INSTITUTE OF MEDICINE

REPORT OF A STUDY

Health in Egypt: Recommendations for U.S. Assistance

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HEALTH IN EGYPT:

RECOMMENDATIONS FOR

U.S. ASSISTANCE

Report of a study
by a committee
of the
Institute of Medicine
Division of International Health

January 1979

National Academy of Sciences
Washington, D.C.

NOTICE

The project that is the subject of this report was approved by The Governing Board of the National Research Council, whose members are drawn from the Councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competence and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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PREFACE

Purpose, Scope, and Approach

This report presents the findings and recommendations of a study conducted by the Institute of Medicine of the National Academy of Sciences for the United States Agency for International Development (AID). The study was done with the cooperation of the Ministry of Health of the government of the Arab Republic of Egypt.

AID requested the Institute of Medicine to undertake a short-term study of Egyptian health problems and of Egyptian programs and plans for improving the health and nutritional status, and for reducing the population growth rate, of the people of Egypt. The purpose was to identify opportunities for effective action that would be particularly appropriate for future United States support.

The Institute of Medicine assigned the study to its Committee on International Health, which appointed three of its members to serve as a steering committee responsible for the study.

The scope and focus of the study were defined in consultation with AID officials in Washington and in the AID Mission in Cairo, and with officials of the Egyptian Ministry of Health. Ten study areas were identified:

- Health planning and management
- Primary health care services
- Population programs
- Nutrition programs
- Hospital care services, including emergency medical care
- Parasitic diseases
- Bacterial and viral diseases
- Water supply and sewage systems and occupational health
- Pharmaceutical products
- Health professions education

Because of time constraints, mental, dental, and rehabilitation services were excluded from the scope of the study, except as they might be reflected

in the above ten study areas.

The study group reviewed American supported programs in Egypt, as well as those of international organizations. In addition to AID, other United States government agencies conduct cooperative health research activities funded with American-owned Egyptian currency generated by Public Law 480 sales of agricultural commodities (Special Foreign Currency Program funds). For example, more than half the research activities of the United States Naval Medical Research Unit #3 (NAMRU-3) in Egypt are funded from this source. Projects developed under the auspices of the United States-Egypt Joint Working Group on Medical Cooperation have been funded primarily by the Special Foreign Currency Program, although AID has financed some medical equipment.

Many of the cooperative research activities are oriented toward basic health problems in Egypt and involve development of some components of the Egyptian health care system. However, under existing congressional and Department of Treasury policies, Special Foreign Currency Program funds are likely to be exhausted in the near future — perhaps in another year or two. After that, AID is likely to be the major source of United States funds for cooperative research activities, if they are to continue. AID therefore requested that the Institute of Medicine include cooperative research activities within the scope of the study.

With the concurrence of the Assistant Secretary for Health of the Department of Health, Education, and Welfare, who serves as the American co-chairman of the Joint Working Group on Medical Cooperation, AID requested recommendations on the future role of that group.* Also, with the agreement of the Office of the Chief of the Naval Research and Development Command and the Commanding Officer of NAMRU-3, AID asked the Institute of Medicine for recommendations on future coordination of NAMRU-3's activities with other United States supported health programs in Egypt.

This report is based on the information obtained in Egypt by the committee,** by a twelve-member consultant task force of United States health professionals, and by members of the Institute of Medicine staff.

During a four-week stay in Egypt, more than 150 Egyptian health care facilities and education and research institutions were visited, meetings

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* The existing five-year agreement with respect to the Joint Working Group, originally signed by the United States Secretary of State and the Egyptian Minister of Foreign Affairs, expires on October 28, 1980; the agreement may be extended for such further five-year periods as may be agreed upon by the parties.

**Throughout this report the term "committee" refers to the steering committee for the study appointed by the Institute of Medicine Committee on International Health. The term "Institute of Medicine study group" will refer collectively to the committee, consultant task force, and IOM staff members who visited Egypt.

were held with more than 500 Egyptian health professionals in both rural and urban areas of 11 of the 25 Egyptian Governorates, and extensive discussions were conducted with key officials in the Egyptian Ministry of Health, the AID mission in Cairo, and multilateral assistance organizations in Egypt. The committee also met separately with the Egyptian Minister of Health and his staff, the President of the Egyptian Medical Syndicate, the United States Ambassador to Egypt, and the director of the AID mission in Egypt.

Readily available published data and studies on health, nutrition, and population problems in Egypt are fragmentary, outdated, and often unreliable. Therefore, this report draws on the firsthand observations of the Institute of Medicine study group and information obtained in the meetings and discussions held in Egypt. The committee's recommendations are based on the analytic judgments of the Institute of Medicine study group resulting from the visit to Egypt.

Organization of the Report

The committee's recommendations are presented in Part I of the report. Programs recommended for future United States support are described in Chapter 1. Administrative recommendations related to implementation of those programs, to the Joint Working Group on Medical Cooperation, and to NAMRU-3 are contained in Chapter 2.

Part II of the report includes resource papers containing the background information and findings on which the committee's program recommendations are based. Chapter 3 is an overview of major economic, demographic, and social factors that must be taken into account in considering future United States cooperation and assistance. Chapter 4 provides a summary of available information on the major health problems of the Egyptian people. Chapters 5, 6, and 7 discuss Egyptian health care, population, and nutrition programs, respectively. Chapters 4, 5, 6, 7 also describe ongoing cooperation and assistance and include committee suggestions for future United States support. The committee's final program recommendations in Chapter 1 are drawn from Chapters 4, 5, 6, and 7. The suggestions remaining in those chapters might be considered for future United States support if the fiscal resources made available to AID for its Egypt program are increased significantly.

The Appendix contains unedited excerpts from the English translation of the health sector annex of Egypt's Five-Year (1978-82) Economic and Social Development Plan. The Ministry of Health's goals and objectives for the five-year period, as articulated in that annex, provide essential reference points for planning United States cooperation and assistance for the next several years.

ACKNOWLEDGEMENTS

In much more than a pro forma sense, this study could not have been accomplished without the full cooperation of two groups: the American health professionals listed on pages ii and iii who, on extremely short notice, rearranged their private and professional lives to make the field trip to Egypt; and the many Egyptian health professionals who generously shared information and insights with the Institute of Medicine study group.

Cooperation of the Ministry of Health was critical to the study. The committee wishes to express its deep appreciation to Dr. Ibrahim Badran, then Minister of Health, for assuring that cooperation by his warm and gracious reception of the study group and its mission, and by so generously giving his own time in many meetings with study group members. The depth of his commitment to an independent, objective study was reflected in his insistence that the study group members be permitted to visit any Ministry health facility or activity, to talk with any health professional in Egypt, and to have any available data from the Ministry.

Dr. Badran made access possible by appointing the following senior members of his staff as coordinators for the work of study group members in their areas of responsibility. Their assistance in arranging visits and meetings, as well as in sharing their experience and knowledge, is gratefully acknowledged.

Dr. Ahmed El Akkad, Under Secretary of State
for Preventive Affairs

Dr. M. Saad Fouad, Under Secretary of State
for Specialized and Emergency Medical Care

Dr. Labib Ibrahim, Under Secretary of State
for Central Services (Health Resources, Statistics)

Dr. M. El Kattan, Under Secretary of State
for Pharmaceutical Affairs

Dr. El Motaz Billah Mobarak, Under Secretary of State
for Control of Endemic Diseases and Basic Health Services

A very special word of thanks is due Dr. Ramais A. A. Gomaa, Under Secretary of State in the Minister's immediate office, who served as overall coordinator of Ministry activities for the study group with extraordinary efficiency. Dr. Wafik Ashraf Hassouna of the Institute of National Planning, consultant to the Minister of Health, generously shared with the study group the perspectives and insights he gained from his recent experiences in the development of major health and population projects for the Ministry. Dr.

Ahmed Sirry, First Under Secretary of State in the Ministry of Health, was most helpful throughout the study, but particularly at the end of the study group visit in tying loose ends together in the health services financing area.

It is not possible, of course, to name all of the hundreds of Egyptians outside of the central offices of the Ministry who were contacted, but we want to mention those whose contributions were particularly important. Our appreciation is to all, but particularly: Dr. Fahmy M. Badrawry, Executive Director of the Egyptian Family Planning Association; Dr. Aziz Bindary, Chairman of the Egyptian Population and Family Planning Board; Dr. Mamdouh Gabr, then Director of the Cairo University Children's Hospital, recently appointed Minister of Health; Dr. Saad Gadalla, Acting Director of the Social Research Center, the American University in Cairo; Dr. Mohamed H. Khalil, Dean of the High Institute of Public Health at Alexandria University; Dr. Aziz El Kholi, Director of the Biomedical Research Center for Infectious Diseases; Dr. Mahmoud M. Mahfouz, former Minister of Health; Mrs. Zahia A. Marzouk, Vice-President of the Alexandria Family Planning Association; Dr. Adham El Nakib, Medical Director of the Health Insurance Organization Hospital in Alexandria; Dr. Hoshim Nasser, Rector of the University of Tanta; Dr. Hamdy El Sayed, President of the Egyptian Medical Syndicate; and Dr. Mohamed Said Tawfik, Director General of Health Services in the Alexandria Governorate.

Dr. Cynthia Nelson and Ms. Fawzia Messih of the Department of Sociology, Anthropology, and Psychology at the American University in Cairo worked with the Institute of Medicine study group to sensitize the members to those social, cultural, and psychological factors relevant to health and the health care system in Egypt. Staff members of the following organizations in Egypt shared their prior experience in cooperation and assistance programs in Egypt with the study group: The Eastern Mediterranean Regional Office, World Health Organization; UNICEF; CARE; Catholic Relief Services; Ford Foundation; and Project HOPE.

Transportation, communication, supply, and other logistical difficulties in conducting a short-term, intensive study in Egypt are formidable. Without the dedicated and efficient administrative support services of Ms. Linda Oldham and Mr. Aly Otifa and their team members, provided under an AID/Cairo mission contract with International Business Associates, the study group would have been severely handicapped.

The staffs at the World Bank and at the United Nations Development Program, the United Nations Fund for Population Activities, and the World Food Programme were most cooperative in providing information on their current and planned activities. Dr. Michael Sachs, World Health Organization representative to the United Nations in New York, helped to arrange access to relevant World Health Organization information and offices. Dr. Robert Lapham, of the National Academy of Sciences Committee on Population and Demography, reviewed an early draft of the chapter on Population and Family Planning and provided information on preliminary results from the latest fertility survey in Egypt.

The committee is particularly appreciative of the personal interest and executive-level support for the study of Mr. Joseph C. Wheeler and Mr. Alfred D. White, Assistant Administrator and Deputy Assistant Administrator, respectively, of the Bureau for the Near East, and Mr. Donald Brown, Director of the AID Egypt mission in Cairo. The AID staffs in Washington and Cairo provided exceptional administrative support throughout the study, were forthcoming with their technical and programmatic views when requested, were scrupulous in avoiding any interference in the technical conduct of the study, and have been most patient and understanding in the face of an unavoidable delay in the submission of this final report. We wish to particularly thank Dr. John Alden, then Chief of the Population and Nutrition Division in the Bureau for the Near East, and Dr. Merrill Shutt, Chief of the Health and Population Office in the Cairo mission, who were primarily responsible for initiating the study and assuring the exceptional administrative support it received. The following members of their staffs were continually helpful: in Washington, Ms. Barbara Turner and Mr. Alan Randlov; in Cairo, Dr. Rose Britanik, Mr. Michael Jordon, Mrs. Laila Stino, and Mrs. Jane Peterson. Mr. Gerald Kamens, Mr. James Roberts, Mr. Bert Porter, and Mr. Craig Buck of the Near East Bureau's Division for Israel and Egypt Affairs provided essential information and policy perspectives on the overall AID program in Egypt.

Dr. John H. Bryant, Deputy Assistant Secretary of Health for International Health in the Department of Health, Education, and Welfare, was instrumental in early planning for the study when he was Chairman of the Institute of Medicine Committee on International Health. The participants in the planning workshop held at the beginning of the study, who are listed on pages iv and v, provided their knowledge and perspectives on Egypt to help guide and shape the development of the study plan. Dr. Kenneth Warren, Director of Health Programs for the Rockefeller Foundation and Dr. Paul A. Marks, Vice-President for Health Sciences at Columbia Unviersity, also shared their experiences in Egypt with the study group, contributing to both the operational and technical readiness of the group for its field trip. Dr. Michael Katz, Professor of Pediatrics at Columbia University and a member of the Institute of Medicine Committee on International Health, participated in planning the study and also traveled to Egypt as a member of the study group to provide his special expertise in child health and infectious diseases to the study. Captain Raymond Watten, M.D., Commanding Officer of the NAMRU-3 Unit in Cairo and his professional staff were most helpful in orienting the study group to the current state of knowledge on infectious diseases in Egypt, as well as the NAMRU-3 scientific research mission and programs on Middle Eastern infectious diseases.

The special contributions of the consultant task force members must be emphasized. Their personal dedication and commitment to the purpose of the study were continually evidenced in the equanimity, humor, and esprit with which they carried out their assignments throughout a very intensive work schedule under difficult field conditions. The professional competence reflected in the analyses they prepared for the committee was exceptional.

The study profited immeasurably from the wide experience and expertise

of Dr. Samuel Wishik, Professor Emeritus in Public Health at Columbia University, who served as Senior Health Professional Consultant throughout the study. Dr. William Lybrand joined the Institute of Medicine staff to direct the study and the committee is indebted to him and Ms. Karen Bell for an outstanding job in organizing and conducting the study, in pulling together the contributions of the consultants, and in producing the final report. Mr. David Tilson, Director of the Division of International Health at the Institute of Medicine, contributed significantly to both early planning for the study and the preparation of the final report. Ms. Grace Masuda of the Division exhibited extraordinary patience as well as consummate skill in typing the report through many drafts.

Finally, Dr. Frederick Robbins, Dean of the Case Western School of Medicine, then Senior Scholar-In-Residence at the Institute of Medicine, was a member of the steering committee for the study in every way except in designation, and we warmly welcomed and deeply appreciated his participation and contributions.

Ivan Bennett, M.D.
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PART I

RECOMMENDATIONS

CHAPTER 1

RECOMMENDATIONS FOR FUTURE UNITED STATES PROGRAMS

Future AID health, population, and nutrition programs in Egypt should satisfy four main criteria:

- They should fall within priority areas specified by the Egyptian Ministry of Health;
- They should yield benefits, short-term or long-range, to the majority of the people of Egypt;
- They should address problems that can be alleviated or solved by United States cooperation and assistance; and
- The effort should be concentrated on a small number of problems so that significant resources can be applied to each.

The Institute of Medicine committee considered the array of health problems and opportunities for future United States support identified by the study group in the light of these four criteria and recommends the following programs for AID support.

- A concentrated and sustained attack to reduce infant, preschool child, and maternal mortality and fertility by emphasizing oral rehydration, immunization, other selected maternal and child health services including nutrition, and family planning services.
- A program to improve the production and distribution in Egypt of the vaccines and key pharmaceuticals needed for the above program, and to strengthen regulation of all pharmaceuticals and biological products.
- A program to establish nationwide emergency medical services.
- A program to strengthen hospital administration.
- A cooperative research program.

The committee considers that these programs must have a life of at least five years to effect improvements in the health status of the Egyptian people. The committee believes the recommendations are realistic considering the funds likely to be available both to AID and to the Egyptian Ministry of Health during the next several years.

Ministry of Health Priorities

The then Minister of Health, Dr. Ibrahim Badran, provided the Institute of Medicine study group with the following program priorities.

Service Program Priorities

1. Family planning
2. Infant, preschool child, and maternal health
3. School-age child health
4. Environmental and occupational health
5. Nutrition
6. Endemic and infectious diseases
7. Emergency medical care

Supporting Program Priorities

1. Health planning, administration, and management
2. Biomedical research
3. Pharmaceutical products production and control
4. Health manpower education and training

In addition to being within the priority areas listed, the program recommendations that follow contain many elements included in the Ministry of Health's plans for the 1978-82 time period. These plans were discussed with the study group in Egypt by Ministry officials and generally reflect the contents of the health and medicine annex of the government of Egypt Five-Year Economic and Social Development Plan excerpted in the Appendix. There also are program elements recommended that represent different perspectives and directions than those currently being considered by the Ministry. The committee realizes that they can be carried out only if the government of Egypt approves them.

Reduction of Infant, Preschool Child, and Maternal Mortality and Fertility Rates

Mortality rates for infants and for children under five are excessively high in Egypt, as are maternal mortality rates. Major reductions -- more than 50 percent -- in these mortality rates are feasible within five-to-ten years. The committee recommends that AID give highest priority to support for specific nationwide programs to improve the health of infants, preschool

children, and mothers, and to protect those gains by preventing unwanted or ill-timed pregnancies.

These goals can be accomplished by strengthening the Ministry of Health's capacity for treating infant and childhood diarrhea with oral rehydration; systematically immunizing infants and preschool children with DPT, measles, smallpox, polio, and BCG vaccines; providing family planning services and other selected maternal health and nutrition services; reaching into communities to assure the delivery of these services; and promoting the program with a nationwide media campaign.

These targeted activities could be introduced into the AID-supported rural health project underway in four governorates, the new AID-supported urban health project in Cairo, and the World Bank-supported integrated maternal, child health, and family planning project in eight governorates. The possibility of broadening the AID-supported family planning project to encompass infant, preschool child, and maternal mortality reduction objectives also should be considered seriously. Some of the program elements of this proposed major initiative are included already in one or more of these ongoing projects. The principal modification of existing projects would be to concentrate resources on the achievement of a few high priority objectives through effective provision of a few selected services, rather than attempting to upgrade all services generally.

The committee believes it would be wise first to integrate these activities with ongoing projects and then expand in other areas with adequate support facilities. Training, management, and supervision are critical to success. The program should be expanded as rapidly as possible in an effort to make it nationwide within five years. Construction of some new ambulatory care facilities in urban areas, and provision of some vehicles in rural areas may be necessary, but in general the network of existing health facilities should be adequate.

The program will require supplies and some equipment for the clinics; refresher training for the health professionals in the clinics; strengthened management, including steps to improve the supervision of staffs in the health clinics and to provide them motivational feedback; improved accounting, procurement, supply management, and various types of record keeping; and recruiting, training, and supervising community health workers for the surveillance and outreach activities.

Developing effective, standardized, and coordinated training programs for the various categories of personnel will be a major task. United States health professionals working with Egyptian counterparts can make important contributions in this area. Local administrators at the governorate and district levels should be included in training programs covering accounting, procurement, supply management, and record keeping.

Improving the inadequate performance of the staffs of the health clinics will be the key to success of this program. Physicians working in the clinics

must be willing to accept a team approach, including the use of community health workers. Health professionals and auxiliaries alike will need to be motivated to provide conscientious, efficient, and courteous services. The committee realizes that bringing about the necessary changes in attitudes and behavior will be a difficult task. As in any country, the problems in the Egyptian health delivery system are embedded in the social, cultural, economic, and political structure of the country. The United States can provide technical services, supplies, equipment, and managerial advice. These are necessary but not sufficient for the success of the program. The essential ingredient will be staff motivation, and that will be responsive mainly to actions by the Egyptian government -- especially the introduction of realistic performance incentives by the Ministry of Health. The committee recommends that this factor -- staff performance -- be assessed as an integral part of the program from the outset and that AID provide the technical and fiscal support necessary for the Ministry to mount such a continuing evaluation effort. Effective methods of program performance monitoring will be needed. The rate at which the scope of the program is enlarged should be keyed to the performance results obtained in the initial phases.

Oral rehydration should receive primary emphasis. This relatively new technology for treating the diarrheal syndrome in infants and small children was developed from research conducted by the Cholera Research Laboratory in Bangladesh. Although the technology emerged from research on a highly prevalent disease in a developing country, the technology has been adopted widely in industrialized countries, as well as in many developing countries. Successful introduction and widespread practice of this simple technique to treat diarrhea in its early stages can be the most important factor in producing a quick drop in the mortality rates of infants and preschool children in Egypt. This element of the program should build on the successful experience of the UNICEF rehydration pilot project in Giza, Egypt and be coordinated with UNICEF support for the production of rehydration powders in Egypt. UNICEF has agreed to supply the Ministry with enough packets of rehydration powders for stocking about half of the nation's health clinics. The recommended AID program should supplement the UNICEF effort in several ways: by enlarging the training effort to cover all clinic personnel, not just one or two members, by expanding production of rehydration powders, by strengthening the system for distributing them, and by incorporating community health workers in the program.

The expansion of immunization coverage merits high priority. It is current Ministry of Health policy to provide diphtheria, pertussis, tetanus, measles, smallpox, polio, and BCG immunizations to all children. However, many children are not being immunized because of inadequate supplies of the vaccines, inadequate refrigeration equipment, and the general management and performance inadequacies of the health clinics. AID should help supply the vaccines, refrigeration equipment, and patient-retained immunization records for the program, and assist the Ministry of Health in strengthening the management and administrative arrangements needed to carry out these activities.

Other preventive maternal and child health activities merit emphasis in the program: monitoring children for malnutrition; nutrition education for mothers; provision of vitamin and iron supplements; follow-up of infants with low-birth weight; and surveillance and hospital delivery of high-risk pregnancies. AID should help provide essential supplies and equipment including three-year growth charts, heavy duty scales and wooden measures, and basic gynecologic and obstetric equipment.

Delivery of contraceptives and family planning counselling, emphasizing infant, child, maternal, and family health, should be integrated with maternal and child health activities. Identification of women who are most likely to accept family planning services is a natural concomitant of providing maternal and child health services. Techniques of family planning counselling, as well as clinical procedures, can be emphasized in the proposed refresher training programs for health personnel.

The committee considers fertility reduction in Egypt to have a high priority for United States support. AID should be prepared to support all serious approaches to fostering general use of contraceptives. It should not limit its population program support in the future only to the integrated health theme approach being advocated here, although the committee believes this is the most promising approach available at this time. AID support clearly would be merited for strengthening the ability of the voluntary family planning agencies to open more units and train more staff, particularly for service in rural areas, for improving the supply and distribution system to non-health clinic units so that low-cost contraceptives are plentiful and readily available everywhere, and for supporting strong media campaigns. However, these programs must await the emergence of a strong national commitment to family planning in Egypt (see Chapter 6).

Community monitoring and outreach efforts are an important part of the program. They should be designed to complement, rather than displace, services provided in the clinics. Community health workers (and, possibly, some dayas*) recruited from the communities served by the clinics should be trained and provided incentives to promote and extend specific maternal and child health, family planning, and nutrition services; to provide oral rehydration powders and instruction; to identify candidates for family planning services; to provide counselling and to deliver non-prescription contraceptives; to refer undernourished and sick children and pregnant women to the clinics; and to follow-up in the communities to minimize program drop-outs. The successful use of school health visitors provides support for the use of community health workers. Many members of the Egyptian medical establishment have expressed concern about employing dayas in government-sponsored programs. Their proposed use in the World Bank-supported population project indicates government willingness to test their effectiveness. The committee recommends that the use of dayas in delivering family planning services and in community

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* Traditional birth attendants. See Chapter 3.

surveillance activities be viewed as experimental.

The P.L. 480 Title II program being administered by the voluntary agencies for feeding preschool children should be employed to strengthen the community surveillance and outreach aspects of the recommended program. Community health workers can help organize mothers' clubs at which the care and feeding of infants and small children, food preparation, personal hygiene, birth-spacing, and use of contraceptives are discussed. Title II food would be distributed at the club meetings, with priority given to highly vulnerable individuals.

The entire program effort should be supported by a communications campaign using radio, television, billboards, and other media, both modern and traditional. It should use a "family health" theme, emphasizing the benefits to members of smaller families when all are healthy and active in contrast to the costs to the members of larger families when several are ill, sap family time and energy for custodial care, and contribute little to the quality of family life. The media program should stress the linkage of oral rehydration, immunizations, nutrition, and birth-spacing with contraceptives, along with the role of the community health workers, to achieving family health. The UNICEF's experimental radio program, using a "woman in the street" interview approach for reaching illiterate women, should be examined for its applicability.

The committee realizes that improvements are possible in hospital maternity and new-born care services and AID should consider providing limited support for upgrading these services. However, the committee recommends against AID support for including an advanced neonatology technology component in this nationwide program. Until mortality rates for infants beyond one week of age are reduced dramatically, most of the benefits that can be realized from neonatal services requiring complex and costly technology will be lost. In general, the committee recommends against using AID funds to support the spread of high-cost, tertiary care technology such as is required for renal dialysis and kidney transplant services, CAT scanning services, and open-heart surgery services. AID programs for strengthening health care services should concentrate on those services that address the pressing, unmet health needs of the many, not just the few, in Egypt. By contrast, cooperative biomedical research of high scientific merit may require complex equipment; the above recommendation is not meant to bar the use of United States funds in the purchase of any particular item that may be agreed to be vital to high priority scientific research.

Biologicals and Pharmaceuticals

The program to reduce the mortality rates of infants, preschool children and women of childbearing age, and to reduce fertility, requires adequate supplies of vaccines, rehydration powders, contraceptives, and selected pharmaceuticals. Egypt's pharmaceutical industry produces some of these items using imported raw materials, but there are problems of manufacturing

practices, quality control, quality assurance, and equipment maintenance and repair. It also is clear that a more effective system of distribution and supply management for pharmaceuticals and biologicals in the Ministry of Health's network of clinics must be developed.

The committee recommends that AID support studies of the adequacy of the production capacity in Egypt for meeting the requirements for vaccines, contraceptives, rehydration powders, and selected pharmaceuticals of the recommended program to reduce infant, early childhood, and maternal mortality, and fertility. These studies should be undertaken as soon as possible so that the program's needs can be determined and met. The committee is aware that there is a worldwide shortage of some of the common vaccines because their manufacture is complex and not profitable in affluent countries. The few manufacturers in the United States, Europe, and Japan who produce most of the world's vaccines do so primarily as a public service. Thus, there may well be an opportunity for Egypt to strengthen its manufacturing and/or repackaging capabilities, not only to meet its own needs, but to export vaccines with economic profit to other countries as well. (The same opportunity may exist for some other pharmaceutical products.)

The committee also recommends that AID give high priority to a project to assist the Ministry of Health to strengthen its system of distribution and supply management for pharmaceuticals and biologicals. This will entail a study to produce a workable design for the system and a plan to put it into operation -- including training of the staff and supply of the necessary refrigeration and other equipment needed to maintain an effective cold chain for the vaccines. Regional implementation of this project should be coordinated with the recommended program to reduce infant, early childhood, and maternal mortality, and fertility.

The committee notes that the United States-Egypt Joint Working Group on Medical Cooperation has sponsored several training efforts to strengthen Egypt's capabilities to regulate the production and distribution of foods and drugs in Egypt. There is an unusually wide range of pharmaceuticals sold over-the-counter in Egypt and pharmaceutical sales are reported to account for an estimated 50 percent of all national health expenditures, a high figure even for a developing country. A major effort to improve Egyptian regulatory capacity could entail substantial technical assistance by the U.S. Food and Drug Administration, as well as laboratory equipment and training. The committee recommends that AID support a continuation and expansion of the efforts initiated by the Joint Working Group to strengthen Egypt's food and drug regulatory capabilities.

Emergency Medical Services

Accidents, poisoning, and violence, taken together, are a leading cause of reported deaths for Egyptians between the ages of 5 and 34. Among adult males and females, they constitute the first and second largest categories, respectively, of admissions to general hospitals in Egypt. Yet, adequate

emergency medical service is a component missing in the Ministry of Health's basic health services system. The capacity of ambulance and rescue services, physicians and allied health personnel, and hospitals to deal with accidents is severely limited by the lack of adequately equipped transport vehicles, poor communications, the lack of resuscitation and other essential emergency medical equipment, and the lack of trained people and organizational arrangements.

The Ministry of Health is responsible for assuring adequate and appropriate emergency medical services throughout Egypt. Two demonstration projects recommended by the Joint Working Group on Medical Cooperation and financed by AID and the Special Foreign Currency Program will soon provide improved emergency medical care to residents of some areas of Alexandria and Cairo. The Ministry of Health views these projects as a high priority and plans to cover 25 percent of their costs from its regular budget. The committee recommends that AID support a program to develop appropriate emergency medical services throughout Egypt.

In addition to filling an obvious gap in basic health services by improving the probability of survival and reducing unnecessary disability from accidents, an effective emergency medical services system could have other beneficial effects. For example, an improved transportation capacity should reduce the pressures for construction of new hospital beds. With such a program, the Ministry of Health should be encouraged to reevaluate its plans to upgrade rural health centers to rural health hospitals. Moreover, a successful system would provide tangible demonstrations of Ministry of Health care and could persuade many Egyptians, who currently turn to traditional practitioners, to use Ministry of Health services.

United States assistance to Egypt for developing a national emergency medical services system requires a carefully developed plan to specify the details of a very complex and major effort that should be phased in over a 5 to 10 year period. Activities begun under the Joint Working Group should serve as a starting point. The documents available -- including the working document entitled, "Comprehensive Emergency Medical Services Plan" -- represent excellent initial efforts, but must be further developed and refined. Much information beyond the evaluation results of the Cairo and Alexandria demonstration project on which to base the design of a nationwide system will be required. For example, inventories of existing hospital emergency room facilities, as well as communications and transportation resources, must be made. The planning effort should be undertaken by a joint United States-Egypt team. The American team members should be experts on the engineering, management and medical aspects of emergency medical care. They should expect to spend a considerable amount of time working in Egypt with the Ministry of Health and governorate authorities to assess emergency medical care needs and to conduct the studies necessary to develop detailed plans complete with all design requirements, including training and equipment specifications. The studies would serve as the basis for a detailed AID project design and budget.

The committee is aware that this is a large, complex, and relatively

expensive program. Also, the committee notes the allure of expensive technology in this field and cannot emphasize too strongly the need to base the system's design and its equipment needs on the findings of the studies recommended.

Hospital Administration

Shortages in personnel with general management and administrative skills, and basic skills in facilities and equipment maintenance and repair, are major national problems that affect all sectors of Egypt's economy, not just the health sector. For this reason, the committee does not make any recommendations for support of generic programs in these areas, but rather has recommended that targeted training and support be provided for improving the management, administration, maintenance and repair skills needed in the three programs just recommended.

However, there is one exception: hospital administration. The Egyptian hospital system is both extensive and expensive and is plagued by severe inadequacies in management and administrative competence at all levels. The committee therefore recommends that AID assist the Egyptian government to strengthen and expand the graduate-level hospital administration programs at the High Institute of Public Health in Alexandria and at the Cairo University School of Commerce. These programs should be designed to help meet executive-level hospital administration needs; cooperative arrangements with strong United States schools of hospital administration would be desirable for implementing this program. In addition, AID should assist the Egyptian schools to develop, in cooperation with the Ministry of Health, brief, regular in-service training sessions for hospital administrators.

The committee also recommends that AID support a short-term study to assess Egypt's current education and training capacity in such hospital management support skills as accounting, personnel, and housekeeping. The report should contain recommendations for appropriate future United States cooperation and assistance in this area.

Cooperative Research

A substantial amount of cooperative health research is now underway in Egypt supported primarily by the Special Foreign Currency Program. Within the next year or two this source of funding will be exhausted and the AID program is likely to be the only major source of funds for supporting cooperative health-related research in Egypt.* The committee is not in a position

*Unless DHEW agencies are authorized to include international health as part of their mandate as specified in legislative proposals recently introduced in Congress, or unless the Foundation for International Technical Cooperation, now being planned within the Executive Branch, assumes this responsibility.

to comment either on the program relevance or scientific merit of the specific projects now underway since it did not assess them individually. But it does recommend that a substantial program of United States-supported cooperative health-related research in Egypt be continued. The committee recommends that this program center on widespread health, family planning, and nutrition problems. All types of research relating to a problem -- epidemiological, health services including social and behavioral studies, and biomedical -- should be eligible for support

The program should emphasize strengthening Egyptian research capabilities -- that is, there should be an "institution-building" aspect to cooperative research activities wherever possible -- as well as support for specific research activities. For example, several Ministry of Health epidemiologic surveillance units could be established in major geographic regions of Egypt, separate from, and with no operational responsibilities for, units providing personal health services. They would conduct epidemiological research on the major diseases affecting the population in their regions and could provide field support for university-based research and research training. Data on regional incidence of schistosomiasis would greatly facilitate evaluation of current and proposed control measures. Regional surveillance of polio, tuberculosis, and measles would assist the Ministry of Health in deciding how to schedule expanded immunization activities. Studies on the causes of accidents could lead to the development of cost effective preventive measures. Exposure to pesticides among agricultural workers is a serious problem that should be targeted for epidemiological research. The committee recommends that the U.S. Center for Disease Control be asked to assist in establishing these epidemiologic research units, to help design training programs, and to collaborate on the research projects.

