budgeting and management could result in decreased cold chain maintenance. An important role of the national EPI department will be to assist governorates and districts in monitoring the cold chain, in estimating and budgeting cold chain needs, and in establishing links to appropriate donors, if necessary, to assist with replacement of aging equipment. This role should be supported, as appropriate, by the Healthy Mother/Healthy Child Project.

The assessment team found impressive displays of EPI charts and local coverage data at almost all health units, both in renovated and non-renovated facilities. There was a good division of responsibility for EPI among health facility personnel (sanitarians, clerks, nurses, and physicians), and an obvious pride in the achievements of their EPI program.

A few minor problems which were observed or reported included varying policies about when to open a 40-dose BCG vial; occasional stock-outs (usually for BCG vaccine and syringes); and an insufficient number of nurses trained in BCG vaccinations.

CSP established EPI service standards as part of the Clinic Management Improvement Program. These standards are currently being used in large urban centers. According to CSP, the standards could easily be adapted and used in all health units. (See section 5.6, Model Clinic and Pilot Clinic Management Improvement Program.)

1 Effectiveness of the Surveillance System

The EPI management information system (MIS) has been significantly improved in many areas: monitoring vaccine supply/distribution and the cold chain; immunization coverage analysis; and disease surveillance, especially, for acute flaccid paralysis (AFP) and neonatal tetanus (NNT).

The surveillance system for acute flaccid paralysis is well established. The system is based on WHO's calculation of the incidence of non-polio AFP in Egypt is 1 per 100,000 or 225-250 cases per year in children under 15 years. Therefore, tracking down these non-polio AFP cases (and real polio cases, if present) is a good measure of the quality of the polio surveillance system. The 139 cases of non-polio AFP reported in 1995 represent 62 percent of the target of 225. This is a significant improvement over 1994 when only 80 cases (36 percent of the target) were identified. It is important for EPI to search vigorously for unreported cases of AFP and sustain active and routine AFP surveillance; it would be appropriate and useful to enlist the assistance of the Field Epidemiology Training Program.

Neonatal Tetanus surveillance includes immediate reporting from 95 fever hospitals and zero reporting (regular reporting even when no cases are found) from all primary health care facilities. An 89 percent reduction has been achieved with 790 reported cases of neonatal tetanus in 1995 compared to 7,256 in 1988). Seventy-six percent of districts (184 of 231) now have less than one reported case per 1,000 live births. However, there is an estimated 40-50 percent of under-reporting of neonatal tetanus cases, primarily for girl children.

1 Future USAID Support

The first draft of a report called *EPI Plan of Action for the Period 1996-2000* has been prepared by CSP. Seven priority areas for future EPI program development are identified in this plan:

1. Sustain routine immunizations at 90 percent of eligible children;
2. Achieve reduction targets for polio, neonatal tetanus, and measles;

3. Decentralize cold chain systems and their management (and maintenance);
4. Conduct relevant research;
5. Develop surveillance and epidemiological skills further;
6. Improve vaccine production and quality control; and
7. Introduce new vaccines as appropriate.

Priorities 1-4 are activities which could easily be justified and supported in the Healthy Mother/Healthy Child Project by providing assistance at the district level in the governorates of Upper Egypt. Research at this level would concentrate on problem-solving operations research, for example

- how to maintain the cold chain using local resources;
- how to ensure distribution of EPI bulletins within governorates;
- how to identify the most effective means of reaching, convincing, and motivating parents;
- how to modify or circumvent harmful traditional practices for neonatal and measles;
- what is the best way to use EPI contacts with mothers for other MCH activities; and
- how to mobilize communities for effective disease surveillance.

Priorities 4-6 are activities that USAID could support on a national scope through the General Directorate of EPI and through FETP. Research at this level should address issues of disease surveillance and EPI program support that are best studied on a national scope, such as

- measuring the effectiveness of immunizations in reducing disease incidence;
- methods to identify persistent polio virus transmission in immune populations; and
- KAP studies on the management of measles in the community.

While the EPI program already enjoys strong support at the national level, transitional problems after the end of CSP will be inevitable. The continued provision of technical assistance from WHO and the FETP would help smooth this transition for EPI and provide assistance for the polio-free certification procedure.

1 Conclusions and Recommendations

Lessons learned from EPI which are particularly relevant to the Healthy Mother/Healthy Child Project are as follows:

- Training and division of responsibility in technical and management skills should involve all personnel (sanitarians, clerks, nurses, and physicians) to avoid an over-dependence on "short-term" physicians. This strategy could be applied to other elements of primary health care, such as the integrated treatment of the sick child.
- EPI ensures a fixed number of opportunity contacts with mothers. These contacts could be used as points of integration for other MCH services, e.g., health education and child spacing.
- The strengthened disease surveillance capacity of the MOHP for AFP and neonatal tetanus could be extended to other diseases and conditions, e.g., measles and tuberculosis.
- EPI is more decentralized than any other PHC component. However, given the geography, demography, and economics of the health system, it will be important to further decentralize authority for PHC program planning and implementation. EPI provides a starting point for decentralization of MCH activities.

Recommendations:

1. CSP should document, and the Healthy Mother/Healthy Child Project should take into account, the potential for using the existing physical, administrative, and personnel structure of EPI, particularly, at the district and health facility levels, as a starting point for decentralization, coordination, and integration of MCH services.
2. USAID should assist EPI activities (training, cold chain maintenance, supervision, IEC, and operations research) that are within governorates that are assisted by the Healthy Mother/Healthy Child Project. USAID should also continue to support disease surveillance, health information systems, donor coordination, and appropriate research at the national level.

1 ACUTE RESPIRATORY TRACT INFECTIONS (ARI) PROGRAM

1 Goals and Outputs Review

CSP has done an excellent job in dealing with the complexities of creating a national ARI control program and in providing the support components for such a program, including planning, manpower development, equipment, a supply line, an information system, and research.

The goal of the ARI program is to reduce mortality and morbidity due to acute respiratory illnesses, especially pneumonia. Project objectives related to this goal which were to be achieved by the end of 1995 include:

- 25 percent reduction of infant mortality due to ARI by 1995 (baseline: 13/1,000 in 1989);
- 70 percent of mothers aware of risks of ARI;
- 80 percent population with access to standard case management (SCM) of ARI;
- 80 percent of primary health care staff trained in ARI;
- 60 percent of trained physicians who prescribe for ARI using SCM;
- An effective management information system for the ARI control program; and
- 50 percent of mothers, who are aware of ARI risks, seek timely care, comply with treatment, and practice proper home treatment of mild ARI.

The ARI control program has achieved most of these objectives. Findings for each objective are included in Appendix B. Findings for selected objectives, identified in the Scope of Work, are discussed in the following sections.

1 Extent of Implementation

The establishment of a ARI detection and treatment program in all 27 governorates is impressive. The number of primary health care facilities and hospitals using standard case management to treat ARI increased to 3,082 by the end of 1995 and are providing access to treatment to 87 percent of the population. The evolution of selected program activities are shown in table 4.

Table 4

Progression of Selected ARI Activities

	1990	1991	1992	1993	1994	1995	Total
Population Access to SCM for ARI							
No. of PHC Physicians Trained							
No. of Nurses Trained							
% of Facilities Reporting ARI SCM							
No. Amoxicillin (250) Doses							

Source: CSP

1 Clinic and Community-based Strategies

The most important element of the ARI strategy is to distinguish pneumonia from other respiratory infections in order to provide prompt treatment. The standard case management provides this capability through early recognition of pneumonia by families and health workers; antimicrobial treatment at home or referral to a hospital; and supportive measures. Because the standard case management for ARI is based primarily on counting the respirations of a child, rather than on stethoscopic diagnosis (as traditionally taught in medical schools), the ARI program is not only obliged to teach physicians the standard case management, but must also convince them of its validity. This is not always an easy task. However, through project efforts, standard case management for ARI is now well accepted at all levels.

The 1993 ARI health facility survey found that 69 percent of trained physicians were prescribing correctly; that is, prescribing antibiotics when they were needed and not prescribing antibiotics when they were not required. Findings from the 1995 health facility survey indicate this rate has increased to 80 percent. Additionally, antibiotic abuse (percentage of times that antibiotics are needlessly prescribed) has decreased from 42 percent in 1993 to 30 percent in 1995. Some additional uncounted "abuse" probably exists, however, when antibiotics provided for treatment of ARI are used to treat non-ARI cases.

CSP established ARI service standards as part of the Clinic Management Improvement Program. These standards are currently being used in large urban centers, but according to CSP, these standards could easily be adapted and used in all health units. (See 5.6 Model Clinic and Pilot Clinic Management Improvement Program.)

Drug Selection and Treatment Strategies

The national ARI program adopted amoxicillin as its drug of choice, although cotrimoxazole is the therapy used in most countries in ARI control programs because of its lower cost. Amoxicillin was chosen, according the ARI Bulletin #1 (February 1995) for two reasons: 1) in order to avoid a possible negative impact on the program which might have occurred if there had been even a single case of cotrimoxazole reaction in children with G6PD deficiency and 2) its effectiveness as concluded by clinical practice. 9

The distribution of ARI drugs, especially amoxicillin, to health facilities has not always been equitable. Health facilities in several governorates visited by the assessment team had stock-outs of amoxicillin for more than six months. Such inequities may be expected to continue, or even increase, as CSP funding for amoxicillin ends. The MOHP has budgeted LE 2 million for 1996-97 for the procurement of ARI drugs for pneumonia and streptococcus pharyngitis. This will cover about 60 percent of the LE 3,400,000 needed to procure the quantities of ARI drugs required for the current treatment strategies. (This budget for antibiotics is for the ARI program needs and does not include additional antibiotics provided routinely by the MOHP to primary health care facilities.)

Initially, the MOHP policy was that drugs, especially amoxicillin, should be made available free of charge. However, because of the issue of sustainability, the current policy is that when ARI drugs are not free, they should be made available at affordable prices. Amoxicillin is currently available in pharmacies at a reasonable cost. This is one way to deal with future shortages of ARI drugs. But, this policy appears to be making physicians somewhat complacent about stock-outs: when there is no amoxicillin they just write a prescription. Unfortunately, it is not known what percentage of written prescriptions are actually bought by parents from private pharmacies, although many doctors mentioned that parents would buy them, especially if a child is seriously ill.

An alternative approach has been outlined in the *ARI Plan of Action for the Period 1996-2000*, a report that presents five cost-saving alternatives (see table 5). For example, by restricting the use of amoxicillin in the treatment of pharyngitis, it would be possible to reduce the ARI drug budget to LE 2,443,000. Or by limiting free treatment to only children with pneumonia, the drug budget would drop to LE 1,155,000. It appears, therefore, that the MOHP allocation for ARI drugs would be adequate if one or more of these cost-saving strategies were applied.

A study of the proportion of Egyptian children with ARI who were treated with cotrimoxazole and who experienced a serious episode of hemolysis related to G6PD was considered at the beginning of the project, but not conducted.

Table 5**Cost-saving ARI Treatment Strategies**

	Estimated	Total LE
Current Strategy: Use amoxicillin for pneumonia, otitis media		
Alternative 1: Use amoxicillin for pneumonia and otitis media,		
Alternative 2: Use amoxicillin for pneumonia, otitis media and		
Alternative 3: Use amoxicillin for pneumonia, otitis media and		
Alternative 4: Limit free treatment to children with pneumonia.		
Alternative 5: Limit treatment to children with pneumonia,		

Source: ARI Plan of Action for the Period 1996-2000

1 ARI Training

During the period 1990-1995, CSP trained 12,772 physicians and 9,774 nurses in the standard case management of ARI. Based on this figure, CSP estimates in its Final Report that 80 percent of the primary health care physicians who are permanently in the program (not counting physicians temporarily assigned for up to a year to a primary health care facility) have been trained in ARI. See section 5.2 for a detailed discussion of ARI training.

During field visits by the assessment team, it was noted that fewer than 30 percent of physicians had received any of the four ARI bulletins published during 1995. (The percentage of physicians who had received EPI newsletters was only slightly higher.) Preliminary results from the 1995 ARI health facility survey indicate that only 18.5 percent of physicians had seen the last ARI newsletter. While these publications are of excellent quality and produced in sufficient quantity, their distribution system is one problem which CSP has failed to resolve.

1 Mass Media for ARI

The 1995 Knowledge, Attitudes, and Practices (KAP) Survey found that 72 percent of mothers recognized difficult or rapid breathing (or both) as a danger sign for ARI. This is compared to 25 percent recognition in a 1991-92 survey. However, when asked about just one type of breathing, only 37.6 percent cited rapid breathing as a danger sign, and some mothers treat it as less serious than difficult breathing. While this percentage is still too low, it represents a significant increase when compared to the low rate of 6.8 percent recognition previously noted by the 1991-92 survey. Regarding treatment compliance, 75 percent of women considered an ARI return visit necessary, but only 57 percent made such a return visit, and only 26 percent made the visit within the recommended three days.

CSP's mass media activities aimed at improving the knowledge and practice of parents toward ARI are reported and discussed in section 5.5, *Mass Media and Health Education*.

1 Applied and Operations Research

Research has been of a very high quality and generally relevant to the technical issues of establishing a prototype national ARI program. Appendix H presents the topics which were undertaken by CSP with the technical assistance and collaboration of the School of Hygiene and Public Health of Johns Hopkins University, the U.S. Centers for Disease Control and Prevention, medical schools at Egyptian universities, and governorate health directorates.

