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REPORT OF ASSIGNMENT TO REVIEW THE
EGYPTIAN NATIONAL ORAL
REHYDRATION PROGRAMS

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Report of Consultant Assignment to Review the
Egyptian National Oral Rehydration Programme
July 3 - 7, 1979

Colin McCord

The purpose of this assignment was to work with the USAID mission to prepare a Project Identification Document for a national program of oral rehydration for diarrhoea. After initial discussion with Dr.'s Bud Shutt, Rose Britanik and Lennie Kangas of AID there was a meeting with officials of the Egyptian Health Ministry to discuss the present status of the oral rehydration program and plans for expansion. Following this there were further discussions with Mr. Terji Thodesen of UNICEF and Dr.'s Nagati and Kielmann of the Project to Strengthen Rural Health Services and a final meeting with Dr. EI Sayaad (Director of MCH services in-charge of the oral rehydration program). It was my feeling at the end of all this that the scope of the project should be broadened, and a draft was prepared for a "National Program for Control of Diarrhoeal Diseases, Egypt".

This was submitted to Dr. Rose Britanik at USAID prior to my departure, a copy is attached.

Colin McCord

July 6, 1979

Coke McCord

PID for Diarrhoeal Disease Control

Dr. Rose Britanak

Draft of the PID is attached.

In the introduction, I have been very cautious, assuming you might want to show this to government people. The diarrhoea situation here is really terrible - numbers of cases would be considered a cholera epidemic in Bangladesh. In one village clinic serving about 20,000 population in Tala district, Menoufia, last month, 40 cases were referred to the rehydration centres. We don't know how many got there, but probably not many because the death registry shows that 14 of the 40 died. For every patient who reaches a rehydration centre, there must be 10 or more who die in the village.

Oral fluid treatment, for practical purposes, doesn't exist outside of 3 counties in Menoufia (I hope it exists there).

This has been going on for centuries, of course, but the fact that techniques and resources are available to turn the situation around in a year or two, gives some urgency to the problem.

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NATIONAL PROGRAM FOR CONTROL OF
DIARRHOEAL DISEASES, EGYPT

Introduction

Infant and child mortality in Egypt is very high, despite that fact that the nutritional status of children is much better than in most developing countries. Precise figures are not available but it is estimated that 20%-25% of children born die before they are 5-years of age. At least 25% and perhaps as much as 50% of these deaths are due to diarrhoea. (Estimates vary according to the source). The absolute number of these diarrhoea deaths is very large - probably about 100,000 per year in a total population of 40 million. The incidence of diarrhoea varies tremendously according to season, so that there are approximately 8 times as many deaths from this cause in summer months as in winter months. Flies, food preservation, water supply and sanitation are all presumed to be related to this high incidence of diarrhoea in summer, but epidemiological studies using modern methods have not been conducted and consequently neither the cause nor the method of spread of diarrhoea through the community is known. Even if the method of spread were known, the practicality and social acceptance of sanitary or other measures to control spread has not been tested. On the other hand, almost all diarrhoea deaths are due to loss of fluid and salt and it is known that oral and intravenous replacement of fluid and salt in a hospital situation can lower the death rate to less than 5%. Oral fluid replacement alone, in Indian villages, has been shown to lower the death rate by 50%.

The Egyptian Government has recognised the seriousness of this problem and the possibility of reducing it by effective rehydration treatment. A national program was begun in 1978 under the direction of the MCH (Maternal Child Health) division of the Ministry of Health. The government health service is in a position to implement an effective rehydration program throughout the country since there are now health units staffed and functioning for every 10,000 population in the rural areas, Maternal/Child Health Centres for every 50,000 population in the urban areas and district hospitals throughout the country for approximately every 200,000 population. In 1978, packets of oral rehydration salts obtained from UNICEF were distributed to these rural and urban primary health care units at a rate of 200 packets per unit. An additional small supply was obtained from local production. A 2-day training course was conducted for the doctors and nurses in these units, who were taught by pediatricians in the district hospitals. There was a TV, radio and newspaper campaign and there were group meetings in rural and urban communities. Intravenous rehydration centres were established in all district level and larger hospitals in the country. (There are about 200 such hospitals).