An important problem for nutrition research and development is to develop low-cost weaning foods that could be produced in Egypt and would be generally available and acceptable to Egyptian mothers and infants. In addition, research is needed to provide reliable and reasonably complete longitudinal data on nutritional status and growth and development of vulnerable population groups. Systematic information on the attitudinal and behavioral aspects of diet are essential for planning nutrition education programs. There is a particular need to reorganize and strengthen relationships between American university-based nutrition research groups and their Egyptian counterparts.

Evaluating the performance of specific health services dealing with particular health problems should be the major focus of health services research. An initial priority should be to support the program initiative on reducing the mortality of infants, preschool children, and women of childbearing age. Studies should be designed to assess the performance of the program and its component parts. For example, research to establish the relative effectiveness of the outreach programs, and particularly to assess how particular elements in the design of those programs affect outcomes, is extremely important.

Research on the numerous factors that affect the extent of acceptance of family planning services and infant feeding and weaning practices can produce findings that can be introduced into program design, training programs, and mass media materials. Studies designed to yield information needed to broaden the population coverage of the existing employer-employee health insurance program, and studies in rural sanitation would be appropriate under this program. Studies of the efficiency and effectiveness of particular hospital services also should be considered. To conduct strong health services research and to strengthen the Egyptian capacity for conducting such research, cooperative arrangements between American academically-based health services research groups and interested Egyptian counterpart groups should be supported.

Continued United States support of biomedical research on major disease problems in Egypt is appropriate. Although many of Egypt's major disease problems can be addressed with such available technologies as immunizations, others require the acquisition of new knowledge. Research on improved techniques for reducing schistosomiasis with available technology and on new drugs and control measures should be of high priority. A mechanism for administering this cooperative research program is recommended in Chapter 2.

CHAPTER 2

STRENGTHENING UNITED STATES PROGRAM ADMINISTRATION

There are four major sets of issues relating to United States adminstration of its health, population, and nutrition programs in Egypt that require attention: administration of technical assistance projects; planning for orderly transfer or phase-out of activities currently financed by Special Foreign Currency Program funds; administration of cooperative research projects; the future role and modus operandi of the United States-Egypt Joint Working Group on Medical Cooperation.

United States Administration of Technical Assistance Projects

The most important problems that face AID in Cairo in mounting an expanded program are lack of sufficient technical staff and the intolerably long period — usually two years or more — between the time a project is proposed and action takes place.

The Institute of Medicine committee was impressed that the small staff of the AID Office of Health and Population in Cairo has done an exemplary job to date in a very complex situation. It has had to break new ground in working with the Egyptian Ministry of Health to design projects properly and do this in a way that was sensitive to the prior relationships of the Ministry with both the Joint Working Group on Medical Cooperation and United States Naval Medical Research Unit #3 (NAMRU-3). This successful experience means that less time and effort will be necessary in the future to develop projects with the Ministry, but a large amount of both technical and nontechnical administrative work will be required to handle an expanded program. The committee is aware of the constraints on increasing the size of the AID mission staff. However, the Egypt program is unique. It is one of the largest United States foreign assistance programs since the post-World War II Marshall Plan. The staff should be large enough to allow its members to make technical contributions to projects, as well as to perform necessary administrative tasks promptly and properly, so that quality, consistency, and continuity can be maintained in the program. The committee therefore recommends that the AID/Cairo Health and Population staff be enlarged by a sufficient number of experienced professionals to administer the programs recommended in Chapter 1.*

* The term "administer the programs" specifically refers to the administrative aspects of providing United States technical and fiscal support to Egyptian projects; management of technical assistance projects that AID supports, of course, is the responsibility of Egyptian personnel with whom AID personnel work in close cooperation.

Although use of consultants and contractors will be necessary and appropriate, the committee feels strongly that the programs require additional competent AID professionals if they are to be launched and managed properly.

As for the long lag time between project initiation and final approval, the committee endorses the following statement and recommendation recently made by another Institute of Medicine committee:

"AID is inhibited by its limited statutory authority. Every single project must be justified to Congress annually and AID has agreed not to make major modifications in approved projects without notifying the appropriate congressional committees. In addition, each project proposal has to provide documentation indicating compliance with numerous congressional requirements ranging from environmental issues to the role of women. This has forced AID into a cumbersome internal project development and approval process. The result is a minimum of 2 to 3 years start-up time for most projects.* These delays mean that AID, in comparison with other donors, is very slow and unresponsive to immediate needs. The committee therefore recommends that Congress should be asked to give up overseeing individual projects and instead to approve broad sectoral programs, thus providing longer term stability to AID projects and the flexibility necessary for streamlining the planning and implementation of field operations."**

The committee recognizes that Congress is unlikely to act quickly on this general recommendation. However, because of the size and importance of its program in Egypt, the committee recommends that AID make a special effort in Congress to obtain more flexible authority specifically for that program.

Special Foreign Currency Program

Prior to 1971, large amounts of United States agricultural commodities were sold for foreign currencies under Title I of Public Law 480. Under agreements negotiated with each government, much of the local currency was loaned back to the purchasing government, but a portion was made available to the United States government for its own use in the country. Interest on the loans also is made available for United States use in the countries. These funds have been used primarily to pay for local operating expenses of the United States missions in those countries. If the amount of local currency that accumulates is determined by the Treasury Department to be in excess of the amount required for the mission's operation, then the local currency is made available to United States government agencies for cooperative research activities within that country — that is, research projects having co-principal investigators from the United States and the collaborating country.

* "An Assessment of Development Assistance Strategies," (an interim report), The Brookings Institution, 1977, p. 20.

** Institute of Medicine, Review of the AID Health Strategy. National Academy of Sciences, September 1978, p. 26.

Under the Special Foreign Currency Program, the research must advance the health status of the people of the United States as well as the people in the collaborating country.

A substantial amount of United States-owned Egyptian currency was available for cooperative research projects when diplomatic relations were re-established in 1974. In the spring of 1978, over 200 projects -- more than 80 of which were health-related -- were being supported from this source and twelve federal agencies were involved in the health-related projects. Most of the activities recommended by the Joint Working Group on Medical Cooperation have been financed by Egyptian pounds from the Special Foreign Currency Program (SFCP). Over half the budget of NAMRU-3 in Fiscal Year 1977 -- $700,000 of a total of $1.2 million -- came from the SFCP.

The major issue is that the SFCP funds are limited and will no longer be available as a source of funding for cooperative research projects in the near future -- perhaps in the next year or two. The committee recommends that AID stimulate action immediately within the U.S. government to develop a plan for an orderly phase-out of the Special Foreign Currency Program. Participation by many agencies is required: those concerned primarily with the funds -- Office of Management and Budget, the Treasury and State Departments, and those concerned primarily with administering the projects -- AID, Department of Health, Education, and Welfare, Department of Defense, Department of Agriculture, National Science Foundation, the Environmental Protection Agency in the health, population, and nutrition areas, and other agencies in other fields. Consultation with the Egyptian government is essential and should be undertaken as soon as possible. The large number of projects initiated in Egypt since 1975 makes it imperative to develop a phase-out plan that will cause the least amount of disruption within the Egyptian research community.

As a corollary activity, the committee recommends that AID take the lead and cooperate with the six Department of Health, Education, and Welfare (DHEW) health agencies, the Office of Naval Research, NAMRU-3, the National Science Foundation, the Agricultural Research Service, and the Environmental Protection Agency in an in-depth review of all SFCP health, population, and nutrition projects to assess their relevance for possible future support in the cooperative research program recommended in Chapter 1. Collecting and analyzing the information will entail a substantial effort. A qualified ad hoc team probably will be required to do the job effectively and promptly.

Planning and Administration of Cooperative Research Projects

The committee believes that improvements are needed in the way the cooperative research program is planned, how projects are reviewed and monitored, the extent of involvement of American investigators, and coordination among the United States government agencies involved.

Cooperative research should have two objectives: to advance knowledge

that will facilitate progress toward solving important health, population, and nutrition problems in Egypt and to strengthen the capacity of the Egyptian scientific establishment to perform that research. Achieving the objective of supporting a balanced, high quality portfolio of research projects that addresses the most important problems requires that two functions be performed well: determining priorities and allocating funds among the array of problems that can be addressed, and screening and reviewing proposals for technical merit and for program relevance. Achieving the objective of strengthening Egyptian health research capabilities implies at a minimum active collaboration between senior American scientists and Egyptian scientists. In many cases it should imply much more -- strengthening research training for young investigators, exchanges of scientists, and improvements of research facilities and equipment.

Special Foreign Currency Program cooperative health-related projects originate through the initiatives of Egyptian scientists, Americans in one of the federal agencies, or American scientists in universities. Each United States agency has its own procedures for processing project proposals and for monitoring the projects once they have been initiated. There is no mechanism for overall planning and programming. The Science Attache in the U.S. Embassy in Cairo does process all science research projects funded through the SFCP, but the authorizing legislation technically does not permit him to screen or monitor the projects. To date, all proposals for collaborative health-related research projects processed by the Science Attache have been funded.

In circumstances when availability of funds appears to be more than adequate in relationship to demand -- as had been the case when cooperative research was resumed in 1975 with SFCP funds -- evaluation of each project on its own merits may be reasonable. But when that situation no longer prevails -- i.e., when project proposals exceed the availability of funds to support them -- choices among meritorious projects are no longer avoidable. The issue is not whether to make such decisions; it is how to make them most rationally.

The committee recommends that responsibility for planning the AID-supported cooperative health, population, and nutrition research program be vested in a joint United States-Egyptian group. It would be logical to make this group a standing subcommittee of the Joint Advisory Group proposed in the next recommendation. The United States members should be appointed by the United States co-chairman of the Joint Advisory Group, with the approval of AID. The subcommittee would have the politically sensitive and technically complex task of specifying the problem categories on which research is to be supported and recommending how funds should be allocated among the problem categories. To do this effectively will require a carefully thought out set of criteria and procedures, access to the necessary information, and adequate review and monitoring of cooperative projects.

Effective research administration requires experienced professional staff with access to appropriate peer review mechanisms. In the United

States government, the Department of Health, Education, and Welfare (DHEW) health agencies have qualified staff, well-developed organizational arrangements for assessing the merit of research proposals and otherwise administering health-related research, and established linkages to the vast network of health research organizations and institutions in the United States and elsewhere in the world. The committee recommends that the AID mission arrange to have DHEW administer the mission's cooperative health-related research program in Egypt. Under the agreement, the DHEW should be responsible for establishing a unit in the AID mission in Cairo and for assigning experienced research administrators to work in it. The staff should be capable of administering projects in epidemiology and health statistics, in family planning, in nutrition research, in health services research and in biomedical research.

The staff would arrange for review of research proposals for program relevance and technical merit, monitor projects, provide assistance to Egyptian organizations in preparing sound proposals, assist American cooperating research institutions, and coordinate with other U.S. agencies -- such as NAMRU-3 -- that are conducting health-related research in Egypt. It could also serve as the core staff to the proposed Joint Advisory Group subcommittee on research. The DHEW unit should be responsible for preparing the annual cooperative research budget proposal for the AID mission. Once approved, the entire amount should be transferred to DHEW so that AID/Washington would not be required to participate in the project review and approval process. The DHEW unit in Cairo should be able to communicate directly with its DHEW backstopping agencies and with United States research institutions involved in cooperative research projects.

The committee notes that American co-principal investigators in most of the Special Foreign Currency Program cooperative projects have spent very little time in Egypt working with their Egyptian counterparts. The typical experience has been that the American co-principal investigator has visited Egypt once or twice a year for a period of a one or two weeks. From past experience, the most successful collaborative research has involved American scientists living in the overseas country and working collaboratively with the resident scientists. All cooperative research projects may not require the American scientist to live in Egypt for the life of the project, but most will require more than occasional short visits. The committee recommends that one of the criteria used to evaluate proposals for collaborative research be the amount of time the American co-principal investigator proposes to spend in active collaborative work with his Egyptian counterpart.

Finally, the committee believes that the NAMRU-3 program, which has been operating effectively for 30 years, should be coordinated more closely with other United States health programs. Three specific suggestions are offered: (1) NAMRU-3 should be represented on the proposed Joint Advisory Group research subcommittee; (2) the NAMRU-3 library should be made as accessible as possible to Egyptian health scientists and health professional students; and (3) NAMRU-3 should provide research training to Egyptian students and postdoctoral investigators.

Good coordination among investigators working on similar or related projects would be facilitated by having NAMRU-3 represented on the proposed Joint Advisory Group research subcommittee. This arrangement should be supplemented by as much informal interaction as is necessary to assure good, continuing communication among investigators.

NAMRU-3 is now building a new library. The old library was used by many Egyptian health scientists, medical students, and other health professions students. Current issues of American and European scientific journals, books, monographs, etc. are not readily available in Egypt. NAMRU-3 could increase its contribution to the health research and education enterprise in Egypt by making the new library more accessible to Egyptian faculty, researchers, and students than currently is planned. The committee is sensitive to the legitimate need for effective security measures at the NAMRU-3 installation. Its recommendation is simple but vital: NAMRU-3 should develop physical arrangements and procedures that facilitate to the greatest extent possible non-insulting, easy access of Egyptian nationals to the library. Imaginative design of physical arrangements could contribute significantly to this objective, without compromising essential security requirements.

Finally, research training for Egyptians once again should be incorporated in the NAMRU-3 program. Obviously, this would require additional funds. The committee recognizes that the feasibility of this suggestion will depend on NAMRU-3's success in persuading the Department of the Navy to increase its budget to cover the additional costs. The committee is convinced this would be a sound investment that would contribute to the success of NAMRU-3's primary mission and its continued acceptance within Egypt.

U.S.-Egypt Joint Working Group on Medical Cooperation

The Joint Working Group was established in 1975 before the AID Mission was reopened. Its purpose was to provide a mechanism for the United States to help Egypt "develop and strengthen its medical research, treatment, and training facilities." The Minister of Health of Egypt and the Assistant Secretary for Health of DHEW are co-chairmen. United States participation on the Joint Working Group has no specific statutory authority. The Joint Working Group must depend upon existing United States agencies and their legislative authorities and appropriations to carry out its program initiatives. Thus, there is an inherent lack of symmetry in the positions and authority of the two co-chairmen: The Minister of Health has the authority to commit the Egyptian government on a project; the Assistant Secretary of Health, although the functional equivalent of the minister in the United States government and the highest ranking health professional in the United States government, usually cannot commit the United States government. He can make recommendations, but action usually depends on the decisions of others over whom he has little or no direct authority. Most of the projects recommended by the Joint Working Group were funded primarily from the Special Foreign Currency Program, and the United States implementing agencies were in DHEW.

The Joint Working Group serves an important purpose: it is a high level

forum for conducting substantive discussions of health problems and programs and for reaching agreement on activities that should be emphasized in United States-supported programs. It also has served to involve the technical health agencies of the DHEW in Egyptian health programs to an important extent. A program review mechanism comparable to the Joint Working Group, and involving DHEW in such a central way, does not exist in any other developing country.

The Joint Working Group's future role should reflect the two major changes in circumstances that have occurred since 1975: the establishment of an AID mission with a rapidly growing AID program in health, nutrition, and family planning; and the projected end of Special Foreign Currency Program funds for financing Joint Working Group projects. In the near future, AID dollar funds will be the only major source of financing for projects recommended by the Joint Working Group.

The committee believes that with some important modifications in orientation, the Joint Working Group can continue to play an important and constructive role. Its essential function should be to provide a mechanism for bringing together United States health scientists and professionals with their counterparts in Egypt to advise on program and project priorities for health and health-related activities to be supported by the United States government in Egypt. Therefore, the committee recommends that the Joint Working Group on Medical Cooperation be reconstituted as the Joint Advisory Group on Health Cooperation. On the United States side, membership should include six to eight nongovernment health professionals with outstanding qualifications from academic institutions and foundations. They should be appointed for fixed terms. Their professional backgrounds should be varied so that they can provide authoritative advice in all the fields represented in United States-supported programs in Egypt, including population, nutrition, public health, primary care, hospital care, manpower development, and research. The United States government members should consist of the Assistant Secretary for Health, the Director of the Office of International Health in DHEW, and two senior health program officials from AID -- one from the AID mission in Cairo and one from AID in Washington. The United States nongovernment members should be appointed by the United States co-chairman with the approval of AID.

The modus operandi of the Joint Advisory Group, the staff support required, and the number, composition, and functions of standing subcommittees, or the extent of reliance on ad hoc working groups, should be worked out by a joint United States-Egyptian task force after the general terms of reference of a reconstituted joint group have been determined. The committee believes that a Joint Advisory Group secretariat, or some other arrangement to provide strong and continuing staff support, is essential and should be provided for in the agreement. The absence of such a mechanism has handicapped the Joint Working Group.

PART II

BACKGROUND INFORMATION AND FINDINGS

CHAPTER 3

ECONOMIC, DEMOGRAPHIC, AND SOCIAL FACTORS

Economic

Historically, improvement in general health status of populations has been positively correlated with increases in their per capita income. The changes have occurred gradually over relatively long periods of time, with improved health status generally following increases in per capita income. There are exceptions: the per capita incomes of some countries have risen rapidly with the discovery and production of petroleum, without correspondingly rapid improvements in general health status of the countries' populations. Conversely, rapid improvements have occurred in specific health status indices, or more properly disease incidence indices, for defined populations with the introduction of certain medical interventions, such as the polio and smallpox vaccines and malaria control measures, even though there were no changes in per capita income. Finally, there are at least two examples of steady improvements in infant mortality and life expectancy indices that have occurred — apparently as a result of sustained governmental interventions, including distribution of food — in countries with low-levels of per capita income: the state of Kerala in India and Sri Lanka.

Rising per capita income leads to improvements in general health status for two reasons. First, increased per capita income leads to improved standards of living — improved family food consumption, sanitary water supply and waste disposal, housing, and education — and these conditions are recognized as significant determinants of general health status. Second, increased per capita income generally results in more money for development and operation of personal health care systems, as well as increases in public health expenditures. A brief review of Egypt's current economic development status and prospects for the future, therefore, are in order.

The per capita gross annual domestic product was about $228 in Egypt in 1977.1/ A household expenditure survey in 1974-1975 showed that the rural population had a per capita income about one-half that of the urban population ($93 versus $183).2/ Because the cost of living in rural areas is lower and the rural economy is not completely monetized, the difference in real income is somewhat less. In the rural areas, the lowest 40 percent of the people, in terms of per capita income, accounted for about 25 percent of total income in those areas; the lowest 40 percent in the urban areas accounted for about 21 percent of the total income in those areas. Thus, compared to many developing countries, income distribution in Egypt is relatively equitable.

The current Five-Year (1978-1982) Economic and Social Development Plan projects an increase in per capita gross domestic product to about $357 in 1982.3/ This estimate assumes a projected population growth rate of 2.3 percent and an annual international inflation rate of 6.8 percent. Not all of the projected increase will be in personal income. Private consumption is expected to increase at an annual rate of 8 percent; public expenditures, including salaries and wages of government employees, are projected for a 9.2 percent annual increase. About 17 percent of the projected increase in gross domestic product is planned for capital investment in both public and private sectors (the private sector, including foreign firms, is being counted on to play a significant role in increasing industrial productivity, a change from the government policy between 1960 and 1974). Counting assistance from foreign sources, about 28 percent of Egypt's gross national product over the five-year period is planned for investment, a very ambitious target.4/

To achieve the projected growth in per capita gross domestic product, substantial capital investments will be required in both the industrial and agricultural sectors. Curtailment of investment between 1965 and 1973 resulted in deterioration of much of Egypt's existing industrial plant capacity and relatively little increase in that capacity. If agricultural production is to be increased, the systematic, appropriate mechanization of Egyptian agriculture will have to be expanded and accelerated, and additional arable land developed through reclamation of desert areas, both very expensive programs. Major capital investments also are needed to rebuild, modernize, and expand telecommunications, transportation, energy production, and power transmission if industrial and agricultural production are to grow as rapidly as planned.

Unemployment is relatively low in Egypt, perhaps on the order of 2 percent.5/ However, there is much disguised unemployment and underemployment as a result of the government's policy of assuring employment for graduates of universities and institutes of higher education. In practice, this policy has been extended, particularly in the services sector in urban areas, to secondary and technical school graduates, and even to nongraduates. Many college graduates are assigned to apparently unnecessary clerical jobs where they sit with little or nothing to do. This type of employment does not contribute to growth in output.

The government's wage and salary schedule is tied to educational certificates. Many government employees in urban areas hold another job in the private sector — usually the services sector — where the economic rewards are at least equal to, and usually greater than, their government income. Agriculture still provides the bulk of productive employment in Egypt — approximately 44 percent of the civilian labor force in 1976.6/ Seventeen percent of the labor force was employed in the mining, manufacturing, and construction industries. The remainder were in the services sector. The employment-underemployment-unemployment issue, particularly in the urban areas, is likely to be exacerbated in the future not only by the high population growth rate and the continuing rural-urban migration, but also by the

increasing proportion of women in the labor force and by any major demobilization of military personnel that may take place.

Demand for skilled labor in neighboring Arab countries and wage scales on the order of ten or more times the comparable public sector jobs in Egypt have resulted in large numbers of educated and trained Egyptians being employed outside their country. The 1976 census showed that about 1.43 million Egyptians, or 14 percent of the labor force, were abroad in that year.7/ Continued demand for labor abroad will ease domestic employment pressures in some fields, but it also is responsible for shortages of essential skills in others. In construction, carpenters, masons, plumbers and electricians are in short supply, and wages have increased accordingly.8/ Physicians, engineers, teachers, and other technical specialists find attractive job offers in the capital-surplus Arab countries, and experienced professionals in some of these fields are increasingly hard to find for public sector jobs in Egypt. The implications of this trend for public health in Egypt are serious, since skilled and experienced individuals with initiative are most desirable for positions of responsibility in training and administration, and these are the types of people most likely to take jobs abroad. At the same time, remittances from citizens working abroad were estimated to be about 286 million dollars in 1977,9/ and this source of income is important to Egypt. Emigration of trained manpower thus is a major policy dilemma for Egypt.

Egypt's most pressing current economic problem stems from its need to import large quantities of food and other commodities to meet the current consumption requirements of its expanding population. Its exports are not large enough to pay for its imports: the current deficit in Egypt's balance-of-payments is nearly 20 percent of its gross domestic product.10/ Egypt currently depends primarily on grants and loans from foreign countries and international lending institutions to meet the deficit.

Housing, water, and sanitation systems did not escape the general deterioration in Egypt's physical plant during the 1965-1973 period, nor did the availability of these facilities expand to keep pace with population growth and migration to the urban areas. Egypt's social welfare programs — education, health, social services — will claim an increasing amount of resources for operating costs to improve the quality of those services and to keep pace with population growth. Facilities and equipment for these programs also have deteriorated, and there is a strong demand for capital investment to renovate, replace and expand them.

Finally, Egypt faces a number of other serious problems that affect economic and social development:

- A shortage of administrative and management skills, particularly at the middle levels;
- Falling productivity, particularly in government and public-owned institutions; and

- A shortage of maintenance and repair skills, including those associated with basic systems — e.g., plumbing, as well as with more complex equipment.

Even under the most optimistic assumptions, Egypt will face very difficult resource allocation decisions for many years. All public programs, including the health system, should expect close scrutiny of their requirements for both capital investment and operating budgets. The government must accord priority to programs and projects which appear to offer the most promise for improving Egypt's productive capacity. For most social programs, this will mean making more effective and efficient use of existing facilities and resources, because only modest amounts of capital for investment are likely to be available.

In 1977, the average per capita operating expenditures of the government for health were budgeted at about L.E. 2.9, or $4.15* annually.11/ Assuming a 2.3 percent annual population growth rate projection, the planned per capita annual operating expenditures of the government for health services in 1982 will be about L.E. 4.65, or $6.64 annually. The average annual per capita government capital investment for health proposed for the 1978-1982 plan period will be approximately L.E. 0.65, or about $0.93. Of course, these are the planned expenditures; the actual amount allocated in any given year will be dependent upon annual governmental decisions. For example, the past Minister of Health was able to obtain about L.E. 8 million, or $11.4 million dollars more for investment in the health sector in 1978 than originally planned, of which L.E. 4 million, or $5.7 million dollars, was for the health care system directly operated by the Ministry.12/

Population Growth

The Egyptian population has doubled in the past thirty years, from approximately 19 million people in 1947 to over 38 million people in 1976. 13/, 14/ While fertility rates declined modestly during the same period, general mortality rates were halved, primarily as a consequence of declines in infant and child mortality.15/ Health program interventions, such as the introduction of DDT, the wide use of antibiotics, and the improved water supply and sanitation facilities in urban areas are thought to be major contributing factors to the drop in general mortality rates. The population rose steadily until 1960 at an annual average rate of 2.38 percent per year and the rate remained relatively high (2.54) between the 1960 and 1966 censuses.16/ Preliminary results of the 1976 census indicate that the annual average rate of increase slowed to 2.31 between 1966 and 1976.17/ This apparent slowing of the national growth rate may not be a continuing trend, however, as suggested by the most recent census registration data. Early analyses of these government data show a rise in the annual rate of natural increase to 2.64 percent during 1975.18/

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*One dollar equals .7 of one Egyptian pound.

The current estimated birth rate in Egypt is between 37 and 39 per thousand. Except for the most recent years, urban areas have shown a decline in fertility, but the level of fertility observed in rural areas is higher and may have actually increased in recent years.19/

Several factors appear to be primarily responsible for continuing high fertility. First, 71 percent of adult females are illiterate.20/ This restricts their participation in the country's cultural, political, and economic activities. Second, Egyptian social customs, beliefs, and practices tend to encourage early marriage and high parity and to limit the use of contraceptives among married couples. Finally, the high rates of infant and preschool mortality, which have declined slowly over the last twenty years, are significant factors because the desire to replace a lost child and the fear of losing another through death are thought to be powerful disincentives to limiting fertility.

The rapid population increase in Egypt and the continued high growth rate have jeopardized the already marginal living standards of the majority of Egyptians. Only four percent of Egypt's land is habitable, so that the population density in the habitable region is 2,400 people per square mile, a ratio more than double that of the Netherlands, the most densely populated country in Europe.

Facilities and capacity in the social service sectors have failed to keep pace with population increase. Although primary school enrollment increased in absolute terms between 1965 and 1975, the percentage of eligible children enrolled during the same period declined from 74 percent in 1965 to 70 percent in 1975.21/ Maternal and child health (MCH) services in urban areas present an even more disturbing trend: the number of immunizations provided and number of client visits at MCH centers throughout the country declined between 1965 and 1975, with absolute decreases ranging from 20 percent to 40 percent at the centers.22/

Migration from rural areas to cities has gradually increased the proportion of people in urban areas. At present, about 44 percent of the Egyptian population lives in cities with more than 20,000 inhabitants, compared with 37.4 percent in 1960.23/ Population projections for Egypt indicate an urban growth rate of more than 3 percent annually throughout the 1980s, implying an increasing urbanization of the country. Greater Cairo, now inhabited by more than 8 million people, has been growing at a slightly faster rate than the urban sector as a whole. Its housing, roads, water, sanitation, communication, and electric power systems were designed for 1-3 million people.24/ Traffic congestion — people and vehicles — is judged by many to be more overwhelming in Cairo than in all but one or two cities in the world. Telephone communication in Cairo is very poor and serves only a small number (estimated at about 200,000) of the businesses and people who can afford the service.25/

Food Availability

The Egyptian population has access to adequate amounts of food.26/ Average per capita daily consumption is nearly 3,122 calories, 11.1 percent of which come from proteins. Approximately 85 percent of the average daily protein consumption of 86.7 grams comes from plant sources. Actual food consumption patterns in Egypt are to a considerable extent determined by a family's location (rural or urban) and its income. Although food supplies are unequally distributed among urban and rural areas and among different income groups, limited surveys indicate that Egyptian adults are adequately fed, although many show some deficit in stature resulting from undernutrition in early childhood. Egyptian children obtaining the bulk of their food from cereal grains are unlikely to consume enough calories and protein for optimal growth.

For some years, the Egyptian government has subsidized the cost to the consumer of basic food and clothing. About three-fourths of the total subsidy is for basic foodstuffs: wheat, flour, oil, sugar, rice, tea, and clarified butter. The price of an amount of bread equivalent to a small American loaf is one or two piastres ($.01 or $.02) in Cairo.

The stagnation of agricultural production relative to population growth over the past 20 years requires Egypt to import large amounts of food. For instance, the domestic production of wheat in 1975 was close to 2 million tons, compared with wheat-grain equivalents of wheat and flour imports in the same year of 3.6 million tons.27/ Without the food subsidy program, the average annual cost of living increase of 20 percent in urban areas and the escalation in international food prices would make it very difficult for the urban poor to purchase adequate amounts of food.28/ The propensity to spend additional income on food is still quite high in Egypt, indicating that many families are still living at the margins of adequate food consumption. Thus, a sudden removal of food subsidies would be likely to have serious nutritional consequences for a majority of the population.

The outlook is for a continued need for large imports of food, given the technological limits of increasing agricultural productivity and a continuing loss of land from agricultural production to industrial production and to housing.

Water and Sewage

Water and sewage facilities are generally inadequate for the existing population, although urban areas are much better supplied with piped water than rural. Almost 70 percent of urban dwellers have access to potable water within their dwelling or building, but only 6 percent do in rural areas.29/ Filtration plants in the cities are unable to meet the requirements of the growing population. Intermittent supplies and poor pressure are common, aggravated by water losses estimated at well over 20 percent from ground seepage and defective house installations.30/ For the approximately 9.5

million Egyptians who have no easy access to water supplies near their dwellings, exposure to water-borne and water-related diseases is greatly increased. Reported cases — representing only a small fraction of the suspected total — of dysentery, infectious hepatitis, typhoid and para-typhoid fever, have been increasing; whether this is a real increase in infection, or a result of improved reporting, is unclear.

Sewer systems in Egypt are generally confined to the centers of the larger cities and have sufficient capacity to serve about half the total urban population. The sewage systems suffer from overloading, age, and deterioration. Little money has been invested in proper maintenance in the last twenty years. In Alexandria, raw sewage discharges directly into the ocean and nearby lake. Probably less than 5 percent of the rural population have sanitary waste disposal facilities of any kind.31/ In many households, attached stables are used for excretion, with human and animal wastes being re-used as fertilizer.

Housing

Congestion and crowding characterize urban life in Egypt today. The housing shortage in urban areas is estimated to be about 1.5 million units.32/ An average of 1.7 households occupies each existing unit. Despite the rapid increase in urban population, there has been a low rate of house construction due to policies unfavorable to investment, such as strict control of rents at low levels. The average family size is five or more and most families in Cairo and other cities live in three rooms or less. Most villages consist of rows of adjacent houses along narrow streets, with a few central market areas. Crowding in the villages is produced by the practice of using all available land for farming and by limited access to potable water. Less than 20 percent of rural households are supplied with electricity.

Education

Since 1923, primary education for children of ages 6 to 12 has been compulsory (though not enforced) where facilities are available. Despite substantial growth in numbers of school buildings and enrollment since the 1950s, about 20 percent of six year olds fail to enter primary school.33/ Many of the children enrolled in primary schools do not attend regularly, and attrition rates are high, especially for girls. Even boys and girls who complete one or two years of school are unlikely to achieve permanent literacy, as suggested by overall 1976 illiteracy rates of 70 percent for females and 43 percent for males.34/ Entrance to secondary schools is predicated on passing a Primary Certificate Examination administered by the Ministry of Education.

Preparatory and secondary schools offer academic and vocational programs that tend to push students into definite career tracks from age 15 on. Rote learning and memorization are reinforced by the standard nationwide written

examinations that students must pass to enter the next higher level of schooling. Of the 200,000 students who complete secondary academic and vocational programs, about two-thirds continue further training in universities or technical institutes. University entrance is regulated by scores on standard examinations for the scientific and humanistic "tracks," higher scores being required by the schools of medicine, engineering, and the sciences. Students with lower scores enter other professional or technical schools even though their interests and talents may be at variance with the formal training open to them.

University enrollment has more than doubled since 1960 as a result of the expansion of public secondary education, the admission-by-examination system, the increased proportion of government educational expenditures devoted to providing free higher education, and government-guaranteed employment for graduates. There is agreement that the quality of higher education generally has declined due to the increased enrollment without a corresponding increase in faculty, facilities, and learning resources. Many university graduates cannot find jobs commensurate with their training and accept low-level positions in government agencies. (Most university graduates working for the government also work in the private-sector, holding two jobs.) Moreover, the quality of training in secondary technical schools and post-secondary technical institutes has diminished because of inadequate government support and pressures from students to make the curriculum more academic.