The midterm evaluation of CSP noted, however, that not enough problem-solving operations research has been encouraged at the governorate or district level. Problem-solving operations research should really take place at the level of operations health facility and district. However, district and governorate strengthening through CSP decentralization efforts has not yet had sufficient impact to make this practical. This should become feasible during the Healthy Mother/Healthy Child Project.

Examples of problems and questions related to ARI which might be addressed by operations research at the district and governorate level might include

- C How to ensure distribution of the ARI bulletin during supervision visits;
- C What percentage of cases in which a parent/caretaker who was given a prescription for ARI treatment actually bought the medication; and
- C How to use the contacts for ARI treatment for integration of other MCH activities.

1 Institutionalization

CSP efforts to institutionalize the ARI program have been appropriate. The following project activities are particularly relevant to this point:

- The ARI case registration system is being incorporated into the MOHP health information system;
- The *ARI Action Plan for the Period 1996-2000* has been accepted by the MOHP;
- The Minister of Health has issued a decree to establish a General Directorate for the ARI Control Program under the Department of Primary Health Care; and
- The Minister of Health has authorized an operating budget of LE 500,000 to cover some of the costs of the ARI program.

According to CSP, the MOHP needs to continue this process at the national level by appointing a director for the proposed General Directorate of ARI.

1 Future USAID Support, Conclusions and Recommendations

The ARI *Plan of Action for the Period 1996-2000* has been approved by the MOHP. This document discusses the future program activities and budgetary needs of ARI.

The ARI program will need continued support from USAID to ensure that it becomes fully integrated within the MOHP. USAID's support to the Healthy Mother/Healthy Child Project for training, supervision, and equipment can easily be justified at the district level in the governorates that are assisted by the HM/HC project. USAID support for communication, monitoring, surveillance, and selected evaluation and research can be justified on a national scope.

The following lessons learned from the past six years of the ARI program have been identified by CSP (see Appendix H for more details):

- Identifying sound technical strategies/policies is as important as having financial resources;
- Managerial activities for case management strategies must be defined;
- Decentralizing planning and implementation increases management efficiency;
- Quality and quantity are important in planning and implementing training activities;
- Communication must lead to measurable changes in behavior and practices;
- Having equipment without a maintenance and repair service is a waste of funds;
- Monitoring case management depends on a regular flow of field data;
- Surveillance and research maintain the technical effectiveness of the strategies;
- Involving leading professionals facilitates the introduction of a new program;
- Increasing awareness and care seeking is counterproductive when services are not prepared to deliver the standard case management nor provided with a supply of antibiotics.

It is particularly noteworthy that the successful implementation of the standard case management for ARI means that the second (the first being Oral Rehydration Therapy) component of an “integrated treatment of the sick child” strategy is in place. The Healthy Mother/Healthy Child project should build on this strong foundation laid by the ARI and ORT program.

Recommendations:

1. CSP should document, and the Healthy Mother/Healthy Child Project should take into account, how an integrated treatment of the sick child strategy can be developed around existing ARI activities.
2. The MOHP, and the Healthy Mother/Healthy Child Project, should decentralize ARI supervision to the district level while strengthening on-the-spot training. ARI bulletins should be distributed during supervision visits, and their presence should be an indicator of supervision quality.
3. The Healthy Mother/Health Child Project should emphasize operations research as a problem-solving and management tool to assist in strengthening and supervising health district management teams.
4. CSP and the MOHP should review existing ARI treatment protocols and the ARI cost-recovery policy with respect to the cost-saving treatment strategies proposed by the *ARI Plan of Action for the Period 1996-2000*.
5. USAID should assist ARI activities such as training, supervision, purchasing equipment, IEC, and operations research within governorates assisted by the Healthy Mother/Healthy Child Project, and support ARI surveillance (case reporting and antibiotic resistance), mass media, and research/evaluation at the national level.

1 CHILD SPACING AND THE MATERNAL AND CHILD HEALTH PROGRAM

1. Goals and Outputs Review

USAID and CSP introduced the maternal mortality ratio as an indicator of goal achievement in 1991, and then in 1994 set as a target “a 15% reduction between 1988 and 1995.” The 1988 baseline, established as an expert estimate based on several local studies, was 220 maternal deaths per 100,000 live births. The National Maternal Mortality Survey (NMMS) conducted by CSP in 1992-93 provided the first reliable annual measure of the national maternal mortality ratio in Egypt. It estimated the maternal mortality ratio at 174 maternal deaths per 100,000 live births, with a 95 percent confidence interval of 162-187. These two measures indicate a 21 percent reduction in maternal mortality ratio between 1988 and 1995.

The CSP logframe includes only one purpose level indicator relating to maternal mortality reduction: the percentage of pregnant women receiving prenatal care. The target level of 60 percent was not achieved, but there is evidence for an increased prenatal care coverage. The CS/MCH component of CSP is also accountable for a breastfeeding objective: “70 percent of mothers correctly breastfeed their babies for at least four to six months and utilize appropriate weaning food in addition to breastfeeding.” The 1995 EDHS found that 68 percent of the infants under four months received breast milk only and that 72 percent of infants four to nine months received supplements, liquid, or solids in addition to breastmilk. The 1992 EDHS found 54 percent and 68 percent respectively for the same indicators. These data show an improved pattern of exclusive breastfeeding and timely introduction of complementary food.

The CS/MCH component of CSP is also accountable for the expected output of an “expanded and improved MCH system reaching pregnant women,” which is measured by five indicators:

- C 80 percent of PHC physicians trained in providing improved MCH services;
- C 80 percent of dayas in Lower Egypt adequately equipped and trained in safe delivery, postnatal procedures and referral for family planning, prenatal, and immunization services;
- C 200 hospital delivery rooms and 100 neonatal care centers providing improved obstetrical and neonatal care and 150 MCH laboratories upgraded;
- C Development of a MIS for the neonatal program; and

- C 80 percent of primary health care physicians and nurses knowledgeable about proper maternal nutrition practices, including breastfeeding, weaning, prevention of anemia, and diarrheal case management.

CSP provided training in a variety of MCH topics to as many primary health care physicians as there are in the MOHP's PHC units in any year. But the target cannot be considered as achieved because of the high turnover of this category of personnel. (See Appendix J for a breakdown of the number of physicians trained by governorate and year in relation to the number of women of reproductive age.) The recent MCH facility survey showed that less than 50 percent of the general practitioners in the MCH services in 1995 had been trained in "Child Spacing and Prenatal" practice. CSP also trained primary health care physicians in specific nutrition topics, such as lactation management, but that was a much smaller number. This specific target has therefore not been achieved either.

The CS/MCH component reached the target of 9,000 dayas in Lower Egypt who are trained in a variety of child survival, family planning, and safe delivery issues. This number corresponds to the target of 80 percent of the dayas in Lower Egypt.

CSP provided nearly 200 hospitals with standard obstetrical and neonatal equipment for their delivery rooms and also renovated many of them. In general, the obstetrical equipment installed in the delivery rooms is used more often than the neonatal equipment. CSP also established neonatal units in nearly 100 hospitals; these units provided care to about 12,000 newborns in 1995. The MIS for the neonatal care program provides relevant data on a timely basis. Finally, the CSP provided equipment and renovation to more than 150 MCH laboratories, and most of this equipment is in use. This facility/equipment target covers several subprograms of the CS/MCH component of CSP; and overall, can be considered as nearly achieved, even though the new equipment is not used as frequently as expected.

1 Daya Program

CSP developed its daya program in 17 Lower Egypt and Frontier governorates, and in close coordination with UNICEF, who supported a similar program in Upper Egypt. From 1989 to 1995, CSP trained about 4,800 nurses and physicians as daya supervisors or trainers. They registered, trained, equipped, certified, and supervised about 9,000 dayas and started refresher courses in 1995. This high trainers/trainees ratio shows the investment made in building capacity to conduct the daya program at the local level, although it is not clear from this data whether appropriate MOHP officials at the governorate level were included in the training workshops and contributed to supervisory activities. It may also reflect the high turnover of MOHP staff and the need to constantly train new trainers and supervisors.

The CSP daya program was actually conducted in about 100 districts of the 17 Lower Egypt and Frontier governorates, leaving about 60 districts as yet untrained by the project—that is, without

trained daya trainers/supervisors and therefore without recently trained dayas.¹⁰ The total number of dayas trained in those 100 districts corresponds, however, to the target set initially in the CSP Project Paper for the whole country. CSP adopted it later on for Lower Egypt when the focus of the CSP daya program was restricted to Lower Egypt. Although it is recognized that the actual number of dayas is difficult to know, the question of the possibility that some women without an actual background as a daya were trained must be raised here.

Overall the training curricula, methods and materials of this program are adequate (see Appendix J). The information system developed by CSP for the daya program is definitely useful for monitoring dayas activities at the primary health care unit level, and for supervision of the program by the CSP coordinators. Because of the large underreporting, however, one cannot use the system to quantify the services provided by the dayas on a larger scale, nor to determine trends in their activities. Nonetheless, analysis of these data at the local level should provide such information and allow extrapolation.

Table 6, with data from the 1995 KAP Survey, suggests the importance of dayas in Egypt.

Table 6

Daya Deliveries According to the 1995 KAP Survey

	Lower Egypt (USAID)		Upper Egypt (UNICEF)	
	Urban	Rural	Urban	Rural
Mothers assisted by daya at last delivery	14%	46%	47%	60%
Among those mothers:				
MOH trained daya	44%	55%	49%	44%
Not trained daya	39%	38%	33%	46%
Mother didn't know if daya was trained	16%	7%	18%	10%
Daya had MOH delivery kit	31%	47%	35%	28%
Daya did not have delivery kit	54%	47%	49%	63%
Mother didn't know if daya had kit	15%	5%	15%	8%

Source: 1995 KAP Survey

MOHP officials at the governorate, district, and clinic levels recognize a positive impact from this program on daya referral patterns, and on clean delivery techniques. Focus groups that were performed in 1995 for the final evaluation of the CSP daya training program confirmed that mothers who had recently delivered do respect dayas. These groups also indicated that the advice given by dayas on child survival, family planning, and safe delivery was useful, thereby highlighting the benefits of such training.

The team does not know the location or total population of these districts; it would be useful, however, for USAID to ascertain what percentage of the population of Lower Egypt and the Frontier governorates remains without trained dayas.

In fact, there is relatively little information on how home deliveries are handled in practice - the process and interaction between daya, delivering woman, and her immediate family who may be present. Such information is needed for the HM/HC IEC efforts, particularly for home deliveries in rural Upper Egypt, where maternal mortality is high and the percentage of live births delivered at home during the five years prior to 1995 was 86 percent.¹¹

The daya training and supervision system established in Lower Egypt was well conceived and implemented. All the selected governorates have received technical assistance and training and should have the capacity to continue the training and supervision of the dayas who work in districts that are not yet covered by the program. Health workers now recognize and accept dayas better, dayas in turn are more inclined to refer women and their children for health services. The success of the program now relies on routine supervision and regular refresher courses at the health unit level.

The CSP staff should make sure that each governorate where the program was implemented actually has the capacity to train and supervise dayas. Governorate and district health directors should then ensure that the trained daya supervisors/trainers are actually continuing these activities as part of their routine work. Central level support should be reduced/phased out. Also, the HM/HC project should promote undergraduate and/or postgraduate training and licensing of midwives.

USAID should fund ethnographic research in Upper Egypt on attitudes and practices related to pregnancy and childbirth.

1 Neonatal Program

CSP started to install neonatal units in the MOHP hospitals in 1990. In 1992 the CSP Neonatal Program adopted a more comprehensive approach, identified the main clinical problems of the newborn in Egypt, and adopted standardized protocols for the MOHP hospitals. The recently published "Guidelines for Egyptian Hospital Nurseries" presents these programmatic options and will be the basis for further training and implementation of this program.

The Neonatal Program established a comprehensive network of trained physicians and nurses, trainers, field implementation officers, training sites linked to universities, and neonatal units in 75 MOHP hospitals in 26 governorates. It selected these hospitals on the basis of operational criteria such as surrounding population, commitment of hospital directors, available space, and staffing. Many other hospitals are now requesting support from CSP to establish a neonatal unit and public, and professional interest for these services is high. CSP provided specialized equipment, practical training (see Appendix J), networking opportunities (including a newsletter), and supervision. On the basis of the published service standards, CSP is currently completing a systematic review of all the neonatal units established by the Neonatal Program

1995 DHS, preliminary unpublished data to be published by Macro International in September 1996.

through site visits by field implementing officers. Pending the results of this review, and allowing for uneven performance across the hospitals, the current 75 neonatal units can be considered as equipped, the staff trained, and the equipment put to use.

A simple and adequate information system based on routine reporting from each neonatal unit collects data on activity and performance. The monthly reports include number of admissions, gender, weight, age, location of delivery, standardized admission diagnosis, days spent, and outcome. Over 90 percent of units regularly report to CSP, whose staff enters and analyzes the data. In 1995, the CSP neonatal units provided care to a total of 12,459 newborns. Appendix I presents preliminary results prepared by CSP from data covering 18 months, from July 1994 to December 1995. The Decentralized Health Information System now includes the Neonatal Program information system (see section 5.4).

The future challenges for the Neonatal Program include improvement of the quality of care, collaboration with obstetrical and MCH services, maintenance of the specialized equipment, effective support from hospital administrators, need for more training of current and future staff, extension of coverage to the estimated needs of 2,000 beds in three to four times as many units, and linkage with the Curative Sector of the MOHP.

CSP has made commendable progress in promoting neonatal care units in MOHP hospitals. This innovative program has now built enough expertise and collected enough valuable data to assess the cost effectiveness and sustainability of the neonatal units in the MOHP hospitals.