This program has had considerable success: the concept of the oral rehydration has become established throughout the country, pediatricians have enthusiastically supported the program and the intravenous rehydration

centres have treated large numbers of patients. The death rate from diarrhoea has undoubtedly fallen and will probably fall further this year. Nevertheless, the program has encountered difficulties which have kept it from achieving its full potential:

1. The quantity of "Oralyte" (rehydration salt packets) available has not been adequate. Oral fluid treatment is most effective when given early to prevent serious dehydration. Theoretically, if every episode of childhood diarrhoea in Egypt was treated at the start with oral rehydration salts, 15-30 million packets would be needed each year. 500,000 were provided in 1978.
2. In part because of the shortage of supply, physicians have generally prescribed rehydration salts only for children who had already developed dehydration, so that early home treatment has not been possible. When an adequate supply becomes available, retraining of these physicians to emphasize early home treatment will be necessary.
3. There has been no organized and comprehensive training program for mothers and others in the community, to encourage them to use oral rehydration treatment early and to begin it at home.
4. For a variety of reasons, utilisation of clinic services by mothers and children is not as high as it could be. In particular, mothers usually do not make use of clinic services early in the course of disease.

5. In part because free transport is not available and in part for other reasons, patients referred from the clinic to rehydration centres at district hospitals often do not go there. Further decentralization of intravenous treatment is needed.
6. The supply of intravenous fluids in the rehydration centres has been adequate (these fluids are manufactured in Egypt), but the supply of scalp vein needles (which are imported) to administer the fluids has been less than adequate.
7. There are some simple management problems in both clinics and intravenous rehydration centres which, if resolved, could increase efficiency considerably:
 - a) Nurses in the clinics are rarely used for instruction of mothers in proper use of oral rehydration salts. Since doctors have little time for this, many mothers don't use the salts properly.
 - b) Oral fluid solutions are not used in the intravenous centres to the extent that would be possible and desirable, since this would reduce the requirement for intravenous fluid and make it possible to train mothers in the use of oral fluid solution in a situation particularly conducive to learning.

The government program concerns itself entirely with rehydration and is not concerned with the development of preventive measures. This is natural, since the rehydration technology is known, whereas cost-effective preventive measures applicable in Egyptian villages have not been tested and shown to be effective, although there are many ideas. There is reason to believe that such measures could be developed:

1. The high concentration of population in Egyptian villages makes it possible to develop water supply and drainage systems with a relatively low cost per person served.
2. Recent research has shown that water quantity is much more important than water quality, which should simplify the development of these systems.
3. Recently developed techniques (such as the ELISA technique) should make it possible to determine the cause of epidemic infantile diarrhoea in Egypt and to study the mechanism of spread. Application of these techniques would be likely to lead to more intelligent recommendations about sanitation measures.

Project Description

The project has two components:

1. Strengthening of the rehydration program,
2. Development of effective preventive measures.

Strengthening of the Rehydration Program

1. Provision of an adequate supply of oral rehydration salts for clinic, hospital and home use. UNICEF has agreed to support the expansion of existing rehydration salt production capacity so that 5 million packets per year can be produced. Machinery is on order for this and it is expected that production at the expanded rate will begin sometime in 1981 or 1982 at the government operated CID Factory. 5 million packets is less than the amount that would be needed for completely free home use, but it is planned to teach mothers to use a home preparation of table salt and table sugar. The packets of "Oralyte" will be distributed through medical facilities. Home preparations have been shown to be quite effective and the logistics of household distribution of rehydration salt packets to every household in Egypt would probably present a serious barrier to diffusion of the technology. Nevertheless, tests of both approaches are being conducted at the program for strengthening rural health services and the Menoufia project. Comparisons of acceptability and feasibility will be available by mid-1980. This project proposes to import 5 million packets of oral rehydration salts per year from January 1981 until full local production is established. Provision of a larger quantity will be possible, if this is shown to be desirable.

2. A training program on the use of oral fluid treatment for all nurses and physicians in rural health clinics, MCH clinics and hospital clinics. This program will emphasize delegation of authority for starting treatment to nurses and ultimately to mothers and will make use of teaching aids developed specifically for the program, including illustrated booklets, film strips and motion pictures.

