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EVALUATION OF MENOUFIA, EGYPT, ORAL REHYDRATION PROJECT

A Report Prepared By:
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EVALUATION OF MENOUFIA, EGYPT,
ORAL REHYDRATION PROJECT

Description of the Project

In 1978, the Social Research Center of the American University in Cairo initiated the Integrated Social Services or Menoufia Project. In addition to providing oral rehydration salts (ORS) at the household level in the Governate of Menoufia, the project also entails the household distribution of contraceptives and a variety of community development projects. Another major activity in Egypt is concerned with oral rehydration. This project is the Program to Strengthen Rural Health Services (see Appendix A). Both activities are supported by USAID. Consultative services for both projects focused on their respective oral rehydration components.

The first consultation on the Menoufia project* was made in January 1979. The consultant met with staff of the Social Research Center (SRC) to discuss the results of the distribution project, the October use survey, and the planned survey on the number of deaths from diarrhea in the distribution and control areas. The consultant's findings were summarized in reports submitted to SRC staff and to USAID/Cairo in December and January, respectively.

In June 1979, a second consultation was scheduled to review with SRC staff the progress of the program. The consultant's specific objectives were to:

o Evaluate the effectiveness of the educational program in oral rehydration and the use of oral fluid therapy to treat diarrhea. (This therapy was used during the initial stages of the program.)

o Prepare detailed recommendations on a reporting system that would measure service use and the impact of the program on the rates of death attributed to diarrhea.

The consultant met with Dr. Saad Gadalla and Dr. Gillespie on June 19, 1980, and then went to Menoufia to observe the survey and distribution processes which were then underway. (The first survey had been delayed because the Oralyte salts had not arrived on time. Consequently, other surveys were also delayed but were rescheduled for September. The results were expected in November.)

*See APHA report on ORS distribution, February 1979.
The consultant made informal field surveys, interviewed project staff, and discussed the program with members of two village councils and Egyptian Government medical personnel working in eight village health units, two hospitals, the Menoufia headquarters, and in Cairo. His recommendations are based on these interviews and on field observations.

Summary of the Distribution Program

A. Components of the Program

The distribution program had four basic components: distribution, training, monitoring, and evaluation. Each of these component activities is described below.

1. Distribution

Local women trained by AUC staff distributed two ORS packets and a one-litre bottle in which to prepare the solution. The canvassers who distributed the salts taught each mother how to mix the solution; when and how to give it; and how much to give. They also provided information on the diet that should be maintained during and immediately after the treatment of diarrhea. They left written instructions in each household. The label on each bottle included brief written instructions as well. A resupply of salt packets was left with the nurse-midwives at local health centers.

2. Training

While supplies were being distributed, village health unit staff and community leaders were being trained. Village doctors and nurses were taught how to use ORS. The operation of the program was also explained. Community training programs for members of village committees, social welfare centers, and mothers' clubs and for school teachers were also offered. Instructions similar to that for mothers were provided.

3. Monitoring

The physician assigned to the project by the Menoufia Health Ministry was responsible for monitoring activities. He was required to visit health units and to collect monthly reports from village health units and hospitals.
4. Evaluation

To evaluate the project, use surveys were made immediately after supplies were distributed. Surveys on the number of diarrhea-related deaths in the distribution and control areas were also made.

The ORS distribution program was part of a larger contraceptive distribution program, which had been tested successfully in one district among a population of 250,000. The plan was to increase the population sample, incorporate the ORS distribution and education program into the contraceptive project, and to motivate mothers to visit village health units for immunizations against tetanus and for IUD insertions. The target population--1.4 million--of the entire rural population of Menoufia was to be covered in three years; one-third of the population would be covered in each of those years.

B. Implementation of the Program

Originally, the program was conceived as the simple distribution of ORS packets with contraceptive supplies. SRC staff have always believed that a community education program could be organized around these two main activities. But the demands on time and staff participating in the diarrhea education campaign were underestimated. Four serious problems arose.

1. Training of Canvassers and Education of Mothers

It was obvious from the start that education in the proper use of ORS was so complicated that it could not be provided while contraceptives were being distributed. Canvassers received instruction in ORS in a second training program conducted after contraceptive distribution was completed. Upon completion of this program, the canvassers distributed the ORS and one-litre bottles. The schedule was very tight; supplies of salts and bottles did not arrive on time and distribution was delayed. Nonetheless, the training and distribution programs were completed by midsummer. A subsequent survey indicated that most mothers had learned most of what they needed to know about ORS, although there were serious gaps in their knowledge.