The MOHP, with USAID support, should complete the evaluation of the performance of the neonatal units before the end of the CSP project in order to ensure that all the epidemiological and programmatic information now available can be analyzed and used with the CSP staff. This should include analysis of outcome by admission diagnosis, place of birth, type of attendants at birth for those born outside the hospital, gender, quality of care, and geographical location of the units. This analysis should provide comparison of the results with those from population-based studies in Egypt (Low Birth Weight Study, Two Governorate Linkage Survey, 1995 DHS, etc.), from neonatal units in universities and private hospitals, and from international literature. Plans to improve, extend, and sustain the current network of neonatal units should be developed on the basis of such an evaluation; pending those conclusions, USAID should continue funding of the Neonatal Program at the central level for the established units in order to bring them up to the adopted standards.

USAID should assist the MOHP in developing an analytical framework to establish priorities for neonatal mortality reduction for the country or any particular governorate. The results of the complete evaluation of the Neonatal Program should be compared with other potential interventions such as the extension of the coverage of effective antenatal care and maternal nutrition supplementation, improvement of the use and quality of facility-based delivery care and normal neonatal care, improvement of obstetrical emergency referral and care, and community-based improvement of home delivery and neonatal care.

In the HM/HC targeted governorates, the Neonatal Program should provide specialized technical assistance to neonatal units as one of the components of the district plans.

1 Delivery Rooms and Laboratories

CSP funded and installed equipment in nearly 200 delivery rooms of first-referral obstetrical facilities which CSP advisory teams subsequently visited. The obstetrical equipment is used to a larger extent than the neonatal resuscitation table (we refer here to the table in the delivery room in contrast to the neonatal resuscitation equipment in neonatal units). Although the choice of the equipment purchased by the project was generally appropriate, the lack of a comprehensive program for services improvement in these delivery rooms jeopardizes the potential impact of this intervention. All aspects of obstetrical services in primary health care and first referral hospitals should be analyzed in order to develop and implement effective plans for maternal and perinatal mortality reduction. This will be discussed further in section 4.5.

CSP equipped, often renovated, and visited nearly 200 MCH laboratories, and trained about 700 technicians. This assessment team observed that the basic laboratory equipment is used, while in many instances the more technologically advanced equipment is not. For example, spectrophotometers were purchased and installed as standard equipment for MCH laboratories, but they have not been fully used in all the laboratories where they were installed. This expensive piece of equipment was mainly chosen because it accurately determines hemoglobin levels; however, it requires specialized training, maintenance, and reagents. There has not been comparative analyses of alternative methods of anemia screening in the current MCH services setting. Also, the case management of anemia in the MCH services is not well developed in any of the training materials for PHC physicians and obstetricians.

USAID should assist the MCH department to conduct an evaluation of the determinants of use and effectiveness of MCH laboratories. The presence of quality equipment and trained technicians in many MCH laboratories, but not in others, can be used to compare the operational and clinical outcomes of laboratories in MCH services. In the laboratories where spectrophotometers are used effectively, CSP and the MCH department should perform comparative analyses to determine the relative advantages of alternative methods for anemia detection.

Using data from the existing laboratories, the MOHP should develop standards and care-management protocols for primary health care physicians on how to use MCH laboratories, on the basis of screening and cost-effectiveness principles. These standards should be distinguished from those for curative services. Future equipment and training for MCH laboratories should be based on those standards. The MCH department should maintain a capacity to evaluate and develop standards for the MCH laboratories in Egypt, but supervision and maintenance of their individual operations should be under the responsibility of the governorate and district health directorates. The MCH department may also need to coordinate the procurement of specialized equipment.

1 Strategies to Address Maternal Mortality

CSP conducted the National Maternal Mortality Survey (NMMS) in Egypt in 1992-1993. This study not only established a reliable estimate of the maternal mortality ratio for the country, but also drew the light on the main causes of maternal deaths and avoidable contributing factors. Equally important, the design and the depth of this study involved many health officials and professionals and definitely increased awareness of maternal health issues in Egypt. To date, it is only available in English.

Although isolated activities were conducted by CSP in response to the conclusions and recommendations of the NMMS, there has not been any comprehensive analysis of the programmatic implications of this study. CSP produced one document entitled "Reproductive Health and Safe Motherhood in Egypt," which constitutes a plan for continuing current project activities related to maternal health beyond the end of the project. It cannot be considered as a national plan for maternal mortality reduction since it is probably not feasible without the current project structure and resources.

Another document (in Arabic) was recently developed by the MCH that does not assume an extension of the CSP activities. As it is issued by the MCH department, it appropriately identifies activities to establish links with the Curative Sector but does not include specific activities to improve obstetrical services in first referral hospitals.

Finally, the MCH department and UNICEF recently sponsored three workshops in Assuit, Minia, and Sohag as a start-up activity for their HM/HC project. These workshops set a useful example of decentralized planning on which future national level policies and plans for maternal mortality reduction could be based.

The NMMS should be translated into Arabic and distributed. USAID should support further analysis of the NMMS data such as: the effect of the socioeconomic factors in the level, causes, and avoidable factors of maternal mortality; the role of the MOHP versus the private hospitals in the causal chain of maternal mortality; and the interaction between avoidable factors. A second NMMS will allow the evaluation of changes in maternal mortality, in the structure of the causes of death, or in the frequency of avoidable factors, only if it not conducted too early. Instead, the development of confidential inquiries systems at the Governorate level would allow one to identify specific problems, define corrective actions, and monitor progress at the local level.

The MOHP should undertake in-depth analyses of the perinatal services to develop appropriate MCH and obstetrical services and case management standards and procedures. One aspect of these analyses should be the observations of the current knowledge, attitude, and practice of health professionals and the procedures/services which they perform. Another aspect should be the measurement of the number of life-saving or obstetrical interventions being performed in health units and hospitals. Such an analysis would show how the health services have contributed to the reduction of maternal mortality to the current levels. It would also present a positive image of the health services which a study based on deaths alone cannot provide. This

would provide a measure of the deficit in those interventions. This type of indicator can help define the unmet need for such medical interventions, and is more sensitive than maternal mortality indicators for monitoring purposes.

The MOHP should undertake a national planning exercise for maternal mortality reduction. This exercise should include plans developed at the governorate level, with close participation of district-level health professionals and officials, public and private sector representatives, nongovernmental organizations, and community-based organizations. While the MCH department could be the MOHP nucleus for the coordination of such a plan, the responsibility of the others needs to be recognized and well established. This includes in particular the Curative Sector, and the governorate health directorates.

1 Coordination/Linkages/Cross Referrals with the MOHP Family Planning Program

Over two years ago the executive directors of the CS/MCH component and the MOHP family planning program (the Systems Delivery Project or SDP) signed an agreement for a coordinated working relationship between the two projects. It involved central- and governorate-level coordination, sharing of information and technical materials, collaborative preservice and in-service training, and collaboration on the design of IEC messages and materials as well as management information systems. There has been little such coordination and collaboration to date; although both executive directors recognize the value of such coordination and collaboration, lower level managers express frustration and competition with the other project.

There is, however, both an increased necessity and potential for coordination and linkages at this time.¹² The increased necessity arises out of the fact that both the MCH and family planning departments will be working at an increased level in reproductive health. (See Appendix I for a list, provided by the SDP, of the reproductive health activities which the family planning program currently provides). Most likely the MCH and the family planning units will provide some of the same services, such as treatment of reproductive tract infections to women who have gone to the respective clinic for its differentiated but related services—the MCH clinic for antenatal care or the family planning clinic for contraceptive services. In rural health units, moreover, MCH and family planning services use the same room, the same physician and the same equipment, and have identical needs for infection control—bleach, betadine, and disposable rubber gloves—and face the same problem of shortages of these essential supplies.

The potential for coordination and linkages lies in the fact that HM/HC is a new project which the MOHP and USAID can use as a fresh start for both projects. HM/HC can build upon and expand some of the successful initiatives undertaken by the family planning project. For instance, USAID and the MOHP have invested heavily in developing training resources in the population/family planning sector. The Regional Center for Training has excellent facilities, staff, and curriculum (including modules on reproductive health) and underutilized capacity.

The necessity for cross-referrals is obvious.

HM/HC could use those resources. CHM/HC and SDP could provide joint training. CSP has developed service standards for model clinics and SDP has developed service standards down to the level of the rural health unit. HM/HC and SDP can and should sit down together and develop common standards.

Due to the recent reorganization of the MOHP, MCH and family planning now report to different first undersecretaries. This may make collaboration and coordination a little more difficult. It may, however, push the level of accountability for collaboration and coordination higher and result in the Minister of Health insisting that these two projects and these two sectors work together for the patient's and Egypt's best interest.

1 Midwifery

The Nurses/Midwives Training Program (NMTP) started as a pilot program in one governorate in 1993, and was then extended to a total of six governorates. It established the capacity of these health directorates to offer postgraduate practical training in normal delivery skills to recently graduated nurses (secondary technical nursing school) already working in rural health units. The program is in accordance with a 1982 Ministerial decree, and compensates for the lack of such training in nursing schools. The NMTP was carefully designed and implemented and addresses the need for qualified home delivery attendance. Since nurses generally do not perform deliveries in the MOHP facilities and since their training does not include specific life-saving skills¹³, the program expectation seems to be that licensed midwives would progressively replace dayas for home deliveries.

By 1996, a total of 186 trainers and managers of the program had been trained, and 105 nurses were trained and licensed. The training curricula, content, and theoretical versus practical mix is adequate and serves the objectives of the program. These nurses/midwives perform about two or three home deliveries a month, but usually do not perform deliveries in MOHP facilities. The number of nurses trained so far remains small because of the recent development of this program, the necessary initial investment in the training of trainers and managers in each governorate, and the limited case-load in the training sites. Since the trainees are selected among young graduates who are actually working in a health unit, it is reasonable to expect that most of them will use their skills, and that the number of deliveries that they perform will increase as they become better known in the community.

The external evaluation of the NMTP performed in March 1995 recommended the continuation of the program based on a national inventory of nurses and concomitant training in the governorates, along with some revisions in the curriculum (including training of trainers) and an increased participation of governorate-level staff. The CSP staff introduced most of the recommended revisions in the curriculum. Strong demand for continuation or initiation of this program is expressed by governorate health directors. The initiation and the quality of the

With proper training and supervision, and depending on the specific context, nurses/midwives can be enabled to measure blood pressure, give injections, start IV infusion, repair minor (or control bleeding from) lacerations, and perform episiotomy, bimanual uterine compression, manual removal of the placenta, uterine revision, and vacuum extraction.

program in the governorates seem to rely heavily on assistance and supervision by CSP staff. The actual training skills of the trainers selected by the program in each governorate is of concern, however. The trainers in the practical training sites play the most important part in this program.

The MOHP should give priority to practical training of midwives in nursing schools. The reasons for the lack of such training should be fully assessed. The MOHP should also consider revising its policies with respect to the role of nurses versus physicians in delivery and antenatal care if the role of the former is to be actually expanded.

Each governorate should take responsibility for and bear the direct costs of their postgraduate midwifery training program. The MCH and the Nursing Department should provide technical assistance to the governorates in the assessment of the need for such programs, in the selection of the trainers and the training sites, and in the initiation of the program. USAID should continue support of this activity in targeted HM/HC governorates.

1 Nutrition

The CSP project conducted very few activities specifically related to nutrition after the decision in 1991 to reduce the initial nutrition budget and include it in the CS component of the project. Nutrition issues were covered, however, in training and IEC materials for primary health care physicians and nurses. In addition, the CSP supported the MCH Department in the implementation of the Baby Friendly Hospital Initiative designed and led by UNICEF in about 30 hospitals. More than 900 physicians and 600 nurses were trained locally in lactation management.

CSP completed and published a pilot study of Low Birth Weight in one governorate, and has completed the design and data collection of a follow-on survey on a larger scale. It also completed the design and data collection of a study on anemia during pregnancy and lactation. These studies on Low Birth Weight and on Anemia are highly relevant to the CSP and to the HM/HC project.

USAID should focus its support for training of health professionals in lactation management and for Baby Friendly Hospitals on the governorates where other maternal and child health activities will be conducted.

CSP should fully analyze the national studies on low birth weight and anemia, and disseminate the results before the end of the project.

1 Major Conclusions and Recommendations

The CS/MCH component conducted a series of varied and often innovative programs over the life of the project, in association with different MOHP departments, and with varying levels of success.

1. Given the change in the structure of the Healthy Mother/Healthy Child Project as compared to the CSP, USAID should reduce central level support of several programs conducted so far by the CS/MCH component, namely the daya program, the Nurse-Midwife Training Program, the delivery rooms and MCH laboratories upgrading programs, and the Baby Friendly Hospitals Initiative. The MOHP departments responsible for these activities should only maintain a minimum capacity for monitoring, evaluation, research, and technical assistance to the governorate level because these programs are now established in most governorates where the CSP introduced systems and trained the local staff. Further progress relies on improved contributions of the local authorities and support should be provided at this level to promote ownership and accountability. Given its innovative character and the higher level of technicality involved in its development, the Neonatal Program should be continued at the central level.
2. CSP and SDP did not collaborate and coordinate sufficiently. The MOHP and USAID should ensure that the Healthy Mother/Healthy Child Project and the Systems Delivery Project collaborate in training, IEC, service standards and health information system in order to foster mutual collaboration and support between the MCH and family planning service delivery.
3. Given the innovative activities carried out by the CS/MCH component and the large amount of valuable information collected by the program, the MOHP, with USAID support, should make sure that appropriate secondary analyses and evaluative research are performed with the technical CSP staff before the end of the project. Areas of emphasis should include the following (see details under respective sections):
 - C Analysis of local level data on levels and trends in the activities of dayas;
 - C Completion of the evaluation initiated by CSP of the performance of the neonatal units and analysis of the impact of the program;
 - An evaluation of the determinants of the use and effectiveness of MCH laboratories;
 - C Further analysis of the national Maternal Mortality Study data;
 - C Further analysis of the national studies on low birth weight and anemia;
 - C Completion and follow-up of the Child Survival Impact Evaluation (Two Governorate Linkage Survey).