3. A similar training program for medical personnel delivering intravenous rehydration therapy. This is intended for new personnel assigned to these centres and for personnel from more peripheral medical units who will come to existing rehydration centres for training.

4. A house to house program to teach mothers to prepare and administer home preparations of oral rehydration fluids. This will be conducted by women recruited from the community and trained by nurses in the rural clinics and urban MCH centres. It will probably be desirable to conduct 2 canvasses about 3 months apart, so that each mother is contacted twice. A plastic container and spoon will be distributed so that reasonably accurate concentrations of salt and sugar can be obtained (containers known to contain 1 litre of fluid are rarely available in Egyptian village homes).

This program will also make use of leaflets and illustrated booklets to be widely distributed.

5. A training program, similar to that for mothers, directed at school teachers and members of the village councils.
6. As personnel in peripheral clinics are trained, it will be necessary to supply these units with intravenous fluids and administering equipment. Ultimately every clinic in the country should be equipped to deliver intravenous therapy. Even though oral fluid treatment reduces need for intravenous treatment, there will probably be an overall increase in the need for intravenous treatment. The possibility of producing, in Egypt, a re-sterilisable and re-usable scalp vein needle should be investigated.
7. Technical assistance to strengthen the logistic and administrative system to ensure that rehydration supplies are available and utilised.
8. A media campaign to support the person to person educational program. Emphasis should be on person to person education, but media support is useful in Egypt.

Development of Effective Preventive Measures

Improved water supplies will be available to Egyptian villages through the basic village service program and through other programs supported by

the World Bank, UNDP and UNICEF. There are several other programs to improve the urban water supplies. Very little is planned at present in the way of sanitary measures to go along with increased water supply, but availability of water should make possible increased use of latrines better drainage systems and more effective health education programs. A major constraint to the introduction of these measures is lack of knowledge about appropriate measures. It is proposed to provide technical assistance and financial support to Egyptian institutions so that they can conduct studies to determine:

- 1) the etiology (cause) of diarrhoea in Egyptian villages;
- 2) the epidemiology (method of spread) of diarrhoea;
- 3) the effect of water supply on the incidence of diarrhoea due to various causes;
- 4) the feasibility and acceptability of latrines, improved drainage, composting, fly control and improved food storage and handling;
- 5) the social and economic constraints limiting the application of improved sanitary methods;
- 6) the incentives or other measures needed to remove these constraints.

Implementation of the rehydration program will lead to a 50% or greater reduction of diarrhoea deaths. This will lower infant and child mortality by approximately 25%. Achievement of this purpose will be evaluated by reference to GOE statistics and by special surveys conducted by Egyptian institutions, which will also evaluate cost effectiveness of the program.

The epidemiological and preventive investigations will lead to specific recommendations for sanitary and other interventions appropriate to the Egyptian situation.

The direct beneficiaries of this program will be all children in Egypt and their mothers. Several incidental benefits will also accrue:

- a) Increased public acceptability and utilisation of peripheral health units, because of widespread availability of treatments known to be effective for a common disease.
- b) Strengthened ability of peripheral units to deliver more complicated health services (this will be important if they are ever to carry out sterilization procedures and other more technically complex procedures essential to the Family Planning Program).
- c) Strengthening of the management capacity in the health systems.
- d) Strengthening of the ability of the Egyptian medical profession to investigate and develop solutions for the most important medical problem in the country.

RELATION TO CD SERVICES AND GOVERNMENT PRIORITIES

Lowering infant mortality and introduction of oral fluid therapy are both stated objectives in the CDSS for Egypt.

AID POLICY ISSUES

Economic Feasibility

The Egyptian Government is already committed to supply 5 million packets per year of UNICEF Oral Rehydration salts, plus adequate supplies for intravenous rehydration in approximately 200 rehydration centres. The total cost of these oral and intravenous rehydration supplies is estimated at about \$900,000 per year which is less than one-half of one percent of the Egyptian Government budget for health. This program does not propose to increase the amount of oral rehydration salts provided, but it would increase the intravenous fluid provided to approximately double the present amount, thereby increasing the total expenditure to roughly 1,400,000 dollars per year still less than 1% of the total health budget.

