

WORLD HEALTH
ORGANIZATION



مَنْظَمَةُ الصِّحَّةِ الْعَالَمِيَّةِ

REGIONAL SCIENTIFIC WORKING GROUP
ON DIARRHOEAL DISEASES CONTROL

EM/6th.MTG.RSWG.DDR/4

Amman, 30 to 31 March 1985

PROGRESS REPORT ON THE REGIONAL
DIARRHOEAL DISEASES CONTROL PROGRAMME

INTRODUCTION

Acute diarrhoeal diseases still constitute an important cause of morbidity and mortality in some countries of the Region. Data from morbidity and mortality surveys in some countries have shown a regional average of five episodes of acute diarrhoea/child/year amounting to about 250 million episodes of diarrhoea per year and resulting in over one million death from acute diarrhoea in children under 5 years of age.

Before embarking on CDD activities that took place in EMR since your last meeting in the Regional Office in July 1984, it is worth mentioning here that the policy of EMR now is to achieve proper integration of CDD activities with other components of PHC. In this respect EMR has conducted joint planning, joint training and joint evaluation.

Collaboration with International organization especially with UNICEF is very actively pursued and encouraging results were obtained in promoting CDD activities. Planning missions, review teams and training courses are planned jointly or in close consultation with UNICEF. EMR participated in UNICEF Regional Meeting (MENA) in Amman in September 1984 and several areas of collaboration were outlined.

It is also EMR policy to expose CDD National Programme Managers to the experience of other programmes through their utilization in other country's reviews and training courses.

During the period under review, the Regional Programme activities, in the two major components of the programme, continued to develop rapidly towards achieving the targets set for the programme.

1 HEALTH SERVICES COMPONENT

EMRO's activities in this respect fall into the three main categories:

- planning of national CDD programmes
- training of nationals
- evaluating the progress of the programme.

An essential element of national programmes is the development of logistic system especially to assure adequate supplies of ORS. In addition to presently producing countries more member states are planning for a local production, such as Democratic Yemen, Iran, Jordan, Saudi Arabia and Sudan.

1.1 Planning

EMRO continued to collaborate with national health authorities with respect to national programme formulation and revision of ongoing national programmes. During the period under review, 5 national CDD programmes and plans of operation were drafted (Iran, Iraq, Saudi Arabia, Djibouti and U.A.E). This brought the number of countries of the Region having a well formulated national CDD control programme to 18 out of the 23 member states of the EMR. This represents about 90% of the population of the Region. Out of this number 14 countries are actually implementing their programme in full scale and the other four are implementing it on a limited scale and is expected to reach full scale in 1985 (Table 1).

The transition from planning to operation and the experience gained during the implementation of national CDD programme have shown that it is necessary to revise the plan of operation and rephrase it in line with achievements and constraints facing the national programmes. EMRO is collaborating with member states in this respect and revisions have been conducted in Democratic Yemen, Jordan and Sudan and further similar activities will be implemented as and when necessary.

TABLE 1
DEVELOPMENT OF NATIONAL CDD PROGRAMMES*

Year	Countries with National CDD programme	Countries implementing the plan of operation	countries with revised plan of operation
1980	1	-	-
1981	3	1	-
1982	7	3	-
1983	11	8	-
1984	18	14	3

* Total number of member states in the Region is 23.

1.2 Training

Managerial and technical training remains an important activity in the Regional programme. A number of managerial and technical training courses were conducted in the Region to develop the managerial or technical skills of the participants. The training material of the Supervisory skills training course has been translated into Arabic and Farsi and were used extensively during the period under review.

1.2.1 The third Senior Level Managers course was held in Manama, Bahrain in February 1985. Eleven countries of the Region were invited to that course. This is expected to increase the number of nationals who attended a senior level managers' course to 85 from 20 member states.

1.2.2 During the period under review, Supervisory Skills Training Courses were conducted in 4 countries of the Region, namely Syria, Egypt, Oman and Libya. The chance of conducting these courses was used to add EPI mid level modules. In addition, the chances of running national training courses for health workers is being utilized to add relevant CDD mid level training modules. In this respect few CDD modules in Farsi were included in EPI mid level courses in Iran. CDD modules were also introduced in a course for paramedical trainers to introduce CDD new technologies in the curricula of paramedicals in Iraq and two CDD modules were included in an environmental health course in Oman.