All public schools and universities are free. However, many families cannot afford to forego their children's labor. Support of a university student away from home also is difficult. However, education is viewed by the lower and middle socioeconomic classes as an avenue of upward mobility, providing access to government jobs and a better life style in urban areas. Academic achievement is associated with certain social status attitudes, such as the view that manual labor is not performed by the upper classes — i.e., the educated.

At every level of the educational system more males than females are enrolled. About 38 percent of primary school students are girls; 33 percent of preparatory and secondary students are female; and about 25 percent of university students are women.35/ While this pattern of unequal access to formal schooling has slowly improved, accepted careers for women remain restricted more markedly in rural than urban areas.

Cultural Beliefs and Practices

Egyptians are ethnically homogeneous: ninety-two percent are Sunni Muslims, while the remaining eight percent belong to the Coptic Christian sect. The Arabic dialect throughout the country is very similar, with slight differences between Upper and Lower Egypt. Islam has had a profound influence on the intellectual life of the educated upper classes, but for the lower classes it permeates daily life as a mixture of orthodox beliefs and popular customs. Mysticism and spiritualism are strong forces in religious worship

at the village level, and play an important role in "socially-caused" illnesses.

While apparently not as strong among the urban poor as among rural villagers, traditional beliefs about health and illness frequently co-exist harmoniously with odd fragments of scientific knowledge in the minds of uneducated Egyptians.36/ The evil eye is considered a powerful cause of disease, usually exercised by someone who covets an asset (such as a child) belonging to another who is in a vulnerable state. For instance, a mother who believes that the evil eye caused her child to die from diarrhea may also believe that germs from contaminated food triggered the fatal bout of gastroenteritis.

The poor obtain health care in various ways. There are government-operated health facilities throughout the country. Indigenous practitioners residing in the community are often called upon first for common ailments or minor traumas. Dayas (traditional birth attendants) provide prenatal care and advice and perform well over 50 percent of deliveries in Egypt. Health barbers (traditional "healers," who in addition to cutting hair, perform circumcisions, pull teeth, and perform simple operations, e.g., incising boils) administer various folk treatments for cuts, burns, fevers, diarrhea, and pains. Herbalists provide advice about preparation of "natural" remedies, often taken in conjunction with drugs sold commercially. Villagers frequently exhaust the resources of several indigenous practitioners before visiting the government health unit if an illness fails to respond to folk remedies. Indigenous practitioners sometimes cooperate with government health workers by referring patients to the health centers and acting as informal mediators between government health providers and the local community.

Status of Women

As in most of the world, women have been regarded as subordinate citizens throughout the Arab region for centuries. Changes in status are occurring, but at a slower pace than in many other regions. In recent decades women in Egypt have begun to participate in sectors of society other than domestic and agricultural. However, inheritance, property, and family laws explicitly regard two women as equal to one man. Honor of the family resides in its female members, but is an attribute possessed by and defended by men. Marriages are customarily arranged by parents in the same social class, often tied by kinship. Although the legal age of consent for marriage is 16, girls in rural areas commonly marry with permission of their parents at 14 and 15. Love is not considered essential to a successful marriage, and divorce is commonly condoned when the wife is infertile. Children provide women with emotional satisfaction in addition to the power and prestige attributed to women with many sons by extended family networks.

Urban women with university educations have traditionally entered the scientific and medical professions as well as social work and teaching. Secondary school training has allowed rural as well as urban women to become nurses and teachers. As in other countries, fertility is inversely

correlated with women's educational attainment. Illiterate mothers have an average of two more living children than those with at least a secondary education.37/

Summary

Egypt has a favorable long-term potential for economic development because of the prospects of earnings from petroleum and minerals, increased resources from a widened and deepened Suez Canal, opportunities for a thriving tourism, as well as its favorable market location for increased industrial and agricultural production.38/ However, the outlook for the short- and mid-term is for gradual, sustained growth in per capita income, not a rapid increase. Improvements in general health status of the Egyptian people from improved standards of living therefore are likely to be gradual. The high population growth rate will prevent a more rapid increase in per capita income, standards of living, and per capita health expenditures. Only modest capital investments will be possible in the health sector for the foreseeable future because of investment priorities in other sectors. Thus, improved performance of the health care system with the modest resources available offers the principal potential in the foreseeable future for significant improvements in the health status of the Egyptian people.

Government-wide structural and policy reforms will be required to address serious constraints on increased productivity. The Egyptian Five-Year (1978-82) Plan calls for a number of far-reaching reforms.39/ For example (excerpted from Plan):

- Government jobs are to be changed from permanent "welfare" positions to positions in which satisfactory performance can be rewarded by reappointment and unsatisfactory performance punished by firing;
- The wage structure is to be re-evaluated and the system of tying wages to academic certificates is to be abolished in favor of wages geared to job requirements and productivity;
- Present education policies are to be re-evaluated to base academic offerings on the needs of the society, university enrollment is to be limited, and vocational training is to be promoted; and
- Public sector enterprises are to be given greater freedom to manage their own affairs and to retain more of the "profits" for improving the quality and efficiency of their operations without government interference; they are to be judged by results.

If such reforms are carried out successfully, major increases in productivity in all sectors — including the health sector — are likely to be possible.

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CHAPTER 4

HEALTH PROBLEMS

Health Status

The crude death rate in Egypt in 1975 was reported to be about 12 per 1,000 persons, near the worldwide average.1/ Average life expectancy at birth in 1975 was about 55 years for females and 52 years for males;2/ however, those who survive their first year live an average of more than nine years longer.

Maternal mortality is about one death for every 1,000 births, roughly 15 times the rate in the United States.3/ The reported infant mortality of 116 per 1,000 live births, compared to the worldwide rate of 85, is believed to be lower than the actual rate, since many parents only register their child after it has survived the first 7 days, or, frequently, the first 40 days. The actual rate in some areas may be 180 or higher per 1,000 live births.4/ Significantly, however, the Institute of Medicine study group was informed by Ministry of Health officials in the three Canal Zone governorates that infant mortality rates in the areas that were evacuated in 1973 and then resettled were in the range of 70 to 80 per 1,000 live births during 1977. The deaths of children under five, including infants, comprise about 50 percent of total deaths in the population, one of the highest proportions in the world (Figure 1).

Diseases of the digestive system are the leading cause of death, followed by diseases of the respiratory and circulatory systems. More than 20 percent of deaths are from undiagnosed causes (Table 1*). Age-specific mortality rates suggest that more than half of infant deaths are from diarrheal illnesses (Table 2).

Tables 3 and 4 show that the illnesses associated with the reproductive and related systems, digestive system, and accidents, poisoning and violence, in that order, account for almost two-thirds of the admissions to the Ministry of Health's general hospitals, and for more than 40 percent of the admissions to the Cairo University hospital system (Table 5), a proportion believed representative of other university hospitals. The Institute of Medicine study group was informed that accidents accounted for a substantial proportion of the patient-days utilized in the General Surgery and Burn Services, including emergency medical care, in the Cairo University Hospital system (Table 6).

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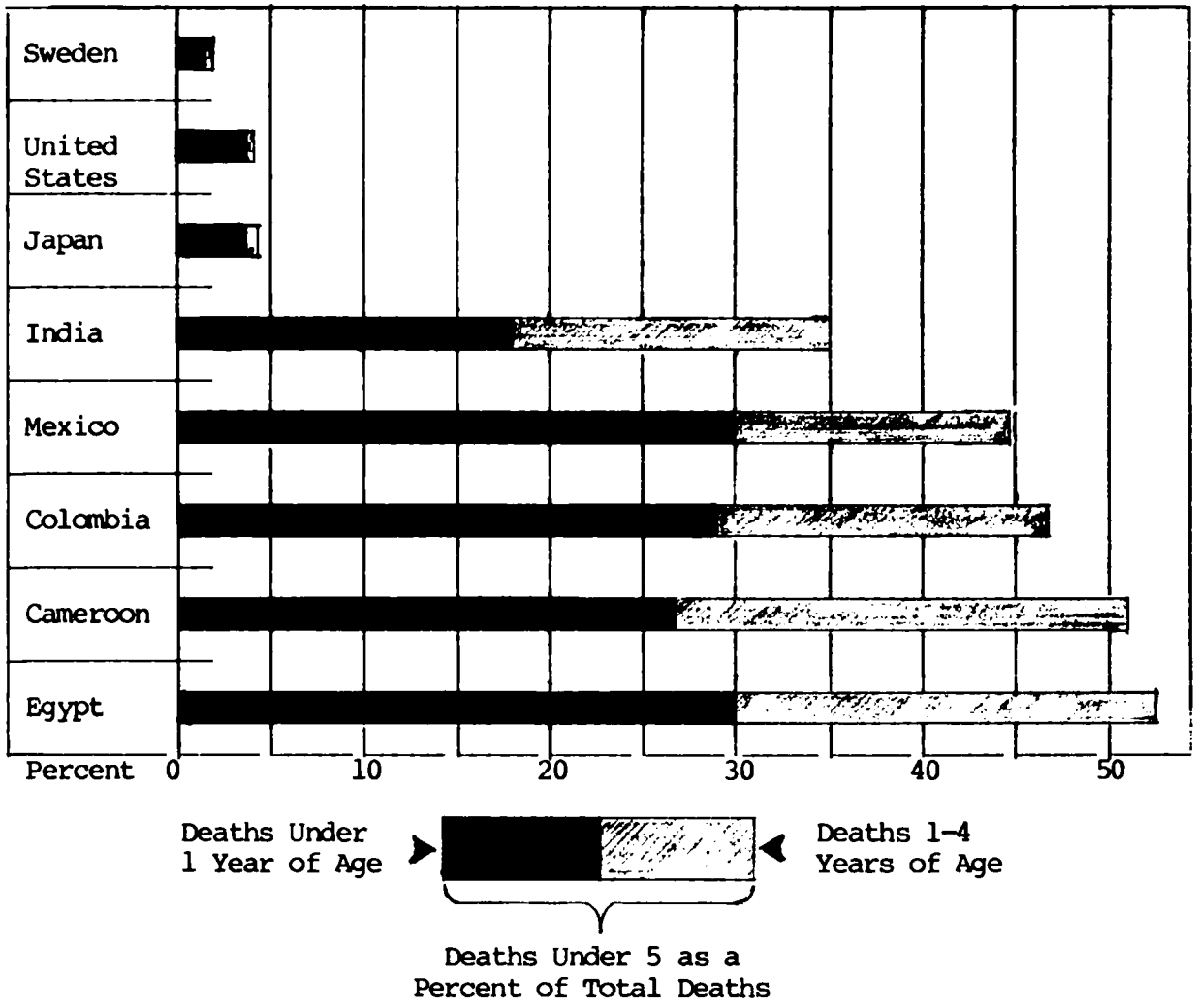
*Tables are at the end of the chapter, just before the references.

Fig. 1. Deaths to Infants Under One Year of Age and to Children Under Five as a Percentage of Total Deaths



Source: Prepared by the Population Reference Bureau from data contained in the United Nations Demographic Yearbook, 1971 (New York, 1972), Population Bulletin, Vol. 29, No. 1, 1974, p. 5. Permission for reproduction obtained from editor.

Deaths from neoplastic and degenerative diseases are becoming significant in Egypt, but are not as important as other causes of mortality. For example, deaths from heart disease were about 169 per 100,000 population in 1972,5/ as compared with 337 in the United States in 1976.6/ Cancer in Egypt accounted for about 22 deaths per 100,000 population in 1972,7/ compared with 176 in the United States in 1976.8/ There may be considerable underreporting of this diagnosis, however.

Infection and toxemia are reported to be among the three leading causes of maternal death, as they were in the United States before the era of antibiotics and better nutrition. Complications associated with childbirth are common in Egypt, at times leaving residual damage to kidneys or reproductive organs. Anemia may persist into the time of the next pregnancy, with a negative effect on its outcome, especially when it follows closely. The high fertility rate in Egypt -- 145 births per 1,000 women per year,9/ the high infant and preschool mortality rate noted previously, and the average completed family size of 5.2 persons, necessarily means that many young women under 19 and over 40 experience pregnancy and childbirth, ages at which maternal health risks are universally higher. In 1973, 24 per thousand 15 to 19 year old females and about 70 per thousand females over 40 gave birth.10/ (See Chapter 6 for a review of Egyptian population and family planning programs.)

Survey reports in the mid 1960s indicated that the mean weight-for-height of urban adults compared favorably with American reference groups, while rural values were only slightly less.11/ Results of dietary studies done a few years later showed that the average diet of low-income, nutritionally vulnerable groups -- children under five and pregnant and lactating women -- provided only 76 percent of recommended caloric allowances,12/ that the average amount of protein in the diet of those groups also was below recommended allowances, and that only 11 percent of their protein was from animal sources.13/ Some degree of underreporting of food intake may have occurred in the studies and the recommended allowances may be liberal for energy requirements of the average Egyptian. Except for anemia among women -- which is common during and after pregnancy -- specific nutrient deficits among adults generally are not conspicuous in Egypt. Vitamin deficiency syndromes have not been reported recently, although about half of rural farm laborers apparently suffer from secondary anemia as a result of heavy iron losses associated with schistosomiasis and hookworm infections.14/

Until very recently, nationwide data on prevalence of protein-calorie malnutrition among all Egyptian infants and children under five were not available. Preliminary results from a 1978 nationwide survey of preschool nutritional status conducted by the Egyptian Nutrition Institute and the U.S. Center for Disease Control indicate that nearly half of surveyed children from low-income families exhibit mild and moderate forms of protein-calorie malnutrition as measured by weight-for-age,15/ while height-for-age data for the same group showed that about 20 percent show signs of chronic undernutrition.16/ More severe forms of malnutrition (less than 75 percent of the weight-for-age medians of the National Center for Health Statistics American reference group) occurs in about five percent of children above age two, although approximately sixteen percent of children under age two weigh less than 75 percent of the reference group medians.17/ The accumulated effects of chronic undernutrition in early years have resulted in a permanent deficit in stature among Egyptian schoolchildren and adults from low-income families 18, 19/ compared to American reference groups. No recent analyses of height-for-age among schoolchildren or adults have been performed.

Nearly exclusive breastfeeding until six months of age helps protect many Egyptian infants from severe gastrointestinal infections up to that age.20/ Around six months, many infants start to lag in their growth and development due to insufficient intake of supplementary foods.21/ In the critical developmental period between the ages of six months and three years, repeated episodes of diarrhea and infectious diseases, especially measles, may precipitate a malnourished condition. On the other hand, in a child with borderline malnutrition, the natural morphological barriers and immunological mechanisms protecting the gastrointestinal tract may be weakened so as to increase the frequency or severity of diarrhea and infectious diseases. (See Chapter 7 for a review of Egyptian nutrition programs.)

Infectious diseases and their complications, taken together, are a major factor in infant and preschool mortality and a leading cause of illness in the adult population.

Infectious Diseases

The Subcommittee for Biomedical Research of the United States-Egypt Joint Working Group on Medical Cooperation (JWG), at its meeting in Cairo in January 1978, noted that "lack of valid data regarding incidence or even presence of infectious diseases (is) deplored and restated." Other groups and individual Egyptian health scientists have made similar observations. It was apparent to the Institute of Medicine study group that there is a pressing need to improve countrywide disease surveillance and reporting of data on prevalence, incidence, and morbidity of infectious diseases because of their relationship to mortality at all age levels, but particularly the under-five age group. The summary picture presented in this section was pieced together from a large number of interviews with Egyptian health scientists and health care providers in the Ministry of Health, its specialty hospitals and research institutes, and in university medical schools and hospitals.*

Bacterial Diseases

The estimated annual incidence of typhoid and paratyphoid fevers is 50 per 100,000 population; in Alexandria the incidence is estimated to be 150 per 100,000.22/ The diseases are believed to be more frequent in the city than in rural areas. These Salmonella infections seem to occur throughout the year, but there apparently is a large seasonal rise in summer (May to November). The disease is much more frequent in children, particularly those in the 5 to 15 year age group. A unique feature of Salmonella infections in Egypt is occurrence of urinary infection, especially S. Typhi, as

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*Dr. Salah el Dinh Madkour of the Epidemic Control Department of the Ministry of Health and Dr. Mohamed Helmy Wahdan, Professor of Epidemiology in the High Institute of Public Health, Alexandria University were especially helpful.

a complication of urninary tract involvement with Schistosoma hematobium.23/ It is estimated that about 75 percent of reported cases are S. Typhi, 20 percent are paratyphoid A, with the remaining five percent made up of many other types. Acute typhoid fever appears to respond better to choloramphenicol than to amoxicillin, although those with urinary tract complications are treated with amoxicillin. The JWG Subcommittee for Biomedical Research has suggested that a careful epidemiological study be done which could be used as a basis for field trials with a polysaccharide vaccine being prepared from typhoid bacilli in the United States.24/ The fatality rate in treated typhoid fever apparently ranges around 1 percent.

The incidence of cerebrospinal fever is estimated to be about 3 per 100,000 population yearly.25/ Type A meningococcal meningitis is the most frequent, but some other types also have been identified. The disease is most prevalent between January and May. In recent years, children five to fifteen years of age have been the chief victims, with case fatality rates apparently ranging around 15 percent. Most cases of cerebrospinal meningitis are treated with sulfadiazine, but recent studies in Cairo show the combination of trimethoprim and sulfomethoxazole to be effective. While most cases of acute meningitis are undoubtedly caused by N. meningitidis, diagnostic facilities are so limited that many cases caused by pneumococci, H. influenzae, and perhaps other organisms are probably diagnosed and treated as meningococcal infections.

Streptococcal disease and rheumatic fever occur with an apparent frequency of five to six cases per 1,000 children yearly between the ages of 6 to 15 years,26/ which is about three times the rate for the same age group in England and Europe. Because of an increased awareness of this problem in Egypt, a program was begun in January 1977 to examine all schoolchildren, aged 6 to 15 years for rheumatic valvular heart disease. There are four million schoolchildren in this age group, but there may be as many as two million other children, especially from rural areas, who do not attend school and will not be involved in the program. Examinations were expected to be completed during 1978. The study team consists of 115 primary care physicians who had a special training course for detection of valvular heart diseases. Children identified as having a disease were further examined by one of four heart specialists assigned to the study. Preliminary findings had confirmed a high incidence of rheumatic valvular heart disease. Diagnosed cases were enrolled in a penicillin prophylaxis program. In addition, almost as many cases of congenital heart disease were found, a number far in excess of that expected. The results of this study should provide an extremely valuable foundation and point the way for planning future surveillance and intervention programs for rheumatic valvular heart disease.

Tuberculosis is a major problem in Egypt. There is a reported mortality rate of between 7 and 8 per 100,000 population, a prevalence of positive lung x-ray findings of 2 per 1,000 in several studies, positive skin test reactions of about 20 percent of children in the 10 to 14 age group reported in a 1974 survey, and frequent occurrence of meningeal and osseus forms of the disease.27/ BCG was given by traveling teams for several years to school age

children. A wet vaccine prepared in Egypt was used, but it lost potency in the hot weather. Currently, a Japanese dry vaccine is being given at age three months along with the smallpox vaccine, and then again at age six and at age twelve to those entering and graduating from primary school. The BCG vaccine is given without a prior tuberculin test: if a reaction occurs, it is considered indicative of tuberculosis infection and a diagnostic study is made. The evidence for the success of the BCG vaccination is limited, but definitive. Coverage of schoolchildren is estimated to be about 80 percent, with about 90 percent of the vaccinations considered successful. Adult disease is detected when patients with pulmonary symptoms suggestive of tuberculosis present themselves to the health care system: if the chest x-ray is suspicious, examination of a stained smear and culture of sputum are completed. The Ministry of Health has an extensive detection and treatment network: 72 mass mobile roentgenography units; 25 mobile BCG inoculation units; 15 laboratories for culturing and sensitivity testing; and 10,000 beds in speciality chest disease hospitals, sanatoria and special sections in general hospitals. Because ambulatory treatment has been emphasized for the past several years, many of the hospital beds designated for tuberculosis apparently are empty or filled with patients with other diseases. In summary, increased use of BCG, availability of antimicrobial therapy, and strengthened case finding efforts have brought about a slowly improving situation with respect to tuberculosis.28/ However, a nationwide health problem of great magnitude remains.

Leprosy has been known in Egypt for several thousand years. It is estimated to affect more than two persons per thousand population, or over 70,000 persons for the nation as a whole.29/ The disease is most common in the crowded Nile Delta, but there are significant foci in Luxor and Aswan, in Middle and Upper Egypt, respectively. Leprosy is more common in males than in females. Four percent of the cases are among children less than 15 years of age. There are two voluntary leprosaria near Cairo and Alexandria which serve as centers for diagnosis, early treatment, physiotherapy and plastic surgery, rehabilitation, and research on leprosy chemotherapy. When patients are discharged from leprosaria, they are followed in one of sixteen outpatient facilities scattered over the country, by a leprosy relief association which is found in each governorate, and by physicians in the Ministry of Health ambulatory care system. Dapsone is used as treatment in 90 percent of the cases. Lamprene (B 663), a red phenazine dye, is used in cases where severe erythema nodosum develops as a consequence of the dapsone treatment. Experimental work also is being carried on with phenylthiourea (CIBA 306, antithyroid agent), which is relatively toxic, but quite inexpensive. Recently, studies have been started with rifampicin, directed to early reversal of infectiousness, hoping to shorten the initial period of hospitalization. About one-sixth of patients with leprosy in Egypt are lepromatous.

Viral Diseases

All types of hepatitis — A, B, non-A non-B — are reported to be present. The total annual occurrence is estimated to be much greater than

150 cases per 100,000 population.30/ Hepatitis occurs in urban and rural areas, is endemic all year, and often epidemic in summer. The fatality rate is estimated to be about 1 in every 100 cases. A recent development is the detection of hepatitis B antigens in many cases of schistosomiasis with liver involvement. Although this is considered to be an unfavorable prognostic finding, the problem has not yet been studied adequately. Hepatitis in Egypt, as in most developing nations, is a major unsolved health problem. Consideration should be given to conducting clinical field trials of hepatitis A and B vaccines in Egypt if clinical studies now underway in the United States show them to be safe and effective.

Rabies is an important problem in Egypt. There are an estimated 2,000 cases per year in the country, all of which are fatal.31/ The disease comes from wolves in the desert through camels and dogs. Almost all of the human disease in Egypt comes from the numerous stray dogs that are present throughout the nation. It is estimated that about 1 in 100 dogs is infected and that an unprovoked attack by a dog carries a 20 to 30 percent risk of exposure to rabies infection. About 50,000 courses of antirabies vaccine are dispensed each year. The vaccine is made at the Agousa Virus Center and is produced from goat-brain. It is highly antigenic and associated with three or four cases of encephalitis each year. The Virus Center plans to change to a tissue-culture vaccine to be obtained from the United States or France. Although the current vaccine is considered effective, it was learned during the Institute of Medicine study group visit to Abassia Hospital that 14 of 15 patients with rabies had received the vaccine, 10 of them the full 20 doses. Rabies hyperimmune serum is not available.

Trachoma and acute eye infections have left major visual disability in nearly five percent of the inhabitants of rural villages and between one and two percent of those in urban areas, according to a recent study.32/ The disease originates in early infancy when trachoma and secondary bacterial conjunctivitis combine to cause fibrosis of the eyelid and ultimately scarring and corneal opacity. The acute process of the disease subsides at about age nine, leaving a scarred residue to progress to reduced visual acuity. Haemophilus species, pneumococci, Moraxella species, and an organism fulfilling the usual diagnostic criteria for N. gonorrheae are the principal causes of complicating eye infection. Acute ophthalmia is most frequent at the beginning of summer and in fall when conditions of high temperature and high humidity favor the breeding of flies in manure that is piled in or near the houses. It is believed that cleanliness and simple eye care measures, such as flushing the eye with zinc drops, will minimize ophthalmia. Antimicrobial drugs are effective treatment when it occurs. Major constraints are principally the long-term problems of improving personal hygiene in houses and persuading families to bring children with eye disease to the clinic for treatment. Although there are almost 3,000 hospital beds for eye disease, which in 1974 were occupied by 37,520 patients, most eye disease is cared for in outpatient facilities. The Outpatient Department of the Cairo Eye Hospital has 250 patients on a winter day and more than 700 daily during the summer. In all of Egypt during 1974, there were 4.5 million outpatient visits to eye facilities.33/

Despite the fact that vaccination against poliomyelitis has been compulsory since 1969, the disease has continued to be a serious problem. Undoubtedly, Egypt is going through a sanitation transition wherein gradually improving sanitation in some areas lessens the early life exposure to fecal contaminants among certain more protected population groups, such as breast fed infants and upper socioeconomic families. Consequently, some of them fail to develop the usual active immunity and paradoxically suffer greater risk from certain diseases. The high incidence of poliomyelitis may be partly a manifestation of this phenomenon. Between 1971 and 1976, there were about 1,700 cases of paralytic polio per year in Egypt.34/ Oral vaccine was administered by dropper after having been stabilized with magnesium chloride, which has a bitter taste. Many children attempt to expectorate the vaccine and are reluctant to take the second and third doses. A study in early 1976 revealed that nearly one-half of paralytic polio patients had received no vaccine, an additional one-third had received only one or two doses, and only twelve percent had received all three doses.35/ A major campaign against polio was started in the summer of 1976, when slightly more than six million children were given three doses of the vaccine. A 50 percent sucrose solution that increases the palatibility of the vaccine was used as the stabilizing agent. Perhaps as a result of that campaign, there were only 790 cases of polio reported during 1977. Most polio is Type 1, but some Type 2 is seen. The government plans to carry on an intensive compulsory program of polio immunization in the future, hoping to see a virtual disappearance of the disease in Egypt. In Egypt, as elsewhere in hot climate countries, accumulating evidence suggests that immunity is not reliably established with the oral live virus vaccine, even after multiple doses. The reasons are not clear, but it is believed by some investigators that there are unknown intestinal tract inhibitors that may be related to the presence of other competing viruses. Thus, although current planning in Egypt contemplates use of the oral live virus vaccine, a pilot study will be conducted with the assistance of the Netherlands to compare the efficacy of parenterally-administered killed virus vaccines (not requiring refrigeration) with the oral live virus vaccine.

In the fall of 1977, an epidemic of Rift Valley Fever occurred in the south-east section of the Nile Delta.36/ Although an uncomplicated febrile illness was typical, encephalitic, ocular, and fatal hemorrhagic complications also were recorded. Concomitantly, an epizootic occurred among domestic animals, with abortions and heavy mortality reported in sheep and cattle. The disease was diagnosed with the help of the United States Naval Medical Research Unit 3 and the Yale Arbovirus Research Unit. The epidemic is believed to have been one of the largest human outbreaks ever of Rift Valley Fever and the first reported in North Africa. It apparently was carried into Egypt by a camel train from the Sudan. Estimates of the number of human infections range from 18,000 to over 200,000. The fatal cases were estimated to range from 60 to over 600. Although reported after the discovery of human disease, the epizootic in animals was occurring concomitantly and resulted in mortality of up to 60 percent of some sheep herds and abortion of up to 100 percent of pregnant ewes, along with reported infections in cattle, water buffalo and other domestic animals. It has been determined that the virus

survived the 1977-78 winter and there is concern that it may become endemic or enzootic in the country.37/

Smallpox vaccination is still given as a compulsory immunization at three-months of age in Egypt, and vaccination against smallpox is still required for visitors. However, the disease has not been seen in the country since well before 1970.

Measles is still a major contributor to infant and preschool mortality in Egypt. It has been identified as a cause in nearly two-thirds of deaths reported to be due to infectious and parasitic diseases in the one-to-four age group.38/ In some areas of Cairo, over half of the two-year olds have already had measles.39/ In 1977, immunization against measles became mandatory. In late 1977, a nationwide survey for measles was begun with the cooperation of the United States Center for Disease Control in Atlanta. Blood from every fifth child from six months to six years of age in each of the 25 governorates was obtained to measure hemoglobin concentration and measles antibody titers. Analysis of data is not yet completed. Both the immunization campaign against measles and the oral polio vaccine campaign require an improved cold-chain in Egypt if the programs are to be successful.

There were no reported cases of cholera in Egypt in 1977.

Parasitic Diseases

There is little question that schistosomiasis (bilharziasis) is the most important parasitosis in Egypt, a view shared by Ministry of Health officials and most health scientists and clinicians. Although overall prevalence rates are declining, there are increasing numbers of Egyptians infected because of Egypt's population growth rate. Schistosomiasis has been present in Egypt since the days of the Pharaohs. In 1851, Theodore Bilharz identified Schistosoma haematobium, the causative trematode for urinary schistosomiasis. In 1915, Leiper, also in Egypt, found the cause of intestinal schistosomiasis to be Schistosoma mansoni. Since these discoveries, literally thousands of studies and publications have addressed the problems of schistsomiasis in Egypt, but there are still many questions that remain to be answered before effective methods of prevention, cure or control can be realized.

Prevalence. There are striking geographic variations in prevalence of S. mansoni and S. haematobium infections in the Nile Delta, with S. haematobium found only in the Nile Valley in Middle and Upper Egypt, south of Cairo. 40/ Three nationwide surveys have been conducted. In 1937, about 47 percent of the population were found to be infected. In Middle and Upper Egypt, only S. haematobium was found, with a prevalence rate of 60 percent in perennial irrigation areas and 5 percent in basin irrigation areas. In the Nile Delta, prevalence rates went as high as 83 percent of various population groupings, and in some areas 60 percent of the population were infected with both S. mansoni and S. haematobium. In 1955, the 1937 survey was replicated. The overall prevalence of S. haematobium had fallen from about 48 percent to 38

percent, and of S. mansoni from about 32 percent to 9 percent. A sample survey in 1976, which has not been completely analyzed and published, suggests on the basis of preliminary analyses that overall prevalence has dropped to about 21 percent of the population, with a range from 5 percent to 40 percent in various areas. It should be noted that some indepth studies of limited areas have shown a higher prevalence of S. haematobium than would be suggested by the nationwide surveys. It is reported that 80 percent of primary schoolchildren in some areas in Luxor are infected.41/ In some villages in the Nile Delta, S. mansoni prevalence rates of up to 55 percent recently have been reported, an unexpected finding.42/

However, additional evidence of a continuing decrease in overall prevalence comes from studies of delayed peak onset of infection, from aggregated patient data of rural health units, and from studies which show a decreasing prevalence of the bulinus snail vector for S. haematobium.43/ Prevalence is generally higher in males than in females, peaking for both in early adolescence and plateauing by the mid-20s, followed by a gradual fall that probably reflects acquired immunity. Several longitudinal studies currently underway, including for example, the cooperative Ministry of Health/NAMRU-3 project in Luxor, will help determine whether the apparent declining prevalence holds for communities not subject to interventions, and whether or not the decline of the snail vector is reflected in reduced transmission of schistosomiasis.

Morbidity. There are no reliable population-based mobidity data for schistosomiasis in Egypt. Therefore, it is not possible to state with any degree of confidence the proportion of the infected who are slightly, moderately or severely ill, or who die as a consequence of schistosomiasis. It is clear from experience in Egypt and elsewhere that most of those infected do not develop overwhelming infections.44/ Indeed, in most endemic areas of the world, one can detect relatively few deaths due solely to Schistosoma infection. Quantitative egg count, which corollates well with intensity of infection or worm burden in most cases, is the best available (albeit incomplete) predictor of disease. In other countries where morbidity studies have been made, modest worm burdens — less than 100 eggs per gram of feces — rarely have overt illness symptoms. In Qualyub in the Nile Delta, the geometric mean titer of S. haematobium has been measured to be 9.7 eggs for each 10 cc of urine, and of S. mansoni, 12.8 eggs per gram of feces.45/ These limited results suggest that a large proportion of the infected population in Egypt may have relatively low-level infections.

The only overall "morbidity" data available reflect the number of patients seen in medical care facilities who are diagnosed as infected. However, the data fail to distinguish between those who are ill and those who are infected. Nearly half of all patients admitted to medical or surgical wards of seven university and government hospitals visited by the Institute of Medicine study group were hospitalized for management of schistosomiasis or its complications. The mortality rate due to schistosomiasis is estimated to be somewhere between 0.1 and 1 percent of those infected.46/ It should be emphasized that many of the complications of schistosomiasis that are listed as the immediate cause for death, such as chronic renal failure,

bladder cancer, and portal hypertension, carry an extremely poor prognosis even with the most modern therapy. No available medical or surgical treatment will reverse existing disease complications, with a few specific exceptions such as the medical management of intestinal polyposis. At best, curative medicine yields palliation or prevents further progression of the disease from continued egg production.