2. Logistics

Despite delays at customs and serious problems with the distribution of bulky bottles, the supplies of ORS and bottles were distributed two and one-half months after the original target date, April 30.
3. Training of Medical Personnel and Community Leaders

Delays and a tight schedule severely hampered the training component. One physician from each health center and some nurses were asked to come to the capital of Menoufia Governorate; there, they received didactic training. There was very little follow-up. Physicians have resisted the idea of non-professional treatment of diarrhea. The training they received did not change their attitude.

Generally, the community has supported the program, but there have been few opportunities for villagers to discuss the project at community meetings. Few community leaders know how and when to use ORS or where to go to obtain extra supplies of the solution.

4. Monitoring and Follow-up

The Menoufia Health Ministry was responsible for monitoring and following-up the distribution, use, and resupply of ORS and one-litre bottles. The ministry had neither enough staff nor an adequate administrative structure to handle this task. Monthly reports on clinic use and resupply were not collected until the "diarrhea season" ended; the activities of only a very few health units were monitored. The problem was obvious when supplies were distributed in June and it was noted in a report submitted that month. Given time and personnel constraints, the problem could not be corrected during the diarrhea season. If the ministry does not find a way to monitor properly the distribution and resupply program, the project will not be successful.

C. Results

Canvassers and SRC staff were concerned about the rumors that ORS killed babies or made them sterile. Such comments were heard in most of the 120 villages in which ORS was being distributed. In two villages, the distribution was halted after threats were made. Nevertheless, 98 percent of the women canvassed accepted the ORS packets. Furthermore, the use survey revealed that 80 percent of the women surveyed went to a central distribution center to obtain the bottle in which the salts are mixed.

Rumors about the dangers of treatments promoted in village health programs can be expected, but they should pose no serious problem if the community and medical profession support the programs. In this case, surveys indicated that many mothers used ORS to treat diarrhea after the distribution was completed.

Although most mothers knew how to prepare correctly the mixture, many did not know how much solution should be given and some did not know how to obtain a resupply.
Many of the doctors who were interviewed said they considered ORS a prescription medicine and would not recommend its distribution to mothers for preventive use. Nurses in most rural health units were neither trained to use nor allowed to distribute ORS. Although health units did receive instructions to authorize nurses to provide resupply of ORS, they could do little more than this. Moreover, there was not enough time to implement a proposal to provide intensive community education through village councils and school teachers.

The results of the use survey, which are summarized below, were both interesting and encouraging.

- The 600 mothers who were canvassed were selected randomly; 473 mothers were interviewed.
  - Of the 473 women interviewed, 80 percent said they had gone to a central distribution center to obtain a mixing bottle.
  - There were 348 reported cases of diarrhea; 277 of 748 children had suffered from diarrhea one or more times.
  - ORS was used in 213 (61.2 percent) of the 348 episodes. A similar survey made after a door-to-door education campaign in Bangladesh showed that only 28 percent of the women canvassed had used a home-made mixture of salt and sugar.
  - Of those who did not use ORS, 43 percent said they did not use it because it kills children; in 59 (17 percent) of the 348 episodes, the ORS treatment was not used for this reason.
  - Only 54 percent of the 473 women interviewed knew where to go to obtain a new supply of ORS and only 41 women had attempted to obtain additional packets. Every woman who requested a resupply received additional packets. (Although ORS is available at no cost and provided upon request, most clinics require that a child be brought in for examination by a doctor.)
  - More than two-thirds of the women knew how to mix ORS and when to give it. More than 90 percent of those who used ORS gave one or more packets.
  - Approximately one-half of the mothers reduced the child's food intake during diarrhea.
  - One hundred ninety-two (192) children were taken to a physician for treatment of diarrhea. (Children were taken almost always to a health unit.) Only 13 percent of these 192 children were treated with ORS or any other salt-sugar preparation.
Several physicians who were interviewed at length had a negative attitude toward ORS distribution and most thought ORS should be used only to treat clinically diagnosed dehydration. Most physicians also believed that food intake should be restricted during diarrhea.