1 CROSSCUTTING ACTIVITIES

C Undergraduate Medical Curriculum

CSP developed a manual for undergraduate medical students and physicians called *Child Survival: A Rational Approach*, with sections on MCH, infant and child nutrition, EPI, ARI, control of diarrheal disease (CDD), child mental health, and accidents. CSP elicited and incorporated WHO standards in the manual. WHO inputs are seen in the following chapters:

- C Maternal Care: criteria for detecting high-risk pregnancies and antenatal care procedures;
- C Immunization schedule of vaccinations for infants and children;
- C ARI: standard case management for early detection, diagnosis, and treatment of ARI; and
- C Nutrition: knowledge and practices of breastfeeding, supplementary feeding, weaning foods, and proper weaning practices and growth monitoring.

The manual's approach is pragmatic and practical and thus very appropriate for preservice training (although sections on mental health and accidents appear irrelevant to child survival activities). In contrast, for undergraduate teaching, insertion of specific academic content into selective curriculum might be more appropriate. This book was supposed to have been sent through the MOHP to the Universities Supreme Council for approval and would have served as a reference for teaching undergraduate students in departments of community medicine, pediatrics, and obstetrics. However, USAID-CSP discussions led to the decision to delay publication of the book in order to incorporate material on the mother-baby, sick-child care, and reproductive health packages.

To promote nursing education and training in child survival, CSP approached the training department at the Ministry of Health to introduce subjects related to CSP activities into the nursing schools. The training department at the Ministry of Health is responsible for setting, reviewing, publishing, and distributing all nursing manuals and books to all nursing schools in Egypt. Revision and publishing new editions occur every three years. The project succeeded in introducing EPI, ARI, CDD, into grades 1, 2, and 3 within the community health curriculum. The ARI activity will also be included in the pediatrics curriculum for the third grade at the next edition. The theoretical information provided in these materials is sufficient and appropriate.

Conclusions and Recommendations

11. The new project should concentrate on practical training and enforcing nurse's roles and responsibilities in mother and child care, especially in ARI and MCH/CS activities. The Healthy Mother/Healthy Child Project might provide direct support to important nursing schools at the governorate level (in targeted governorates). The delay of publication and broad distribution of *Child Survival: A Rational Approach* until the manual can be strengthened is and was wise. Because such revision and university approval of new curriculum is expected to take time, and because it is important that new primary health care physicians master child survival material, the MOHP should use modules from the manual to train medical graduates within the obligatory preservice training. Manual revision should include incorporation of mother-baby, sick-child care, and reproductive

health packages, omission of unrelated sections on child mental health and accidents, and strengthening of weak chapters.

12. The Healthy Mother/Healthy Child Project should continue with development and seeking University approval and/or introduction of HM/HC activities in essential curriculum.

1 Training

The Logframe had four training indicators:

- C 80 percent of EPI primary health care physicians, nurses, and technicians in all governorates trained in EPI;
- C 80 percent of primary health care physicians, nurses, and technical staff trained to recognize severe ARI and at least 60 percent of these physicians prescribe drugs according to standard case management;
- C 80 percent of primary health care physicians trained in providing improved MCH services; and
- C 80 percent of dayas in Lower Egypt adequately equipped and trained in safe delivery, postnatal procedures and referral for family planning, prenatal, and immunization services.

Additionally, although not specifically identified as such in the Logframe, training was an obvious precondition for the success of many other CSP activities. Training currently represents a total cost of US\$8.3 million, which is about 12 percent of the project total. The assessment team's Scope Of Work asked that the team assess the achievement of outputs, and the following:

"Usefulness of the extensive in-service training programs offered in-country by all the components. The assessment of the in-country training will include a review of the course curriculum and quality of training materials developed: the progress made to integrate the different training programs offered by the project. Appropriateness of participant training should be reviewed."

Category and Numbers of Personnel Trained

Each of the three components trained MOH physicians, nurses, and other technical, managerial, and supporting staff. CSP reports training as presented in table 7.

Table 7

CSP Training by Component, Personnel Category, and Subject Matter (1989-1996)

Project Component and Personnel Category	Training Subject
EPI	
Managers	immunization and management skills
Physicians	immunization, cold chain, and surveillance
Nurses	immunization, cold chain, and counseling
Health Educators	IEC
Sanitarians	immunization, cold chain, and surveillance
Clerks	immunization, cold chain, and surveillance
ARI	
Managers	supervisory skills
Physicians	diagnosis and counseling for ARI in children
Health Educators	IEC skills
Nurses	diagnosis and counseling for ARI in children
Pharmacists	identification of drugs used by ARI program, storage, and rules of distribution of the drugs
Microbiologists and Lab. Technicians	preparation of media, identification and isolation of streptpneumonia, heamophilus influenza, and determination of their sensitivity to the selected antibiotics
Technicians	training on use of ARI equipment, maintenance and simple repair
CS/MCH	
Managers	supervisory skills
Physicians	MCH service delivery
Nurses	midwifery
Health Educators	IEC
Laboratory Technicians	laboratory techniques
Neonatal Nurses	care of the newborn
Neonatal Physicians	care of the newborn
Dayas	midwifery and dangers of female circumcision
IEC Unit	
Governorate Level Health Educators	competency-based health education
SIS Personnel	competency-based health education
Decentralization	
CSP Coordinators	planning and budgeting
Governorate Heads of Health Departments	planning and budgeting
District Health Officers	planning and budgeting
Model Clinics	
District Health Officer	integrated competency-based CSP training
Chief Nurses	integrated competency-based CSP training
Sanitarians	integrated competency-based CSP training
Store Keepers	integrated competency-based CSP training

FETP	
Physicians	field training in epidemiology

Source: CSP

The objective was to enable access to qualified MOH service providers and MOH-strengthened private sector providers (dayas) who serve in (or in the case of dayas, around) some 3,409 MOH health facilities, as well as to strengthen those who supervise and support them. Table 8 presents these facilities.¹⁴

Table 8

First and Second Level MOH Facilities

	% of Total	
General Hospitals	61	2%
District Hospitals	150	4%
Fever hospitals	<u>71</u>	<u>2%</u>
Subtotal	282	8%
MCH Centers	235	7%
Urban Health Centers	139	4%
Rural Health Centers	481	14%
Rural Hospitals	115	3%
Rural Health Units	<u>2,157</u>	<u>64%</u>
Subtotal	3,127	92%
Total	3,409	100%

Source: Dr. Esmat Mansour, *The Expanded Program on Immunization in Egypt, 1984 to 1994*.

The training challenge lies in several human resource assignment and management issues beyond the influence of service delivery projects such as the CSP:

- C each year, approximately 3,000 new primary health care physicians graduate from medical school; most are assigned one year (out of four in MOH service) to a rural health facility as obligatory duty;
- C the health needs of a governorate, district, and health facility catchment area and the current staffing in a specific health facility are only one factor in the assignment of young graduates to that facility;
- many young physicians assigned to rural health units in Upper Egypt manage to be reassigned; and

Source: Dr. Esmat Mansour, *Immunization in Egypt, 1984-1994*, July 1995

C turnover is very high in Upper Egypt where 26 percent of primary health care physicians are serving and in rural health units which comprise 65 percent of the MOH facilities.¹⁵

To deal with these challenges, each CSP program trained large numbers of physicians yearly. Table 9 presents that data by governorate. See also Appendix J which presents similar data with the average number of physicians trained per year by each component.

Dr. Esmat estimates in *Immunization in Egypt, 1984-1994* (page xxxviii) that "20% of the population utilize the peripheral centers and units" which account for 81% of the total number of health facilities.

Table 9

Number of CSP MOH Primary Health Care Physicians Trained in 1994 and Numbers of Children under Five and Women of Reproductive Age in 1994, by Region/Governorate, and Physicians Trained between 1985-1996, by Component and Region/Governorate

Region and				Number of Physicians		
	Physicians					
Giza	640	580,000	1,087,000	705	643	579
Assiut	471	450,000	582,000	1,178	595	151
Beni Suef	231	295,000	387,000	664	312	305
Fayoum	287	290,000	418,000	455	205	259
Qena	541	430,000	565,000	959	404	260
Sohag	278	498,000	671,000	1,218	467	167
Aswan	219	135,000	215,000	276	287	160
Minya	454	539,000	733,000	1,073	640	595
Beheira	679	525,000	857,000	791	871	1,368
Daqahlia	1,070	510,000	898,000	617	750	654
Damietta	135	105,000	192,000	216	207	79
Gharbia	597	385,000	738,000	483	258	611
Kafr El	234	280,000	470,000	192	251	504
Menoufia	247	318,000	580,000	511	592	756
Qaliubia	644	344,000	719,000	704	606	446
Sharqia	476	521,000	892,000	693	611	865
Ismailia	97	86,000	158,000	252	196	126
Cairo	3,000	730,000	1,504,000	2,721	3,082	2,934
Alexandria	900	375,000	752,000	1,003	1,094	579
Port Said	106	41,000	115,000	147	144	318
Suez	294	49,000	101,000	181	90	104
Matrough	50	34,000	44,000	123	66	71
North Sinai	50	30,000	57,000	192	109	20
South Sinai	60	4,400	7,600	71	41	41
New Valley	34	15,000	30,000	87	111	106
Red Sea	45	14,000	26,000	84	53	87

Source: MOH CSP Data Sheets for Egyptian Governorates, December 1995; EPI, ARI, CS/MCH.

Many of the training participants are included in more than one column of the table. That is, in the same year, a physician in an MCH center might have received training in EPI, ARI, and CS/MCH. The total number of primary health care physicians trained by the project is, therefore, unknown.

EPI concludes, on the basis of training 15,596 physicians, that the program achieved the primary health care physician target of 80 percent. Because the denominator of persons to be trained is not well defined in the logframe and due to the turnover mentioned above, it is not possible to determine whether EPI achieved this target as stated. Clearly, however, they trained more primary health care physicians than either of the other two programs; and to their great credit, their training efforts favored Upper Egypt. While only 26 percent of primary health care physicians were serving in Upper Egypt in 1994, 42 percent of those primary health care physicians trained by the EPI program were serving in Upper Egypt. Additionally, EPI trained nearly 19,000 nurses, 10,000 sanitarians and 4,000 clerks. (See a breakdown of these trainees by governorate in Appendix J.)

The ARI program trained 12,685 primary health care physicians roughly in the same proportion per governorate (28 percent Upper Egypt, 34 percent Lower Egypt and 34 percent urban) as the national distribution (26 percent Upper Egypt, 35 percent Lower Egypt and 36 percent urban) of primary health care physicians. The 1995 ARI Health facility Survey showed that 90 percent of the surveyed physicians had received ARI training. This was an excellent advance from the results of a similar survey two years previously which indicated the percentage was 51 percent. However, the ARI program states the sample of primary health care physicians in both surveys excluded physicians temporarily assigned to a primary health care facility—that is, the 2,500-3,000 newly graduated physicians primarily assigned to rural health facilities.¹⁶ Additionally, as table 7 indicated, CSP trained a number of other personnel essential to the program.

The CS/MCH program trained physicians, nurses, dayas, and laboratory technicians, as well as managers, supervisors, and trainers for these personnel. The PHC physician training effort favored Lower Egypt with 44 percent of the participants serving in Lower Egypt governorates (Upper Egypt 20 percent and urban 32 percent). A 1995 MCH Health Facility Survey indicated that 43 percent of primary health care physicians in MCH centers, 35 percent in Urban Health Centers and 19 percent in Rural Health Units had received training in child spacing and prenatal care. See section 5 for training of dayas and midwives.

1 Usefulness of Training

There were obviously very impressive CSP gains—high EPI coverage, a reliable cold chain, reduced polio and neonatal tetanus cases, and a new ARI sentinel surveillance system nationwide. The CSP not only trained service providers and trainers of trainers; they also, in the case of ARI, established training centers in all governorate hospitals, provided 70 ARI centers with audiovisual aids and training materials, and established specialist training facilities for pediatricians at four universities.

Pre- and post-tests of training show significant improvement in training scores. From the ARI health facility survey, for example, physicians appear to be retaining and using knowledge and

If 2,500 of those graduates actually took up MOH assignment in 1994, they would have comprised 21 percent of the MOH physicians working in PHC in 1994, the year for which we have a breakdown of PHC physicians by governorate.

skills imparted by the project. While the 1993 survey found that 69 percent of trained physicians were prescribing correctly, preliminary findings from the 1995 health facility survey indicate this rate has increased to 80 percent. Additionally, antibiotic abuse has decreased from 42 percent in 1993 to 30 percent in 1995.

One might logically infer that training contributed in a large part to the total CSP success.

Quality of Training

A sound assessment of the quality of training depends upon the identification of useful indicators, and the collection, analysis, and maintenance of training data throughout the Training Process. (See Appendix J for a figure of a professional training process, training steps, and documented outputs.) The training field is in pretty good agreement, at this point, about that process, what outputs should be documented, and about which indicators are most useful. Unfortunately, except over the last few years, the CSP has not routinely kept data on this process so there was little documentation of this process for the team to review.¹⁷

The CSP project states that the training materials which it used in the first nine years of the project were based on materials developed by WHO and UNICEF. "The development of these materials by WHO and UNICEF was based on solid methodology which included organizational analysis, training needs assessment, training objectives, etc. These materials were adapted through the same process and implemented by the CSP."¹⁸ In 1992, CSP committed funds and personnel to strengthen training efforts and to integrate the components. The team reviewed the two sets of curriculum produced since then: a competency-based curriculum for the model clinics and one for decentralization that covers all project components. Each set is well designed and has accompanying trainer's manuals. See Appendix J for a review of principal CSP curriculum.