Control. Eradication of schistosomiasis in Egypt does not seem possible with available technologies. Effective preventive measures, such as immunization (which is under active investigation) or massive behavioral change accompanied by widespread availability of potable water and systems for the sanitary disposal of excreta, seem relatively far in the future.47/ Snail control and drug therapy to reduce transmission are the principal available control measures, used singly or in combination. Most snail control projects have used chemical molluscicides, although currently there are several experimental efforts using various plants and animal control mechanisms.48/ Egypt was the first country in the world to apply molluscicides to schistosomiasis control. Although mollusciciding seemed to produce favorable results early on, the prevailing view now is that it must be used in combination with therapeutic agents in order to effectively reduce prevalence.49/ Neither has treatment alone been considered effective in Egypt in the past. The available therapies, such as tartar emetic and Astiban, were sufficiently unpleasant to render completed courses of treatment unlikely, and that has been the empirical experience. However, trials of treatment alone have not been undertaken with recently developed, more effective and easily administered therapies, such as metrifonate for S. haematobium. Also, no studies have been done to compare suppressive rather than curative therapy, although mass treatment targeted on population groups with heavy egg counts might be adequate for reduction in overall transmission and morbidity.50/ Finally, there has been no effective non-toxic therapy available for S. mansoni until very recently; oxamniquine is now available and praziquantal is in the final stage of clinical testing.

The most successful projects to date have combined molluscicide and mass therapeutic treatment, with the best known being the Al Fayyum Bilharzia Control project.51/ In that project area, S. haematobium prevalence has fallen from about 47 percent in 1969 to 6 percent in 1976. The program involves molluscicide every four months, repeated case detection surveys, and drug therapy, initially with ambilhar and tartar emetic, and more recently with metrifonate. It should be noted that the Al Fayyum oasis area is supplied fresh water by a single feeder canal from the Nile, thus facilitating the use of the molluscicide agent. The only similar situation that exists in Egypt is the Suez Canal zone, which also is supplied fresh water through a single feeder canal from the Nile. Inspired by the success of the Fayyum project, the World Bank is now assisting the Egyptian government in a project to control schistosomiasis in Middle and Upper Egypt, covering a population of over 8 million people.52/ The project was started in 1975, and is scheduled for completion in 1982. At this point, the requirements for continued molluscicide, special case finding, and treatment programs beyond 1982 are not

known.*

Because all areas are not amenable to effective mollusciciding, because currently available effective molluscides kill other aquatic life, and because mollusciciding has never eradicated the vector snails -- thus necessitating repeated costly applications -- studies comparing other control measures have begun. A Ministry of Health study in Qualyub, assisted by the United States Center for Disease Control, for example, plans to compare mass chemotherapy and tunnel drainage for snail control singly and in combination. Baseline data have been obtained, but the initiation of the experimental control phase awaits the availability of a safe and inexpensive chemotherapeutic agent for S. mansoni.

Research. As might be expected, there is much ongoing research in schistosomiasis on diagnosis, pathogenesis, immunology, therapy, and prophylaxis beyond the epidemiological and control studies already mentioned.53/ This research is being conducted at most of the research institutes in Egypt, as well as at the university hospitals. A new Bilharzia Institute, being developed with the assistance of the West German government, was scheduled to open in 1978. In the spring of 1978, it was decided that the new institute would fall under the jurisdiction of the Ministry of Health. This institute could well serve as a major resource laboratory and a coordinating focal point for research on schistosomiasis in Egypt.

There are a number of parasitic diseases other than schistosomiasis that are endemic in Egypt. Amebiasis has a prevalence rate of 20 percent to 90 percent, with the higher rate characteristic in the poor urban and rural areas.54/ Despite its high prevalence, morbidity -- primarily dysentery or liver abscess -- apparently is remarkably low. Giardia lamblia is the only other common protozoal intestinal infection in Egypt, with a prevalence estimated at about 15 percent. Only two intestinal helminths, ascaris and hookworm, are considered potentially important pathogens in Egypt. Overall, ascaris prevalence is estimated to be about 26 percent, but in some rural areas 70 percent of schoolchildren are reported to be infected. Despite this high prevalence, obstruction of the viscera due to ascaris apparently is relatively rare in Egypt. Hookworm infection is surprisingly uncommon, even in rural areas, with an overall prevalence estimated at 6 percent. Morbidity in the form of hookworm anemia apparently is light in most of the population, but NAMRU-3 researchers have demonstrated severe iron losses in heavily infected individuals, and they consider hookworm infection to be the most important cause of iron deficiency anemia among Egyptian farmers. Although there have been several small epidemics of trichinosis in Cairo and Alexandria in recent years, none of the parasites acquired through ingestion of specific foods seems to pose a signficant public health problem in Egypt.

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* Present annual per capita cost is estimated to be slightly more than $1, with 80 percent of the cost being for the molluscicide. The annual per capita operating expenditure for health is about $4.15, making the control program relatively expensive.

Control of malaria is relatively good in Egypt at the present time. Although the disease was endemic, with several major epidemics, prior to 1972, only 960 cases were reported during 1977.55/ Case fatality rates are reported to be very low. Malaria in Egypt is caused primarily by Plasmodium vivax transmitted by Anopheles pharoensis, although Plasmodium falciparum (malignant malaria) transmitted by A. sergentii is found in Al Fayyum. A. gambiae, a much better vector for malignant malaria, is not now in Egypt, but the development of Lake Nassar has led to concerns that it will be introduced from the Sudan. Malaria control is based on a combination of case detection and larvicide and insecticide operations. Case detection is primarily passive through the Ministry of Health rural health units, centers and hospitals, where blood films are obtained from febrile persons who have no other obvious diagnosis. Identified cases are treated with a 4-aminoquinoline and primaquine therapeutic regime. In some areas, mass drug administration has been carried out when an increased incidence was detected. Larvicides including DDT in fuel oil, DDT wettable powder in water, and malathion emulsion (57 percent) are used in various spraying programs. There appears to be little coordination between the vector control and endemic disease health care programs in the Ministry of Health with regard to vector sensitivity, choice of pesticide, or duration or frequency of application.

Filariasis (Wucheria bancrofti), transmitted by Culex pipiens, is considered by some officials of the Ministry of Health to be the second most important parasitic disease in Egypt. Although overall prevalence and its geographic distribution have been declining since the days of Napolean without specific control measures, there remain five important focal endemic areas. The highest current prevalence is about 3 percent in Qualyub. Population-based morbidity data are unavailable. Improvement in current control is hampered by possible increasing resistance of the vector, coupled with the need to treat for ten days to eradicate the infection. Treatment with diethyl carbamazine is said to be without significant side effects, which is surprising in view of the usually reported high incidence of allergic complications elsewhere.

Future United States Cooperation and Assistance

The Institute of Medicine committee recommends that AID support a strengthening of the Ministry of Health's nationwide compulsory immunization program for infants and preschool children against measles, poliomyelitis, tuberculosis, smallpox, diptheria, pertussis, and tetanus. This will involve helping to insure an adequate supply of vaccines, their safe distribution to the Ministry's health clinics including the establishment of an adequate cold chain, and a strengthened staff performance capacity in the health clinics (Chapter 1).

For the most part, United States support for Egyptian biomedical research in infectious diseases will end when Special Foreign Currency Program funds are no longer available for cooperative research activities. However, a pressing need remains in Egypt to acquire new fundamental

epidemiological and clinical knowledge about a wide range of endemic diseases -- Rift Valley Fever, rheumatic heart fever, hepatitus, schistosomiasis, and filariasis are particularly important. The committee recommends that AID phase in support for a cooperative biomedical research program on high priority infectious disease problems as the Special Foreign Currency Program funds are phased out.

Institution building -- that is, strengthening the capacity of the Egyptian scientific establishment for biomedical research -- should be an important component of the cooperative research program. For example, Egypt has a pressing need to develop improved prevalence and incidence data on infectious diseases. The committee suggests that AID consider support for development of a regional network of epidemiologic surveillance units as a part of the recommended cooperative research program. The several units should be a part of the Ministry of Health, but independent of the health services delivery network. In addition to conducting epidemiological research to develop improved methods for prevention, control, and treatment of diseases endemic in their region, the units could provide field support for clinical research conducted by the universities and the several national research institutes in Egypt. The United States Center for Disease Control has been exploring such a concept with the Ministry of Health and is the logical American institution to cooperatively develop the units with the Ministry.

There are a large number of studies being conducted on various aspects of the schistosomiasis problem in Egypt. Although there is a substantial amount of informal communication, the impression is compelling that there is much unnecessary duplication and that advances in knowledge may be slower than need be because research results are not disseminated widely or in timely fashion. The result is less than optimal use of scarce resources in a very important research effort. The committee suggests that AID consider support for the development of an information center on schistosomiasis research. The center could collect, store, analyze, and disseminate the results of studies on schistosomiasis, and maintain a current inventory of ongoing studies. In addition to scheduled communications and publications for the research community, the center could provide information services on request to individual research scientists and institutions. The center could be the point of contact for the World Health Organization Special Programme on Research and Training in Tropical Diseases with respect to schistosomiasis research in Egypt. The Ministry's new Biharzia Institute, now nearing completion, should be considered as a possible site for the center.

Finally, as noted in the discussion on tuberculosis, there has been a shift from inpatient hospital care to ambulatory care in Egypt, as in other countries. A need has emerged, therefore, to upgrade the detection and treatment capacity of the staff in the Ministry's health clinics. The committee suggests that AID consider support for the development of a training center for physicians, nurses, and technicians in tuberculosis case finding and treatment. The emphasis should be on short-term training of personnel currently staffing the Ministry's clinics, although entry-level clinical

training also could be offered. The Cairo Chest Hospital, adjacent to the Abassia Fever Hospital and near NAMRU-3, should be considered as a possible site for such a center. More than 1,000 beds are available at the Chest Hospital and it is supported by microbiological, clinical chemistry, pulmonary function, and x-ray laboratories. A sufficient number of meeting rooms and some housing quarters are available, although additional units would probably be required for faculty and students because of the general housing shortage in Cairo.

Water and Sewage Systems and Occupational Health

The limited time available to the Institute of Medicine study group did not permit a detailed examination of the full range of environmental health problems in Egypt. Study effort was focussed on water and sewage systems, and occupational health.

Water and Sewage

Responsibilities at the national level for water supply and sewage treatment are shared by the Ministries of Health, Housing and Reconstruction, and Local Government. The Ministry of Health, which in the past was directly active in promoting rural water supply and sanitation, today concentrates on monitoring the quality of all water and sewage services. Governorate level authorities are responsible for operating the systems.56/

Service Levels. The 1976 Census collected data on housing and potable water supply.57/ Preliminary analysis of those data yielded the following results:

Distribution of Households According to Source of Potable Water

Source of drinking water	Percentage of households				
	Urban	Rural	Total	Cairo	Alexandria
• Tap in dwelling	61	4	30	70	78
• Tap outside dwelling but inside building	9	2	5	11	12
• Source outside building	10	58	40	17	9
• Without any source	12	36	25	2	-
	100*	100	100	100	100*

*Totals do not equal 100 due to rounding.

The large cities -- Cairo, Alexandria, the Canal Zone cities, and sixteen other large cities in rural governorates -- have separate water supply systems. Regionalized systems serve other parts of the country. Outside areas serviced by these systems, water is obtained from public and private shallow wells, the Nile, and irrigation canals. Interruptions in supply and low pressure are common in the urban and regional systems. There is an estimated 40 percent loss of water because of leakage. In some areas where new water treatment plants have been built, they are operating below capacity because distribution systems are inadequate. In urban areas, there is a need to bring all components of the water system into balance with the sewage system.

Sewage systems exist only in the centers of the larger cities. They have sufficient capacity to serve between one-third and one-half of the total urban population. Cairo and Alexandria are best served, with systems nominally serving about two-thirds and one-half of their populations, respectively. These systems are old, overloaded, and in a poor state of repair. Data are not available on the extent of alternative waste disposal systems, such as septic tanks, in urban areas. No more than 5 percent of the rural population have sanitary waste disposal facilities, such as latrines. A latrine demonstration program was undertaken a number of years ago by the Ministry of Health, apparently involving the installation of 50,000 units; however, no information could be obtained on its results.

The prevalence of water-borne and water-related infectious diseases suggests that inadequate water supply and sewage systems present a major health hazard in Egypt. The extent of the hazard presented is not known; appropriate epidemiological studies have not been conducted and the unreliability of data from other sources prevents confident inferences. However, the population-at risk for water-borne and water-related diseases is very large. Families living in rural and fringe urban areas who must carry and store water in containers are most at risk of end-use contamination; they also are least likely to use water for washing and cleaning.

In 1977, a joint study by the World Health Organization and the World Bank of water supply and sewage systems identified several problems with expanding these systems:58/

- the low-level of public capital investment likely to be available;
- low-revenue generation from the systems -- usually insufficient to cover operating expenses;
- fragmentation in operational responsibility, with concentration of planning and design capabilities at the central level;
- a general deficiency in design capability and an inability of governorate authorities to develop and administer projects that are technically and fiscally sound;

- a severe shortage of experienced and competent staff at professional, technical and skilled workman levels, partly because of a lack of training programs and partly because of more attractive work opportunities abroad; and

- shortages of some selected construction materials.

In addition to recommending a regionalized administration scheme for improving operational management and efficiency, the study called for "reaffirmation of the Ministry of Health's role in promoting, financing, and constructing sanitary excreta disposal facilities in rural areas."

Cooperation and Assistance. During the last five years, Egypt has received large amounts of capital assistance from numerous countries and multilateral organizations for water supply and sewage projects in Cairo, Alexandria, and the Suez Canal cities of Port Said, Ismailia, and Suez.59/ AID is financing preparation of a series of master planning and feasibility studies in support of these projects. The projected AID investment in the projects will total over $200 million.60/ A separate AID-financed study is targeted on developing tariff structures for services in the same cities that will permit the systems to be more independent financially. The World Bank is supporting a study on rural governorate water supply and sewage system requirements, starting in two delta region governorates.

The World Health Organization/World Bank study examined the Egyptian government's plans for capital investment in water supply and sewage systems through 1985.61/ It concluded that the plans represent the maximum amount of new works that can be implemented in that period in view of the existing absorptive capacity of the Egyptian administrative and technical structures. Those plans aim at maintaining current service levels in the existing urban systems, taking into account expected population growth, and increasing house connections in the regional water systems from the current 10 percent level to 20 percent. The study did recommend that a rural sanitation program aimed at serving 20 percent of the population by 1985 be added to the plans, with immediate attention being given to studies to determine what techniques are most feasible considering available economic resources and social acceptance.

The Institute of Medicine committee concurs with the judgment in the World Health Organization/World Bank study that currently planned projects are fully utilizing Egypt's existing absorptive capacity for major new projects in the water supply and sewage sector. The committee believes that it is important, because of the large population at risk to water- and sewage-borne diseases, to increase Egypt's planning and management capacity in this area as rapidly as possible. Therefore, the committee suggests that AID consider providing support for an analysis of manpower requirements -- professional, technical, and skilled workman levels -- for increasing Egypt's capacity for water supply and sewage systems planning and management, and for determining immediate and long-term education and training needs for possible future AID support.

The committee believes that it is important to begin making headway in improving rural sanitation in Egypt. It is aware that there are pervasive cultural and social mores involved and that behavioral change in personal hygiene habits will be difficult to achieve. However, the committee also believes that appropriate technological advances frequently can stimulate those changes. Therefore, the committee suggests that AID consider providing support for several pilot projects to develop low-cost, socially acceptable technologies for rural sanitation.

Finally, the committee suggests that AID consider support for a selected number of technical studies on high-priority problems. The following are suggested for consideration:

- A short-term study to determine the outcomes of the Ministry of Health's earlier 50,000 unit rural latrine program, and other earlier rural sanitation programs, as background guidance for the pilot projects in rural sanitation suggested for AID consideration;
- Studies to locate and reduce major sources of water loss in urban systems;
- Analysis of feasibility of using new materials (e.g., polyvinyl chloride) for construction of sewer joints, with improved resistance to water and sand infiltration from high ground water;
- Analysis of end-use contamination and resulting health hazards from carrying potable water between community taps and dwellings and from storage practices.

Occupational Health

It is estimated that about 9,500,000 of Egypt's 38 million people are in its work force.62/ Of these 44 percent work in agriculture, 15 percent in service industries, 13 percent in manufacturing, 6 percent in commerce, 4 percent in transport, 3 percent in construction, 0.5 percent in public works, and 0.2 percent in mining and quarrying.

Estimates of populations at risk to occupational hazards include 6,000,000 for accidents; 3,000,000 for pesticide poisoning; 60,000 for mercury, chlorine, or alkali exposure; 400,000 for silicosis; 10,000 for byssinosis; and 1,500 for carbon disulfide exposure. Routine reporting of occupational diseases is limited. However, in Alexandria, an examination of 250,000 industrial workers in 1977 identified 3 cases of aniline poisoning, 600 of occupational deafness, 8 of silicosis, 12 of byssinosis, 7 of lead poisoning, 45 of industrial eczema, 48 of mercury poisoning, 7 of occupational cataracts, 2 of asbestosis, and 175 chronic organic phosphate pesticide poisoning.63/ The reported national total of occupational accidents is 45,000 yearly.64/

A recent sample survey of agricultural workers indicated that almost all

had some evidence of chronic pesticide poisoning.65/ This is not surprising considering the wide use of pesticides and handling methods. Pesticides are purchased by the Ministry of Agriculture with minimal medical consultation. For several successive years, mass poisonings have occurred when a more toxic chemical has been introduced, examples being carbonate one year and organic phosphate another. The pesticides are applied by hand and few handling precautions are taken. Physicians assigned to rural health care receive no specific training in pesticide poisoning recognition or management. If recognized, it rarely is reported. No routine surveillance of agricultural workers is carried out.

Current Situation. Assuring the protection of workers' health is a recognized responsibility of the Egyptian government, as evidenced by a comprehensive system of laws and regulations, including mechanisms for compensating workers who are injured or who have work-related diseases. However, government responsibility is fragmented among several Ministries, there has been poor coordination among the separate government entities involved, and the laws and regulations are not consistently enforced.

The Department of Occupational Safety and Health in the Ministry of Manpower has the right of entry to a plant for periodic evaluations of health hazards. Most of its 600 factory inspectors are chemists and engineers who are supposed to work closely with occupationally-trained physicians. However, only 30 out of 200 physician positions have been filled.

The Department of Industrial Productivity in the Ministry of Industry trains safety officers who collect accident information. Industries, by law, are supposed to report occupational diseases and accidents; in practice, little data are provided and use of available data seems minimal. There is a semi-autonomous institution — the National Institute of Occupational Safety and Health — within the Ministry of Manpower that originally was charged with training, research, and technical engineering advice to industry. However, it has a small staff and, although active, seems to be ineffective.

The Ministry of Health has an industrial health section with two physicians and several allied health scientists. This section investigates health hazard complaints, although it has no right of entry and no authority for enforcing compliance to laws or regulations — it is limited to making recommendations to other Ministries. This section, with the assistance of universities, advises the Ministry of Manpower on work place occupational exposure threshold values, collects reports of pesticide poisoning, and advises the Ministries of Housing and Industry on health guidelines for licensing construction.

The Ministry of Health is currently constructing an environmental research center at Embaba that is planned as a major research, training, and surveillance laboratory resource in environmental and occupational health. United States support for the development of this center has been provided under the auspices of the Joint Working Group on Medical Cooperation. Technical planning advice has been provided by the Department of Health, Education,

and Welfare's National Institute of Environmental Health Sciences, and AID is assisting in the financing of equipment for the center.

The Health Insurance Organization, under guidance of the Ministry of Health, is responsible for conducting periodic inspections of the industries participating in the insurance program, identifying health hazards, and, more recently, performing medical examinations to determine disease prevalence stemming from the health hazards identified. It has no mandate or authority to enforce compliance to standards, although it is required to advise the industries of its findings and offer recommendations to them.

Plans. In 1977, a Ministry of Health Plan included short-term (1977-1978) and long-term (1978-1981) goals.66/

The short-term goals included: training of rural medical personnel in pesticide poisoning; requiring the Health Insurance Organization to perform periodic medical examinations; surveying industrial workers; loaning physicians from the Ministry of Health to the Ministry of Manpower for industrial surveys; establishing a registry of occupational disease in the Ministry of Manpower; conducting a medical survey of mines, quarries and chloralkali plants; conducting a medical survey of government work places; and establishing cabinet level overview of activities to monitor short-term goal achievement. (It was clear in early 1978 that these goals would not be achieved during that year.)

Long-term plans consist of broadening Health Insurance Organization coverage to industries with less than 100 employees; establishing occupational medical units in industrial compounds; educating workers in rural health units in general occupational disease detection and management; broadening the scope of industries required to have occupational medical surveys; conducting environmental surveys for hazardous exposures, with enforcement of posted threshold limit value; developing methodologies and laboratory techniques for screening; determining manpower needs in occupational medicine; establishing professional training programs; altering medical school curricula to include occupational medicine; determining health survey protocol needs for applied research in hazard control; evaluation of synergism of endemic and occupational diseases; and rewording the legal mandates for occupational health.

Additional constraints must be addressed. Although there is a fairly sizable pool of physicians with occupational health training in the Ministry of Health, most are reluctant to join the Ministry of Manpower, where there is a critical need for them, because of poor career advancement opportunities. Current training programs of industrial hygienists do not produce competent factory inspectors according to some officials; this results in overzealous interpretations of regulations in some instances, or failure to recognize serious health hazards in others. Although mandated in law, an appropriate national registry for occupational diseases has not been established, nor has an effective surveillance system.

Egypt has a legal and regulatory foundation, and a set of planning goals to mount a strengthened occupational health program. Its major problems are the fragmentation of responsibilities among the various government organizations and the related difficulty of mobilizing available resources. The actions required are internal government matters.

United States Cooperation and Assistance. The Institute of Medicine committee does not believe that a major AID program initiative in occupational health is warranted at this time. United States support for bringing equipment in the Ministry of Health's environmental research center at Embaba to initial operational status is planned. Requests for additional support can only be evaluated properly after the center's staffing arrangements have been established and its organizational relationships to other government components in a cohesive occupational health program are clarified. AID should avoid contributing to continued fragmentation.

The committee suggests, however, that AID consider support for cooperative research studies in occupational health, particularly in rural agriculture. For example, research might be directed toward questions such as: What are the prevalence and morbidity of pesticide toxicity by application method? By category of worker? Can a low-cost application method be developed that minimizes exposure, or reduces morbidity, when protective clothing is unacceptable because of high ambient temperatures? The committee also suggests that AID consider providing a series of short-term training fellowships in the United States for Egyptian professionals in specific techniques, such as pesticide analysis, that are related to the cooperative research program suggested. The research and training programs should be open to personnel of the Ministries of Health and Manpower, the Health Insurance Organization, and university occupational medicine and industrial hygiene departments.

TABLE 1 Causes of Death in Egypt, ICD "A" Categories, 1972

Cause		% of Total Deaths
I.	Infectious and Parasitic Diseases	2.4
II.	Neoplasms	1.5
III.	Endocrine, Nutritional, and Metabolic Diseases	.7
IV.	Diseases of Blood and Blood-Forming Organs	.4
V.	Mental Disorders	.02
VI.	Diseases of the Nervous System and Sense Organs	.7
VII.	Diseases of the Circulatory System	12.3
VIII.	Diseases of the Respiratory System	21.5
IX.	Diseases of the Digestive System	27.1
X.	Diseases of the Genitourinary System	1.4
XI.	Complications of Pregnancy, Childbirth, etc.	.2 (.5% of Females)
XII.	Diseases of Skin and Subcutaneous Tissues	.02
XIII.	Diseases of the Musculoskeletal System and Connective Tissue	.1
XIV.	Congenital Anomalies	.8
XV.	Certain Causes of Perinatal Mortality	5.2
XVI.	Symptoms and Ill-defined Conditions	21.8
XVII.	Accidents, Poisoning, and Violence	3.4
	TOTAL	99.54 a/

Source: Derived from World Health Statistics Annual: Volume 1, Vital Statistics and Causes of Death. World Health Organization, 1976.
a/Total does not equal 100% due to rounding.

TABLE 2 Age-Specific Mortality Rates in Egypt, 1972

ICD "A" Diagnostic Category	Death Rates a/ By Age Intervals in Years				
	0	1 - 4	5 - 14	15 - 24	25 - 34
All Causes	11,156	2,474	185	241	238
Infectious and Parasitic Diseases	261	46	12	18	22
Diseases of the Circulatory System (Principally Chronic Rheumatic Heart Disease Beyond Age 5)	44	26	37	55	50
Respiratory Infections	1,713	601	23	3	2
Bronchitis, Asthma, Emphysema	978	279	8	3	5
Diseases of the Digestive System (Including Diarrheal Disease not Established as Infectious)	5,175	1,202	25	22	28
Complications of Pregnancy and Childbirth	-	-	-	8.0	18.4
Certain Causes of Perinatal Mortality	2,104	-	-	-	-
Accidents, Poisoning, and Violence	21	42	36	73	44

Source: Excerpted from World Health Statistics Annual: Volume 1, Vital Statistics and Causes of Death. World Health Organization, 1976.

a/Death rates for 100,000 population. Infant deaths for 100,000 live births.

TABLE 3 Admissions and Consumption of Patient-Days by Cause in Ministry of Health General Hospitals

CAUSE	NO. OF ADMISSIONS	% ADMISSIONS	AV. LENGTH OF STAY IN DAYS	NO. OF PATIENT DAYS	% PATIENT DAYS
DIGESTIVE SYSTEM	2,970	17.1	10.2	30,294	19.3
ACCIDENTS, POISONING, VIOLENCE	2,641	15.2	8.0	21,128	13.5
CIRCULATORY SYSTEM	1,269	7.3	12.9	16,370	10.4
RESPIRATORY SYSTEM	1,157	6.6	8.7	10,066	6.4
SENILITY AND ILL-DEFINED CONDITION	671	3.9	9.2	6,173	3.9
REPRODUCTIVE AND RELATED SYSTEMS	5,609	32.2	8.3 a/	72,660 a/	46.4 a/
OTHER	3,094	17.8			
ALL CASES	17,411	100.1 b/	9.0	156,699	99.9 b/

Source: Figures derived from unpublished Ministry of Health study provided to Institute of Medicine study group on 5 percent sample of 348,720 admissions to 169 of Ministry General Hospitals in 1974.

a/Categories cannot be separated on the basis of information provided to Institute of Medicine study group.

b/Totals do not add to 100% due to rounding.

TABLE 4 Thirteen Most Frequent Causes for Admissions with Average Length of Stay, Classified by Sex, in Ministry of Health General Hospitals, 1974

Code	Cause I.C.D. List D. (Male)	No. of Adm.	Av. Length of Stay in Days	Code	Cause I.C.D. List D. (Female)	No. of Adm.	Av. Length of Stay in Days
181	Inguinal hernia without mention of obstruction	561	12.3	222	Delivery without mention of complication	1646	3.4
150	Hemorrhoids	430	11.1	221	Other and unspecified abortion	1517	3.4
179	Acute appendicitis	331	8.6	211	Disorders of menstruation	516	3.9
161	Bronchitis, emphysema, and asthma	315	11.0	179	Acute appendicitis	434	7.6
188	Other diseases of intestines and peritoneum	287	7.0	212	Sterility	400	3.8
275	Motor vehicle accident to pedestrian	285	5.6	188	Other diseases of intestines and peritoneum	230	5.8
228	Infections of skin and subcutaneous tissue	215	11.7	209	Uterovaginal prolapse	195	13.2
196	Calculus of urinary system	213	17.3	228	Infections of skin and subcutaneous tissue	192	10.5
295	Toxic effect of other substances chiefly non-medicinal as to source	192	2.7	162	Hypertrophy of tonsils and adenoids	191	5.0
102	Other diseases of blood and blood-forming org.	166	13.0	286	Other and unspecified accidents	178	8.1
162	Hypertrophy of tonsils and adenoids	165	5.7	161	Bronchitis, emphysema, and asthma	174	9.6
199	Other diseases of urinary system	165	15.4	151	Hemorrhoids	161	9.2
139	Symptomatic heart disease	129	15.5	225	Complicated delivery	139	8.1

Source: From unpublished Ministry of Health study on 5 percent sample of 348,720 admissions to 169 Ministry General Hospitals in 1974 provided to Institute of Medicine study group by Ministry of Health, March 1978

TABLE 5 Causes of Hospitalization in Cairo University Hospital System, 1976

Cause	Number of Patients	% Patients
Accidents, Poisonings, Violence	9,420	17.5
Gastrointestinal Diseases	7,250	13.5
Pregnancy and Puerperium	5,458	10.1
Genitourinary	5,200	9.6
Chest	4,575	8.5
Central Nervous System and Eye	4,087	7.6
Cardiovascular	4,021	7.5
Neoplasms	3,311	6.1
All Other	10,574	19.6
TOTAL	53,896	100.00

Source: Annual Medical Statistical Report, 1976. Institute of Statistical Studies and Research, Cairo University Hospital.

TABLE 6 Consumption of Patient Days by Service in Cairo University Hospital System, 1976

Service	Number of Patients	Average Length of Stay in Days	Patient Days (Thousands)
General Surgery and Burns	22,643	15	339
Medicine	8,488	22	187
Pediatrics	8,381	11	92
Opthalmology	3,305	27	89
Orthopedics	6,126	10	61
Gynecology	3,704	15	56
Chest Surgery	823	54	44
Radiology	1,030	42	43
Neurology	832	50	42
Ear, Nose, Throat	3,172	12	38

Source: Annual Medical Statistical Report, 1976. Institute of Statistical Studies and Research, Cairo University Hospital.

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CHAPTER 5

HEALTH RESOURCES*

Health Care Services

Overview

Assuring that the people of Egypt have access to comprehensive health care services, at a cost they can afford, is a constitutional responsibility of the government of Egypt. The government attempts to meet this responsibility by operating a national health care system that provides services to the population for a nominal registration fee per contact. The Ministry of Health in Cairo oversees the operation of this system which includes:

- Almost 2,300 rural health facilities, about 1,700 of which are ambulatory care units, the rest centers and small hospitals with 10 to 40 beds, as well as outpatient clinics;
- In urban areas, about 220 maternal and child health centers, 300 health offices (usually responsible only for birth registration, food inspection, and immunizations), 200 school health units and hospitals, and over 100 general ambulatory care health centers and multi-speciality clinics;
- Over 350 general and specialty hospitals, usually with large outpatient facilities, located in major cities.

Teaching hospitals of the nine medical schools in Egypt provide a full range of secondary and tertiary care services, and outpatient care. The hospitals are under the control of the medical school deans, the universities, and the Ministry of Education. The Ministry of Health's several research institutes also provide limited inpatient and outpatient health care services on a referral basis. Throughout the rest of the system, there are no referral requirements; an Egyptian can request health care at any government facility he chooses.

The Egyptian Health Insurance Organization, a health maintenance type of organization regulated by the Ministry of Health, provides comprehensive

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*Unless otherwise referenced, the material in this chapter was developed from information, mostly oral, provided to the Institute of Medicine study group in many separate meetings with Ministry of Health officials and other Egyptian health professionals, and from the observations of the study group while in Egypt.

health services to about 1,200,000 employed Egyptians. Only employees are enrolled in the system; spouses and children are excluded. The Health Insurance Organization operates an ambulatory care clinic system and ten hospitals with inpatient care only. It has a strict, well-defined referral system.

The private health care system is used primarily by upper and middle income urban Egyptians. An estimated 75 to 80 percent of the active physicians in urban areas devote late afternoons and evenings to private, fee-for-service practice after their government job obligations in the Ministry of Health or Ministry of Education are met. Ministry of Health physicians assigned to rural areas are permitted to make home visits to patients for which they can charge tax-free fees. The Cairo Curative Organization and Alexandria Curative Organization operate eleven and five hospitals, respectively, that serve primarily as facilities for private patients. Small proprietary hospitals under a variety of ownership arrangements account for less than 5 percent of hospital beds in Egypt.

Table 1* displays the number of hospital beds in Egypt in 1976 by "ownership." The Ministry of Health hospital and hospital bed distributions are presented in Table 2.

The Health Insurance Organization operates under the control of the Minister of Health. All fees charged, both for hospital care and attending physicians, are regulated. Hospital fees charged by the two Curative Organizations are regulated by the Minister of Health; the professional fees of their attending physicians are not regulated.