Four of the 348 reported cases of diarrhea resulted in the death of the child.

* Four of 135 episodes which were not treated with ORS resulted in death.

* All of the 210 children who were treated with ORS recovered.

* Three of the four children who died had been taken to a physician. None of the physicians had prescribed ORS or other fluid therapy.

Conclusions

After studying survey data and observing the program first-hand, the consultant concluded:

1. ORS packets are popular in Egyptian villages and use rates following household distribution are very high.

2. Most mothers learned to prepare properly the mixture, give it at the right time, and in an adequate amount. About one-half of the mothers who were canvassed did not follow the dietary advice they received. About one-half of the mothers did not know how to obtain a new supply of the solution.

3. Physicians in rural health units resist the use of ORS as a preventive measure. Few physicians learned much from the training program.

4. Nurses have been involved actively in the program. Community support for the program has been good but little community education has been provided.

5. The resupply of ORS has been poor, partly because mothers do not know where to go to obtain a new supply. Most importantly, ORS has not been made freely available at village health units.

6. The program has been poorly monitored.
Recommendations

Following discussions with SRC staff, the consultant prepared the following recommendations:

1. The most serious problem is the resupply of rehydration salts through clinics. It is now difficult to obtain additional supplies of ORS because clinic physicians provide non-emergency services only during morning hours. To solve this problem, clinic nurses who see emergency cases should be authorized to provide the salts, at no charge, to any member of a family who requests a resupply, even if no one has diarrhea at the time. This will ensure that a supply of ORS is available at all times in the home. An added advantage is that, unlike a doctor, a nurse will have the time to properly instruct mothers in the use of ORS.

To ensure that this procedure works, SRC staff should:

a. Revisit each clinic to make sure that all doctors and all nurses understand and have no objection to the system; understand the instructions for mothers; and have copies of the instructions.

b. Distribute (through Dr. Rizkallah) 200 copies of the monthly clinic reporting form. (An English version of this form, which must be translated into Arabic, is attached. See Appendix B.)

c. Check the monthly reports and revisit clinics that report low resupply rates.

Discussions should be held with the nurses who distribute ORS at clinics; the nurses should also have some contact with the canvassers. The Health Ministry should consider asking the nurses to accompany canvassers on some of their visits to households.

Resupply should be emphasized during training sessions. Village health units should be instructed to provide to nurses sufficient supplies of ORS for distribution to mothers who visit clinics.

2. Training programs, particularly for village health unit staff and community leaders, should be strengthened at all levels. The SRC has designed a plan for the next distribution. This plan includes a program to train medical personnel. The program will be operated by a committee that will include Dr. El Sayad, Director, MCH (Cairo); Dr. El Akabawi, Chief of Pediatrics,
Menoufia Hospital; Mrs. Shir Salem, Director of Nursing, Menoufia Hospital; and a professor of pediatrics in Cairo. Dr. El Akabawi will be a consultant to the project and will evaluate the training program. Training sessions will be repeated if necessary. The SRC also plans to initiate a strengthened training program for community leaders. This program will be primarily for school teachers and village committees. Nurses from the various health units will participate in the program.

3. Rehydration training for mothers could be reinforced through use of organized village councils and school teachers. When school is not in session, instruction booklets could be distributed to village councils and discussed at public meetings held during the epidemic season. The booklets could then be distributed to school teachers in the fall.

Discussions with village councils should emphasize that clinic nurses will provide additional supplies of ORS and that the success of the program depends on the villagers' willingness to maintain a constant and readily available supply of Oralynge in the home. Village councils should be able to pressure doctors to make more supplies available if resupply becomes a problem.

4. Monitoring activities should be controlled by a committee of medical experts. The committee should meet monthly to review reports on the use and resupply of ORS and on the number of deaths from diarrhea. Plans for such a committee have already been prepared. Dr. El Sayad and Dr. El Akabawi will serve on the committee. Dr. Akabawi will be responsible for the day-to-day monitoring. Mrs. Shair Salem will assign a public health nurse to work with the chief nurse in each study area. These nurses will monitor resupply through clinic nurses.

5. Informal surveys reveal that almost all mothers know how to mix the Oralynge but few know how much of the solution to administer. This instruction should be emphasized in all training and discussion sessions. The trainer might say:

"For a one-year-old child, one bottle in one day. For a smaller child, less; for an older child, more."