Additionally, CSP sponsored long and short-term training in the United States for project and MOH staff. A total of 143 project and MOH personnel benefited from this participant training program. Seven CSP staff members were sent to the US in 1991 for a master's degree in public health (MPH). Among the subjects of short-term training were health management, neonatology, lactation management, child survival, and safe motherhood. The participant training provided to CSP managers and service providers seems to have been effective.

In addition to formal training, CSP also produces three newsletters for continuing education of physicians and other MOHP personnel: the ARI newsletter, EPI newsletter, and perinatal care newsletter. These newsletters are interesting and informative; however, CSP faces some distribution problems.

The assessment team and CSP differed over the components of such a process and the importance of the process as presented by the team. One difference was the importance of recent/periodic written needs assessments. Another was the distinction between programmatic and training objectives. CSP has clear programmatic objectives but many training courses did not have specific objectives to be accomplished in a specific period of time through the specified curriculum, methodology and materials. The distinction, perhaps manageable in a centralized program, will be very important in a large decentralized national program. To ensure high-quality standardized training, the MOHP must be sure that a trainer in a district in Gharbia understands and uses training materials in the same way that a trainer in a district in Aswan does. Clear, specific, well-phrased training objectives for each course and each session of that course are a basic means of promoting such standardization.

CSP comments on the draft CSP Assessment Report, May 29, 1996.

Conclusions and Recommendations

Although CSP has trained a great many people, it is doubtful that 80 percent of primary health care physicians have received training in each of the three project components in all governorates, due to the mandatory year of public service and the high rates of turnover and leave taking among younger physicians in the MOHP. To achieve the desired levels of competence in EPI, ARI, and CS/MCH among primary health care physicians, given the current MD assignment policies and the high rates of turnover and leave taking, the MOHP would have to:

- C ensure, on a governorate and district level, that 80 percent of the newly graduated physicians assigned to it twice a year had either received training in medical school or received such training during the obligatory preservice training program; and
- C train about 2,500 new young physicians each and every year on a national level.

CSP training efforts undoubtedly contributed to the success of the project. The data available, unfortunately, do not allow the team to indicate the extent and nature of that contribution over eleven years, although it is apparent that the training effort was stronger in EPI and ARI than in CS/MCH.

The focus of the Healthy Mother/Healthy Child Project on Upper Egypt is warranted, in addition to demographic data, by data on the assignment and training of physicians in CS/MCH in this project. The HM/HC health information system should support planning and monitoring of human resource development (HRD) in Upper Egypt to

- C ensure that HRD opportunities are offered and promoted to all governorates and districts; and
- C ensure that the harder to reach districts are encouraged to take advantage of HRD opportunities.

Managerial and Technical staff

and sufficient resources and project commitment to ensure high- quality professional training. There should be integrated training programs, using competency-based methodology, with a documented and unified training process. As indicated in Section 7, the MOHP and USAID should work together through the upcoming Health Policy Project to address some of the human resource management policies and traditions which make it difficult for the MOHP to achieve its objective of having adequate a number of personnel who are competent in EPI, ARI, and CS/MCH in most facilities in all governorates throughout the country.

13. The Healthy Mother/Healthy Child Project should develop and the MOHP should distribute an integrated HM/HC bulletin covering all the technical/administrative elements of the program, addressed to the primary health care physician. This integrated

bulletin would grow out of, and substitute for, the separate bulletins currently produced by the three project components.

1 Field Epidemiology Training Program

The Egypt Field Epidemiology Training Program (FETP) activities started in 1993 with the long-term objective of establishing an institutional field epidemiology function within the MOHP. This includes establishing the capacity to provide theoretical and field training opportunities to MOHP physicians, and therefore provide a continuous supply of field epidemiologists. The FETP, with the collaboration of CDC and the presence of a CDC resident advisor, has succeeded in gaining recognition of the need for and the potential benefits of such a capacity. It has started meeting the expected supply of trained MOHP epidemiologists, has conducted numerous studies that brought light on public health problems in Egypt (including fieldwork to strengthen active polio surveillance and detect possible unreported, suspected polio cases)¹⁹, and has made significant progress in the institutionalization of the program.

Starting with six students in 1993, the FETP is expecting to graduate six to ten MOHP physicians each year. In 1995, the MOHP issued a decree establishing a Field Epidemiology Training Unit attached to the MCH Department. The MOHP and the High Institute of Public Health (HIPH) in Alexandria agreed to establish a joint master's degree program in field epidemiology. The expertise and international recognition of the High Institute of Public Health make it an adequate institution to co-sponsor the FETP in Egypt. The HIPH is expecting an official request from the MOHP to seek approval from the Supreme Council of Universities.

The training curriculum consists of a four-month period of theoretical training and one year and a half of fieldwork, including proposal design, computer training, data collection and analysis, and preparation of a final report. FETP staff members, senior officials, or faculty members from a variety of Egyptian institutions, including the MOHP and international experts, provide the theoretical training. The trainees conduct their investigations on a variety of sites linked to the MOHP or other Egyptian institutions. Several trainees have had the opportunity to present their findings to a variety of national and international conferences.

Although the FETP's long-term objectives cover a broad realm of public health issues that extend beyond child survival and MCH, its inclusion within CSP has provided an appropriate institutional location for the beginning of this program. The physical location within CSP also encouraged interaction of the faculty and trainees with the CSP and MCH department staff. Several trainees have conducted field studies directly relevant to the child survival programs and MCH.

The FETP was also able to assist the MOHP in investigating outbreaks of emerging infectious diseases such as rift valley fever.

Anecdotal evidence suggests that some of the FETP investigations have received late approvals for implementation, and/or conflictual dissemination of results. Such occurrences were predictable in this interim period of institutionalization of field epidemiology.

Recommendations:

14. USAID and CDC/Atlanta should continue their efforts to assist the MOHP in defining and institutionalizing a field epidemiology function in the MOHP at the central and governorate level. This should include budgeting and staffing by the MOHP. The FETP activities and curriculum should be tailored to this institutional function. FETP should foster a closer collaboration with the MOHP departments involved in or concerned with their epidemiological investigations in order to maximize the benefits of this program and facilitate its institutionalization. Also, the MOHP should warrant the FETP the relative autonomy necessary to conduct independent research and investigations.
15. USAID should take full advantage of the FETP and its backstopping from CDC/Atlanta to support the Mission's health and population projects objectives. This mutual reinforcement can come through the theoretical content of the training, the selection of the trainees, the choice of topics for practical training, and the assignment of the graduates within the MOHP after graduation. USAID should encourage the FETP to develop and circulate its own work plans and reporting systems in order to better reflect its specific objectives and administrative links with CDC/Atlanta.

1 Health Information System

The CSP HIS consists of a well developed manual system made up of three vertical systems: a new decentralized, integrated, computerized system, and trained staff (to varying extents) to use the systems and make decisions on the use of the data. The established manual vertical systems are referred to or discussed throughout this report. See sections 2.1 which cites data from the EPI system, 2.3 which reports on the effectiveness of the EPI surveillance system, 3.2 which cites ARI service statistics and 4.3 which briefly presents the neonatal information system in CS/MCH. The neonatal system is unique and worthy of commendation for its collection and presentation of gender-disaggregated data.²⁰

In response to the SOW, which inquired specifically about the system under development, this section on HIS focuses on the relatively new efforts of CSP to develop a decentralized, integrated, and computerized health information system—the Decentralized Computer-based Health Information System (DecHIS). A similar system was envisioned in the CSP Project Paper; however, it wasn't until the 1991 CSP Project Amendment that funds and efforts were devoted to such a system. In 1992-1993 CSP conducted a needs assessment. The CSP strategy, adopted in 1993, for the development of a decentralized HIS focused on computerization of data processing

Sixty-one percent of all infants admitted to the neonatal units were male.

and analysis at the governorate level and included the established information systems designed for the child survival programs (EPI, ARI, CDD), but also data from primary health care units such as MCH services and vital registration. It also included data required for some of the on-going programs of the child spacing component such as the Neonatal Program and the Daya Program. A system based on 24 data input forms was installed in most governorates and was the basis of most of the training provided so far.

With DecHIS, the number of forms used between MOHP clinics and the central level has decreased dramatically. Linkages between subsystems were improved. The indicators themselves were revised only when redundancy made it necessary to adopt only one of several similar alternatives. In most cases, the existing indicators and related forms were adopted and included in the system. Avoiding a complete redesign of the system definitely had the advantage of a faster adoption and computerization of the existing system. In some instances, however, this resulted in the inclusion of inadequate indicators and forms that will have to be updated later. This is already the case for MCH services, for which the MCH department recently redesigned a new set of data collection cards, log books, and forms. These revised indicators and forms need to be tested and will then replace the set included in the current system. The flexibility of the new system is supposed to allow for such modifications. On the contrary, having too much flexibility may result in a system that will never be stable enough to produce reliable and timely data for decision making.

DecHIS aims at improving the capacity of the governorates to manage health services. Although most governorates received equipment and training, only a few of them use the new system so far. When a governorate actually uses DecHIS, it is parallel to the former manual system. Given the amount of data to be entered each month, one single computer per governorate may not always suffice. The reproduction and routine distribution of the forms are under the responsibility of each governorate but appears a significant constraint in the actual implementation of the system.

At this stage, there are no visible results of DecHIS at the district and health facility level besides the few pilot districts which test the system. Also, it is not clear when the Department of Information and Documentation and the other central-level departments will be able to rely entirely on this new computerized system and allow their employees to discontinue the current one. To date, and partially due to the late start of this activity, there has been relatively little emphasis on the use of data for decision making. The governorates need data analysis and epidemiological expertise in order to supervise the implementation of the system and make full use of the data made available.

CSP recently expanded the scope of this development effort in response to requests from MOHP departments and projects. The 24 form-based system was then expanded to include a total number of 43 data input forms. The additional software was just finalized and given to the HIS departments in the governorates, but without any training yet except the undersecretaries and the technical staff to install the software. Additions include forms to collect financial and administrative data for budget tracking and preparation at the facility level. Although the purpose of this additional data is relevant, and the attempt to integrate the two information

systems is commendable, it is not clear whether the requested data is actually available in the primary health care units, whether the workload is acceptable for the existing staff, and whether the information generated will be usable. This add-on system has not been tested yet.

In November 1995 CSP initiated development of a Geographical Information System (GIS) to be integrated with the DecHIS; software for the GIS was recently completed, meetings held with governorate health officers and training initiated. With the completion of this training by CSP and MOHP/DID staff, the role of CSP in the development and implementation of the DecHIS is concluded. Responsibility at the beginning of the Healthy Mother/Healthy Child Project will rest with the governorate health directors and DID.

Conclusions and Recommendations

CSP developed and implemented an excellent manual HIS for each of the three CSP components. They have provided the data which enabled the MOHP to plan and manage for the CSP achievements presented earlier in this report. The DecHIS, initiated late in the project, needs further USAID support. While sustainability of the EPI, ARI, and CDD programs depends on reliable information systems, at this stage none of these programs can rely fully on the DecHIS.

17. USAID should continue to support the implementation of DecHIS in all governorate health information offices, with at least the minimum core of indicators directly related to child survival and MCH. USAID should provide support to the Department of Information and Documentation in its supervisory role of the governorate level, and in its coordination and regulatory role at the central level. The Department of Information and Documentation also needs to consolidate the data from the Governorates, maintain master copies of those data and ensure the timely and coordinated distribution among the various MOHP departments. The DID must develop and maintain an overall HIS development plan in which the decentralized HIS under concern here is just a component. USAID should perform a complete assessment of the needs of the Department of Information and Documentation in terms of equipment, training, and technical assistance, in order to best define its support at this level.
18. In addition, USAID should support implementation of the DecHIS in the governorates targeted by the Healthy Mother/Healthy Child Project. This support should include the full involvement of the district health information offices and the related facility level staff. Finally, USAID should promote joint support of this new system by all the health and population projects involved in the development of information systems with the MOHP.

1 Mass Media and Health Education

The logical framework identified two outputs in this area:

- C Media programs covering topics relevant to the full spectrum of CSP concerns and techniques designed and disseminated regularly throughout Egypt; and
- C The MOHP Health Education Department mobilized to support child survival through activities of the public education officers located in all governorates and most districts.

Mass Media

CSP has developed and distributed media messages (based on EDHS, PAPCHILD²¹, and two KAPs) through television, radio, magazines, and newspapers. The 1995 KAP (N= 1360) provides information on the extent to which media programs covering topics relevant to the full spectrum of CSP concerns and techniques had been disseminated recently throughout Egypt. That survey indicated that 87.4 percent of sampled mothers owned a TV and 59 percent watched it regularly or sometimes. Table 10 presents survey data on those who responded affirmatively (N=1121) to the question "Did you watch anything on TV relating to aspects of maternal and child health?"