There are separate health care systems for military personnel, police, and certain employees of the Ministry of Transportation.

Pharmaceuticals are provided free in all government health facilities. There are more than 2,400 private pharmacies in Egypt -- nearly half of which are in Cairo and Alexandria -- that sell a wide range of over-the-counter, as well as prescription, drugs. These private pharmacies may constitute the only contact of many Egyptians with modern health care. The cost of pharmaceuticals is partially subsidized and prices are fully regulated by the central government. The general consumption of drugs in Egypt is quite high, attributable in part to large quantities purchased by foreign visitors and Egyptians working abroad. The Ministry of Health estimates that about half of total national expenditures for health are for pharmaceuticals. Between 80 and 85 percent of the pharmaceuticals sold in Egypt are produced by Egyptian public sector companies supervised by the Ministry of Health.

Traditional health practitioners are still part of the health services delivery picture in Egypt. Dayas, traditional birth attendants, attend 50 to 80 percent of births in the home in both rural and urban areas of the country, and also perform other functions associated with female puberty,

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*Tables are at the end of the chapter.

marriage, and death. Dayas are not licensed to provide health services so their activities are technically illegal, although there is little enforcement of any sanction. An unknown number of health barbers are still active, performing circumcisions and simple operations in addition to cutting hair. Some of them have joined the government's health care network as orderlies, helping to link health professionals with the community.

Egypt has a large pool of educated and trained health professionals, particularly physicians and pharmacists,1/ compared to most developing nations. In 1977, there were almost 32,000 physicians registered with the Egyptian Medical Syndicate, the Egyptian organization comparable to the American Medical Association. Of these, about 22,000 were employed by the Ministry of Health. Almost 8,000 others were working in other Arab countries, or were in postgraduate training and fellowship programs, or on leave and sabbaticals. Most of the remainder were medical school faculty. Only about 400 physicians in Egypt are in private practice full time. The resident physician-to-population ratio was about 1 to 1,500 in 1977; by 1982, the ratio is expected to be about 1 to 1,000 because of large graduating classes in the medical schools. In 1977, there were about 4,000 registered dentists and 4,000 registered pharmacists.

There also were about 23,000 nurses of various levels of training and about 5,700 school health visitors (part-time nursing aid) employed by the Ministry of Health. Technicians in the Ministry of Health system include: about 2,800 sanitation technicians, 1,500 laboratory techicians, 800 x-ray technicians, and 120 dental technicians. This supply does not meet the demand for technical services, yet many technicians are reported to be working in other Arab countries.

The Ministry of Health system is of primary interest to this study because it is the nominal provider of health care services to the roughly 32 million Egyptians who have annual per capita incomes of less than L.E. 150, or $214.50. The government structure is relevant to administration of the Ministry of Health system. Egypt is divided into 25 governorates, each with a governor appointed by the President and an elected Governorate Council. The governorates are further divided into 132 districts that are then further divided into 755 official villages — primarily administrative designations for groups of smaller village communities. There are a total of about 4,000 separate village communities in Egypt. Of the 25 governorates, 21 are classified as rural and 4 as urban (Cairo, Alexandria, Port Said, and Suez). Within each rural governorate, communities are designated as urban or rural. Overall, the 36.5 million resident citizens of Egypt in November 1976 were classified as 44 percent urban and 56 percent rural.2/ Even the rural areas of Egypt are densely populated by the most liberal definitions; sparse population and large distances between communities are not characteristic of the rural areas in Egypt. However, there are very real distinctions in life style, beliefs, attitudes, and behavior between the rural and urban populations. Many of the recent rural migrants to urban areas have carried their rural orientation with them, including health care behavior patterns.

In 1975, a public law was passed that established a policy of delegation of much power and authority for government functions from the central level to the governorate, district, and village levels of government. This "decentralization" law, as it is known, is meant to encourage local self-government. The Ministry of Health has delegated operational management of health care services to the governorate level, with guidelines for further delegation of some functions to the district and village levels. However, much effective operational control, particularly budget determination and financial management, still resides at the central level. The Ministry has retained authority for policy formulation and planning, standard setting, and performance monitoring and evaluation. The minister of health is appointed by the president of Egypt; his term rarely exceeds three years because of the demands of the post. The seven major departments of the Ministry* are each headed by a physician who is a tenured civil servant holding the title of Under Secretary. The central organization is essentially replicated at the governorate level. A director general for health is jointly appointed by the governor and the minister of health, but in practice he is accountable to the minister.

Primary Care Services

The Ministry of Health primary care services include maternal and child health care, immunizations, ambulatory care, and school health care (daily inspections, periodic vaccinations). The Ministry also handles birth and death registration, conducts food and water inspections, provides family planning services (as of 1978), offers dental health services at some locations (560 of the 2,500 rural health facilities), and implements special programs such as malaria and schistosomiasis control programs. Performance standards based on World Health Organization recommendations have been established for most services.

In rural areas, each Ministry of Health clinic is supposed to offer the full range of services, but not all do. In urban areas, services are fragmented among different types of facilities. For example, health offices are primarily for vital event registration, although some give immunizations; maternal and child services, including immunizations, are offered at maternal and child health centers. The outpatient departments of Ministry special and general hospitals, and university hospitals, handle most of the urban ambulatory care delivered by the government.

Access. The government's plan for rural areas calls for a health care facility of some type to be within three kilometers of each village. Construction of 300 more health care units is planned to meet this goal by 1982 (see Appendix). Construction of rural facilities has taken precedence over

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*Administrative and Financial Affairs, Pharmaceutical Affairs, Dental Affairs, Specialized (Hospital) and Emergency Medical Care, Control of Endemic Diseases and Basic Health Services, Preventive Affairs, Central Ministry Services.

construction of urban facilities, despite urban population increases. Access, particularly in Cairo and Alexandria, is poor. A recent study in Cairo found that about 45 percent of the persons using an ambulatory health care facility resided in an area other than the one in which the facility was located, and 40 percent of these reported that there was no facility in their area of residence.3/ Construction of urban health centers and multi-speciality clinics is planned over the next five years in areas in which there currently are no ambulatory care facilities. The Ministry's ambulatory care facilities of all types, even those most recently constructed, are in poor physical condition because they are inadequately maintained.

Utilization. Even in the areas in which there is reasonably good access to the Ministry's primary care facilities, use of the services is low. Patient care volumes during 1976 for the Ministry's outlets, both inpatient and outpatient, are shown in Table 3. The statistical data available from the Ministry do not allow calculation of the percentage of the Egyptian population being reached by the Ministry's system. An indirect measure of system coverage is provided by the Ministry's report of immunization activities during 1976. Even if all the immunizations provided had been restricted to children under two, only one-half of those children possibly could have received the full series of DPT and poliomyelitis vaccines and BCG injections; less than one-sixth would have been vaccinated for measles. Ministry of Health officials estimate that perhaps 30 percent of the population uses the Ministry system at least once during a year.

A study of the Ministry's maternal and child health services during 1975 and 1976 showed that there was less than 1 prenatal visit to the clinic per client in urban areas and 1.7 in rural areas, although prescribed service norms call for 10 such visits.4/ It was estimated that only 40 percent of pregnant women were registered with the Ministry's clinics. Over half of the deliveries occurred in the home under family supervision, or under the supervision of dayas. Even for those births nominally supervised by Ministry personnel, 83 percent occurred prior to the arrival of Ministry personnel. There also was a reported 51 percent drop in child visits to the clinics in urban areas. The overall picture clearly is one of low utilization of maternal and child health services, with an apparent recent sharp decline even in those low levels.

Cultural beliefs and mores, particularly among the rural population, discourage use of the Ministry's primary care services. The government's maternal and child health facilities are viewed as places to go as a last resort — if then — for illness. Illness and death are associated with supranatural causes, such as divine retribution or the "evil eye". There is little understanding of the link between environment, hygiene, behavior, illness, and medical interventions. Many people are discouraged from making return visits to clinics because their initial experience frequently is time-consuming and unpleasant. The journey to the facility and long waiting times for the clinics to open (because the physician or other health personnel do not arrive at scheduled opening times) means that chores in the home, field, or job are foregone, usually with perceived economic losses. Treatment of

patients often is depersonalized and haughty.

At the same time, a commonly held belief is that superior care is obtained at university hospitals and the larger general and speciality hospitals of the Ministry of Health. Consequently, the outpatient departments of these hospitals are heavily used. For example, the University of Cairo Abou El-Rish Pediatric Hospital reportedly processes 4,000 outpatients daily, including a large number from areas outside Cairo.

System Performance. At most of the Ministry's primary care outlets each staff member makes an average of four client contacts per working day, according to the Ministry's activity reports. Yet, in a recent study of rural health services, physicians saw patients for an average time of only 1.1 to 2.5 minutes.5/ In the previously mentioned study comparing the Ministry's maternal and child health services in 1975 and 1976, there was a reported drop between these years of 39 percent in postnatal home visits and 24 percent in child care home visits.

Other problems include deficiencies in supplies such as vaccines and laboratory services. Laboratory services are limited to a few simple procedures, and these are unreliable because equipment is poorly maintained. The lack of communications linkages between primary care facilities and hospitals prevents timely specialist consultation. Lack of transportation is cited by many Ministry officials as a constraint on clinic staff home visits, patient follow-up visits, and proper referral to speciality clinics and hospitals.

Perhaps the most fundamental problem is that many health personnel are not motivated or committed to improve performance. Salaries for health professionals in the Ministry's system are set according to a government-wide schedule based on educational attainment, not job responsibilities or productivity. The salaries received, therefore, are considered low for professionals with many years of advanced training. For example, the starting salary for physicians is $37.50 per month. In rural service, physicians also receive $22.50 for not having a private clinic, $7.50 for "exposure", and $6-$12 for transportation costs -- a total of about $75-$80 per month. Therefore, many health personnel seek second jobs. Some have been reported to require "gifts" from clients if services in the government clinics are to be provided without unnecessary delays.6/ In short, although there are many dedicated health personnel, there are many who view their positions as just part-time sinecures.

Although 56 percent of the population is defined as rural, only 32 percent of Ministry of Health physicians and only 11 percent of qualified nurses are stationed in rural locations.7/ Physicians who score the lowest grades on examinations are assigned to the remotest areas. In these areas, the health facilities are staffed by less competent, poorly-motivated physicians, assisted by less well-trained staff, all subject to more rapid turnover, and with little opportunity for stimulation from professional contacts and exposures. To reduce turnover in rural assignments, the Ministry of Health provides a rent-free apartment for the physician, who is permitted to

keep the clinic refrigerator there. Physicians also may charge for home visits. The effect of these steps, coupled with perceptions by physicians that there is an oversupply of physicians in private practice in urban areas, that it is very costly to establish such a practice, and that urban housing, when available, is very expensive, has been salutory. In 1977, the Ministry reported that out of 2,777 physicians meeting their service obligations in rural areas, 1,900 elected to stay in rural service for at least one more year, and 1,200 of these elected to stay in the same community.

Low productivity persists partly because of inadequate supervision throughout the system. There is reluctance among personnel in supervisory positions to enforce attendance during scheduled clinic hours and to require adherence to performance standards. Supervisors at the operational level have very little authority to reward improved performance. Available sanctions, such as "docking" salaries for absenteeism or firing, are rarely used. All government facilities, including health clinics, are under continual pressure to hire people regardless of service needs or their qualifications because of the central government's employment policies.

Physicians, who occupy practically all of the supervisory positions, rarely receive management training of any sort. Inventory controls are frequently lacking. Individual case records are usually nonexistent. Management data systems that would allow proper program monitoring, evaluation, and corrective feedback to service outlets usually do not exist, or, when available, are inadequate. Because of centralized control of limited resources, routine requests by a clinic for even modest supplies or equipment are subject to many layers of approval and require very long processing times. The lack of administrative and management skills at the governorate and district levels is considered by key Ministry of Health officials as a major constraint on improving performance efficiency at the service delivery level.

Physicians and nurses assigned to provide primary care services rarely have received appropriate training. Egyptian medical education is hospital-based and technologically oriented. Most physicians have not had hands-on clinical experience in oral rehydration, parenteral rehydration, IUD insertions, or marginally-complicated birth deliveries. This deficiency is particularly disabling for those assigned to rural areas. To overcome this gap in formal education, and to provide a general orientation to rural life, the Ministry of Health conducts six-week courses in different locations for newly-graduated physicians being assigned to rural areas. The Institute of Medicine study group was given the impression that the effectiveness of these courses has declined in recent years. A similar orientation and training program is reported to be a successful part of an AID-assisted project in the Menoufia governorate to integrate health services with other services at the community level.

The clinic orientation received by health personnel during their formal training, combined with an emphasis on the routine in the Ministry's service norms, produces a passive attitude among Ministry health personnel.

Patients are expected to come to the clinic and little emphasis is placed on outreach or follow-up activities. Despite a large number of paramedical personnel, the physician is expected to make personal contact with practically all clients at every clinic visit. Even in rural areas, other personnel are supposed to carry out only specialized functions. They are not authorized to screen patients and refer them selectively to the physician. Yet, because of the frequent absence of physicians, it is likely that much care is actually given by auxiliary personnel. The paradox of having many doctors in Egypt and large graduating classes exerts pressure for unnecessary and inappropriate roles for them.

Low utilization and productivity significantly contribute to high mortality from preventable or easily cured diseases. Deaths from the infectious diseases — measles and polio, for example — are preventable by immunizations. Most deaths from infant diarrhea are preventable, regardless of specific etiology, by oral rehydration. Widespread practice of this simple technique could save most of the infant lives that currently are lost from diarrhea. In a recent pilot test,8/ supported partially by UNICEF, of 260 children with diarrhea who came to a maternal and child health center between May and October 1977 and received oral rehydration, only one died. UNICEF will be providing the Ministry with enough packets of rehydration powders to stock about half of the Ministry's ambulatory care clinics annually for the next few years. The Ministry plans to train at least one person in each clinic in this technique.

Key Ministry of Health officials also are concerned about the quality of care that is being delivered. They note, for example, that their physicians too often prescribe potent antibiotics or drugs that are not indicated for the condition being treated and have potential for iatrogenic illness. Penicillin vials to which streptomycin has been added frequently are prescribed for bronchitis. This practice may be an illustration of the physician complying with the expectations of the patient. The belief is pervasive among large segments of the Egyptian population that providing inoculations or pills are the distinguishing, if not the only, services of modern medicine. The Ministry officials also noted that if there is stethoscopic suggestion of rheumatic valvular heart disease, many physicians curtail the physical exertion level of the child, a practice that clearly is not indicated by current knowledge.

United States Cooperation and Assistance. AID is supporting two major projects to improve primary care services in Egypt. The first, a five-year project initiated in 1977, focusses on productivity in rural health service outlets.9/ The project will test techniques to improve communications and transportation, and management and supervision through in-service training courses. Also to be studied are the use of financial and other incentives to increase the motivation of health personnel. AID is providing about $8,500,000 for the life of the project. Westinghouse Health Systems is providing technical assistance on the project under direct contract with the Ministry of Health. The project will cover communities in eight districts of four governorates, involving about 10 percent of the Ministry's rural

health facilities in those governorates. The project aims to develop effective techniques that would be replicable throughout the Ministry's rural health system.

The second AID project,10/ planned to begin in late 1978, is to assist the Ministry to improve access to facilities in three health zones in Cairo by improving coordination of the Ministry of Health and Cairo University health care facilities, upgrading ten maternal and child health centers, building eight new general urban health centers, and establishing a center for social and preventive medicine at the Cairo University Pediatric Hospital. AID will provide about $25,000,000 over the five-year life of the project, which is about 60 percent of the total cost.

The Institute of Medicine committee has two suggestions for strengthening those projects. The first is to more sharply focus the projects' goals by specifying reductions in infant, preschool child, and maternal mortality rates to be achieved, with a concomitant emphasis on selected service activities necessary to achieve them. The second is to help the Ministry's system become less passive — place more emphasis on improving outreach and health status surveillance activities in the communities.

With the exception of a few urban areas — Cairo and Alexandria in particular — and perhaps a few rural areas, the lack of ambulatory care facilities is not preventing access to, or utilization of, the Ministry's primary care services. Helping to improve the productivity of existing clinics should have a higher priority for AID than assisting in the construction of additional low-productivity clinics. Improving productivity across the full range of primary care services will involve a long-term effort because of the limited resources likely to be available to the Ministry of Health, even with generous external assistance. Because an infrastructure development strategy, that is, improving communications and transportation, maintenance and repair, and administration and management, might be expected to ultimately improve productivity in all primary care services, this might seem to be a desirable strategic choice for AID. However, the effects of such an approach on the health status of the Egyptian people would be diffuse and distant, and although gains might be widespread, they would tend to be modest on any given indicator. More preventable deaths would occur than would be necessary during the implementation period.

The committee believes that it would be preferable to focus on improving specific health services that have been demonstrated to be effective in achieving a limited number of specific health status outcomes. With this approach, efforts to improve administration and management, maintenance and repair, training, and other support functions would be keyed to the specific services that are to be strengthened to accomplish targeted health status outcomes. In this way the impact of AID investments on health status will be realized much sooner. Outcomes, even though limited to a few health needs, would be equitably distributed.

This approach has other potential benefits. Successful achievement of

limited objectives should provide much needed motivational reinforcement to health care personnel, many of whom are oriented toward service routines, rather than service outcomes. Given the level of resources available, selective health improvements can be targeted on a nationwide basis, rather than seeking across-the-board improvements in limited pilot or demonstration project areas. Finally, readily visible achievements from using a few services may encourage increased utilization of other services offered in the Ministry's system.

The committee recommends, therefore, that future AID support for assisting the Ministry of Health in primary care services in Egypt be directed at achieving a few health status outcomes through improving specific services related to those outcomes. For the immediate future, the committee feels that targeted reductions in infant, preschool child, and maternal mortality rates should have the highest priority for AID. The committee is convinced that a 50 percent reduction in these mortality rates is achievable within 5 to 10 years. Service improvement should concentrate on oral rehydration, immunizations, and a limited number of other maternal and child health services, including nutritional aids and counselling and family planning (see Chapter 1). The committee believes that, properly designed and phased, such an initial program could be implemented nationwide within five years. It will not be an easy task; the administrative problems that will need to be addressed are complex. However, the committee believes the Ministry of Health has the capacity to implement such a program with AID cooperation and assistance.

Improvements in productivity must be accompanied by increased population coverage and utilization if the targeted health status outcome objectives are to be achieved. More than an increase in visits to the homes by clinic personnel is required. Outreach personnel are needed 11/ who will encourage and facilitate increased use of the Ministry's service outlets on a regular basis, conduct a continual surveillance of the community to identify members who are in need of particular health care services (e.g., an infant with persistent diarrhea), and perform some functions not currently being performed by clinic personnel, or that are better performed in the home (e.g., personal hygiene health education).

The committee recommends that future AID support to strengthen primary care services in Egypt emphasize local surveillance and outreach programs to assure that strengthened services are delivered to those most in need of them and to encourage more utilization of the Ministry's health services. Community health workers could be recruited and trained to perform outreach functions. The use of school health visitors in certain areas in a rheumatic heart detection and treatment program suggests the feasibility of using community health workers on a part-time basis. The use of dayas in such a program should be explored. The role of these paraprofessionals would be to complement the established roles of clinic health professionals, even those who are expected to make home visits. In a community, whether urban or rural, most of the people in the "neighborhood" know when a woman has passed midpregnancy and certainly when she has given birth. There is no reason for the

health clinic to be excluded from that information. Nor is there any reason why a trained nurse-midwife should spend her time trying to obtain that information; her skills are better utilized providing the maternal and child health services needed by the clients identified in the clinic, or at home if necessary.

Hospital Services

Bed Supply and Occupancy. Although the national bed to population ratio is about 2 per 1,000, in Alexandria it is about 6 per 1,000, in Cairo 2 per 1,000, and in rural areas, approximately 0.5 per 1,000. The Institute of Medicine study group observed that beds were used to capacity in university hospitals and that the beds of governorate general hospitals, the Health Insurance Organization and the Curative Organizations' hospitals, and many of the larger urban district general hospitals also appeared to be well utilized. But, smaller district general hospitals in rural governorates and in rural health centers and hospitals appeared to be greatly underutilized. Data for fiscal year 1974, the most recent that could be obtained, showed a 77 percent occupancy rate in Ministry hospitals and an average length of stay of 10.4 days per patient. Although there does not appear to be a shortage of hospital beds in Egypt, the demand for university teaching hospital beds exceeds the supply.

Almost all hospitals in Egypt are poorly maintained and equipped. They are in a state of serious disrepair and many should be replaced. This would seem to suggest that a massive program for replacement of existing hospitals, with modern, well-equipped facilities, would be a high priority. However, because hospital management skills are lacking, a broad program of construction of new facilities would result in much wasted capital investment. Even the newest and best-equipped hospitals are inefficiently managed, and have already fallen into a state of disrepair.

A great deal needs to be done, particularly in Cairo, to improve hospital facilities and program planning. Although the central government controls the allocation of capital to all the major hospitals of Egypt, there is substantial evidence of major duplication of expensive equipment and services in some areas, and a total lack of hospital beds in other areas. There seems to be little program coordination among institutions. The overcrowding in some institutions and the under-utilization of others in the same city apparently reflects such factors as perceived differences in quality of patient care, ill-defined hospital service areas and missions, maldistribution of beds, and unnecessary competition among hospitals.

Patient-care Activity. Citizens may present themselves at any government medical facility for health care. Many believe that the quality of medical care in university hospitals is superior to that provided by district and governorate general hospitals. This system of self-referral results in outpatient departments of university hospitals bearing a disproportionate share of urban ambulatory care services in relation to available resources. It is

reported that some 7 percent of patient encounters in these outpatient facilities results in a hospital admission. Occupancy rates in excess of 100 percent are not unusual in university hospitals (many instances were observed of two patients sharing the same bed). Problems of patient management often stem from delays in diagnostic x-ray and laboratory tests.

The mix of inpatient diagnoses seems quite similar in the Cairo University and Ministry of Health hospitals, if allowances are made for differences in the composition of categories. Tables 3 and 6 in Chapter 4 provide information about aggregate patient-days utilized in the most active services. In most of the services, the average length of stay is at least twice that of comparable hospitals in the United States. The most obvious exception is orthopedics which appears to have a relatively low average length of stay by virtue of a different patient mix. A large portion of admissions consists of sprains and fractures that would be cared for on an outpatient basis in the United States.

The impression of the Institute of Medicine study group was that technical medical expertise is not the critical constraint that limits performance of the hospital system. Rather the following factors appear important.

- The low salaries of physicians employed by the government forces them to engage in private practice to supplement their incomes. Their short working hours contribute to serious under-utilization of important and expensive clinical support services, such as radiology, in government hospitals.

- Although the supply of physicians in general is ample, there are significant shortages in particular specialties, e.g., anesthesiology and orthopedic surgery.

- The staff providing clinical support services is strikingly deficient in training and experience.

- The technical staff responsible for maintenance and repair of equipment is similarly deficient. As a result, there is rapid deterioration of plant and a serious amount of equipment "downtime".

- Inadequate overall budgetary support, coupled with deficient inventory control, create frequent shortages of supplies with resulting delays in patient care, inadequate patient care, or individual patient forays into the private sector.

- Unit medical records for inpatients are the exception rather than the rule.

- Current statistical reporting and lack of analytic capacity do not permit the early identification of medical care problems or inefficiencies in utilization of resources.

Hospital Administration. The directors of hospitals in Egypt are usually physicians. Few have had management training, and many serve only part

time in their hospital administration roles. Many have accepted these jobs to gain more time to see private patients and to free time that they otherwise would render in public health care delivery. The financial incentive for them to spend full time in a hospital administrative post is very weak.

Management skills at the middle management level are almost totally lacking. Very few persons have support skills — financial and personnel management, patient, work or service scheduling, plant and equipment maintenance, hospital housekeeping, medical records technology, or operations research. There is poor coordination between interdependent hospital departments.

Knowledge of construction planning and management appears to be deficient in Egypt. It is difficult to determine just how serious this is because many construction projects are severely delayed for lack of funds. For example, construction on a new 380 bed district hospital in the Al Gharbiyah governorate, that had only begun functioning about two weeks prior to an Institute of Medicine study group visit, was started 10 years earlier. Some of the major pieces of capital equipment had been in crates in warehouses in Egypt between 5 and 8 years waiting for the hospital's completion. The rate of inflation for construction costs in Egypt is reported to be about 10 to 12 percent per year — close to that of the United States and other countries. Although there is a severe shortage of capital for investment in Egypt, it is likely that the scarce resources available would be better invested if there were upgrading in these technical areas.

Much needs to be done to upgrade and improve the work being done throughout the hospital sector in functional program planning, facilities design, planning methodology, and equipment planning. It would appear that even the newest hospitals being built and occupied are designed using the outdated concepts of hospitals several decades old.

United States Cooperation and Assistance. To date, United States cooperation and assistance in the hospital sector has been modest. Some short-term fellowships in American universities have been provided by AID to Egyptian hospital administrators and service chiefs. One component of the AID urban health demonstration project in Cairo will involve improving coordination of both free-standing ambulatory care units and hospital services. This project apparently will not attempt to modify the existing self-referral system. The Joint Working Group on Medical Cooperation also has sponsored tertiary care projects in nephrology services, including chronic hemodialysis equipment and transplant team training; neonatal services; and cancer control services.12/ The National Science Foundation has supported the installation of a diagnostic ultrasound imaging facility at the Cairo University Hospital. The American Institute of Biological Sciences has been assisting in the development of bachelor's and diploma programs in biomedical engineering at the same university, and the establishment there of a research and maintenance center for scientific and and electromedical equipment — gaseous and chemical devices, analog and digital computers, and radiation devices.13/

There currently are two graduate-level hospital administration programs

in Egypt — one at the High Institute of Public Health in Alexandria and the other at the Cairo University School of Commerce. The former, although long established, has very few students, primarily physicians; the latter is only three years old and has graduated just a few students. The Institute of Medicine committee recommends that AID support strengthening and expanding these two graduate programs to meet executive-level hospital administration needs in Egypt. The committee further recommends that AID assist these schools, in cooperation with the Ministry of Health, to develop a program of continuing, short-term, in-service training for hospital administrators. The Institute of Medicine study group did not have time to explore undergraduate training in hospital management support functions. Therefore, the committee recommends that AID support a short-term planning and feasibility study that will assess undergraduate education and training in hospital management support skills and prepare recommendations for future United States cooperation and assistance to meet this critical manpower need.

The relative surplus of physician manpower compared to other resources such as transport and communications has encouraged the Ministry of Health to adopt a policy of constructing 40-bed hospitals in rural areas. The Ministry plans to convert 140 rural centers to rural hospitals during the 1978-82 time period (see Appendix). Their mission includes some kinds of elective and emergency surgery, non-routine deliveries, early management of accidents, and secondary care of the more common medical problems. Despite the obvious existence of unmet medical needs, most of the Ministry's rural health centers and hospitals, and some of the smaller district general hospitals, were observed by the Institute of Medicine study group to be grossly under-utilized. The Ministry's statistical summary for 1976 indicates that there were about three inpatient discharges for the year for each bed in rural centers and hospitals. The commitment to the provision of secondary care, backed by the full-time assignment of qualified surgeons in the rural hospitals, has resulted in the establishment of service norms, notably elective surgery, that frequently are beyond the support capability of those hospitals. The rural hospital strategy also has stimulated a demand for specialists in short supply, such as anesthesiologists, whose time cannot be used efficiently in a small hospital.

Assuming an improved emergency medical services capacity that can be used to move patients — with treatment enroute — the committee believes the rural hospital strategy merits reexamination. Therefore, the committee suggests that AID encourage, and consider support for, a Ministry of Health assessment of the benefits and costs of shifting many components of secondary care to the larger district and governorate general hospitals.

Laboratory capabilities often are inappropriate to the mission of the particular clinical unit to which the laboratory belongs. Two examples illustrate this problem. One is a rural hospital expected to carry out complicated deliveries. Its laboratory could perform hemoglobin, blood sugar and blood urea and, the Institute of Medicine study group was assured, could do a serum cholesterol and uric acid if requested to do so. The latter tests have no therapeutic implications in the context of the hospital's mission. The

simpler determination of Rh blood group would have been useful, but was not available. At the other end of the hospital spectrum, the laboratory for a referral center for the management of diabetes mellitus, including diabetic ketoacidosis, offered hepatic enzyme determinations, but could not do a serum total CO2. The former have no impact on emergency management, while the latter is crucial for guiding therapy of severe ketoacidosis. The frequency of use of laboratory tests was observed to be two or three orders of magnitude below that of comparable hospital settings in the United States. Clinicians in all hospitals visited were unanimous in reporting to the Institute of Medicine study group that the accuracy and reliability of clinical tests were universal problems. Thus, a more appropriate choice of laboratory offerings, an increase in their utilization, and improvements in their quality, could have a significant impact on patient care in Egypt. The committee suggests, therefore, that AID encourage and consider support for the Ministry of Health to review and assess the content of its recommended laboratory services at each of the levels of hospital inpatient care and, to improve quality control, the periodic testing of laboratory personnel through use of serum samples of known composition.

The problem of a deficient capability for maintaining and repairing plant and equipment has two major consequences: rapid deterioration of buildings and an unacceptable level of downtime of equipment. The former interferes with maintaining reasonable standards of cleanliness and convenience; the latter is one cause of delay in patient work-ups, and hence of inefficient utilization of professional time and of prolonged hospital stays. The problem has at least three components. First, there is an absolute shortage of qualified technicians able to provide simple maintenance and repair. Second, major equipment is purchased from a wide variety of vendors which complicates the training of personnel and the stocking of spare parts. Third, the quality of the equipment in some cases is inferior, leading to frequent breakdowns.

The shortage of qualified technicians is nationwide. Until the problem is addressed nationally, attempts to expand entry-level employment requirements for health technicians is unlikely to result in any real gain in Ministry facilities. However, the committee suggests that AID consider providing support to the Ministry of Health for establishment of a national facility capable of developing equipment specifications and standards for hospital use, evaluating those of equipment manufacturers, testing equipment for performance against specifications, and developing a limited set of recommended vendors for each category of equipment. For most categories of equipment, particularly the more complex diagnostic and treatment items, manufacturers should be expected to provide an initial supply of spare parts, initial maintenance and repair, and training programs for Egyptian technicians for continuing maintenance and repair.

The quality of hospital medical records ranges from their absence to a brief, but well organized, unit record system with a discharge summary for each admission. In most instances, the record is not of the unit type, is very brief, and the diagnoses frequently are not in a form that permit ICD

coding. There are significant deficiencies in the quality and timeliness, and hence the usefulness, of the statistical reports developed by hospital units at every level. In only one instance was the Institute of Medicine study group able to get routine information on patient mix by diagnostic category, numbers of patients, or average length of stay. The committee suggests that AID consider support for the development of an appropriate hospital data reporting system in Egypt that includes both patient record and services utilization information. The committee also suggests that AID consider support for strengthening and expanding education programs for medical record librarians.

Two programs for the hemodialytic management of chronic renal failure patients were observed by the Institute of Medicine study group. Costs per patient were estimated by the clinicians involved to be $9-10,000 per year at a minimum. The Institute of Medicine study group also was briefed on preliminary plans within the Ministry of Health to expand this service nationwide. A similar situation exists with respect to coronary artery by-pass surgery. In a health care system as severely constrained as Egypt's, it is difficult to justify major programs of United States support for such high cost services considering the unmet needs for other services that would have a broader impact on the health status of the people of Egypt. The committee recommends, therefore, that United States support not be used to encourage the spread of high-cost tertiary care technology until sufficient resources are available to address the country's more widespread unmet needs for primary and secondary care services.

The committee is convinced that the effects of the policy of paying low salaries to physicians are so deleterious to efficient utilization of hospital resources that alternative incentive schemes merit exploration. The physicians' understandable preoccupation with private practice does not help either the quality of care provided to inpatients of the Ministry of Health or Ministry of Education hospitals, or the academic functions of medical faculty. The committee suggests that AID explore with the Ministries of Health and Education the possibility of providing support for a limited, prospective, carefully evaluated trial of a full-time employment arrangement at a few units of both the Ministry of Health and Ministry of Education systems, allowing physician use of the facilities for private patients. The committee is under the impression that the University of Tanta Medical School hospital is willing to experiment with this reform, for example. The experiment should be adequately supported so that its economic, educational, and clinical consequences can be fully documented.