6. The knowledge and practice survey of 240 families should be made in mid-September, on September 15, if possible. The following procedures could be adopted:
a. Select three (3) villages with clinics and one (1) village without a clinic in each county (total, 12).

b. Randomly select 20 households in each village.

c. Hand-analyze the results.

This survey is extremely important. It will determine the effectiveness of training; the acceptability of treatment; and the efficiency of resupply.

7. Surveys on the cause(s) of death should be taken as soon after Ramadan as possible. An agreement has been reached on the following procedures:

a. Six (6) test and six (6) control villages, each group with a population of approximately 26,000, will be selected. (There should be approximately 200 deaths of children under age five in each group of villages.)

b. Control villages will be in counties that will receive services last— in 1981.

c. Surveys in the villages where treatment is being given were made between April and June of 1979. Similar surveys should be repeated each year during these months.

d. Control surveys will be taken each year between September and November.

e. Preliminary surveys will include a complete census and questions on:

--the number of deaths of children that occurred at any time before the survey;

--the number of cases of diarrhea reported in the preceding two weeks;

--treatment, if any; and,

--knowledge and practice of oral fluid treatment.
f. Subsequent surveys will include:

-- a repeat census of each household previously surveyed;

-- all of the questions listed in "e" above; and,

-- questions on the number of births and deaths since the preceding survey.

g. All deaths in both treatment and control villages recorded in the government registry since May 1, 1979, will be investigated. The following procedures will be adopted:

1. Sociodemographic field investigators will investigate every two months deaths reported in their villages.

2. Recorded deaths of children under age 10 will be compared with census data to confirm ages and obtain addresses.

3. A field investigator and clinic physician will interview families with children under five. The form attached as Appendix B will be used. (This form must be modified and translated into Arabic.)

4. A conference will be held every six months with senior medical staff. At this time, the final cause(s) of death will be established.

h. Duplicate files of death forms, arranged by village and month, will be maintained.

i. Deaths reported during the annual repeat survey will be checked against those listed in the files in "h" above. If a death has not been investigated, an investigation will be made. (The same procedures will be followed.)

j. A committee should be appointed to legislate final procedures and to supervise data collection and analysis. This committee might include SRC staff and program representatives.

k. The procedures followed in collecting data on mortality rates should be similar to those adopted by the Program to Strengthen Rural Health Services.
8. Evaluation activities should be expanded and modified.

a. Another use survey should be made after the next distribution. The survey should attempt to determine how much ORS mothers actually give to children with mild and severe diarrhea. Medical staff in health units should be surveyed again.

b. The survey on the number of diarrhea-related deaths in villages with and without ORS should continue as planned. It is not possible to increase the population sample. Nonetheless, if diarrhea-related deaths in villages where ORS is distributed have declined one-third, the statistical difference among the villages should be significant (assuming the estimates of incidence and fatality are correct). Because deaths in the second year only will be analyzed and because resupply problems arose in the first year of the program, a repeat census will be taken in the test villages.

c. It is likely that the SRC will not have time to conduct additional studies. It should be pointed out, however, that the distribution program offers an exceptional opportunity to study the diffusion throughout a community of an apparently effective new treatment for a very serious disease. Another organization might consider making this study with the assistance of the SRC. The results could be used to expand or modify the use survey.
Appendix A

PROPOSED RESEARCH DESIGN FOR
PROGRAM TO STRENGTHEN RURAL HEALTH SERVICES
Appendix A

PROPOSED RESEARCH DESIGN FOR
PROGRAM TO STRENGTHEN RURAL HEALTH SERVICES

Title: Comparison of Home Salt-Sugar Mixtures and ORS for Oral Fluid Treatment of Diarrhea

Problems and Objectives

1. Diarrhea is the major cause of death of children under age five. The program to Strengthen Rural Health Services will emphasize oral fluid treatment of this disease.

2. It is universally recognized that early use of oral fluid to prevent dehydration is far more effective than use of the same solution to treat the problem. A treatment available only in a clinic cannot be considered a preventive measure. Consequently, oral fluid solutions must be available in the home, and mothers must be able and willing to use them. The program to strengthen rural health services will attempt to make such solutions available and to educate and encourage mothers in their use.