Table 10

TV Viewing of Maternal and Child Health Messages (1995)

Information/Topic	Percentage of Women Who said They had Watched Such Spots
Child spacing	84%
Risky pregnancy	61%
Antenatal care	28%
Delivery care	14%
Care of newborn	21%
Breastfeeding	90%
Child immunization	99%
TT for pregnant women	99%
Acute respiratory infections	28%

Source: CSP

Almost all the women indicated they had seen messages on breastfeeding, child immunization, and TT2. Eighty-four percent indicated they had seen messages on child spacing, and 61 percent on risky pregnancy (both of which may have been produced by the Systems Delivery Project). Relatively few had seen messages on antenatal care, delivery care, care of the newborn, or ARI.

In contrast to wide television viewing, the radio is not important. While 76.6 percent of women stated they own a radio, only 19.6 percent indicated they listened to it regularly. Only 1 percent of

PAPCHILD is the Egypt Maternal and Child Health Survey, 1991. Pan Arab Project for Child Development.

the KAP sample had listened to child survival and MCH messages on the radio. Still fewer women buy a newspaper or a magazine: 29.6 percent and 15.8 percent respectively. Less than one percent of the total sample had received messages on child survival and MCH topics through newspapers or magazines.

During the first eight years of the project, the MOHP produced approximately fifteen TV spots for the project, principally for immunization. CSP reports that, despite these efforts, “the project recognized that mass media was underutilized. The MOHP did not have the capacity to produce the volume of television and radio spots necessary to adequately address project priorities. In addition, the existing production mechanism did not allow for strategically designed media campaigns; adequate expert review and focus group testing of messages, nor responsible subcontracting.”²² Accordingly, in 1994 the project established a Mass Media/Communications Unit and designed a 1995-1996 Child Survival Campaign. The basis for such design was an analysis of data from the 1992 KAP Study and the 1992 Maternal Mortality Study. Picking up on a recommendation directed at the ARI program that CSP should develop a mass media program based upon the message “take to the doctor a child who has difficult/rapid breathing,” the project went on to develop and produce twelve television spots.²³ Each spot, directed primarily to rural women from C, D, and E socioeconomic classes, and secondarily to their husbands, mother-in-laws and other care takers, concludes with the message “Their lives are in your hands. Don’t take chances. Take them to a doctor, hospital, or clinic.”

Of the 12 recent TV spots, five are directed to safe pregnancy and delivery, which are important in light of the KAP results noted above. The basis for establishing the messages was well founded. The CSP reports that were available to the assessment team indicate, however, that each of the 12 individual spots was pretested with a total of only 40-50 people through six focus groups in Cairo, Giza, Qalyubia, and Gharbia.²⁴ CSP indicates that, cumulatively, the TV and radio spots were pretested with a total of approximately 342 people through 42 focus groups.

Health Education

Each CSP component produced IEC materials over the years—posters, videos on EPI, CS/MCH, and ARI, and very recently, a flip chart, not yet in mass production or distribution—covering all project components. Dissemination of some materials, however, seems to have been a problem. Although all health facilities that the team visited had EPI posters (often many posters on the walls), the display of posters for other components were spotty. Governorate health officers the team visited could not locate CSP videos, nor could they explain their system for distributing materials to health facilities.

CSP plans for health education seem to have been ambitious and frequent, but never brought to fruition until 1994 when the project established a new unit. Beginning that year, in a series of

Child Survival Project, Mass Media/Communications Report, February 1996.

Another 12 radio spots are in the process of production.

From the June 1995 Arabic report “Pretesting Results of Four TV Spots: Pregnancy Follow-Up, ARI, Newly Born’s Health, Tetanus Immunization -- Second Round Focus Group Discussions.” The Report on the first round of focus groups does not contain data on number of groups or number of participants, only the questions asked.

workshops for health education officers, CSP trained 170 officers from twelve governorates. The training consisted of eight competency-based modules including: interpersonal skills, using communication methods and materials effectively, mobilizing community groups, essentials of health education, and planning communication activities. Unfortunately, the process was interrupted in 1995 because the IEC Unit director left the project and follow-up of the child survival activities of health educators at the governorate level and expansion to all governorates did not occur as planned. In 1995, CSP hired a new IEC director and started a new training program for governorate health officers where the health education officers were again introduced to the project's activities.

A new three-day workshop was begun in 1996 with selected participants from the State Information Service (SIS) to forge collaboration between this government agency and CSP and to share the resources of SIS. They will then train district-level health education officers. This new district-level training will begin in June 1996 and may not be completed by the end of the project so that it will require bridging activities in order to be completed.

Lack of resources at the governorate level is a problem. Arrangements were made to collaborate with the Systems Delivery Project which has supplied mobile IEC vans and audiovisual equipment for health education officers. The agreement with SDP was never finalized and health educators have received no audiovisual equipment from the child survival project. Motivation of health educators is also an issue related to equity and support. Equity with other projects with much more active IEC components (e.g., SDP) is an issue because health educators tend to put their energy in places where they receive sufficient support. Despite the problems, due to strong personal initiative, some governorates have active Health Education Departments: in Alexandria, health educators conduct talks daily or almost every day at clinics and hospitals.

Conclusions and Recommendations

The 1995 KAP survey dramatizes the preeminent role of television in advertising child survival and MCH messages, relative to the minor role of radio and newspapers/magazines, the other two media in which CSP is investing. One might question, indeed, whether investing in radio, magazines, and newspapers is worth it. In rural Upper Egypt only 11 percent of women report regularly listening to the radio, 9 percent buying a magazine and 16 percent buying a newspaper. While the TV will be an excellent means of reaching rural Upper Egypt women, the Healthy Mother/Healthy Child Project must identify medias other than the little-used radio, newspapers, and magazines.

Mass media programs addressing some of CSP's concerns have been disseminated and heard recently (1995) by a majority of women throughout Egypt. Some of these messages on child spacing and risky pregnancy may have been sponsored by the SDP. There is relatively little recall by women, however, of messages on antenatal care, delivery care, care of the newborn, or ARI, all of which will receive, very appropriately, focused attention in the Healthy Mother/Healthy Child Project.

While strong integrated mass media/IEC efforts started late in this project, HM/HC should ensure a strong IEC program, led by personnel with strong management and technical skills, from the onset of HM/HC.

1 Model Clinic and Pilot Clinic Management Improvement Program

CSP designed the Model Clinic Program with the following objectives:

- C to achieve integration of services at the point of delivery;
- to establish, reach, and maintain basic service standards regulating facilities, equipment and procedures for child survival care to improve service delivery care and management;
- C to use Model Clinics as demonstration and training centers for primary health care staff and for the orientation and training of undergraduate medical students in primary health care; and
- C to serve as a standard for expansion to other governorate and district clinics.

The design of the Model Clinic Program Process involves the following activities:

- C Orientation and planning sessions at the governorate and district levels;
- C Selection, renovation, staff training, and organization of Model Clinics to meet service standards;
- C Training district- and governorate-level supervisory teams and Model Clinic directors and staff;
- C Assessment and improvement of Model Clinics and quality of care by supervisory teams and Model Clinic staff using the service standards;
- C Assessment of a pilot phase for each model clinic, normally six months, and refining a plan for expansion based upon lessons learned;
- C Extension of the Model Clinic program is within the district and to other districts; and
- C Further development of service standards (diarrheal diseases, etc.).

The program has made progress, although the process has been slower than expected. The development of detailed service standards and check lists covering ARI, CS/MCH, EPI, and General Service is a central achievement. (See copies of checklists for the EPI and ARI service standards in Appendices G and H respectively.) The CSP strategy is that the Model Clinic would use the service standards for periodic clinic staff self-assessment, followed by periodic supervisor assessment, and then by joint discussion of actions taken to meet the standards. The goal is 100 percent compliance with the standards.²⁵

A second achievement has been the development of three basic manuals for the Model Clinic program. They are

Change is not always easy. The assessment team observed that governorate and district supervisors did not clearly understand the use of these service standards and check lists. In the Cairo and Alexandria governorates, district supervisors as well as health workers at the Model Clinics were not enthusiastic about implementing the Clinic Management Improvement Program as they could not perceive immediate benefits from the program.

C A Model Clinic Introduction Manual which explains the model clinic program process and provides a copy of the service standards and checklists;

C A Model Clinic operations manual for use as handbooks for trainers and as a guide for members of the clinic management team, the district supervisory team and the governorate supervisory team;

C a Supervision and Leadership Manual, now in final draft form, is one of a series of modules in the new CSP Integrated Training and Curriculum.

CSP has developed a central team of master trainers and supervisors, two of them who are full time and four part time. These trainers have on-the-job training in EPI, ARI, and CS/MCH procedures during the initial three-month training period. Additionally, a pilot workshop on supervision and leadership has been held.

The project identified 15 clinics in urban areas in 13 governorates as Model Clinics. The choice of urban areas was based upon the need for large patient volume and proximity to Universities which would use as training sites for medical and nursing students. Governorates chosen to host the Model Clinics are: Cairo, Alexandria, Port Said, Ismailia, Menofia, Menia, Luxor, Assuit, Sharkia, Qalyubia, Sohag, Gharbia, and Dakahlia. Renovations are under way or completed in each of them.

CSP has held discussions, on the use of these facilities for undergraduate medical student orientation and training in primary health care, with faculty at Suez Canal and Menofia Universities; training agreements are being formulated. Institutional agreements are still pending with Cairo, Ain-Shams, Al Azhar, Alexandria, Mansoura, and Assuit Universities. To date, the Model clinics have not served as a training site for undergraduates.

To date there has been no diffusion beyond the original thirteen clinics.

Conclusions and Recommendations

CSP has initiated an important processCimproving the integration and quality of child survival servicesCthrough the model clinic program. The process is slow, however, and less well understood at the governorate/district and clinic level than is desirable in some governorates. Model clinics could be identified as any unit, urban or rural, proving successful in implementing the clinic improvement program. Training undergraduates could be an optional activity of Model Clinics (and probably would be optional for any rural health unit achieving model status due to the relatively more limited accessibility to that unit for undergraduates). The Healthy Mother/Healthy Child Project can use the MOHP training sites which exist in each governorate, together with any clinic that achieves a high score in the clinic management improvement program, to train students.

CSP and SDP service standards often apply to the same health facility, staff, equipment and supplies as the SDP; integration of such standards with SDP is appropriate. The addition of indicators on service orientation would be useful.²⁶

20. The MOHP should continue the process of integration and quality improvement. During the Healthy Mother/Healthy Child Project the MOHP should integrated CSP service standards and check lists with those of the Systems Delivery Project. The HM/HC project should simplify the service standards for rural health units. In all units HM/HC should further develop:

- C close supervision
- C activities to develop a service orientation among service providers
- C interpersonal communication training.

During field visits in other large facilities (not Model Clinics), the team observed instances where doctors and nurses failed to treat patients or their parents with the respect and concern essential to high-quality service delivery.

1 SUSTAINABILITY

The Project Paper, and amendments to it, did not address the issue of sustainability. The midterm evaluation, however, forcefully presented the issue and recommended that CSP, the MOHP, and USAID implement measures to put child survival activities on a more sustainable basis. The team commends all three parties and Clark Atlanta University, for their efforts towards sustainability over the last few years. It is not easy to change a project in midstream, yet the project attempted to do so. It defined sustainability in terms of three dimensions: institutionalization, decentralization, and integration. The following section discusses these three along with financial sustainability and human resources, which are widely acknowledged to be key components of sustainability.

C Financial

The team commends the Government of Egypt and the MOHP for the tremendous progress made in both developing the child survival program over the last ten years and in developing a financially sustainable basis for it. In 1992 the GOE had Zero funding for the imported EPI vaccines (polio, DPT, measles, and part of BCG). However, as CSP ends, the GOE is picking up total support: vaccine costs alone in 1996/1997 are expected to be US\$28 million, and will be borne by the GOE. The GOE has exceeded the LOP cash contribution specified in the Project Paper. The projected cash contribution, including two years of funding of hepatitis B at LE 40,000,000, was LE 81,944,000. In fact, the GOE contribution has been LE 42,004,724, plus, since 1992, LE 116,000,000 for vaccines.

Table 11

GOE Cash Contribution, 1987 to Present (in LE)

Projected		Actual	
Year	LE	Year	LE
		prior to 1989	153,636
		1989/1990	258,020
through 1990	1,581,000	1990/1991	419,643
1991	3,200,000	1991/1992	2,014,445
1992	4,000,000	1992/1993	8,003,220
1993	9,700,000	1993/1994	10,274,233
1994	30,950,000	1994/1995	12,679,366
1995	32,513,000	1995/1996	8,202,161
Total, including vaccines	81,944,000	Total, excluding vaccines	42,004,724

Source: CSP

Yet, there is a serious source of concern. USAID has made it very clear for a number of years that they absolutely will not pick up any vaccine costs after the end of CSP. The 1996 costs -

which Egypt must fully support - are projected to total LE 96 million; however, the MOHP budget for vaccines is only LE 50 million, leaving a deficit of 46 million.²⁷ Reportedly, although the MOHP asked the GOE for full vaccine funding for 1995 and for 1996, the GOE approved only 52-57 percent of that figure each year. Moreover, as indicated in chapter 3, the 1996 MOHP budget for antibiotics only covers 61 percent of the requirements.

1 Human Resources

International literature identifies human resource development (HRD) as a key component of sustainability. CSP, USAID, and the MOHP have promoted sustainability, developed the MOHP human resource base, and motivated increased performance through three principal HRD strategies (highlighted in bold below). These are strategies to intervene in a human resource development and management process with a number of other steps in which the MOHP can affect change only slowly. The first stage of that complete process is pre-employment; in Egypt it includes the policies, traditions, and procedures through which types and numbers of young people are steered to specific careers and public sector employment. It continues with **professional education** (see section 5.1 for CSP activities) accompanied by national policies guaranteeing employment for medical school graduates. Actual human resource management begins with central assignment of personnel, followed by **district-level preservice training**, orientation, and supervision. It includes **central, governorate, and district staff development, including training** (see section 5.2 for a discussion of training) as well as national policies and procedures for **compensation (including salary supplements and incentives)**, leave-taking, retirement, and termination of public sector employees.