The committee recommends that AID not support an increase in hospital beds. However, AID should be prepared to support renovation, replacement, or conversion of beds in existing facilities that would help redress maldistribution problems such as the lack of teaching beds and the shortage of general acute care beds in certain urban areas. The committee suggests that AID consider providing support for American technical expertise in hospital architectural design, facilities engineering, construction management, and equipment planning for Ministry of Health construction projects, whether or not supported with AID capital assistance.

Emergency Medical Services

Background. Historically, emergency medical services were provided throughout Egypt by voluntary organizations funded through charity donations. This source of funding gradually diminished after 1952 and the emergency medical services deteriorated. In 1966, the government required the governorates to provide emergency medical services under the general policy direction of the Ministry of Health. The governorates, however, did not have sufficient resources to implement the policies of the Ministry, or to maintain the vehicles and equipment provided through foreign assistance. In 1975, a new presidential decree gave increased responsibility to the Ministry of Health for assuring an adequate nationwide system, a charge that became a high priority for the Ministry. In that same year, the Ministry requested -- through the Joint Working Group on Medical Cooporation -- United States cooperation and assistance to establish a system of emergency medical services.

Need. As indicated in Table 2 in Chapter 4, accidents, poisoning, and violence, taken together, are a leading cause of reported deaths for Egyptians between the ages of 5 and 34. Tables 3 and 5 in that chapter showed the high demand on hospital services stemming from those causes. Yet of all admissions to emergency rooms in Egypt, only about 10 percent arrive in an emergency medical service vehicle. In one study of patients seen in the emergency room of the Alexandria University hospital, about 53 percent were accident victims. Of these, 60 percent were judged to have required rapid life-sustaining or disability-reducing intervention; only 20 percent came in an emergency medical service vehicle; and of these, only about one-fourth received first-aid enroute.14/

In addition to its potential for directly reducing mortality rates and temporary and permanent disabilities, an improved emergency medical services capability could have important indirect effects. A patient transport system with a capacity for treatment enroute should reduce pressures for the construction of new hospital beds and allow development of a referral system to reduce the need for replication of expensive secondary care services in small rural health centers and hospitals. A successful system would encourage use of other Ministry of Health services by many Egyptians who currently turn to traditional practitioners for health care.

The existing emergency medical service organization is urban-oriented. Each of the governorate's capital cities has a major center that, in addition to having a first-aid room and vehicles for dispatching, serves as a storage, maintenance and training center for the governorate's system. There are about 220 subsidiary first-aid stations affiliated with the major centers. Each of these subsidiary stations, sometimes attached to hospitals, but more frequently freestanding, operates with two first-aid attendants and one or more vehicles. With the exception of parts of the Cairo and Alexandria system, there are no communication links between the major centers and subsidiary stations. Although the major centers have telephones and also are linked with the police radio system, the subsidiary stations depend on police patrols and passing pedestrians or vehicles to report emergencies. Only a

few of the subsidiary stations have a telephone.

In 1976, there were about 1,200 vehicles in the system.15/ Although identified as ambulances, most of the vehicles had no life-sustaining or medical treatment equipment, and no communications capability. There was a shortage of spare parts and of mechanics. Only about half of the vehicles were in operating condition at any time. There were about 1,100 professional drivers with no first-aid responsibilities or training and about 1,300 first-aid attendants, of whom about one-fourth had received formal first-aid training. There are about 200 hospitals in Egypt with emergency rooms. For the most part, these are large rooms with only limited first-aid supplies and a few beds. While first-aid may be provided to some patients, these areas function primarily as triage centers, dispatching patients to other hospital service areas. Only a few have resuscitation or x-ray equipment, blood banks, or any laboratory diagnostic capacity. The physicians assigned to these emergency reception areas are house officers.

United States Cooperation and Assistance. Under the auspices of the Joint Working Group on Medical Cooperation, the Health Services Administration of the Department of Health, Education, and Welfare has assisted the Ministry of Health to prepare a document describing the goals of a nationwide emergency medical services system and identifying initial planning directions. It also assisted the Ministry in developing demonstration projects in both Cairo and Alexandria. For this project, AID has financed the purchase of most of the ambulances, communications, and emergency room equipment required, and the Ministry will fund the remodelling of emergency reception rooms in a number of hospitals in both cities. The Health Services Administration will provide technical advice in implementation and evaluation of the project.16/ Costs will be covered by Special Foreign Currency Program funds. Since 1975, the United States Department of Transportation's 81-hour emergency medical technician course has been established at six different locations in Egypt and over 800 emergency medical service personnel have completed the course. In cooperation with the Health Services Administration, AID has provided a number of participant training programs, both short-term and long-term, in the United States for Egyptian physicians who will be involved in the demonstration project or subsequently in the nationwide system.

The Institute of Medicine committee recommends that AID assist the Egyptian government plan and implement an improved nationwide system of emergency medical services. The committee believes that the United States can provide critical support to Egypt for establishing an appropriate system of services that will reduce unnecessary mortality from emergent conditions. The Ministry of Health document prepared with the assistance of the Health Services Administration — "The Arab Republic of Egypt Comprehensive Emergency Medical Services Plan" — is an excellent starting point. It essentially is a planning framework that requires refinement and further development.

The committee is sensitive to the fact that the emergency medical services field tends to be susceptible to the procurement of complex technology that frequently is unnecessary and always costly. For this reason, the

committee stresses the need for collection and analysis of information that will allow the development of a system most appropriate to Egypt's needs and circumstances. Much useful information should be forthcoming from the planned evaluation of the Cairo and Alexandria demonstration projects. However, those projects alone will not provide the information needed for design of a nationwide system. Both Cairo and Alexandria represent unique urban areas, and the operation of emergency medical services in those cities is not likely to be generalizable to all other urban areas throughout Egypt. Studies should be initiated soon in other areas to determine typical emergency scenarios, to inventory existing manpower, facility and equipment resources, and to examine the non-emergency roles that an improved system could perform, such as patient transfer and referral. Such studies in different geographic regions, with careful analyses of the initial and recurring costs of alternative system designs, are necessary if the basic specifications for a nationwide system are to be appropriate.

Design of a comprehensive system should include a realistic timetable and budget that provide for the development of sufficient managerial capacities and proper operation and maintenance of equipment. The numbers and types of vehicles needed, along with their equipment configurations, should be specified. The amounts and kinds of equipment needed in hospital emergency rooms and first-aid stations should be determined, including the number of such facilities needing renovation. The high incidence of mortality and morbidity from burns suggests that consideration be given to the need for special regionalized burn centers in selected areas. The poor telephone system in Egypt presents special communications design requirements. Principal reliance for intra-system communications will have to be placed on radio. The system will have to be coordinated with the police and fire department radio systems. In addition, citizens need convenient ways of reporting emergencies. Training programs will have to be developed and carried out for system administrators, physicians, nurses, hospital technicians, ambulance attendants and drivers, and maintenance and repair technicians. Renovation and equipping of hospital emergency rooms and first-aid stations, and installation of radiocommunications systems, should be synchronized with the purchase of ambulances. Maintenance and repair facilities and spare parts inventories and supply systems will have to be developed.

Finally, the committee suggests that AID consider support of cooperative research projects on the etiology of accidents, violence, and poisoning in Egypt. The aim of such studies should be to reduce the high incidence of these events through effective preventive measures.

Financing Health Care Services

Per capita national expenditures for health care services in Egypt can be estimated by using the Ministry of Health's assumption that approximately half of total national health expenditures are for pharmaceuticals. Sales of pharamaceuticals totalled about L.E. 140 million, or 200 million dollars,*

* L.E. 1 = $1.43

in 1977, although not all of the sales were domestic. Per capita public and private health services expenditures in 1977, then, would have been somewhere between L.E. 7 and 8, or $10.00-$11.44. This corresponds with another estimate provided to the Institute of Medicine study group by the Ministry of Health on the basis of a totally different set of assumptions involving comparisons between per capita operating expenditures by the Health Insurance Organization and the Ministry of Health. Total health services expenditures were about 4.5% of gross domestic product in 1977.

Table 4 presents the 1976 and 1977 operating budgets for most of the government's health sector. It will be noted that health accounted for 9 percent of the government's expenditure for all social services. The overall government budget for 1977 was about L.E. 4 billion; or 7.5 billion dollars. 17/ About 30 percent of this total was spent for all social services and roughly 2.75 percent was for health, according to the figures in Table 4. However, because some expenditures are not included, such as those of university hospitals, the most reasonable estimate is that roughly 3 percent of the Egyptian government's annual operating budget was allocated for health. (Information was not available on capital investment in the health sector during 1977.) As noted in Chapter 3, the per capita government operating expenditure for health in 1977 was about L.E. 2.9, or $4.15 annually.

The Ministry of Health system is underfinanced, but by how much is not clear. The Health Insurance Organization, having comparable service norms, has annual expenditures per enrollee between L.E. 12-14 or $17.15 to $20.00. Thus, to bring the Ministry of Health system up to that standard of performance would require an annual operating budget for the Ministry of L.E. 384 million, or 549 million dollars. The 1978 operating budget for the Ministry of Health system is L.E. 102 million, or 145 million dollars, less than one-third of the projected requirement.

Another perspective on underfinancing can be gained from the Ministry of Health's proposal to the World Bank for support of an integrated family planning and maternal and child health project.18/ In that proposal, the Ministry estimated that it would cost about L.E. 350 million, or 500 million dollars over a five-year period, to bring all maternal and child health and family planning services to the service norms desired, a third of which would be for capital investment.

Still another perspective is offered in the January 1978 study of urban health care services in the Greater Cairo area carried out by the National Institute of Planning in collaboration with the Ministry of Health.19/ In that study, reference was made to a 1970 report by the Supreme Committee for Greater Cairo Planning on health facilities needed by 1990 in the Greater Cairo area. That study estimated that a total of L.E. 175 million, or 250 million dollars (in 1970 values; in 1978 L.E., the estimate would be over L.E. 250 million, or 357.5 million dollars), would be required for capital investment in health care facilities to meet the health needs of the Greater Cairo area in 1990, when a population of 14.8 million persons was projected.

Tables 5 and 6 display the Ministry of Health's budget for 1978 and a projection of capital investment budgets and operating budgets for the Ministry of Health to the year 1982, respectively. Regardless of which of the three preceding ways of estimating underfinancing is used, it is clear that resources likely to be available during the 1978-82 period do not approximate one-third of the amount required to finance the operation of the Ministry of Health system according to its current structural configuration and prescribed service norms, even with generous foreign assistance. For planning purposes, it is probably more realistic and useful to view the Ministry's system as overextended, rather than underfinanced. To have a significant impact on population health status, it would appear that the limited funds available to the Ministry will have to be more sharply focussed on specific high priority health problems and services, rather than spreading resources broadly in an attempt to address all problems simultaneously. Such an approach will require an improved Ministry capability, both at the central and governorate levels, for program budgeting, accounting, and evaluation.

The Ministry currently uses a government-wide budget and accounting system that maximizes fiscal accountability. Funds are allocated by object class -- i.e., salaries and wages, other operating expenses, and investment. Funds are allocated to the governorate level using the same three major categories, although, of course, there are finer breakdowns within each category made by the Ministry for its own internal purposes and as guidance to the governorate level. The Ministry informed the Institute of Medicine study group that there was no sanction prohibiting the Ministry from developing and using a health program budgeting and accounting system throughout the Ministry system, as long as it could aggregate data according to the three government-wide budgeting and accounting categories for communications with other Ministries, the Prime Minister, and the Peoples' Assembly. The Institute of Medicine committee suggests AID consider support of a study to determine the design requirements and cost estimates for installing a program budgeting and accounting system for the Ministry of Health.

The capability to conduct program benefit/cost analyses is important for selecting programs that will make the most efficient use of limited resources. This in turn implies the need for obtaining data on system performance that are relevant to specific program objectives, as well as appropriate fiscal data. The committee believes that initially the development of this data collection capacity should be on a program-by-program basis. That is, evaluation data should be collected as an integral part of each program initiative. At some point in the future, it may be timely to think more broadly of an across-the-board national performance data system. Important base-line data should be forthcoming from the study sponsored by the Joint Working Group on Medical Cooperation and being conducted by the Ministry of Health to develop a Health Profile of Egypt. The United States National Center for Health Statistics is participating in this cooperative endeavour.

The Cairo and Alexandria Curative Organizations derive 90 percent of their operating funds from fees charged to private patients. As a result, they have the most elaborate accounting and billing systems of any hospitals

in Egypt. The Minister of Health, by law, has final approval rights on both the operating budgets and the fees charged by these hospitals (excluding professional fees of attending physicians). The levels of charges are relatively modest, and operating budgets, likewise, are limited. These organizations have not been granted an opportunity to generate reserves for capital improvement and replacement. As a result, they are poorly equipped and struggle to meet their operating expenditure requirements. Ten percent of the care they render is for nonpaying patients. The government provides a very modest reimbursement for this care. However, these organizations are reputed to provide the best hospital care in the country, primarily because they have more flexibility in the use of their funds than do other hospitals. The governing boards of the Curative Organizations feel that permission to charge higher fees and to accumulate some capital budget reserves would significantly increase the quality of care in the hospitals.

The Health Insurance Organization also is under rigid Ministry of Health control, and operates on minimal budgets. The organization's basic funding is from employee contributions of 1 percent of gross salary matched by an employer contribution of 3 percent. The only exception to this is for government employees in areas other than Alexandria. These were added more recently and the government found it could not afford the 3 percent contribution. As a result, the funding base is 1/2 percent of gross salary from the employee and 1.5 percent from the government. These beneficiaries have a higher copayment for services and pharamaceuticals; the national government subsidizes part of the care that the premiums do not cover. The revenue generated is funneled to and through the Ministry of Finance in the central government. Prior to 1978, revenues in excess of expenditures were not allowed to accumulate in a central capital or operating reserve account, and the capital needs of the organization's hospitals were subsidized through Ministry of Health budgets. In 1978, however, this policy was changed and in the future the Health Insurance Organization will be able to accumulate a portion of revenues in excess of expenditures for capital needs.

Virtually all the care in Ministry of Health hospitals is free, with almost all of the funds for their operating and capital budgets provided through the governorates by the central government from general revenues. There are exceptions: fees are charged on a limited basis — both to patients and to visitors coming to stay with patients in the hospital — for a higher quality of room accommodations and food service than normally is provided free. All proceeds from the local fees remain within the governorate and can be used at the discretion of the governorate Director General of Health. While in most cases the amounts generated by fees are modest, the governorate general hospital in Damunhur, Al Buhayrah, had succeeded in financing the construction and equipment costs of a separate inpatient nursing tower at the governorate hospital almost exclusively from locally generated funds.

Over the long haul, Ministry of Health officials envision that economic development, with increasing productive employment and higher per capita personal incomes, will lead to a reduced demand on the Ministry of Health system.

An increase in utilization of the private health care system is anticipated, but more importantly a spread in coverage by the Health Insurance Organization is foreseen as a key development. The Ministry of Health has developed a plan for offering this insurance coverage to various population groupings currently not enrolled, but progress has not been as rapid as planned or desired. Although employees who are in the system are well satisfied, currently uncovered employees and employers resist joining the program. The availability of free health care in the Ministry of Health system, the desire of employees to use any increases in disposable income for improving their material standard of living, and the desire of employers to use increased resources for capital investment, all have been mentioned as factors underlying this resistance.

The committee recommends that AID support a program of marketing and economic analyses designed to assist the Ministry of Health achieve its goal of expanding enrollment in the Health Insurance Organization plan.

Pharmaceutical Products

About 80 percent of the drugs consumed in Egypt are either manufactured there from imported fine chemicals, or packaged in Egypt from imported bulk drugs. The pharmaceutical industry has the potential for making a significant contribution to Egypt's economic development.

Overall Structure

Egypt has a national importing company, seven national drug manufacturing companies, three joint public-private manufacturing ventures with Swiss-Pharma, Hoechst and Pfizer, and a national distribution company. Squibb has a wholly-owned manufacturing company under development.

The national importing company handles all imports for the health sector in Egypt, including laboratory chemicals and equipment. About 95 percent of the fine chemicals used in manufacturing are imported. A small number of fine chemicals are produced by the Nasr Company in Abu Zabbal: several sulfa drugs, tolbutamide, chloramphenicol, procaine penicillin, tetracycline, microbiological media, some laboratory regents, and a few solvents (e.g., absolute alcohol).

The scope of the products manufactured or packaged in Egypt is large; all therapeutic classes and dose forms are covered and there are several strengths of some products, as well as numerous combinations. About 3,000 products are available. Only narcotics, amphetamines, Ritalin, and hypnotics require a prescription. The national distribution company receives all imported drugs and about one-half of those produced domestically; the other half of the manufactured products go to private pharmacies. Only a very small percentage of the manufactured drugs are exported.

The national companies are permitted to make a profit, although all

prices are regulated by the Ministry of Health. About two-thirds of this profit is returned to the government, and the remaining third used for employee incentives and capital investment. The importing company reported a profit of 9.5 percent in 1977; the manufacturing companies averaged about half that rate. The distributing company has not shown a profit, apparently because of rigid price controls that do not allow it to offset losses on items that must be sold below cost. The government has subsidized the distributing company's losses.

Drug registration is the responsibility of the Under Secretary for Pharmaceutical Affairs. Determinations of what quantities are to be produced are usually made by the Board of Directors of each company and/or its Sales Manager. There is no centralized planning or monitoring of these decisions. There is sentiment among some members of the manufacturing companies and officials in the Ministry of Health that the General Organization for Pharmaceuticals, Chemicals and Medical Appliances (GOPCA), which previously provided centralized planning and coordination of product manufacturing, should be revitalized and again assigned those roles. Manufacturing firms are inspected regularly by the Ministry of Health. Emphasis is on sampling, but the inspectors occasionally evaluate good manufacturing practices. All samples are analyzed by the National Organization for Drug Control and Research (NODCAR).

Licensing of pharmacists is the responsibility of the Under Secretary for Pharmaceutical Affairs. The license is permanent and can only be rescinded for serious cause. Private pharmacies also are licensed by the Under Secretary. There is a regulation that no new pharmacy can be located closer than 100 meters to an existing one. The Licensing Division checks on safety, sanitary conditions, equipment, storage facilities (including refrigerator), water supply and reference books that are available. Premises and products are inspected by the Ministry annually; the dating on drugs is checked and samples taken for later analysis by NODCAR laboratories.

Current Status

Importation. The cost of importing chemicals and finished goods is high and it is necessary to carry excessive inventories of supplies at many levels. Still, there frequently is a shortage of critical materials. It would appear to be advantageous to expand the fine chemicals industry in Egypt to produce raw materials from either the starting compounds or from intermediate chemicals. The Nasr Company, which produces fine chemicals, is only operating at about 25 percent of its present capacity and there appears to be adequate land available for expansion of their physical plant. It has excellent sources of water, power, steam, and other necessary services. It has excellent maintenance and repair shops and is capable of producing many of its own machines, parts, and tools. The company does have problems in obtaining licenses for production of raw materials and has difficulty in obtaining some starting compounds (e.g., petrochemicals). The firm also needs technical assistance in methods of synthesis and process control.

There is need to set more rigid standards for importation, particularly for equipment and instruments. At present, there are multiple suppliers and a lack of standardization. Many suppliers do not maintain technical offices in Egypt and it is difficult to keep equipment in operation.

Manufacturing. The manufacturers are improving their quality control and quality assurance systems. Implementation of good manufacturing practices has begun, but has progressed unevenly among the companies. Most are attempting to control raw materials and finished products, are doing stability testing, and are using relatively good master formulas and batch sheets. There is marked variation from one firm to another in building and equipment maintenance, in-process controls, and packaging and labelling controls. Only two of four companies visited were doing significant work in bioavailability testing or development of analytical methods. Only one firm was conducting clinical trials.

Most of the manufacturing equipment is of Western European origin. There is wide variation in the types of equipment used and operating condition of the equipment. Selection of equipment is often made only on the basis of cost and availability; it would be more economical also to consider such factors as versatility, usual batch sizes, efficiency and ease of maintenance. There is a definite need to establish better repair and maintenance sections and to staff them with well-trained people.

There appears to be a continuing need for more training of management personnel, scientists, technicians, and skilled workers on quality control, quality assurance and good manufacturing practices. Up to now, training has been heavily directed to special lecture programs and quick tours for top or middle level management. In-depth demonstrations and audits would be more beneficial. The programs in good manufacturing practices sponsored by AID have been beneficial. There is a tendency to downgrade the capabilities of the national manufacturing companies. This is unfortunate, because most of these national companies are smaller than the firms to which they are compared. Many medium and small sized firms in the United States have poorer controls and are more resistant to change than the Egyptian national companies.

Stability testing has been implemented by most manufacturers. The approach used has been sound. They first began the program on all new products, and later expanded to include those products on which they received complaints. The next logical step should be to begin a systematic evaluation of the older products, testing as many each year as time and resources allow. Undated products are now required to have five year stability. This is excessive, for the usual rule of thumb in the world is to assume two year stability of undated products. There is a need for more training of scientists in methodology and interpretation of stability tests. Multiple analysis methods could save considerable time and would not require large capital expenditures. Newer statistical techniques could be used more widely to improve on the accuracy of the analyses.

Libraries in manufacturing firms are fairly good and are given high priority by management. However, there is excessive lag time in obtaining journals and other references. Management officials attribute the problem to "red tape" and inadequate mail service for the most part. Whatever the reason, it appears that there is great need to speed up the acquisition process.

Warehousing and storage space are not adequate. Some materials must be sorted in areas that could be used more efficiently for expansion of production and some materials are stored in outside areas that are not suitable due to stability or sanitation problems. Development of a fine chemicals industry, as mentioned previously, could assist in alleviating warehousing problems by reducing the need for large inventories.

Distribution. Investment in computer systems would make the distribution of drugs more efficient. The manufacturing companies indicate that it is difficult or impossible to make recalls of batches, although the system of batch control numbers is adequate. It appears that the crux of the problem is that the distribution company is not computerized and cannot readily identify the final outlets to which any given batch of a product is distributed. A study of the index of 3,000 drug items stocked by the distrition company indicated many therapeutic duplications and at least some duplication of chemical entities. This list could be pared down through development of a working drug formulary. Government subsidies could be removed gradually to eliminate the drain on the economy caused by non-Egyptian citizens who buy large quantities of inexpensive drugs in Egypt.

Pharmacies. Inadequate inventory controls and record keeping at most Ministry of Health pharmacy units lead to pilferage of products, which are resold to the public. In government units, all pharmaceutical products are supposed to be dispensed only by prescription of physicians. In hospitals, drug stocks tend to be scattered, primarily because of space limitations. There are difficulties in maintaining the cold chain for the many drugs that require refrigeration or freezing. Power failures are not uncommon, and there is often no back up system to ensure that the integrity of the drug product is maintained.

Over-the-counter sale of drugs in private pharmacies is considered by many Ministry of Health officials to be in need of closer regulation. Although definitive empirical evidence is not available, they believe that there is a high incidence of health problems from drug interactions, excessive use of drugs, and drug-induced illnesses. Some of the more potent and hazardous drugs could be restricted to prescription sale only. In particular, some antibiotics, hormones, antidepressants, and the major tranquilizers should be restricted as soon as possible. Pharmacies are maldistributed, with too many in Cairo and Alexandria. Inspection of private pharmacies should be more frequent and inspectors should place more emphasis on aspects beyond sampling and checking expiration dates.

United States Cooperation and Assistance

Under the auspices of the Joint Working Group on Medical Cooperation, the Food and Drug Administration of the Department of Health, Education, and Welfare has initiated training programs in both Egypt and the United States for Egyptian personnel primarily from the National Organization of Drug Control and Research and the Egyptian Organization for Biological Products and Vaccines. Courses have been conducted or planned in a wide variety of areas: advanced gas chromatography, magnetic resonance, new drug registration, antibiotic assay methodology, drug toxicity evaluation, control of viral and bacterial vaccines, control of blood derivatives.18/ A cooperative research program has been planned that focusses on bioavailability testing, drug stability and sterility, and antibiotic resistance in Egypt. AID has funded some of these training efforts, as well as training seminars on good manufacturing practices.

The Institute of Medicine committee recommends that AID support a continuation of the Joint Working Group efforts to strengthen the National Organization of Drug Control and Research and that AID support for the planned cooperative research program be phased in as Special Foreign Currency Program funds are phased out. The Food and Drug Administration would be the logical United States agency to manage such a program of activities. In addition to the kinds of training courses planned, the program could include consideration of support for equipping the new NODCAR 40-unit control laboratory facility under construction, and the development of a capacity for establishing reference standards for both government and industry use in quality control.

The Institute of Medicine study group did not examine the Egyptian Organization for Biological Products and Vaccines, which has the responsibility for production of vaccines in Egypt. However, Ministry of Health officials reported that it faces problems very similar to those of the pharmaceutical manufacturing companies. The committee notes that some of the Joint Working Group training courses planned are targeted on strengthening this organization. However, the committee is not clear on the extent to which the organization has the capacity to produce the seven vaccines necessary for a concerted attack on infant and preschool child mortality, two of Egypt's most pressing basic health problems. The committee recommends that AID support as soon as possible a study of the vaccine production capacity of the Egyptian Organization for Biological Products and Vaccines, including benefit/cost assessments of repackaging some bulk imported vaccines, and a plan of action to assure the availability of those vaccines. At the same time, the committee recommends a similar study of the production capacity of the pharmaceutical manufacturing industry be conducted. That study should focus on products essential to reductions in infant and preschool child mortality, maternal mortality, and fertility rates — rehydration powders, selected antibiotics and contraceptives.

The committee suggests that AID consider support for a short-term program to provide technical advice and training on-site at each of the seven

national production companies emphasizing methods of formulation, sterile areas, tableting, encapsulation, stability testing, biopharmaceutics, and labelling. Teams of United States experts in these areas from academic institutions and industry could be assembled for this short-term program: it is envisioned that a 3-4 week period would be sufficient for a properly qualified and prepared team at each company site.

Maintenance and repair of equipment is a major problem in the manufacturing companies. The companies can contract with the suppliers of their current equipment to provide spare parts and training and can develop or expand their maintenance and repair shops on their own as their resources permit. Looking to the future, however, the committee suggests that AID consider support of a project to develop standardized equipment specifications for use by the national importing company.

The committee believes it is essential that Egypt's pharmaceutical and vaccine distribution and supply management systems be strengthened. The national distribution company's internal management information system needs to be qualitatively improved; serious consideration should be given to installing a computerized receipt, inventory, and shipping data system. The Ministry of Health's storage, cold chain, inventory control, and dispensing records are inadequate throughout the Ministry's health care delivery system. The committee recommends that, as a matter of high priority, AID support a program to assist the national distribution company and the Ministry of Health to improve efficiency of the distribution and supply management system for pharmaceuticals and vaccines.

Finally, the committee suggests that AID consider support of a feasibility study, including supply, engineering, and marketing analyses, of expanding the fine chemicals industry in Egypt. Providing that adequate quality control is attainable, the possibility of Egypt producing its own fine chemicals from intermediaries or starting compounds merits careful consideration because of its potential economic benefits to the entire Egyptian pharmaceutical sector and to Egypt's overall economic development.

Health Professions Education

Physicians

There are nine medical schools* currently in operation in Egypt, with two more to be opened within the next few years. Seven of the schools are under the control of the Ministry of Education; the two schools at Al Azhar University are under the Ministry of Religion. There were about 35,000 students enrolled in 1977 in a six-year course of study.21/ After a one year

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* Faculties of Medicine at Universities of Cairo, Ain Shams, Al Azhar (one male, one female), Alexandria, Assuit, Mansura, Tanta and Zagazig.

internship, two out of three physicians spend at least one year of obligatory service in a rural health facility. The others who score highest on written examinations can compete for fellowships. Upon completion of rural service, physicians may pursue a residency in a Ministry of Health hospital for two to three years, enter general practice in the Ministry of Health service in one of the ambulatory primary care settings, or they can work in the preventive areas of immunology, maternal and child health, or school health for the Ministry of Health.

Problems. Medical education — as is the case for all university education — is free. Performance on a standardized written examination given to all students at the completion of secondary school is the sole basis for admission. Although the free education policy has been in effect since 1962, growth in enrollment became quite dramatic about 1969. Four of the nine medical schools have been established since 1965, but expansion of facilities has not kept pace with the growth in student enrollment. Most of the medical schools have classes about four times larger than the size which classrooms were designed to accommodate. Often as many as 1,000 students must crowd into a lecture hall designed for about 200 to 300 students, with the faculty member using a bull-horn simply to be heard. Many students graduate without any hands-on patient care experience of any significance. There is a consensus among senior faculty and Ministry of Health officials that the quality of medical education has suffered as a result of the emphasis on quantity of physicians.

To compensate for the lack of medical school training in primary ambulatory care, particularly in rural settings, the Ministry of Health has conducted a six-week orientation course for physicians about to enter their obligatory year of rural health service. Several Ministry of Health officials indicated that this program has suffered a recent decline in quality.

Medical education in Egypt is fundamentally based on the European (primarily French) model — hospital-based, therapy-oriented, technology-centered. There is general agreement among senior members of the medical establishment that a better balance between hospital care and primary ambulatory care must be achieved within the Egyptian medical education system. They feel that something like the shift to a larger proportion of students in the primary care specialties that has occurred in the United States over the last five years is necessary. While the Institute of Medicine study group was in Egypt, there was a conference in Al Fayyum, attended by leaders of the Egyptian Medical Syndicate, the Ministry of Health, the Ministry of Education, and the Egyptian medical schools, which focussed on the topic of reform in medical education. Although there were no written reports in English available prior to the Institute of Medicine study group departure from Egypt, its members were told informally that the problems of large class size, possible future oversupply of physicians, and specialty imbalance were issues addressed at the meeting. Plans were considered for reducing entering class sizes 10 percent per year for the next five years and for placing increased emphasis on primary care specialties in medical school curricula.

Classroom teaching in the medical schools is in English, a language many students do not understand well. As a result, lectures often are not comprehended accurately. Some students prepare and sell handwritten syllabi in mixed Arabic and English, thereby reinforcing errors in medical knowledge. Large class sizes permit little class discussion. Both students and faculty express concern about the lack of a problem-solving approach to learning. The emphasis on written examinations in both clinical and non-clinical courses encourages rote memorization.

It is estimated that in each year, about 25 percent of the medical faculty is out of the country on training grants or teaching in other Arab countries. The low salary scale in Egypt leads faculty members to supplement their salaries with other activities, usually private clinical practice. The result is that the faculty members are seldom available for counselling students or planning and evaluating courses. Tutoring of students, although officially forbidden, is a major source of income, particularly for many junior faculty members. Most students consider private tutoring, often at considerable expense, to be essential for their passage through medical school. The tutoring is seen not only as a means of passing the written examinations, but also for establishing relationships with faculty who may be in a position to help them at a future time. Faculty spend a great deal of time in reading and grading written examinations. Large classes mean that fatigue often leads to inconsistent grading and there is little feedback to the student besides a grade.

There is a severe shortage of resources such as textbooks, audio-visual aids, library facilities, and current journals.

There is also a shortage of university hospital teaching beds, resulting in reduced opportunities for clinical training. In 1977, the Ministry of Health formed the General Organization of Teaching Hospitals and Research Institutes to deal with this problem. One of its major functions will be to convert some of the Ministry of Health's general hospitals to clinical teaching facilities. The General Organization also will address the problem of improving coordination of health care services among university and Ministry of Health hospitals.

Classroom and clinical teaching facilities are in poor physical condition. This is a result both of high-intensity utilization and lack of adequate funds for proper maintenance and repair.

United States Assistance. Under the auspices of the Joint Working Group on Medical Cooperation, several activities are underway to strengthen medical education in Egypt.22/ The DHEW Health Resources Administration has begun a series of student-faculty exchange programs between Egyptian and American medical schools. In addition, PROJECT HOPE, under contract with the Health Resources Administration, has provided about 20 fellowships for Egyptian faculty to visit United States institutions and has sent several faculty members from American schools to Egyptian Faculties of Medicine. AID has

agreed to support 15 fellowships during FY 1979, but these would be in support of all Joint Working Group activities, not just medical education. Most of the recipients of United States fellowships have been nominated by the Ministry of Health.

The Health Manpower Act of 1976, P.L. 94-484, established new English language and medical knowledge standards that graduates of foreign medical schools must meet before a visa will be issued to travel to the United States for hands-on clinical graduate or postgraduate education. The examination has proved difficult for many Egyptians. The style and format of the examinations, among other factors, are unfamiliar to Egyptians. The examination has not been administered in Egypt: it is costly for many Egyptians to travel to existing examination sites. Thus, the number of Egyptian physicians who are in United States training programs is smaller than the Ministry of Health, Joint Working Group, and AID have desired. Both English language and medical knowledge refresher courses are being considered by the Ministry of Health. The United States Educational Council on Foreign Medical Graduates is planning to have the Visa Qualifying Examination administered in Cairo in the future.