The decision to make a capital investment to improve urban and rural water supplies has already been made and is not part of this project. Aside from the expenditures for rehydration supplies, the budget is entirely for training, education, research and technical assistance activities which do not constitute an ongoing obligation to the Egyptian Government. The medical facilities needed to carry out the program are already in existence.

Manpower Constraints

Adequate manpower with the educational qualifications to carry out the

program is available in Egypt, but specific gaps in training exist at all levels and the major objective of the project is to resolve this problem by -

- a) training medical personnel to deliver the rehydration therapy;
- b) training mothers to begin oral rehydration therapy at home;
- c) training administrators to eliminate logistic and administrative problems specifically related to rehydration service delivery;
- d) strengthen the ability of Egyptian institutions to conduct epidemiological and bacteriological investigations directly related to diarrhoeal disease control.

Individuals with the basic qualifications necessary to conduct this training are also available in Egypt, but it will be necessary to create an organization to coordinate this large training activity and to provide specific training for various aspects of the project. Some technical assistance will be necessary to support this organization.

Technical Issues

Oral and intravenous medications are manufactured in Egypt and the medical institutions to carry out the treatment program have been constructed and staffed. The proposed expansion of productive capacity will make it possible to produce all needed supplies in Egypt at reasonable cost.

It is not planned to conduct studies which will require more than short-term technical assistance or to become involved in complex scientific investigations. Known epidemiological, bacteriological and biological techniques will be used to evaluate known curative and preventive interventions in the Egyptian situation. It is likely that important information will emerge from these studies, particularly regarding the cost benefit of specific interventions to prevent and treat diarrhoea. This information will be useful throughout the world.

Implementation Constraints

The project will require a massive public and professional training effort for the rehydration components plus a sharply focused series of studies to evaluate the rehydration program and to develop effective preventive interventions. It will probably lead to another program to implement these preventive interventions.

The rehydration program will be unmanageable unless it is decentralized to the governorates. The governorates will need technical assistance to implement the training and education programs. The evaluation and epidemiological studies planned will be conducted by existing Egyptian institutions. They will also need technical assistance. Finally, the whole program will need central direction. Considering that diarrhoea (next to excessive fertility) is the most important health problem in

Egypt, it would be reasonable to establish a separate body (government, semi-government or autonomous) to organise the training program, decide on the studies to be conducted, grant contracts to Egyptian and other organizations for technical assistance or specific studies and develop plans for future diarrhoea control programs. This project administrative organization would exist for the duration of the project only, after which its functions would be taken over by the appropriate divisions within the MOH.

ESTIMATED COST

See the attached budget.

PROJECT PREPARATION STRATEGY

The Egyptian Government has already begun a nation-wide oral and intravenous rehydration program which is administered through the MCH division of the Ministry. There is a central committee which oversees the operation of the program.

It will be necessary to discuss the proposed expansion and intensification of the program with these government bodies and also to discuss with them the desirability of broadening the terms of reference of the program to include evaluation of the cost effectiveness of rehydration treatment,

investigation of the epidemiology of diarrhoea in Egypt and evaluation of preventive measures. If they agree to this it will be then necessary to discuss the administrative arrangements which would be appropriate to conducting a program of this magnitude, the institutions in Egypt which would be competent to conduct the training, the investigations required and the amount of technical assistance which will be needed. There is no need for preliminary studies to be conducted prior to initiation of the project. Evaluation of oral rehydration therapy, comparing use of packets of salt with use of home prepared mixtures is already being conducted by the project for strengthening rural health services and by the Menoufia project. Technical consultations will be needed for the development of the project proposal to create, together with Egyptian authorities, the detailed programs for training, education, evaluation and epidemiological studies.

The field project committee responsible for final development of project will be :

M.M. Shutt, Chairman

Rose Britanak, HPD

Paul Groves, PRM

Ted Carter, Legal

Don Gardner, Controller

INITIAL ENVIRONMENTAL EXAMINATION

The rehydration treatment portion of this project will have no environmental impact. It is possible that the studies on effective sanitary or other preventive measures could lead to proposals or interventions which might have an environmental impact. Evaluation of environmental effect will, of course, be a part of any studies conducted.