The project paid salary supplements from GOE funds ranging from 100 percent to 300 percent of base salary to central-level MOHP staff and incentives ranging from LE 50 to LE 100 for approximately ten MOHP managerial/supervisory personnel in each governorate and ten in each district office. The project did not include incentives at the service delivery level. A fact which was the source of some resentment on the part of MCH staff who know that family planning personnel receive performance payments for contraceptive services delivered.

CSP did not attempt (nor did it have any authority/responsibility to do so) to address the other human resource steps which are so crucial to high-quality sustainability services. These other human resource management steps do, however, affect how well this project could perform and how the Healthy Mother/Healthy Child Project will perform. For example, both projects face these two questions:

- C How much of a "model" can a clinic be with assigned staff 200 percent -300 percent above the requirement? and
- C How to maintain trained staff in governorates and health facilities with high turnover?

The answers to these questions are policy-related (for instance, the "graduates policy," the assignment of personnel, and leave-taking) and beyond the scope of a service project. A policy project, however, can address such questions and the human resource management steps and policy-related issues which will be of critical importance to the success of the Healthy Mother/Healthy Child Project are presented in Appendix K.

In 1995, the GOE financed the total vaccine cost of LE 70 million with LE 40 million from the GOE budget and LE 30 million from USAID Special Account funds.

1 Institutionalization

CSP has worked to institutionalize the three main components; each of the components now has a “home” in the MOHP. Moreover, CSP workshops on decentralization in four governorates have worked to develop constituencies at the governorate and district level in those four. During those workshops governorate- and district-level staff expressed the belief that EPI has the greatest support, followed by ARI, and CS/MCH. EPI and, to a lesser extent, ARI, appear to have developed constituents and been institutionalized in the MOHP. The position of CS/MCH is weaker.

1 Decentralization

CSP’s decentralization efforts are a result of midterm evaluation recommendations which identified the CSP’s centralized management as a barrier to success at lower levels of the health care system. They are a deliberate new CSP initiative that are not required in the original Project Papers. Since that midterm evaluation, CSP has devoted considerable effort to developing consensus for decentralization and to plans and methodologies for increasing governorate capacity to plan, budget, and monitor performance. CSP has provided training to four of the 27 governorates in planning and budgeting. A national MOHP health information system has been introduced, at least partially, into all governorates.

Decentralization means different things to different people. Although in the final CSP report (1989-1996), CSP presents the process as being fairly well along, in other documents CSP interprets decentralization as governorate- and district-level capacity for planning, budgeting, and monitoring. This is a more limited interpretation than that often presented in the management literature and more limited than the decentralization described in the HM/HC Project Paper. As one management source described decentralization: “Decentralization is about power. The term is usually used to describe the transfer of power from higher to lower management levels in diverse organizational settings, although the degree of power that is transferred varies widely. It can mean transferring only control *over specific management functions*, such as planning and budgeting, from a central office to field offices, or shifting the responsibility for an *entire program* to an institution with a distinct geographic boundary, such as a provincial or district government.”²⁸ See Appendix K for a presentation of the authority and responsibility for various management functions in the CSP/MOHP child survival activities.

1 Integration

The CSP was designed, and functioned successfully for the first years of the project, as a group of vertical programs, along side other key vertical programs such as the Systems Development Program. In response to the midterm evaluation, CSP initiated two strategies to promote integration. The first was the Clinic Management Improvement Program (Model Clinics see discussion in section 5.6) and the second was the establishment of an Integrated Training

²⁸Decentralizing Health and Family Planning Services,” *The Family Planning Manager, Family Planning Management Development, Management Sciences for Health, Volume IV, Number 2, March/April 1995.*

Unit (ITU) in 1996. The ITU is brand-new and, therefore, this assessment cannot evaluate its achievements.

1 Conclusions and Recommendations

The GOE and the CSP project have taken valuable steps to improve the sustainability of child survival activities. Highly significant is the GOE move to assume a greater proportion of the costs every year. However, the GOE must now pick up the full costs of vaccines, as it is clear USAID will not fund them any longer.

In response to the midterm evaluation, CSP initiated three complex processes which will take years to fully finish:

- C **Integration:** CSP has made limited progress to date even in integrating its components, let alone integrating those components with other related MOHP activities such as family planning training or service standards.
- C **Decentralization:** Decentralization to date has meant the development of governorate and district capacity to plan and budget. Decentralization as portrayed in the Healthy Mother/Healthy Child Project Paper with delegation to governorates and districts of **real authority** will require GOE and MOHP policy changes. The significant change identified in the Project Paper may well take far longer than five years.
- C **Institutionalization:** Each of the three components has a home in the MOHP but real institutionalization also means strong constituents and demand. The Healthy Mother/Healthy Child Project must develop a demand for reproductive health, both within the MOHP hierarchy and in the community.

Adequate numbers of trained, motivated, supervised, and sufficiently compensated personnel are essential to a sustainable public health program. USAID and MOHP can and are affecting, over the short-term, some of the factors which produce and maintain such personnel. Other factors evolve from public sector policies and traditions which will be changed more slowly; donor support for such change is essential to high-quality, cost-effective, sustainable health services.

- 21. The GOE/MOHP should be mindful of providing for the full costs of the EPI and ARI programs:
 - C While the MOHP has only budgeted LE 50 million for 1996, total vaccine costs in 1996/1997, which the GOE has promised to assume, are LE 96 million; and
 - The MOHP must ensure that budgeting and monitoring by governorates and districts maintains the well functioning cold chain.
 - C The MOHP should review existing ARI treatment protocols, and the ARI cost - recovery policy, to decrease the recurrent costs for ARI drugs, especially amoxicillin.

22. USAID and the GOE should negotiate pilot testing delegation of authority to the district level. The Healthy Mother/Healthy Child Project should collaborate with the upcoming Health Policy Project, perhaps pilot testing changes in MOHP personnel policies which would support the recruitment and retention of well-qualified personnel, particularly women, in adequate and appropriate numbers throughout Upper Egypt. USAID should work with the Healthy Mother/Healthy Child Project and Systems Delivery Project to ensure some equity between projects on clinic -level incentives; HM/HC should provide for incentives for MCH personnel at the clinic level.
23. The Healthy Mother/Healthy Child Project should include activities to build constituencies for reproductive health with the GOE and MOHP as well as activities to develop demand in the community.
24. USAID and the MOHP should carefully plan the organizational structure and relationships desired in the new project now, including collaboration with the Systems Delivery Project.

APPENDICES

- A. Evaluation Scope of Work
- B. CSP Achievement Matrix: Progress in Achievement of Logframe Objectives
- C. Matrix of Principal Findings, Conclusions, and Recommendations
- D. Methodology
- E. List of Documents Reviewed
- F. List of Persons Contacted
- G. Expanded Program on Immunization (EPI)
- H. Acute Respiratory Infection Control Program (ARI)
- I. Child Spacing and Maternal and Child Health
- J. Training
- K. Sustainability
- L. Executive Summary in Arabic

APPENDIX A

EVALUATION SCOPE OF WORK

APPENDIX B

CHILD SURVIVAL PROJECT ACHIEVEMENT MATRIX

Progress in Achievement of Logframe Objectives

APPENDIX B

Child Survival Project Progress in Achievement of Logframe Objectives

<i>OBJECTIVE</i>	<i>FINDINGS</i>
<i>1.1 Zero cases of</i>	<i>There were 71 confirmed cases of indigenous polio in 1995.</i>
<i>1.2 80% reduction in</i>	<i>An 89% reduction has been achieved with 790 reported cases of NNT</i>
<i>1.3 25% reduction of</i>	<i>A 16% decline in ARI-related IMR (from 13 to 11) was noted by a</i>
<i>1.4 15% reduction in</i>	<i>The National Maternal Mortality Survey (NMMS) conducted by the</i>
<i>1.5 50% reduction in infant</i>	<i>The 1995 EDHS shows a 35% decline in infant mortality between the</i>
<i>1.6 45% reduction in child</i>	<i>The 1995 EDHS shows a 59% decline in child mortality between the</i>
<i>2.1 90% infant</i>	<i>Coverage of HIS service data and DHS survey data:</i>
<i>2.2 Immunization coverage</i>	<i>TT2+ coverage increased dramatically from 9% in 1987 to 73% in</i>
<i>2.3 70% of mothers aware</i>	<i>72% of mothers, in 1995, recognized difficult or rapid breathing as an</i>
<i>2.4 60% of pregnant</i>	<i>The 1995 DHS found that in 39% of the births during the period</i>
<i>2.5 70% of mothers</i>	<i>The 1995 DHS found that 68% of the infants under four months</i>
<i>3.1.1 The national EPI</i>	<i>EPI is effectively providing vaccines to 3,500 vaccination units</i>
<i>3.1.2 Production capability</i>	<i>CSP provided TA to assess the need for improvement in vaccine</i>
<i>3.1.3 80% of EPI primary</i>	<i>CSP reports training of over 50,000 PHC staff since 1989, and</i>
<i>3.1.4 Improved EPI</i>	<i>The EPI MIS has been significantly improved in the areas of:</i>
<i>3.2.1 A national ARI</i>	<i>A national ARI detection and treatment program based on Standard</i>
<i>3.2.2 80% of primary</i>	<i>Since the denominator of persons to be trained is not well defined it is</i>
<i>3.2.3 An effective MIS for</i>	<i>An effective MIS for ARI based on standard case management (SCM)</i>
<i>3.3.1 80% of physicians</i>	<i>The total of PHC physicians working in the MOHP can be estimated</i>
<i>3.3.2 80% of dayas in</i>	<i>By the end of 1995, CSP had trained more than 9,000 dayas in 100</i>
<i>3.3.3. 200 hospital delivery</i>	<i>Nearly 200 hospitals use the standard obstetrical, and to a lesser</i>
<i>3.3.4 Development of a</i>	<i>Over 90% of the newly established neonatal units (see 3.3.3) report on</i>
<i>3.3.5 80% of primary</i>	<i>Only a few specific training activities were undertaken in the areas</i>
<i>3.4.1 Media programs</i>	<i>Mass media programs addressing some of CSP concerns have been</i>
<i>3.4.2 MOHP Health</i>	<i>The mobilization of MOH Health Education Officers did not take</i>

APPENDIX C

CHILD SURVIVAL PROJECT ACHIEVEMENT MATRIX

Summary of Principal Findings, Conclusions, and Recommendations

APPENDIX D

METHODOLOGY

APPENDIX D

Final CSP Assessment - Team Methodology

A five-person team composed of one management specialist (team leader), three MPH physicians and one Ph.D. Public Health Specialist worked for five weeks in Egypt from April 1 through May 8, 1996. Work began with a two day team planning meeting led by the team leader and an outside consultant.

The first week was spent in Cairo interviewing project, collaborator (WHO and UNICEF) and USAID staff and reviewing project, collaborator and USAID documents as well as the preliminary results of the 1995 Egyptian Demographic Health Surveys.

During the second and third week the team interviewed MOH staff (managerial and service delivery) and observed MOH operations at the central, governorate, district, and service delivery level - including hospitals, urban health centers, and rural health units. During this time the team observed service delivery operations in both urban and rural MOH health facilities in Upper Egypt (Aswan, Luxor, and Fayoum) and Lower Egypt (Cairo, Alexandria, Sharkia, Beheria, and Kalyubia).

The fourth and fifth weeks were spent in Cairo, conducting follow-up interviews and writing.

In the field the five person team split into two smaller teams, one subteam collecting data in urban facilities and the other subteam visiting rural units. All team members used structured interview guides developed during the first week in Cairo. Brief team meetings were held at least every other day to share information gathered and tentative conclusions and recommendations.