The Bureau of Health Manpower in the Health Resources Administration plans to provide a limited supply of surplus textbooks and off-the-shelf audio-visual teaching aids. The United States National Library of Medicine recommended that Egypt consider establishing a Health Science Information Resource Center available to all health professionals whether in research, education, or practice.

A United States team of medical educators, sponsored by the Joint Working Group, visited Egypt in early 1977 to explore possible United States support for strengthening the medical education system. The outcome of that visit was overtaken by the growing realization within the Egyptian medical establishment that there needed to be a very basic assessment and reform in Egyptian undergraduate, postgraduate, and continuing medical education. The conference at Al Fayyum, referred to previously, resulted. It is anticipated that the Ministry of Health and Ministry of Education will soon develop plans for implementing the major decisions made at that conference.

Nurses

The number of nurses graduating at the baccalaureate level has been very small, although graduates from the High Institute of Nursing in Cairo and Alexandria will total about 500 in 1982.23/ Graduates are employed primarily as head nurses and matrons; some teach in the Ministry of Health post-secondary technical and secondary technical nursing schools. In 1972, the latter two training programs were initiated. One is a two-year post secondary school course with about 250 students enrolled, of which 70 graduated in 1977. Graduates must intern for three months in a hospital setting. The other program is in 128 Secondary Nursing Technical Institutes, attached to hospitals. This program had an enrollment in 1976-77 of over 10,000 students and a

graduating class of about 4,000. Students are admitted after completing nine years of general education. The three-year educational program has two objectives: first, to offer courses which will complete the equivalent of a secondary school education, and secondly, to provide basic training as nurses. Nursing students "observe and participate" in nursing activities under the supervision of the hospital staff. Graduates of this course can take a four-month program and become a nurse-midwife in the Ministry of Health system, or work two years as an assistant nurse and then either take one-year diploma training in a specialty or put in an additional year in a university hospital in a specialty and teach in the program. In 1975, 350 of the graduates of this program were enrolled in specialization courses.

Problems. A major problem is the lack of clearcut roles for nurses who graduate from the training programs. The nursing profession believes that nurses at all levels are under-utilized because of the subordinate status of women and the large number of physicians in Egypt. Very few of the faculty members at any of the levels are appropriate role models. At the High Institute of Nursing in Cairo, for example, 65 percent of the faculty have had no nursing experience beyond their one-year internship prior to assuming their teaching responsibilities.

Many of the other problems in nursing education are similar to those in medical education. Entrance to the schools is based solely on written examinations; English comprehension is poor; and resources are lacking.

There is a feeling among some Ministry of Health officals that in the Secondary Nursing Technical Institutes, the task of completing general secondary education detracts from nursing education. They also noted that there was a lack of consistency in the teaching institutes because the physicians and nurses in the local hospitals who are the faculty for nursing education vary the curriculum according to their own preferences and interests. (Secondary school teachers are used for the secondary education curriculum.) Finally, many of the initial graduates have been assigned to kitchen, central supply, and clerical work during their required work experience after graduation.

United States Assistance. Under the sponsorship of the Joint Working Group on Medical Cooperation, the Division of Nursing of the Bureau of Health Manpower in the DHEW Health Resources Administration is cooperating with the Ministry of Health in a two-year evaluation of the Secondary Technical Institute educational program.24/ AID has provided a modest number of short-term fellowships for nursing educators.

Health Technicians

Seven Health Technical Institutes under the Ministry of Health offer two-year programs to secondary school graduates in seven technical areas. In the academic year 1976-77, total enrollment was about 4,000, with about 1,300 graduating.25/ Programs are offered for laboratory, x-ray, biomedical

equipment, medical records, dental, nursing and sanition technicians. Not all institutes offer all programs. Training programs for biomedical equipment technicians and medical records clerks are offered at only one and two institutes, respectively, despite severe shortages of these personnel.

Problems. Health technicians are accorded the lowest status among health professionals. Students who score lowest on the secondary school examinations for the health sciences enter the technical institutes. About 90 percent of the training in the institutes is in the classroom, while institute leaders feel that 70 percent of teaching should be practicum; facilities and equipment are inadequate for such a shift. Instruction is almost entirely in Arabic, producing problems because many of the reference publications are printed only in English. The salary schedule for technicians is the lowest of all trained health personnel. It is estimated that at least half of the technical school graduates go to work in other Arab countries after completing their obligatory two-year service in the Ministry of Health or armed forces. There are few role models among the faculty in the technicians' education; technicians feel under-utilized because physicians perform many of the tasks for which they are trained; there is no clear career ladder.

United States Assistance. The Division of Associated Health Professions of the Bureau of Health Manpower in the DHEW Health Resources Administration, under the auspices of the Joint Working Group, has assisted in the development of protocols for evaluating the laboratory, x-ray, and biomedical equipment technician training programs.26/ In addition, the Division assisted the Ministry of Health in developing a concept of making the Cairo Institute a model institute, in which there would be faculty reorganization and teacher training, curriculum revision, improved instructional and learning resources and improved practicum facilities and equipment. The United States team also suggested an additional two years to the program so that students would end up with bachelor degrees. However, within the institutes and the Ministry of Health there is concern that all students would want to enter the Cairo Institute and the graduates would not want to "work with their hands". There also is some concern that the concept of a model institute might not be applicable to the other institutes because of the different program mix at those institutes.

Summary

Strengthened educational programs and institutions potentially represent one of the most significant long-range contributions that the United States can make to the health of the Egyptian people. Thus, future cooperation and assistance to health professions education merit careful consideration by AID.

Egyptian health leaders are aware of the depth and complexity of the problems they must address to improve their medical education programs and institutions and have begun planning for reforms that they feel will be necessary. A major reform of medical education in Egypt undoubtedly will lead to some changes in nursing and technician education programs. Some United

States programs might be mounted now to alleviate problems unlikely to be reshaped significantly by internal reform, such as the shortage of instruction and learning resources. However, it would be costly to make a significant impact on those problems. A decision to allocate funds to such projects should be done in the light of competing demands on available resources, and these will not be known until the Egyptian plans and priorities for medical education reform are available. Thus, the committee believes that any major United States program for improving health professions education would be premature at this time. When Egyptian plans and priorities have been formulated, the committee suggests that AID consider sponsoring a joint Egypt-United States conference of health professions educators to explore the possibilities for appropriate United States cooperation and assistance in this area.

The committee notes that the five-year urban health demonstration project between AID and the Ministry of Health includes support for the establishment of a Center for Social and Preventive Medicine within the Cairo University Pediatric Hospital that will emphasize training in ambulatory outpatient care services. This component of the project, representing about one-fourth of the total $44 million estimated cost of the project, is an innovation in Egypt. The Center's programs will attempt to bridge some of the gaps between medical education and health services delivery that have been recognized in Egypt for some time. They will emphsize primary care clinical training for all health personnel in a team approach and offer health services for urban poor in the project area.

This limited effort strikes the committee as being a significant step toward meeting a high priority need in Egyptian medical education. The project obviously is perceived by the Ministries of Health and Education as compatible with any future major reforms in medical education. The committee, therefore, endorses AID support for the Center for Social and Preventive Medicine and suggests that AID assure that adequate support is provided for an ongoing comprehensive evaluation of the Center's activities so that the experience can provide timely guidance for future United States assistance in health professions education.

TABLE 1 Hospital Beds - Arab Republic of Egypt, 1976

Control Source	Number of Beds	% of Total
Ministry of Health	54,751	69.8
Universities	10,951	14.0
Other Ministries	1,824	2.3
Other Public Sectors a/	7,270	9.3
Private Sector	3,629	4.6
TOTAL	78,425	100.0

Source: Basic Statistical Information of Health Services, Ministry of Health, GOARE, July 1977.

a/Primarily Health Insurance Organization and Curative Organizations in Cairo and Alexandria

TABLE 2 Ministry of Health Hospital and Bed Distribution, 1976

Type of Hospital a/	No. of Units	% Units	No. Beds	% Beds
Governorate and District General Hosp.	167	12.6	21,522	40.7
Obstetrics and Pediatrics Hospitals	4	.3	743	1.4
Chest Diseases Hospitals	33	2.5	6,878	13.0
Chest Disease Sections in General Hosp.	17	1.3	317	.6
Chest Dispensaries	11	.8	434	.8
Eye Disease Hospitals	32	2.4	1,611	3.0
Eye Disease Sections in General Hosp	121	9.1	1,202	2.7
Infectious Disease Hospitals	72	5.4	6,516	12.3
Infectious Disease Sections in General Hospitals	8	.6	117	.2
Endemic Disease Hospitals	10	.8	145	.3
Endemic Disease Sections in Gen. Hosp.	10	.8	1,003	1.9
School Health Hospitals	4	.3	493	.9
Leprosy Hospitals	4	.3	1,814	3.4
Skin Disease Hospitals	1	.1	80	.1
Skin Disease Sections in General Hosp.	6	.4	27	-
Maternal and Child Health Centers	220	6.6	457	.9
Rural Health Centers and Hospitals	587	4.3	8,387	15.9
Medical Research Institutes	7	.5	592	1.0
Quarantine Centers	9	.6	306	.6
Cancer Institute	1	.1	75	.1
	1,324	100.0	52,719	100.0

Source: Basic Statistical Information of Health Services, Ministry of Health, GOARE, July 1977.

a/Excludes 4,979 psychiatric beds.

TABLE 3 Ministry of Health Patient Care Volumes, 1976 a/

Facilities	Outpatient Visits	Inpatient Discharges
Governorate and District General Hospitals	14,995,454	606,744
Chest Disease Hospitals and Dispensaries	1,116,213	17,358
Eye Disease Hospitals	3,674,376	31,760
Infectious Disease Hospitals	1,131,978	191,221
Endemic Diseases Hospitals	3,442,293	8,389
School Health Units, Hospitals, and Polyclinics	2,822,164	20,229
Leprosy Hospitals	176,956	9,262
Skin Disease Hospitals	1,632,874	601
Maternity and Child Health Centers	3,304,931	14,286
Rabies Units	397,728	309
Rural Health Centers and Hospitals	7,422,613	24,198
Rural Health Units	11,419,782	-
Dental Units	2,640,483	-
TOTALS	54,117,845	924,357

Source: Basic Statistical Information of Health Services, Ministry of Health, GOARE, July 1977.

a/Includes multiple outpatient visits or inpatient episodes, if any, by same patient; thus, not a measure of population coverage.

TABLE 4 Health Program Operating Budgets, 1976-77

		Totals a/	
		1976	1977
1.	Ministry of Health	74,426,000	82,042,000
2.	Health Insurance Organization	14,591,000	22,356,300
3.	Cairo Curative Organization	546,000	501,600
4.	Alexandria Curative Organization	379,000	329,500
5.	General Organization of Teaching Hospitals and Institutes	-	3,216,000
6.	Supreme Council for Population and Family Planning	1,592,000	1,586,000
7.	Supreme Council for Health Services	10,000	10,000
8.	Total - Health Program Operating Budgets b/	91,544,000	110,041,400
9.	Total - All GOARE Public Services	1,000,541,000	1,209,600,000
10.	Approximate Percentage, (8) of (9)	9%	9%

Source: Provided to Institute of Medicine study group by Ministry of Health, GOARE, April 1978

a/In L.E.: L.E. 1 = $1.43

b/Excludes Estimated Budgets for:

(1) General Organization for Production of Antibiotics and Vaccines (L.E. 2,444,800 estimated in 1977)
(2) Nasser Institute (L.E. 500,000 estimated in 1977)
(3) University Hospitals (L.E. estimate not available)
(4) Pharmaceutical Products Industry (L.E. estimate not available)

TABLE 5 Budget of the Ministry of Health for the Year 1978 a/

	Central MOH Allocation	Governorate Allocations	Total
Salaries	3,796,000	70,230,000	74,026,000
Operating Expenses	5,680,000	22,348,000	28,028,000
Investment	7,135,000	9,067,000	16,202,000
TOTAL	16,611,000	101,645,000	118,256,000

Source: Provided to Institute of Medicine study group by Ministry of Health, GOARE, March 1978.

a/In L.E.: L.E. 1 = $1.43

TABLE 6 GOARE Health Sector Budgets a/

	Capital Investment b/			MOH Operating Costs c/	
	MOH	Pharma-ceuticals	H.I.O. d/ Cairo/Alex. Cur. Org., and Org. of Teach-ing Hospitals	Salaries	All Other Operating Costs
1978	12.5	6.75	4.75	74.0	28.0
1979	12.5	6.75	4.75	81.3	30.5
1980	13.4	7.15	5.0	88.6	33.3
1981	14.5	7.72	5.4	96.6	36.3
1982	15.0	8.0	5.6	105.3	39.5

a/In L.E. millions: L.E. 1 = $1.43.
b/Source: Five-Year Plan (1978-82) for Economic and Social Development, GOARE Ministry of Planning, August 1977.
c/Source: 1978 Budget provided to Institute of Medicine study group by Ministry of Health, GOARE, March 1978; Five-Year Plan assumption of 9 percent increase in goverment consumption and wages used by Institute of Medicine study group to estimate 1979-84 budgets.
d/Health Insurance Organization; Cairo and Alexandria Curative Organizations; Organization of Teaching Hospitals and Institutes. Budget allocations among these organizations not available.

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CHAPTER 6

POPULATION AND FAMILY PLANNING

Public Policy and Programs

The government of Egypt first expressed concern with increasing population pressure as an obstacle to improved economic well-being in the National Charter of 1962.1/ "Scientific" methods of family planning were officially encouraged, although budgetary support for clinical services was not provided to the Ministries of Social Affairs and Health until 1965. In that year the Supreme Council for Family Planning, an inter-ministerial body, was established and given responsibility for management of the National Family Planning Program.

An Executive Board of the Council was established in 1966 to coordinate and channel external financial support for family planning activities. Responsibility for operating programs was divided between the Ministry of Health (rural health clinics and urban maternal and child health centers) and the Ministry of Social Affairs (voluntary organization family planning services).

In the last fifteen years, official policies to reduce the population growth rate have evolved slowly toward a national commitment to reduce fertility. Between 1962 and 1973, emphasis was on increasing the availability of family planning services to decrease the birth rate. A shift in emphasis occurred between 1973 and 1975, when government policy stressed the reduction of population growth through the improvement of socioeconomic conditions. Reflecting this change, the Supreme Council became the Supreme Council for Population and Family Planning, and the Executive Board became the Population and Family Planning Board, now responsible for planning and coordination rather than direct administration. The current population policy seems to embrace both positions.

The last of nine priority goals in the 1978-1982 Five-Year Plan calls for "controlling the population increase and rural-urban migration by developing agriculture and assisting the growth of small cities and establishment of new ones."2/ That language does not seem to imply a high priority national commitment to family planning as a major means of reducing population growth. However, an annex to the Five-Year Plan, titled "Population and Population Policies in Egypt," describes family planning and birth control as being the "pillars of the population policy . . . ." It announces a goal of reducing the population growth rate from 2.31 percent to 2.02 percent by 1987, a 9.3 percent reduction in ten years. It distinguishes between direct policies that support family planning services to limit family size, and indirect policies, that include such objectives as: increased participation of women

in the labor force, industrialization, decreased infant mortality rate, and agricultural mechanization.

The Population and Family Planning Board's view is that significant reductions in fertility will be achieved only if parents can see personal advantages in having fewer children. The Board favors a change in social attitudes away from considering children as economic assets and toward regarding an excessive number of them as constraints on upward mobility. The Board considers that voluntary fertility reduction is influenced by a number of of factors in addition to the provision of family planning services. These include: the socioeconomic level of the family; education; women's employment; further reduction of infant mortality; industrialization; social security; and communication by mass media of family planning information. It recognizes that many of the factors depend on developments of a very fundamental nature that are beyond its area of influence.

One of the factors, reduction of infant mortality, is an objective based on the assumption, with some supporting evidence, that parents have more children than they wish so as to offset anticipated deaths.3 / The belief is that fertility will drop when parents believe that children are more likely to survive.

Another important factor — but one not listed by the Board — that undoubtedly contributes directly to high fertility among women in rural communities is early and universal marriage. Studies have shown that, in some areas, more than half of the women marry before the legal age of 16, and more than 80 percent marry before reaching age 18.4/ The government's plan to raise the legal age of marriage to 18 is not likely to affect this pattern unless it is accompanied by increased employment and educational opportunities for teen-age girls.

In 1966, when the Supreme Council for Family Planning was established, it was concerned with initiating a government family planning service of sufficient scope to meet the demand thought to exist. Responsibility for policy and financing rested with the Council. Family planning services were offered in facilities of the Ministry of Health in both urban and rural areas. The Egyptian Family Planning Association, responsible for coordinating all voluntary family planning efforts, was especially active in urban areas, where it provided services in clinic space lent by the Ministry of Social Affairs. Because family planning program support did not come from regular ministry budgets (until recently), administrative and service personnel were paid directly by the Executive Board of the Council or through the voluntary organizations.

The Ministry of Health, lacking a specific program budget, was unable to promote family planning activities effectively. A strong central administrative unit was not established, little leadership was given to the governorate health departments, and most physicians on short-term duty assignment in rural posts had little or no training in family planning. Nor was

information concerning public needs for access to services collected. Family planning clinics were scheduled at hours when the facilities were closed except for emergencies. So-called full-time personnel, who usually did not work late in the afternoon, were given the opportunity to earn supplementary income by working extra hours. They did not receive a salary or hourly wage, but were paid according to units of contraceptives distributed. The payments were labelled "incentives," a clear indication that family planning work was an extra and optional activity. Performance was spotty. Prior to 1976, there was no consistent policy on distribution of the incentive payments -- whether directly to the staff, or to the clinic, or both -- in accordance with an agreed distribution formula.

Late in 1977, full authority for government family planning services was transferred from the Population Planning Board to the Ministry of Health. A Department of Family Planning was established in the Ministry and given responsibility for all family planning services provided by the government, including those supported by AID and the World Bank. General policy guidance is provided by the High Committee for Family Planning, an inter-ministerial committee chaired by the Minister of Health.

Comprehensive data on government expenditures for family planning services are not available. During the decade prior to 1975, it is estimated that about $15 million was donated by international organizations for family planning activities in Egypt.5/ External support planned for the 1975-1980 period has risen to approximately $45 million in signed contract agreements with AID, United Nations Development Programme, and the World Bank as the major donors.6/

Contraceptive use in Egypt has increased substantially in urban areas since the Family Planning Association and government units began delivery of services.7/ But overall use rates are still fairly low, with about 21 percent of eligible* women primarily using oral pills or IUD's.8/ The most active branches of the Family Planning Association are in Cairo and Alexandria; Ministry of Health service statistics also reflect better family planning service coverage by urban units than by rural units. It can be inferred that the government's family planning program now involves about 7 percent of all eligible women, perhaps double that in the cities, and as low as 3 percent in rural areas. The crude birth rate has dropped only slightly from an estimated 41 per thousand in 1966 to the present 37-39 per thousand.9/ Rural areas are reported to have returned to preprogram levels of over 43 per thousand.

The limited coverage and other deficiencies observed in past government family planning program efforts 10/ stemmed in part from diffused responsibility for program direction and execution and from general weaknesses in the health services system which affect delivery of family planning services. The Ministry of Health lacked the capacity to monitor or evaluate service

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* Married women between 15 and 45.

activities, while reports of monthly family planning service contacts were submitted directly to the Population and Family Planning Board for purposes of determining incentive payments to personnel. As a result, their accuracy and reliability were considered doubtful, as was their value in providing estimates of coverage.11/ Minimal service training for family planning was offered to clinic personnel.

The following actions are needed to improve the performance of clinic personnel and increase family planning coverage:

- provide in-service training in family planning to all Ministry of Health service personnel;
- establish resupply systems for oral contraceptives that do not require a woman to return to the clinic each month;
- improve the contraceptive distribution system and offer a choice of products for clients who may reject pills or IUD's;
- increase the number of family planning clinic sessions and schedule them to coincide with provision of other maternal and child health services;
- improve supervision of family planning services delivered by Ministry of Health personnel so that they regard it as an integral part of their duties, rather than an ancillary activity;
- reduce the excessive dependence on physicians for making most of the direct contacts with clients, and simultaneously increase the responsibilities of nurses and midwives for client education and resupply of contraceptives;
- clarify and remove inconsistencies in the incentive payment system for Ministry of Health workers who deliver family planning services;
- increase utilization of family planning services by recruiting health workers from the community;
- emphasize individualized counseling to address the specific cultural and religious concerns of clients, keying that counselling to the woman's and her husband's attitudes toward pregnancy.

Strengthening family planning services and increasing their use by eligible couples will depend not only on actions initiated by the Ministry of Health but by other government institutions as well. Social legislation and planning must reinforce the perceived benefits of smaller family size. An extensive and continuous public information program should emphasize the relation between spacing pregnancies and better child health, between fewer pregnancies and improved maternal health, and between smaller families and more food.

United States Assistance for Family Planning

Since resumption of U.S.-Egyptian relations in 1974, bilateral private and public support for Egyptian family planning efforts has come from AID directly or through voluntary agencies (e.g., CARE, International Planned Parenthood Federation) and from private institutions (e.g., the Ford Foundation).* Most of the assistance has been used to import raw materials for contraceptive manufacture and to establish experimental contraceptive distribution projects. The largest project to-date is a $17 million grant (1977-1979) from AID that will assist the Ministry of Health and voluntary family planning services to expand coverage. Five areas of asssistance are encompassed in this project: (1) supply of contraceptives; (2) strengthening the administrative capacity of the Ministry of Health's central family planning office; (3) training of physicians and other health personnel; (4) applied research on a number of problems including delivery of services, education, public information, etc; (5) support of a major integrated social service delivery project in Menoufia managed by the American University in Cairo.

United States contributions to multilateral organizations have helped to support family planning services and demographic studies since 1971, when the United Nations Fund for Population Activities began a $5.8 million project. Their current project of $10 million supports integrated rural development efforts promoted by the Egyptian Population and Family Planning Board in addition to supplying contraceptives. The World Bank plans to support an integrated maternal and child health and family planning project with an International Development Association credit of about $26 million.12/ The project will expand coverage of Ministry of Health and Egyptian Family Planning Association services in five governorates and two districts of Cairo through home visiting, construction of new facilities, training, communications, applied research, and managerial improvements.

A document entitled Multi-Year Population Strategy, Arab Republic of Egypt was prepared by the AID/Cairo Health and Population Office to review Egypt's policy to reduce population growth, its family planning programs, and suggest the best possible strategies for future United States assistance. The paper assesses current family planning program achievements and problems and notes that a strong commitment by the Egyptian government "to implementing and managing a population program and the delivery of family planning services"13/ is an urgent requirement if fertility reduction efforts are to succeed. It recommends that United States assistance over the next three-to-five years focus on "assisting delivery of family planning services, primarily through the health sector, public and private."14/ At the same time,

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* Other technical assistance and research activities in population and family planning are conducted by academic institutions or associations and private groups supported by AID/Washington, such as the Pathfinder Fund, the American Public Health Association, and the Association for Voluntary Sterilization.

flexibility is urged within the population assistance program to permit support for program innovations as they develop, both directly from AID and through other private organizations.

Although top-level Egyptian leaders recognize that their country does have a population problem, they have not mounted programs that will reduce fertility significantly. The Population and Family Planning Board has been assigned the role of coordinator and promotor of policies rather than active program administrator. Except for the small budget allotted the Ministry of Health for family planning, it is very difficult to identify budgets for programs specifically designed to control population growth under any other ministry. The United Nations Fund for Population Activities estimates that Egypt plans to spend about $100 million on population programs between 1976 and 1980, about $18.5 million of which will be allocated to the Population and Family Planning Board.15/ This is a modest effort considering the size and urgency of the problem.

Until the government translates stated policies into action programs that are accorded high national priority, as evidenced by a major allocation of resources and an effective arrangement for coordinating and implementing those programs, the United States is limited in selecting appropriate ways in which to assist Egypt in reducing its population growth rate.

The lack of local government education, welfare, or health programs to reduce population growth suggests that United States support of Egyptian goals to reduce population growth should be aimed at strengthening the delivery of Ministry of Health family planning services within the health care system. The extensive network of maternal and child health centers and rural health clinics operated by the Ministry of Health make them the most feasible way of reaching a large number of potential contraceptive users. For those Egyptian couples who continue to perceive no economic or social benefits from limiting family size, the most powerful motivation for spacing and limiting pregnancies may well be a desire to avoid death and illness risks to the mother, the resulting child, or an older sibling.

The Institute of Medicine committee believes that several types of activities should be considered for future United States support of Egyptian family planning efforts. They are: (1) integration of maternal and child health and family planning services; (2) strengthening production and distribution of contraceptives, equipment, and manpower; (3) family planning services research; and (4) mass media campaigns.

Two additional ideas identified by the AID/Cairo staff in their Multi-Year Population Strategy, Arab Republic of Egypt are: (5) use of dayas (local midwives) in family planning service delivery; and (6) support of community incentive schemes to motivate greater contraceptive use. However, the committee has reservations about these latter two approaches.

Integration of Maternal and Child Health and Family Planning Services

Because the Ministry of Health is now responsible for delivering family planning services, there is an opportunity to integrate these services with maternal and child health programs. Benefits of integrated services include common record-keeping and monitoring systems, and shared surveillance and outreach efforts, facilities, equipment and staff. Mothers visiting the health clinics to immunize their children could be provided with contraceptives at the same visit.

Despite the advantages of this approach, and the Ministry of Health endorsement of integration in its proposal to the World Bank, family planning under that project will not be fully integrated. Incentive payments will be made to clinic staff only for family planning activities and the home visiting program is intended only to motivate women to practice contraception, thus fostering continued fragmentation of services.

The committee believes that integrating selected health and family planning activities should help to increase public acceptance and use of contraceptives throughout Egypt. Local leaders might be more willing to support increased family planning activities in their communities if they perceive them as part of an improved package of health services that includes immunizations, treatment of infantile diarrhea, and monitoring of high-risk pregnancies.

The committee therefore recommends that AID provide assistance to facilitate integration of selected maternal and child health services and family planning services in Egypt. Linking family planning objectives with selected maternal and child health objectives, and integration of certain family planning and maternal and child health services could be encouraged by providing incentives for health clinic personnel and community health workers to improve performance in both programs. In training programs for physicians and other health workers, family planning could be stressed as a means of improving the health of the mother and the children she already has. Counselling a mother in family planning techniques could coincide with clinic visits for well-baby check-ups, or follow-up visits for a child's illness.

Strengthening Logistic Support for Family Planning Services

The supply of contraceptives to the government and voluntary family planning clinics has been undependable for many years. In part, this has been due to donor country delays, poor planning, and distribution and marketing problems in Egypt. Condoms have been in short supply for the last several years. Oral contraceptives containing estrogens have been increasingly rejected by users. The condom supply problem appears to be adequately addressed in the current AID population project. The types of contraceptives available in Egypt — both those manufactured in Egypt from imported raw materials as well as imported finished products — should be reexamined periodically to be certain that the products being distributed are acceptable to

Egyptian users. The contraceptive supply system can be strengthened and monitored by the pharmaceutical industry and the Ministry of Health. The objective should be to ensure that people can easily obtain the contraceptive best suited to their needs and desires.

Equipment ordered for family planning program activities should fit specifications for maternal health activities as well. Hospitals should be inventoried to be sure they are equipped to handle Caesarian sections, incomplete or septic abortions, and difficult deliveries. Ministry of Health clinics should be supplied with the instruments necessary to perform prenatal examinations as well as pelvic examinations prior to IUD insertion. Midwifery equipment for dayas, the traditional birth attendants, might be provided periodically in connection with short training courses on delivery, prenatal and postpartum care.

Regular in-service training programs for family planning activities are a way to upgrade the services provided by medical personnel working in the Ministry of Health clinics. (The Egyptian medical profession is reluctant to allow nurses and midwives to distribute prescription contraceptives or to insert IUDs.) The existing Ministry of Health six-week orientation course for physicians beginning their obligatory rural health service would seem to be an appropriate opportunity to provide such training. At the same time, they should receive instruction in the management of induced or septic abortions. Nurses and midwives who see pregnant women and recent mothers should be instructed in family planning counseling techniques in addition to oral rehydration. Community health workers recruited for surveillance and outreach activities also should receive family planning instruction.

The committee recommends that AID provide assistance to strengthen family planning services in the ways discussed in this section.

Research

About 21 percent of eligible Egyptian couples are reported to use contraceptives. Most of the users are well-informed about the advantages and disadvantages of specific contraceptives. Oral contraceptives are often rejected because of their undesirable side effects. Often, however, the couple cannot obtain satisfactory substitutes. Abortion is permitted in Ministry of Health facilities only to save the life of the mother and therefore is not available as a birth control alternative through the Ministry's service outlets. Privately performed abortions are reported to be increasing. Egyptian social, behavioral and biomedical researchers should be encouraged to investigate which contraceptives would gain greatest acceptance in Egypt. Contraceptive foams and injectables have shown promise for widespread use in Egypt and could be tested for acceptability in pilot projects. Research on different approaches to providing family planning services, such as community-based distribution of contraceptives and the use of auxiliary workers in counselling eligible couples, also should be supported. These small-scale projects could perhaps best be managed by voluntary and private agencies active in the

population and family planning field (e.g., the Pathfinder Fund, International Planned Parenthood Federation).

The committee suggests that AID consider increased support of research and pilot efforts to promote contraceptive use in Egypt.

Use of Mass Media

The committee believes mass media campaigns deserve closer examination for possible direct AID support. Imaginatively planned and executed mass media campaigns, emphasizing maternal and child health, and the contribution of contraceptive use to the health of the entire family, merit consideration for support in the AID family planning, rural and urban health projects, as well as in future projects. The respect with which polio campaign billboards were treated, while all other billboard messages were defaced or destroyed in the urban food price protests in January 1977, suggests the potential effectiveness of a properly designed mass media program element. The apparent success of UNICEF's experimental radio program, using a "woman in the street" interview approach to reach illiterate women, should be examined carefully for its applicability to the family planning program.

Use of Traditional Birth Attendants in Delivery of Family Planning

The Egyptian daya is a central figure in traditional village rituals, customs and beliefs surrounding birth, puberty, marriage, pregnancy, lactation, and death. Although many dayas are known to, and cooperate with, Ministry of Health clinic personnel (by referring difficult pregnancies or supplying birth notices), many Egyptian physicians view them as an anachronism. The Ministry of Health is experimenting with enlisting the formal participation of dayas in service programs under its World Bank project. Experimental efforts could be assisted by AID.

The use of dayas should be viewed as experimental because giving them major responsibilities for family planning service delivery or referral may not work, even if economic incentives were to be provided to replace their normal source of income for attending births. The use of dayas for this purpose assumes that it will be possible to change their attitudes toward family size and contraception, instill major changes in their traditional role and behavior, and obtain a commitment of time and energy for duties that may prove to be beyond their capacity. Therefore, the committee believes AID should be cautious in promoting dayas as extenders of family planning service delivery until there is clear evidence that they can be effective in that role; AID should assist the Ministry of Health to explore the use of other community health workers for this purpose. The successful use of school health visitors in the Ministry of Health rheumatic fever screening project suggests the possibility of a comparable worker for maternal and child health and family planning services.

Community Participation

Community involvement in the planning and delivery of health services has long been an appealing concept, although it is difficult both to initiate and to sustain interest. In some cultures, local leaders participate in decision-making within a tradition of self-government and autonomy. In Egypt, a history of strong centralized government evidently has reduced local initiative and fostered passive attitudes which are clearly reflected in the behavior of staff in the rural health clinics.

Nevertheless, there are some instances of successful community participation in social services programs. The Menoufia Project, conducted by the American University in Cairo Social Research Center for several years, is based on the assumption that health service personnel can become "agents of social change" by promoting community "self-help" activities through which local residents will achieve improvements not only in the health area but in all social service areas. This project makes small cash grants available to local community groups that sponsor education or health activities. The AID staff is planning to support broadening that program to other districts of the governorate as the major AID contribution to achieving an "educated, motivated and participating" population in fertility reduction.16/

The committee suggests that the Menoufia integrated health and social services project be evaluated carefully and that AID's plans for further expansion or replication be reconsidered. Even though preliminary results suggest increased contraceptive use in project areas, outcome data — reduced fertility rates — are not yet available. Long-term involvement of American University in Cairo researchers in several of the Menoufia communities before the family planning project began may have contributed to the participation of these communities in the integrated services project and thus to increased contraceptive use. The integrated services feature of the project is quite expensive; until benefit/cost ratios can be determined on the basis of outcome data, it is difficult to feel confident that scarce resources are being invested wisely.