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ESTIMATED COST - FY 1981,82,83

	(\$1,000's)
1. Supply of Oralyte - 2 year @ 5,000,000 packets/yr 5,000,000 x .08 x 2	800
2. Training for Rural Health Units, Health Centres, Urban MCH Centres, plus general and district hospitals (approx. 4,000 training points @ \$100 per point)	400
3. Training for mothers (canvassers paid 5 pt per family) (2 canvasses)	714
4. Training for school teachers and community leaders (8,000 training points at \$50 per point)	400
5. IV training (at Governorate and district hospitals) 200 x \$500 x 2 years	200
6. Materials for training (leaflets, comic books, bottles, movie for professionals, movie for TV)	2,000
7. Additional supplies for IV centres	800
8. Media campaign	300
9. Administration of Program (3 years)	600
10. Contracts to Egyptian inst. for eval., testing of preventive measures and epidemiological studies	600
11. Supplies for above studies	200
12. Technical assistance	600
13. Inflation allowance (25%)	1,900
14. Contingencies (5%)	500
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Say \$10,000,000

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: 3 year.
From FY: 1981 to FY: 1983
Total U.S. Funding: \$10,000,000
Date Prepared: _____

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATIONS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which the project contributes:</p> <p>To improve the health of the Egyptian people, particularly mothers and children.</p>	<p>Measures of Goal Achievement:</p> <p>Lower infant and age 1-4 mortality rates.</p>	<p>(1) GOE statistics. (2) Sample surveys to supplement these statistics.</p>	<p>Assumptions for achieving goal targets:</p> <p>Prevention and treatment of diarrheal disease will significantly improve the health of mothers and children.</p>
<p>Project Purpose:</p> <p>(1) To reduce infant and child mortality from diarrheal disease through use of oral intravenous rehydration therapy,</p> <p>(2) To develop effective measures to prevent diarrhea in the Egyptian situation.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status</p> <p>(1) Diarrhea-specific death rates reduced by 50%.</p> <p>(2) Preventive measures tested and evaluated in large populations.</p>	<p>(1) GOE statistics and sample surveys. (2) Reports of controlled trials.</p>	<p>Assumptions for achieving purpose:</p> <p>(1) Application of known oral and intravenous rehydration techniques will dramatically lower death rates. (2) Cost effective preventive measures can be developed for Egyptian communities.</p>
<p>Outputs:</p> <p>(1) A standardized nationwide program for oral and intravenous rehydration. (2) An effective delivery system for the above. (3) Public understanding, acceptance and utilization of these services. (4) Effective preventive measures tested and evaluated.</p>	<p>Magnitude Outputs:</p> <p>(1) Adequate supplies and trained personnel available at all levels of health system. (2) 80% or more of public understands and utilizes services. (3) Preventive measures ready for nationwide application.</p>	<p>(1) GOE records and special surveys of service points. (2) Utilization patterns and KAP surveys. (3) Reports of controlled trials.</p>	<p>Assumptions for achieving outputs:</p> <p>(1) Public will utilize services given availability and education. (2) Effective preventive measures can be developed and tested in the time allowed.</p>
<p>Inputs:</p> <p>(1) Increased supplies for oral and intravenous rehydration. (2) Training for mothers, clinic staff, hospital staff and community leaders. (3) Strengthened logistic and administrative systems for service delivery. (4) I & E campaign - leaflets, comic books, and media. (5) Technical assistance & financial support to Egyptian institutions which will evaluate services and test preventive medicine.</p>	<p>Implementation Target (Type and Quantity)</p> <p>(1) Supplies - \$1,600,000 (2) Training - \$3,714,000 (3) I & E - \$ 300,000 (4) Technical assistance - \$ 600,000 (5) Support to Egyptian inst. for studies - \$ 800,000 (Inflation allowance, contingencies and administration - \$3,000,000).</p>	<p>(1) Officials records of supplies and utilization. (2) Sample surveys of above. (3) Sample surveys of individuals trained. (4) KAP surveys. (5) Reports of studies and trails.</p>	<p>Assumptions for providing inputs:</p> <p>(1) Administrative system can be developed to control program. (2) Logistic system can be developed to support it. (3) Staff and public will absorb and utilize training. (4) Egyptian institutions can be found to conduct studies.</p>

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