APPENDIX E

LIST OF DOCUMENTS REVIEWED

APPENDIX E

List of Documents Reviewed

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MOH, CSP, CAU, Training Manual for Health Educators, 1996

MOH, CSP, Dayas Training Program

APPENDIX F

LIST OF PERSONS CONTACTED

APPENDIX F

List of Persons Contacted

Ministry Of Health, Central

Dr. Ismail Sallam	Minister of Health
Dr. Hosni Tammam	Undersecretary for Primary Health Care
Dr. Moshira El Shafae	Undersecretary for Family Planning
Dr. Hassan El Gebaly	SDP Executive Director
Dr. Said Oawn	Communicable Diseases Director
Mrs. Nawal El Fiki	Nursing Schools Director, MOH
Dr. Samir Girgis	Information and Documentation Director
Dr. Samir Saad Alla	Director, Health Education Department
Dr. Mahmoud El Kest	Director, Health Education Department

USAID/G/HPN

Caryn Miller	Technical Advisor for Child Survival
Mary Ellen Stanton	Reproductive Health Advisor

USAID/Cairo

Mrs. Joy Riggs Perla	HPN Director
Mrs. Mellen Tanamly	Director, Office of Health
Mr. Francisco Zamora	Health Development Officer
Dr. Nahed Mata	Project Management Specialist
Mr. Randall Park	Evaluation Officer
Mrs. Aziza	Women in Development

Clark Atlanta University

Dr. Reginald Gibson	Chief of Party
Dr. Frank Cummings	Project Manager, Atlanta, Georgia
Dr. Albert Baron	Program Evaluation

Ernest Petrich Associates

Mr. Tom Coles	Training Consultant, CSP
Mrs. Carol Brancich	Resident Advisor, SDP

Field Epidemiology Training Program

Dr. Douglas Hatch	Chief of Party
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UNICEF

Dr. Magdy Bayoumi	Assistant Director of Health Office
Dr. Amira El Malatawi	Program Officer

High Institute Of Public Health, Alexandria

Dr. Mohamed El-Amin Abdel Fatah	Professor of Hospital Administration
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Child Survival Project

Dr. Esmat Mansour	Project Executive Director
Dr. Moustafa El Kassas	MCH/CS Executive Director
Dr. Nagwa Khalaf	ARI Executive Director
Dr. Ahmed Darwish	EPI Executive Director
Mr. Ahmed Labanni	Administrative and Financial Manager
Dr. Ali Hakim	Health Education Officer
Dr. Nabih Ismail	Model Clinics Officer
Dr. Hala Safwat	Information Systems Officer
Dr. Farouk Abdeen	Field Epidemiology Training Program (FETP)
Dr. Abdel Naser Mohamed	Field Epidemiology Training Program (FETP)
Dr. Kaled Naser	MCH Assistant Director
Dr. Samir El Nemaki	MCH Assistant Director
Dr. Salwa Makar	MCH Assistant Director
Mr. Khaled Hagra	IEC Officer
Dr. Nagwa El Assa	IEC Officer
Dr. Nahed Kamel	IEC Trainer

ARI:

Dr. Sami El Ansari	Research and Health Information Consultant
Dr. Mohsen El Said	Training Officer
Dr. Hisham Othman	Training and IEC Officer

MCH/CS

Dr. Amina Lotfi	Daya Program
Dr. Ashraf Nabil	NeoNatal Program
Dr. Ibrahim El Nekhaily	Laboratories Program
Dr. Hoda Aziz	Midwifery Program
Dr. Nawal El Menofi	Midwifery Program
Dr. Mohamed Shabaan	Research Officer
Dr. Salah Rabie	Ob/Gyn Consultant
Dr. Alaa Abdel Hakim	Ob/Gyn Consultant

EPI

Dr. Abdalla Abul Khair	Surveillance Officer
Dr. Atef Hassan	Coverage Officer
Dr. Mohamed Tantawi	Research Officer
Dr. Yehia Mostafa	Training and Measles Control Officer
Dr. Said El Sharkawy	Consultant
Dr. Salah Madkour	Consultant
Eng. Shehata Ayyad	Cold Chain Engineer
Eng. Taher Abdel Monem	Cold Chain Engineer

Aswan Governorate

Dr. Mohamed Bassioni	General Director
Dr. Ahmed Kotb	Preventive Director
Dr. Sonia	CSP Coordinator, Head of Training Department
Dr. Nader Nasef	MCH/CS Coordinator
Mr. Mohamed Amin	HIS Specialist
Dr. Ashraf	

Cairo Governorate

Dr. Magda El Sherbini	Undersecretary of Health
Dr. Gamal El Gindi	MCH/CS Coordinator
Dr. Suzane Fahmi	Director, El Galaa Urban Health Center
Dr. Maher Mesiha	Assistant Director, El Galaa Urban Health Center
Dr. Tahani Abbas	Director, El Darassa Urban Health Center
Dr. Addel Hai El Said	Health Inspector
Mrs. Nadia Mahmoud	Nursing Director, Dar El Salam Health Center
Mrs. Ganat El Said	Lab. Technician, Dar El Salam Health Center
Mrs. Gihan Mohamed	Lab. Technician, Dar El Salam Health Center

Behira Governorate

Dr. Nabih Shaltout	Undersecretary of Health
Dr. Abdel Raouf Farahat	CSP Coordinator
Dr. Ahmed Abu Zeid	Health Director, Abu El Matamir District
Dr. Boshra Boutros	MCH/CS Coordinator, Abu El Matamir District
Dr. Abdel Azem Saber	EPI Coordinator, Abu El Matamir District
Dr. Mohamed NabilKafr	El Daoar District Director
Dr. Ihsan Abdel Rahman	Director, Kom El Berka Rural Health Unit
Dr. SalahEIDin Selim	Director, Wastania Rural Health Unit
Dr. Hamdy Mohamed	Director, Gheta Rural Health Unit

Alexandria Governorate

Dr. Fayik Meitemid	Undersecretary of Health
Dr. Aziza Gaafr	Primary Health Care Director
Dr. Aza Abu Zeid	ARI Coordinator
Dr. Nabil Sharaf	EPI Coordinator
Dr. Safinaz Mahmoud	MCH/CS Coordinator
Dr. Wafaa Salem	Health Director, Eastern province
Dr. Maher Ghali	Semoha Urban Health Center
Dr. Khairia Abdel Azim	Director, El Raml Pediatrics Hospital
Dr. Nadia Badawi	Newborn Specialist, El Raml Pediatrics Hospital
Dr. Wafaa El Tabach	Newborn Specialist, El Raml Pediatrics Hospital
Dr. Hisham Darwish	Director, Fever Hospital
Dr. Hussein Bayoumi	Director, Mandara Urban Health Center
Dr. Hossam Ibrahim	Pediatrician, Mandara Urban Health Center
Dr. Laila El Biali	Director, Outpatient Clinics, Mandara Urban Health Center

Fayoum Governorate

Dr. Ibrahim Abdel Azim	Health General Director
Dr. Abdel Al	MCH/CS Coordinator
Dr. Mahmoud Salem	ARI Coordinator
Dr. Ashri Abdel Baki	EPI Coordinator
Dr. Hazem Bakry	Health Director, Sanouris District and Urban Health Center
Dr. Mohsen Kora	Director, Monshaeit Sanouris Rural Health Center
Mr. Ahmad Kotb	Sanitarian, Monshaeit Sanouris Rural Health Center

APPENDIX G

EXPANDED PROGRAM ON IMMUNIZATION (EPI)

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APPENDIX G

Expanded Program of Immunization

Summary of Findings and Recommendations from *Final Report: 1993 EPI Cold Chain Evaluation*

Findings:

A. Cold Chain Equipment Inventory Records: Cold chain equipment inventory in most governorates requires strengthening through the use of inventory cards and, where feasible, the use of computers.

B. Proportion of Equipment Requiring Repair: The proportion of equipment requiring repair was in accordance with operating standards. All governorates were supporting repair and maintenance operations.

C. Governorate Main Stores: Main stores in 17 governorates and Luxor were fully satisfactory with respect to space, ventilation, electricity supply, equipment status, storage capacity, and operation. Increased capacity, or new or modified facilities, were recommended in nine governorates.

D. Governorate Cold Chain Maintenance and Repair Workshops: The workshops were adequately staffed, well-equipped, and operating satisfactorily in 21 governorates and Luxor. An important lack was a failure to budget regularly for spare parts for cold chain repair and maintenance.

E. Refrigerated Transport Facilities: All the refrigerated trucks were found in working condition and properly maintained. Some governorates suggested using diesel rather than gasoline engines in the future.

F. Health District Cold Chain Stores: About 90% of the 195 district cold chain stores were found to be satisfactory with respect to space, ventilation, status of equipment, and operations. About 10% of them were found to be poorly organized and managed, or located in facilities too small for effective operations.

G. Vaccination Units: 95% of vaccination units surveyed were managing cold chain maintenance and vaccine storage satisfactorily. Unstable electricity was noted to be a problem in some units.

H. Cold Chain Monitoring and Supervisory Control System: Monitoring and supervisory control systems were found to be in effect in all districts. Adequate transportation has been a factor in providing effective monitoring and supervision, and districts are being strengthened by the addition of motorcycles.

Recommendations:

1. **Improve the cold chain inventory system** - install improved cold chain equipment inventory systems.
2. **Strengthen main EPI storage at the governorate level** - increase or reorganize storage capacity.
3. **Establish effective maintenance workshops** - establish/renovate workshops in 5 governorates.
4. **Correct deficiencies in district stores** - improve management and increase cooling/freezing capacity.
5. **Address problems of power outages** - complete solar installations; analyze standby electrical needs.
6. **Address backlogs of equipment repair** - conduct on-the-job training for district technicians.
7. **Strengthen cold chain management** - continue to develop effective, decentralized management.

APPENDIX H

ACUTE RESPIRATORY INFECTION CONTROL PROGRAM (ARI)

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APPENDIX H

Acute Respiratory Infections

Applied and Operations Research of the ARI Control Program

Standard Case Management:

- Respiratory Rate and Chest Indrawing Assessment by PHC Physicians
- Clinical Signs/Symptoms Associated with Pneumonia and Hypoxia in Children
- Management of Infants With Wheeze
- Management of Children With Pharyngitis
- Socio-Cultural Research
- Ethnographic Study on Perception & Treatment of ARI Symptoms Among Egyptian Young Children
- Validation of Maternal Recall of Signs and Symptoms of ARI Among Egyptian Children

Health Systems Research:

- Surveillance of Bacterial Drug Resistance
- Health Facilities Surveys (1990-91)
- Health Facility Survey (1993-94)
- Health Facility Survey (1995-96)
- Acceptability and Compliance of Different Antibiotic Formulations
- Study on the Use and Effectiveness of Oxygen Concentrators
- Systems for Ensuring ARI Drug Supply at Affordable Cost

Epidemiology of ARI:

- Child Survival in Rural Egypt--A Community Study in Menoufia (1991-92)
- Impact of ARI on Childhood Health-Community-Based Surveillance in Bilbeis
- Validation of Completeness and Accuracy of Under-Five Death Registration
- Sentinel Diagnostic Survey
- CSP Assessment Survey
- KAP Studies

Six Years of ARI Campaign -- Achievements and Lessons Learned

Excerpts from the Chapter on ARI in the CSP Final Report

Lesson 1: Identification of sound technical strategies and policies are crucial to achieve program objectives.

The availability of sufficient financial resources is an important factor in the success of a health program, but it is not a definitive guarantee of success. Key factor is to make the right technical and managerial decisions in selecting strategies, formulating policies, and identifying activities leading to the achievement of program objectives.

Lesson 2: Managerial activities to translate into realities the strategies and technical policies on case management should be clearly defined from the start of a project.

Technically well-oriented programs have often failed to achieve their objectives because they have been unable to translate their policies into realities. In its initial workplan the Egypt ARI program defined clearly the managerial activities to be used to put into practice the case management strategy. Program management was addressed to organizing training, supervision, and logistics to increase access, and communication and education to increase use.

Lesson 3: Management efficiency increases in direct relationship with decentralization of planning and implementation.

The functions of central, regional, and district levels were distinctly identified and defined. The central level was assigned the tasks of establishing appropriate technical guidelines, providing guidance for local planning, conducting evaluation surveys, organizing surveillance of bacterial drug resistance, promoting research, and ensuring overall coordination within the program, within the MOH, and with external agencies. The governorates and districts were given responsibility for planning and monitoring in detail the training courses, the supply of drugs and equipment, and the communication activities.

Lesson 4: Quality matters as much as quantity in the planning and implementation of training activities.

If training courses on case management do not result in immediate improvements in clinical practices at health facilities they are a waste of time and resources. Quality control, through activities such as facilities surveys, provides information not only on the quality of training but also on the quality of other managerial activities like supervision and logistics that are essential for the delivery of appropriate case management.

Lesson 5: Communication activities are valid if they lead to measurable changes in home behavior and practice.

If the aim of training is to change clinical behavior among health providers, the aim of communication and health education activities is to produce behavioral changes in families. The essential behavior promoted by the ARI program for home care of children is that families seek prompt care from a doctor as soon as a child has danger signs of ARI.

Lesson 6: It is counterproductive, as well as a source of frustration, to increase awareness and care seeking when services are not prepared to deliver standard case management and are not provided with a regular supply of antibiotics.

The promotion of the use of services that are not yet fully available damages the credibility of health messages and generates frustration within the community. While mass media can be a powerful communication tool, its usefulness for ARI programs will depend on the existence of health facilities which can provide appropriate case management. Mass media messages which encourage families to seek care for children who present signs and symptoms of pneumonia are bound to fail in the absence of effective case management.

Lesson 7: Equipment without a maintenance and repair service in place is a waste of funds.

The first concentrators distributed by the program were not suitable for the conditions of high temperature and dusty atmosphere of Egypt, and there were frequent shortcomings in their functioning. This problem was quickly corrected.

Lesson 8: Monitoring the delivery of case management can function well if based on a regular flow of data from the field.

The monthly analysis of data helps to detect problems in the way health facilities manage cases of ARI. It also provides information to orient supervision, reinforce the knowledge and skills acquired by doctors during in-service training, and detect irregularities in drug supplies.

Lesson 9: Selective surveillance and research provide essential information to maintain the technical effectiveness of the strategy.

As one of the first ARI programs ever implemented on a national scale, the Child Survival Project included essential research and development activities to compensate for the lack of knowledge in this area. In addition to the lack of valid field experience, many aspects of the recommended control methods were still undefined or insufficiently supported by scientific studies. Research to solve technical and operational problems and improve delivery of the case management strategy was undertaken as a means to ensure the development and sustainability of the program.

Lesson 10: Involvement of leading professionals in public health, pediatrics, and related disciplines facilitates the introduction and development of program activities.

Health professionals are very influential in the national health care system. From the beginning, the Child Survival Project was aware that professional endorsement was essential to the success of the ARI program. One of the first activities of the new program was to convene a national seminar in June 1989 with the participation of professors of Pediatrics and Community Medicine and officers of related professional associations to discuss the technical policies and guidelines of the program.

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CHILD SPACING AND MATERNAL HEALTH

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TRAINING

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SUSTAINABILITY

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APPENDIX L

EXECUTIVE SUMMARY (In Arabic)