However, the committee believes that certain health service features of the Menoufia Project might well be instituted in other areas. For example, giving community health workers oral contraceptives to resupply women who have already been given a prescription by a physician appears replicable. Another apparently successful element in the project is the training course offered to health service personnel. Physicians and nurses who have never been trained in interpersonal skills, and who have little knowledge of the rural patient population, have trouble communicating with their patients. The Menoufia training courses have emphasized increased outreach of health personnel in the community with good results. By focussing on health services, the more traditional, yet progressive, concept of health services personnel being active promoters of good health, as well as healers of the ill, would replace the very broad "social change agent" role concept. The broader role may well be more than should be expected of Ministry of Health personnel.

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CHAPTER 7

NUTRITION

Government Policy and Programs

Egypt's 1978-82 Five-Year Plan states that emphasis will be given to maternal and child nutrition and related research activities, but there are no specified goals or plans to accomplish that. The ministries of Agriculture, Land Reclamation, Education, and Health all have some responsibility for nutrition activities, but there is no formal mechanism for development of coordinated nutrition policies or projects.

The Ministry of Agriculture is strengthening its capacity for policy analysis and planning. AID is facilitating this by supporting a collaborative relationship between the Ministry and the University of California at Davis. The intent is, among other things, to incorporate nutritional considerations into the Ministry's plans and to assess the effect of agricultural policies on nutrition. Several nutritionists work in the Ministry of Agriculture.

The Ministry of Land Reclamation administers programs to develop agriculture and increase arable land in desert areas. Food donated by the World Food Program is provided as payment-in-kind to day laborers who make the land arable, and then to supplement the income of farmers during the first three years of their residence on reclaimed land. Improvement of the nutritional status of settlers and their families has never been an explicit objective of this program.

Since the early 1970's the Ministry of Education has conducted feeding programs in all primary schools in rural areas. The government was concerned that the nutritional status of rural children was worse than that of urban children; there also was some hope that a school snack would reduce absenteeism. Food has been provided by the World Food Program and the United States under Title II of P.L. 480. Recently, however, AID decided to end its use of Title II food by 1982 for this program because school age children are considered nutritionally less vulnerable than preschool age children and pregnant and lactating women in low income families. The Title II food will henceforth be used for the latter groups. Nutrition education — either *per se* or as a component of health education — is not included in school curricula.

The Nutrition Institute, a quasi-independent entity responsible to the Minister of Health, is the only public organization concerned exclusively with nutrition problems. It does not have the capacity to conduct policy analysis, or plan or evaluate nutrition programs. Its principal role has

been to train health professionals and paraprofessionals in elements of nutrition plus conducting some nutrition surveys and a limited amount of research. The health service activities related to nutrition, including feeding programs, are planned and carried out by three departments within the Ministry of Health -- Preventive Services, Curative Affairs, and Endemic Diseases -- all of which have other primary responsibilities. Development of coordinated policies, integration of activities, and design of more effective programs requires strong and respected leadership vested with clear responsibility and authority for all nutrition affairs within the Ministry -- circumstances that that presently do not obtain.1/

The former Minister of Health expressed concern about strengthening the Ministry's capacity to deal with nutrition problems. In 1977, he appointed an advisory committee to help him formulate new initiatives in nutrition. The Committee membership includes several eminent university professors in addition to several under secretaries, but as of the summer of 1978, no written nutrition policy statement or recommendations for new programs had been issued. The Minister of Health also requested a written assessment of the Nutrition Institute to cover the institute's organization, leadership, staffing, and relations with international organizations, and to include recommendations for change. (The report was not available to the Institute of Medicine study group.) Finally, a health policy research project, conducted jointly by Cairo University and political scientists from the Massachusetts Institute of Technology, is assisting the Ministry of Health to analyze policies and plans for its health activities, including nutrition.

The nutritional needs of children under three have received emphasis as targets of food supplementation programs sponsored by the Ministry of Health. In 1973, production in Egypt of an infant weaning food (Supramine) was started with manufacturing equipment and foodstuffs donated by UNICEF and the World Food Program. Supramine production has been plagued with problems. It has proved to be more costly than anticipated, quality control has been poor, and it has never been available in large quantities.2/ Foodstuffs used in its manufacture must be imported and their taste is unfamiliar to Egyptian mothers and children. The firm distributing it has lost money because of the low retail price set by the government with no compensating subsidy. Half the output is sold commercially; the other half has been distributed by the Ministry of Health to all of its rural health units and maternal and child health centers, where limited quantities of the product arrive sporadically.3/ The potential impact of Supramine as a nutritive weaning supplement thus has been lost, since its intended recipients have not been able to obtain it in sufficient quantities on a regular basis. It would seem feasible to devise an improved formula with improved acceptability at lower cost that would still provide adequate nutrition.

Supplemental food intended for preschool children up to three years of age in low-income families is distributed at rural health units and maternal and child health centers. Fortified wheat-soy blend flours, bulgar wheat, and vegetable oil imported from the United States under Title II of P.L. 480 are distributed to the clinics by the Catholic Relief Services. Supplies

reach the clinics every one to three months, in quantities based on estimates of the numbers of eligible children served by each facility. Eligible children are those aged three and under from poor families who are either suffering from, or likely to suffer from, chronic undernutrition.

Since there is no system for identifying and notifying eligible families, many health centers have adopted the practice of disposing of what is intended to be a two- or three-month supply of commodities in the first one or two days after receipt.4/ The food is distributed on a first-come, first-served basis to apparently eligible people who wait in line. Questioning of staff in one health center revealed that identification of eligible families was by personal recognition and knowledge of their circumstances. In other centers, the assumption is made that the entire community is poor; thus, everyone is eligible and the food is simply distributed on a first-come, first-served basis. The demand for Title II food far exceeds the amount currently provided.

Although some attempts have been made in some health centers to keep growth charts of infants up-to-date, they have not been effective for several reasons. First, the growth charts provided to health center staff are poorly designed. The charts do not go beyond one year and do not permit easy recognition of the child's weight in relation to his age. Second, many health centers do not have scales in operating condition, nor measures for determining height.5/ Third, height and weight of babies are recorded only in a daily log book in many health centers because the growth chart cannot be found or was never started. Fourth, after babies reach the age of 12 or 15 months, they are seldom brought to the Ministry of Health centers for immunizations or check-ups. They are brought in only if they are ill. Treatment of illness does not include careful assessment of nutritional status unless it is an obvious contributing factor to the illness.

A system of nutritional surveillance does not exist nor does a capacity to undertake appropriate interventions. Community outreach and education of mothers on infant and child feeding practices do not fit into the task description of any health center staff, nor are they trained to do these tasks. Malnourished children come to the attention of the health center personnel with a severe case of diarrhea or other infectious disease, and are provided drugs or advice on treatment of the acute episode of illness. Education of mothers on proper feeding of their infants depends very much on the interest of individual health center staff. They may reinforce the mother's fear that extending a baby's experience with different foods may result in new episodes of diarrhea. Home visiting by health center staff is generally restricted to registered mothers in the last month of pregnancy or the first week of the postpartum period.

Effective nutritional surveillance and intervention capabilities cannot be accomplished merely through staff training programs and provision of equipment. Maternal and child health programs and services must be restructured so they incorporate nutritional surveillance, identification of high-risk children through periodic weighing and the maintenance of growth charts,

education of the mother in child feeding as well as her own nutritional needs during pregnancy and lactation, promotion of appropriate breast feeding practices, and provision of food supplements whenever appropriate. These services should be provided by health service personnel in any contact with a mother or child.

United States Assistance Programs

United States assistance directed at improving the nutritional status of the Egyptian population consists almost entirely of food aid provided through the World Food Program and through voluntary agencies under the P.L. 480 Title II Program. The P.L. 480 Title I Program food sales are primarily aimed at economic stabilization even though nutritional benefits to the poor result from continued food subsidies made possible by the soft loan terms.6/ Title II food aid has been channeled through three major types of programs: food commodities distributed to laborers as partial wages in government resettlement and agricultural projects; school feeding programs that provide hot meals or snacks to day and boarding students; and food supplements to vulnerable target groups designated as low-income families with preschool children.

In FY 77, almost $12 million worth of Title II food commodities were distributed in Egypt through the World Food Program and two voluntary agencies, the Catholic Relief Services and CARE.7/ The Catholic Relief Services school feeding program distributes about half the food used in the government's primary school feeding program, while its maternal and child health project covers about 500,000 preschool children whose families receive food distributed by the Ministry of Health clinics.8/ A small CARE project for maternal and child health feeding distributes corn-soy-milk blend flour to approximately 60,000 women attending family planning clinics operated by the Egyptian Family Planning Association.9/

USAID supports very little technical assistance or other nutrition-related activities. Approximately $90 thousand from the USAID Office of Nutrition and L.E. 42,000, or $60,000 in Special Foreign Currency Program funds supported the nutrition survey conducted jointly by the Nutrition Institute and the Center for Disease Control.10/

The Catholic Relief Services and AID have recognized that some effort at systematic nutrition education is necessary if nutritional benefits to preschool children are to be achieved. Hence, a nutrition education project was designed in 1977 by the Catholic Relief Services staff and approved by AID and the Ministry of Health. However, the Ministry of Health, the Catholic Relief Services, and the Nutrition Institute have been unable to agree on certain of its administrative aspects and the project has not begun. The project's first-year budget of L.E. 218,000, or $312,000, would be funded under P.L. 480 Title II, Section 204, Special Local Currency Program. If implemented, this project would train a nurse or social worker in each of 150 Ministry of Health health clinics to conduct nutrition classes for mothers

with infants and preschool children.11/ The project's design seems fundamentally flawed — e.g., nutrition education is not that complex that it needs to be the speciality of one clinic member rather than all members and the stress is on formal nutrition education classes. It is unlikely that the Nutrition Institute has the capacity to conduct the amount of training that would be involved — and for this reason, coupled with the administrative disagreement, the project should be restructured before funding is actually provided.

None of the three major AID health and population projects (urban health, rural health, and population) contains specific plans to address the nutritional needs of infants and preschool children.

Opportunities for Strengthening the AID Nutrition Programs

Children under five represent the group most likely to develop protein-calorie malnutrition in Egypt. Infants and preschool children have very high mortality rates and several studies show that a large proportion of their deaths have been associated with poor nutritional status. Another highly vulnerable group consists of women of childbearing age who need special attention because of the increased physiological demands of pregnancy and lactation. Mothers who receive inadequate diets during pregnancy are more likely to give birth to babies of low-birth weight, and these babies in turn have higher morbidity and mortality and poorer growth during the first year.

Nutrition interventions directed at the most vulnerable groups are difficult to carry out successfully because they must not only be directed at those children most at risk of becoming malnourished, but also must effect behavioral change in the mother who controls her child's food intake and determines care during illness. The Ministry of Health currently has neither an effective capacity to perform nutritional surveillance, nor nutrition interventions effective with vulnerable target groups. Development of appropriate surveillance and intervention activities is a formidable challenge given the constraint of scarce resources and the current lack of knowledge about food and nutrient supplements that would be most effective and appropriwithin Egypt. The committee believes that assisting the Ministry of Health to address this problem merits strong United States support.

Increasing emphasis on infants and preschool children is logical in the evolution of voluntary agency Title II food distribution programs and other United States supported nutrition activities. Available information regarding the distribution of nutritional deficiencies among all age-groups in Egypt suggests that children under five should receive highest priority. At the same time, however, specific nutritional deficiencies suffered by both children and adults may be alleviated by low-cost mass actions such as enriching staple foods. For example, iron-deficiency anemia, prevalent in preschool children and pregnant women, will respond to a suitable iron compound incorporated in sugar or other staples.12/ Vitamin A deficiency has been alleviated in groups consuming sugar with added vitamin A.13/ The committee

suggests that AID consider support of pilot efforts to test the effect on specific deficiency syndromes of fortifying widely consumed foods with vitamins and minerals.

Examination of the AID programs in nutrition suggested several areas in which assistance could be increased or redirected to assist the Egyptian government to decrease chronic undernutrition presently suffered by 20 to 47 percent of Egyptian children under five in low-income families:14/ (1) support of training programs to promote the integration of nutrition services with health and family planning services; (2) strengthening certain Egyptian institutional capacities for nutrition research and development; (3) support of efforts to improve the nutritional benefits of P.L. 480 Title II food distribution to selected target groups; (4) strengthening the Ministry of Health capacity for policy analysis, planning and administering nutrition programs; (5) strengthening the USAID/ Cairo staff capacity to plan and monitor nutrition activities.

Integration of Nutrition Surveillance and Intervention into Health and Family Planning Programs. Nutrition surveillance of vulnerable groups and some selected nutrition interventions might be integrated with related maternal and child health and family planning services. A system of nutrition surveillance ideally includes identification of children who are significantly malnourished or at high risk of becoming so by periodic charting of the growth of infants and preschool children, and collecting data that allows community level diagnosis of specific or recurring problems of particular groups. It is the first level of activity that could be considered for integration with maternal and child health and family planning services. Three nutrition interventions that can be integrated are: nutrition education and advice, provision of a food supplement when growth retardation does not respond to counselling, and referral of refractory or severe cases to a physician for appropriate treatment.

Community health workers and nursing personnel could be trained to recognize signs of potential nutrition problems in infants and small children at the same time they visit homes to detect recurrent or continuing infant and child diarrhea, or are making prenatal and postnatal check-up visits. They could observe feeding practices for infants and preschool children, as well as hygienic practices in water procurement and use, and in food storage and preparation. In addition to encouraging breast feeding, the home visitors could provide instruction in making water potable and in preparing appropriate supplementary food for infants and preschool children. High risk cases could be referred to the health facility. Health workers could encourage mothers to make visits for well-baby care at the local health clinic by emphasizing the benefits to their children of periodic nutritional assessment and immunizations, or by mentioning that another service, such as family planning, is available at the time of the visit. Food supplements distributed at well-baby visits might also help to motivate the mother to attend the health clinic.

The committee recommends that AID support training programs for health

clinic staffs in nutritional surveillance, education, and intervention activities; an ample supply of properly designed growth charts of three years duration, heavy duty weighing scales and wooden height measures also should be provided. For health clinic personnel, the in-service training program should include use of this equipment as well as training in available intervention techniques — education and counselling in infant and preschool feeding, the use of specific food supplements that might be available, and crisis treatment, including guidelines for referral of severe cases of malnutrition. Where possible weighing should be part of a continuing program within a village and not require a separate visit to a health center.

Institutional Support in Nutrition. The Nutrition Institute is the only organization within the Ministry of Health that conducts activities exclusively related to nutrition. Its orientation is toward research and training. Trained in public health nutrition, dietetics, and food analysis, the large part-time staff of the Nutrition Institute has performed specific tasks and surveys for the Ministry of Health, World Food Program, CARE and other donors, and has collaborated in evaluation studies with UNICEF and the Ministry of Education. As noted previously, the Institute's staff has no direct line responsibilities for the Ministry of Health's service delivery programs. As the Institute represents the agency nominally responsible for nutrition policy and planning, as well as epidemiological and operational research in nutrition in the Ministry of Health, its reorganization and strengthening is essential to Egypt's future efforts in public health nutrition. The Ministry of Health is now redefining the role of the Nutrition Institute in improving the nutritional status of the population and has appointed the head of the Biochemistry Department of the University of Cairo as chairman of the committee charged with that mission.

Although the United States must channel its support of nutritional surveillance and intervention directly through the responsible service departments of the Ministry of Health, it should not overlook the Nutrition Institute as an important reservoir of research and survey capabilities. A number of its staff members possess impressive professional credentials. If given the opportunity, they have the capacity to develop and test the acceptability of low-cost weaning foods and to study nutritional needs under Egyptian conditions. The committee believes these are critical requirements in Egypt and merit AID support if satisfactory internal arrangements for such work can be assured.

In addition to the Nutrition Institute, some academic institutions active in nutrition research should be considered for future United States support. The Pediatric Department at Cairo University Medical School has published research findings on preschool and infant growth and development in Egypt. Assuit University and the High Institute of Public Health in Alexandria have responsibilities for supervising masters' and doctoral thesis research. There is also significant food and nutrition research competence in the National Research Centre.15/ A small group at Al Azhar University has begun studies to assess the effects of food supplement programs. The committee believes research at these institutions should be considered by

AID for support as part of an expanded nutrition program, including the establishment of cooperative linkages of these institutions with United States academic institutions.

Efforts to Improve the Nutritional Benefits of Food Distribution under P.L. 480 Title II. Current plans call for the United States to end its participation in the school feeding program by FY 82 on the grounds that food could be better used in meeting the nutritional needs of mothers, infants, and preschool children. The most recent policy is to gradually increase the amounts of commodities provided to the Catholic Relief Services and CARE for their maternal and child health feeding programs.

The Institute of Medicine study group encountered many knowledgeable observers who feel that the Catholic Relief Services and CARE programs are not well-designed to meet their stated objectives -- the improvement of the nutritional status of infants and preschoolers in low-income families. Food supplements distributed once a month without accompanying instruction on their suitable preparation for children under three, are not likely to be consumed in sufficient quantities by this intended target group to improve growth significantly. Moreover, such supplements, when received in this manner, are generally shared with siblings and other family members and withdrawn when the child is sick and needs them most. For this reason, the committee suggests that AID consider commissioning a review of the food supplement program in Egypt, preferably by an independent group or by the central AID nutrition office. The assessment should be conducted from several viewpoints: (1) the effectiveness of the program in improving the nutritional status of infants and preschoolers; (2) efficiency of the commodity distribution system; (3) acceptability of commodity mix; (4) participation of Ministry of Health staff in the program; (5) cost-effectiveness of the proposed Catholic Relief Services nutrition education project.

As noted previously, nutrition education of mothers is an activity that should be performed by all members of the health clinic staff who interact with them when their children are healthy or ill. Designating one member of the clinic's staff to provide nutrition education in separate classes (this arrangement is planned in the Catholic Relief Service Nutrition Education Project) is not likely to prove as effective as desired in preventing malnutrition because fewer clients are reached. Nutrition counselling and promotion of correct child feeding practices can be made more effective by: (1) including them as part of the regular tasks performed by health clinic staff and (2) incorporating them into informal discussions by groups of women considered eligible to receive P.L. 480 Title II commodities. This dual approach would permit integration of nutrition education with preventive health service activities, as well as focussing the Title II maternal and child feeding program on the target group. All Title II nutrition training projects sponsored by AID/Cairo and voluntary agencies that involve the Ministry of Health should receive competent technical review and be closely coordinated.

The current system of distribution of Title II food by the Ministry of

Health's clinic staffs does not allow effective concurrent educational efforts to promote consumption of the food by the target 6 to 36 month age group. The committee suggests that AID consider support of pilot projects designed to test alternative food distribution mechanisms. For example, community health workers might be trained to assist in the distribution effort and lead informal discussions about correct child feeding practices. In several other countries, there are reported successes with mothers' clubs formed to promote nutrition in conjunction with food commodity distribution. The experiences of voluntary agencies in other countries could be carefully examined for their applicability to Egypt. The committee believes that once more effective distribution procedures are identified, a substantial increase in the size of this program would be merited.

Strengthening Egyptian Staff and Policy in Nutrition. Currently, very few professionally trained nutritionists have program responsibilities in the Ministry of Health. Only one governorate in Egypt has a nutritionist on the staff of the Director-General for Health. Assiut University and the High Institute of Public Health in Alexandria have long been active in training nutritionists at the master's and doctoral levels. The committee suggests AID consider increased support for long-term training of nutritionists for the Ministry at the master s and doctoral levels: in addition to the university programs in Egypt that could be considered to be foci for this effort, long-term fellowships at the doctoral level in the United States might be considered.

It will be sometime before the Egyptian government is able to develop a comprehensive nutrition policy because there are presently conflicting policies and programs among many ministries. However, the committee suggests that AID encourage, and consider support for, the Ministry of Health to produce its own policy and strategy statement that would focus on realistic nutritional objectives for maternal and child health services. Presumably, this would entail a relatively short-term effort and would be based upon existing data, including the results of the nutrition survey conducted jointly by the Nutrition Institute and the Center for Disease Control, and the health and nutrition policy project of the Masasachusetts Institute of Technology political scientists and Cairo University.

AID/Cairo Technical Staff Capacity in Egypt. The P.L. 480 Title II food distribution program is likely to remain an important element in the overall AID program in Egypt. Although decisions about the commodity mix distributed are not under the control of AID/Cairo, there are many decisions about distribution systems and associated nutrition education that are determined by the AID mission. Because nutrition program objectives are so closely intertwined with health service program objectives, and nutritional programs are implemented through the health services network, the Office of Health and Population in AID/Cairo ought to participate actively in technical review of all nutrition projects, including P.L. 480 Title II food distribution projects. A trained nutritionist, or a public health professional with experience in nutrition intervention programs, will be needed on the Health and Population staff to discharge this responsibility if the potential nutritional impact

of the Title II program on selected target groups is to be realized. Such a skilled professional will be essential in any case to design and manage an expanded nutrition effort in the AID/Cairo program. The committee suggests that recruitment of a public health professional with experience in nutrition intervention for the AID/Cairo Office of Health and Population staff receive high priority.

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APPENDIX

EXCERPTS FROM HEALTH AND MEDICINE ANNEX

GOVERNMENT OF ARAB REPUBLIC OF EGYPT FIVE-YEAR (1978-1982) ECONOMIC AND SOCIAL DEVELOPMENT PLAN

An annex of the Egyptian government's current five-year plan addresses health and medicine. The contents of the annex constituted the major thrust of the past Minister of Health's policy report to the People's Assembly in the summer of 1977. The following excerpts from that Five-Year Plan are provided because they provide the framework within which United States co-operation and assistance must fit over the next several years. The unedited excerpts were taken from an English translation of the plan provided by the United States Embassy in Cairo.

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Key Issues

The challenge to which the Ministry of Health is responding is to use its human and material resources with the maximum possible efficiency at the highest possible level of effectiveness for the largest number of citizens. Successfully meeting this challenge with limited financial resources available will depend on several factors.

(1) Increasing the use of preventive technology to benefit from its intensive employment, relatively low-cost, and relatively high-returns, and to decrease the demands for resources for treatment technology with its increasing costs, equipment intensity, and its relatively low-returns on investment.

(2) Improving the level of performance of human resources through appropriate education, incentives, and a more rewarding service philosophy and atmosphere.

(3) Improving the planning and management of health services through strengthening the Ministry of Health capability for providing leadership, standards, and advice to local organizations delivering services by conducting health services studies, monitoring performance of health services delivery, and providing feedback to the local agencies.

(4) Improving the suitability of health services offered to citizens through their participation in management and evaluation of those services.

(5) Increasing the effectiveness of health services offered through encouraging citizens to participate in better utilizing the services that are available.

(6) Increasing the impact of available financial resources through integrating health services whenever possible, and also integrating health services with other social services wherever possible.

(7) Assuring the maximum benefits from grants, loans and technical assistance offered in international and bilateral agreements for strengthening health services development and improving the level of performance in health services delivery.

(8) Strengthening the Ministry of Health's efforts to influence activities outside of the health sector which may have negative effects on the health status of Egyptians.

(9) Improving the maintenance and repair of buildings, equipment and other existing facilities in order to extend their useful life.

The Health Plan

Objectives. There are six general objectives for the health system during the Five-Year Plan.

(1) Concentrating on preventive and basic health services, combatting schistosomiasis, and the production and provision of vaccines.

(2) Improving the quality of available health services and increasing their effectiveness through:

(a) Strengthening human resources performance;

(b) Strengthening emergency medical care;

(c) Increasing the effectiveness of rural health services, particularly family planning services, by emphasizing home-visits by health personnel.

(3) Maximizing the benefits from resources allocated to treatment services by developing a network of rural health hospitals to decrease the pressure on the larger general and specialty hospitals.

(4) Avoiding the construction of large hospitals during the plan period, while conducting necessary studies to maximize future hospital investments in the light of health needs and national demands for development.

(5) Increasing supervision and control over the consumption of pharmaceuticals, which accounts for approximately 50 percent of treatment expenses.

(6) Expansion in the production of Egyptian pharmaceuticals to cover 90 percent of Egyptian needs and to improve the quality and efficiency of the production process.

These general objectives are reflected in the Ministry of Health plans in six health system development areas:

(1) Preventive health care

(2) Basic health services

(3) Treatment services in hospitals

(4) Specialized treatment services

(5) Activities complementing and supporting Ministry of Health mission

(6) The role of local organizations in the Governorates

Preventive Health Care.

(1) Vaccinations - Implementation of nationwide comprehensive vaccination program for polio, tuberculosis, measles, diphtheria-pertussis-tetanus, and smallpox, including production in Egypt of vaccines required.

(2) Nutrition - Emphasis will be put on problems of nutrition during maternity and childhood through concentration on research in the Institute of Nutrition. The effort will be directed toward a national nutrition survey, the preparation of low-cost balanced meals with indigenous food sources, identification of low-cost food supplements that can be subsidized, involving other Ministries in the research, and strengthening the Higher Committee for Health Nutrition in formulating a health policy for nutrition.

(3) School health - Efforts will be focussed on cooperating with the Ministry of Education to conduct periodic comprehensive examinations of school-age children in order to identify illnesses early.

(4) Environmental health - The Ministry will attempt to take the lead in sensitizing the entire society to the need for raising the general level of cleanliness and the Ministry will cooperate with other relevant agencies to achieve that goal. At the same time, the Ministry of Health will increase its capacity for monitoring pollution in the environment as it affects both workers and people living in the vicinity of sources of pollution.

Basic Medical Care.

(1) Emergency medical care - The effort will focus on acquisition of necessary ambulances, upgrading the level of services in free-standing first-aid units and reception centers in hospitals, improving field training of personnel, strengthening communication, developing blood banks, and constructing burn centers in selected hospitals.

(2) Rural health services - Emphasis will be placed on improving the performance level of personnel in rural health units, centers, and hospitals. Three hundred new rural health units will be built, along with the conversion of 140 health centers to rural health hospitals. Special priority will be given to combatting schistosomiasis through cooperation in the World Bank project in Upper Egypt; combatting malaria and filariasis also will be emphasized.

(3) Urban health services - Effort will be focussed on the construction of urban health centers that will provide preventive and primary care ambulatory services in order to relieve the pressure on out-patient departments of hospitals, particularly university hospitals, and to improve coordination of the provision of health services at all levels within urban areas.

Treatment Services in Hospitals.

(1) Hospital bed construction - In order to preserve the current ratio of about two beds to every 1,000 persons, 8,870 new beds will be constructed during the Five-Year Plan.

(2) The efficiency of personnel in hospitals - Efforts will be made to increase the quality as well as the quantity of physician personnel in hospitals. Efforts also will focus on improving the quality of training in nursing institutes. Efforts will be made to develop an appropriate training system for specialized technicians, particularly those involved in the repair and maintenance of hospital equipment and facilities.

(3) Raising the standards of performance in treatment services - Achievement of this goal will involve the Ministry in providing leadership in increasing societal awareness of the importance of human relations in treating illnesses, with the hope that popular voluntary institutions will emerge for providing needed services to the hospital system. In addition, the Ministry will construct a network of polyclinics in urban areas that will provide specialized ambulatory clinical services and a number of new general hospitals. Increased opportunities for specialized training overseas will be provided through international and bilateral agreements. During the time-period, the Ministry will strengthen local supervision of hospitals by inviting local citizens to participate on the board of directors of the hospitals, by having Ministry officials at the governorate level make periodic checks on the services being offered, by responding as promptly as possible to complaints about services from citizens, by improving the utilization and feedback from monthly and annual reports from hospitals, and by having central Ministry

officials conduct periodic unannounced checks of hospital performance. An effort will be made to upgrade the attractiveness of reception areas and waiting rooms and to improve the caring qualities of health system personnel.

Specialized Treatment Services.

During the plan time-period, the Ministry will focus on increasing coordination among the various Ministry research institutes and their attached treatment facilities, and coordination of the research institutes with university hospitals. The possibility of shared services between the universities, the armed forces, and the Ministry of Health research institutes in specialized treatment areas (e.g., cardiac surgery) will be explored.

Activities Complementing and Supporting the Ministry of Health Mission.

(1) The Health Insurance Organization - The Ministry will assist the Health Insurance Organization to expand its enrollment of government employees.

(2) Cairo and Alexandria Curative Organizations - Every effort will be made during the time-period to assist the two organizations to strengthen their services at the least possible cost.

(3) The General Organization for the Production of Biologics and Vaccines - A major effort will be made to strengthen the role of this organization because of its importance in preventive medicine. Its programs will include training and fellowships, the purchase of modern scientific apparatus, and an exchange of experiences in research and services delivery, all under international and bilateral agreements.

(4) Pharmaceuticals - Efforts during the plan time-period will be focussed on improving the supervision and control of pharmaceutical consumption. This will mean strengthening the National Organization of Drug Control and Research which is charged with responsibility for pharmaceutical analysis to ensure the effectiveness of drugs and to identify side affects, and for the dissemination of information about those drugs. The Ministry intends to construct a research unit for treatment of poisonings to be linked with the National Organization that will become a scientific referral point for practitioners.

(5) Manpower development - Educational and training priorities for physicians will focus on preparation of cadres for: planning, administration, and management of health services, institutions, and research; providing an adequate supply of biomedical researchers; expanding offerings in general practice (social medicine) and raising its status to number one in health services; the preparation of physicians specializing in emergency medical care; and finally, increasing the number of physicians in clinical specialties that are in short supply (e.g., anesthesiologists). At the nursing and technician levels, priorities will be placed on providing the necessary numbers in each group to meet currently unmet demands, on improving the curriculum in all the

institutions, and on opening the door to graduate and specialized training for the graduates of nursing and technical institutions.

Continuing education programs for doctors, nurses, and technicians will be developed in cooperation with the faculties of the schools, the Egyptian Medical Syndicate, and relevant academic and scientific societies. During the time-period, regional training centers for continuing education, as well as refresher and upgrading training, will be established in the governorates. The Ministry will develop a national health information system that will store and make available data and the results of scientific studies as well as being a referral library. A national medical library of the most modern kind is planned in cooperation with the Egyptian Medical Syndicate, the academic and scientific societies, and the universities. Finally, the Ministry will explore the feasibility of establishing a Center of Learning Resources for the production of audio-visual aids and other learning resources needed by the various health professions educational institutions and for continuing education and training purposes.

Role of Local Organizations in the Governorates.

During the plan time-period, the Ministry will develop procedures for the decentralization and delegation of authority for administration and management of health services. This will allow the Ministry to dedicate its efforts to policies, plans, standards, and follow-up of program initiatives. The delegation will require training, supervision, and continuous cooperation among all agencies. The Ministry procedures will involve cooperation of the Egyptian Medical Syndicate and its branches, national and government parliamentary boards, and city and village councils in the governance of the health services system.

Capital Investment.

A total of about L.E. 132 million ($189 million) has been allocated to the health sector for capital investment during the 1978-82 time-period, roughly L.E. 26 million ($37 million) per year. About L.E. 67 million ($96 million) is for the Ministry's delivery system, about L.E. 37 million ($53 million) for the pharmaceutical sector, about L.E. 23 million ($33 million) for the Health Insurance Organization and the Cairo and Alexandria Curative Organizations, and about L.E. 5 million ($7 million) for the General Organization of Teaching Hospitals and Institutes.*

The Ministry of Health plan for allocation of its L.E. 67 million ($96 million) includes about L.E. 25 million ($36 million) for curative medicine, including L.E. 3.5 million ($5 million) for the emergency medical care system, about L.E. 23 million ($33 million) for rural health care, and about

*Investment in university hospitals is budgeted under the educational section of the Five-Year Plan; this section was not available to the Institute of Medicine study group.

L.E. 19 million ($27 million) for preventive health care. Over L.E. 30 million ($43 million) of the L.E. 67 million ($96 million) will be expended on the construction of additional hospital beds in all three of the above categories; this includes the conversion of 140 rural health centers to rural hospitals, and beds being added in the contagious diseases specialty hospitals category. About L.E. 8 million ($11 million) is planned for the addition of 300 rural health units, about L.E. 6 million ($8.5 million) for the construction of both urban and rural health centers, and about L.E. 3 million ($4 million) for urban polyclinics. About L.E. 3 million ($4 million) is planned for rural dental health and about L.E. 2 million ($3 million) for the preparation of housing in rural areas as an incentive to physicians to reside in those areas.