3. The oral rehydration solution (ORS) prepared for WHO is a balanced solution with an ideal composition. The preparation is not, however, likely to meet the criteria described in #2 above for the following reasons:

   a. To treat every case of diarrhea in a child under age five, 35 million to 40 million packets would have to be produced annually in Egypt. The new ORS factory will produce only 5 million packets per year. (This factory is scheduled to begin production in mid-1980.)

   b. The logistical problem of supplying such a large number of packets to service points throughout the country will be a serious barrier to the successful treatment of diarrhea in Egypt.

   c. Because both doctors and patients consider the packet medicine, its distribution is restricted. Generally, it is available only at clinics or by prescription from pharmacies.

   d. Even if the restrictions are lifted, it is unlikely that packets will always be available in the home. Almost every home has readily available supplies of sugar and salt—the ingredients that will be used in the mixtures proposed by the program.
4. Given the limitations described above, a three-tiered system for the treatment of diarrhea is planned.

a. Salt and sugar mixtures will be prepared in the home.

b. ORS packets will be obtainable from doctors and nurses in clinics and, eventually, from pharmacies.

c. Intravenous treatment will be available at hospitals. Gradually, this treatment will be decentralized to the more peripheral clinics.

5. ORS supplies are limited. Home preparations of salt and sugar are effective if made properly. Although this method of treatment can be used immediately, a comparison of home preparations and ORS solutions should be made as soon as possible. The study should attempt to answer the following questions:

a. Which method do mothers prefer? Which method is most often used?

b. Can mothers prepare safe and effective mixtures at home using either one or both methods?

c. What effect does widespread use of each type of oral solution have on:

--- clinic attendance;
--- referral rate to hospitals; and,
--- death rate among children under age five?

d. Does home use of either method pose any serious complications?

e. How cost-effective is each method? (Consider production, distribution, and education costs; use rates; comparative effect on mortality.)

**Study Design**

1. The study will be conducted in the Abnub and El Kosseya districts of Assiut Governorate. Abnub's population, 275,000, is served by six rural health centers, 16 rural health units, and one district
hospital. Training programs will be offered in Abnub District beginning in February. Clinic nurses will be taught how to prepare and use home salt-sugar mixtures; they, in turn, will visit homes to train all mothers to give oral fluid treatment using this solution. The entire three-tiered system will be implemented in Abnub District at the same time; ORS will be available at clinics, intravenous treatment at the district hospital.

2. In eight villages (population: approximately 40,000; served by five rural clinics) in Abnub, nurses will distribute ORS to each household, provide a container, and instruct mothers in the use of the salt-sugar preparation. (Implementation of the rest of the system will follow the pattern established in other villages.) Two months after their first visits, the nurses will revisit each household and redistribute the ORS if necessary. Mothers will be instructed to come to clinics to obtain additional supplies of the solution. The solution will also be made available--at no cost--through nurses, doctors, and other clinic personnel. Eight matching villages in another part of Abnub District will be targeted for equally intensive activities. Mothers will be trained to give oral fluid treatments at home. ORS will not, however, be distributed to homes in these villages, though it will be available at clinics.

3. Eight matching villages in the adjacent district, El Kosseya, will also be selected. ORS will be made available in clinics in these villages, but neither district health personnel nor mothers will receive special training. No oral fluid supplies will be distributed.

4. Data obtained from government records will be used and surveys (some of which are already planned) will be made. Program staff will make the surveys.

a. A use survey will be made in the ORS and home-mixture areas (Areas A and B) and in the control area (Area C). The survey will cover approximately 800 households in each area, as well as selected district health personnel. The survey will determine:

--knowledge of preparation and proper use of oral fluid mixtures;
--incidence of diarrhea;
--use of oral therapy to treat reported cases of diarrhea; and,
--reported incidence of diarrhea with accompanying edema or convulsions in areas with and without oral fluid therapy.
b. Clinic and hospital records in Areas A, B, and C will be examined to determine:

--number of clinic visits and hospital admissions for diarrhea;

--number of clinic referrals to hospitals; and,

--clinic and hospital personnel who are instructed to look for and report cases of diarrhea with edema or convulsions.

c. Deaths of children under five in Areas A, B, and C will be identified through two sources:

--official records in clinics, hospitals, and district headquarters; and,

--family registration surveys (these will be made in both districts in the first two months of 1980 and following the "diarrhea season"). The first survey will be a census; a family register will be prepared for each household. The family registers can be used in the second survey to identify persons who may have died but whose deaths were not recorded in the official death registry.

It is believed that in each area, between 150 and 200 children aged one month to five years die from diarrhea. (Each area includes eight villages; the total population is approximately 40,000.) A physician will investigate each death to determine:

--treatment (if diarrhea was cause of death);

--cause of death; and,

--complications, if any, of oral fluid treatment.

Diarrhea-specific death rates for children aged one month to five years will be calculated for each area, using deaths identified in official records and surveys as the numerator and population estimates from the January 1980 survey as the denominator. (The survey census estimates will be checked against the corrected and updated official census.)
d. Government records and program records will be examined to obtain estimates of the overall cost of diarrheal disease treatment, cost per case treated, and, if possible, cost per death averted.

Specific Research Outputs

1. Knowledge and use surveys of 800 families in each area.

2. Incidence (case rates) of diarrhea among the population and in the clinics and hospitals in each area.

3. Diarrhea-specific death rates for the entire population of each area.

4. Rate at which complications in clinical and hospital treatment of diarrhea cases occur; rate at which complications during the treatment of cases that result in death occur.

5. Estimated overall cost to treat diarrheal disease and estimated cost per case treated or death averted.

Study Administration

The research will be organized and managed by the Program to Strengthen Rural Health Services. The district health officers in Abnub and El Kosseya districts will be responsible for the programs conducted in their areas. They will be assisted by a full-time consultant who will reside in Assiut. (The consultant will be retained from March to October 1980.) A physician and six research assistants from Abnub District will be assigned to work full-time on data collection in the project areas. (The research assistants will probably be recruited from the ranks of school health educators.) Two other physicians from Abnub District will be appointed to work full-time as trainers and supervisors in Areas A and B; they will be assisted by two Abnub District nurses. (All of these persons are district health staff.) These physicians and nurses will also conduct interviews to identify the causes of deaths in the two areas. An El Kosseya District physician will be appointed to conduct similar interviews in his district.

Data Processing

The six research assistants will analyze the collected data. Additional temporary personnel may be needed for one or two months to complete the data analysis on time. The data from knowledge and use surveys should probably be coded for storage on IBM cards.
### Schedule

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<tr>
<th>Period</th>
<th>Activity Description</th>
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<tr>
<td>March - April 1980</td>
<td>Train medical personnel in Abnub District.</td>
</tr>
<tr>
<td>April - May 1980</td>
<td>Nurses canvass homes in Abnub District and distribute ORS in selected villages.</td>
</tr>
<tr>
<td>September 1980</td>
<td>Conduct knowledge and use survey in selected villages in Abnub and El Kosseya districts.</td>
</tr>
<tr>
<td>September 1980</td>
<td>Begin interviews to determine cause(s) of death.</td>
</tr>
<tr>
<td>October - November 1980</td>
<td>Repeat census in Abnub and El Kosseya districts.</td>
</tr>
<tr>
<td>December 1980</td>
<td>Complete interviews to determine cause(s) of death in study areas.</td>
</tr>
<tr>
<td>January 1981</td>
<td>Analyze data.</td>
</tr>
<tr>
<td>February 1981</td>
<td>Write final report.</td>
</tr>
</tbody>
</table>

### Anticipated Problems

1. The census that will be made in the two districts in January and February 1980 will be a major undertaking. If an entire district cannot be surveyed within the time recommended, villages in Areas A, B, and C should be selected for study and the census conducted in these areas first.

2. Advance planning will be necessary to ensure that the training materials are ready and distribution supplies and survey instruments are available. UNICEF should have on hand a sufficient supply of ORS (this should be checked, however). The supply of one-litre containers used in the instruction program should also be checked. A large number of these containers will be needed for the project. Most training materials and survey instruments have been prepared, but new materials and instruments are needed. This work should begin immediately.
3. The personnel listed above meet the minimum requirement for conducting rapidly a study that will yield useful results. Results must be obtained within one year. Additional personnel should be employed whenever necessary to ensure that the required results are produced on time.

4. The calculation of the number of deaths from diarrhea is essential. The estimated population---40,000--in each cell (Areas A, B, and C) should be checked carefully and revised upward if necessary. The additional cost incurred in doubling the size of the study areas would not be great once a decision to initiate the study is made. The change in the size of the population sample might mean that results could be obtained within one year rather than two or more.

5. While it may be sufficient to compare actual death rates with the number of estimated deaths recorded in official government records, the proportion may vary substantially from village to village. There is no way to ensure comparability if the census described above is not made. A careful evaluation of the methods used to estimate the total population in Areas A, B, and C should be made. If accurate estimates are not available, project staff must take a careful census. That census will be important to the project results.

6. The proposed research design is somewhat complex. Although government personnel can collect basic data in the study areas, other selected individuals--physicians, research assistants, social scientists--should be employed full-time to ensure that the study is conducted properly.
Appendix B

REPORTING FORMS AND SURVEY INSTRUMENTS
Appendix B

VILLAGE HEALTH UNIT REPORT FORM*

Date:__________________________

Month Covered by Report:________________________

Village Name:________________________

Country:________________________

Name of Reporting Doctor:________________________

Number of cases seen in clinic with Diarrhea, Gastroenteritis or dysentery in this month:________________________

Number of cases with these complaints sent to the hospital:________________________

Number of packets of UNICEF oral salts given to patients or patients families:________________________

Number of packets of Rehydren given out:________________________

Number of packets of UNICEF oral salts in your stock:________________________

Signature

*For all units in Shebin-el-Kom, Tala and El Shohada
DEATH INVESTIGATION FORM

Report Number____________________

Village____________________________ Village Number________

House Number_____________________

Name_____________________________ Sex: M _____ F _____

Father's Name_______________________

Mother's Name______________________

Address____________________________

Date of Death: Day____Month____Year_____

Date on Death Certificate: Day____Month____Year_____

Date Death was Reported to Government: Day____Month____Year_____

Date of Birth:_______________________

Age: Years______Months______Days_______

Age on Death Certificate: Years______Months______Days_______

Was Death due to Accident? Yes_____ No_____

Kind of Accident_____________________

During the month before death, did the child have:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
<th>How Many Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Number of Stools/day______)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dysentery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Number of Stools/day______)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood in Stool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Number of Vomits/day______)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swelling of feet or body or eyes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rash</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Death Investigation Form (continued):

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>How Many Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult Breathing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convulsions</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Does the mother (or other family member) think this child lost weight in the month before death? Yes ___ No ___

If answer is yes, why was there weight loss? _______________________

Describe symptoms and the timing of symptoms before death:

_________________________________________________________________

_________________________________________________________________

Family's opinion of cause of death:

_________________________________________________________________

Investigating doctor's or nurse's diagnosis.

Primary cause: ____________________________

Underlying or associated cause: ____________________________

Final conference diagnosis (must be taken from list of causes):

Primary cause: ____________________________

Underlying or associated cause: ____________________________

Name of conference participants:

1. ____________________________

2. ____________________________

3. ____________________________

Name of investigating doctors:

Name of investigating nurse:
LIST OF CAUSES OF DEATH

Acute Diarrhea
Acute Dysentery
Chronic Diarrhea (over 2 weeks)
Chronic Dysentery (over 2 weeks)
Malnutrition
Pneumonia
Accident (includes drowning, burns and death due to trauma of any kind)
Measles
Chicken Pox
Diphtheria
Whooping Cough
Tetanus
Fever
Tuberculosis
Chronic Lung Disease (not tuberculosis)
Liver Disease
Anemia
Skin Infection (includes infected rashes, boils and abscesses)
Sore Mouth
Prematurity, Birth Injury and Asphyxia of the Newborn
Congenital Anomaly
Acute Abdomen
Other
Unknown
“Primary Cause” is the immediate cause of death.

"Underlying or associated cause" is an important contributing cause of death which may or may not be related directly to the primary cause.

For example ____________________
1. A child has malnutrition for a year, fails to gain weight, develops severe diarrhea in the last week of life and dies:
   Primary cause - Acute Diarrhea
   Underlying cause - Malnutrition

2. A baby's mother has no breast milk after the 4th week and there is no available substitute. The baby loses weight steadily, becomes marasmic and dies. There is diarrhea in the last 3 weeks of life.
   Primary cause - Malnutrition
   Underlying cause - Chronic Diarrhea

If you cannot decide what caused death, list it as "unknown".

If you can make a diagnosis, but it is not on the list, call it "other" and write in your own diagnosis.