Table 2 presents the above in some details.

TABLE 2

USE OF SUPERVISORY SKILLS TRAINING MODULES

Date	P l a c e	Language	Number of Participants	Remarks
April 84	Damascus, Syria	Arabic	47	with EPI
May 84	Latacia, Syria	Arabic	45	with EPI
July 84	Alexandria, Egypt	Arabic	35	CDD only
Oct.84	Baghdad, Iraq	Arabic	35	paramedical curricula
Nov.84	Alexandria, Egypt	Arabic	29	CDD only
Nov.84	Muscat, Oman	English	32	with 2 modules of EPI
Nov.84	Tripoli, Libya	Arabic	39*	with EPI
Dec.84	Muscat, Oman	Arabic	N/A	with Env. Health
in 84	Teheran, Iran	Farsi	N/A	with EPI
Jan.85	Islamabad, Pakistan	English	N/A	with 2 modules of EPI

* including 8 from Democratic Yemen

1.2.3 In the field of training in clinical management EMRO continues to support the designated centres and collaborates with national authorities in

the development of three more centres, in Jordan, Democratic Yemen and Saudi Arabia bringing the total of clinical management training and demonstration centres to. In addition other national centres have been designated by some governments of the Region, namely, Egypt, Iran and Yemen Arab Republic to be training centres. The centres are offering regular formal courses where 1495 have been trained in 1984. In addition to the formal course, several hundreds of doctors and paramedicals have been trained on-the-job through the staff of the centres.

1.3 Evaluation

EMRO has collaborated in organizing and conducting a comprehensive review for the national CDD programme of two countries of the Region, namely Egypt and Pakistan. As well EMRO supported three morbidity and mortality surveys in Pakistan, Sudan and Oman.

1.3.1 A Joint Government/UNICEF/USAID/WHO Comprehensive Programme Review, was conducted in Egypt in May 1984 to review the status of the NCDDP to identify its achievements and problems and to make recommendations for the future development of the programme. The National CDD programme for Egypt has two phases, the first phase started in January 1983 and extended till June 1984. Phase two is expected to last till end of 1987. The review team found that all the activities of phase one were more than fully implemented.

The project succeeded in the following:

1. developing an effective organizational structure at central and governorate levels.
2. Establishing 11 rehydration training centres, up till the time of evaluation. These centres have trained over 500 physicians and 400 nurses on case management.
3. Egypt produces about 2 million of 27.5 gram packets and 17 million of 5.5 gram packets of ORS.
4. A System of Surveillance of morbidity and mortality is being developed and data are being regularly collected from areas where the project is functioning. A series of surveys were conducted and it was found that diarrhoea death rate in under 5 years old in areas where ORS is being used was 9.5/1000 compared to 16.9/1000 in a control area where the programme is not yet implemented.

The review identified some problems, the most important of which is the weakness in managerial skills and supervision for CDD at peripheral levels. WHO is collaborating in running mid-level management training courses.

1.3.2 Pakistan review

In 1982 the government of Pakistan introduced the Accelerated Health Programme (AHP) which included the following components: CDD, EPI and TBA training. Review of the Accelerated Health Programme (AHP) in Pakistan was conducted by a joint team from Government/WHO/UNICEF/USAID/CIDA, in November-December 1984. At the time of the review, the AHP was in its third and final year. The achievements in implementing the plan of operation for CDD were remarkable.

- 12 ORT training centres have been established. These centres have trained 1311 doctors and about 4500 paramedical staff on clinical management of diarrhoea.
- Over 15 million ORS packets have been produced or procured and distributed in the past two years.
- An intensive health education campaign has greatly increased public awareness of ORS. This is shown from the fact that more than half of the interviewed mothers have used ORS.

The main problems identified by the review team are as follows:

- CDD activities are primarily related to case management
- No full time staff for CDD management
- Many Health staff are still unfamiliar with the correct use of ORS
- Acute diarrhoeal drugs and antibiotics are freely available and used in the treatment of acute diarrhoea
- Presence of different sizes of ORS packets (250, 500 and 1000 ml packets)
- Presence of some ORS packets in a formula other than the WHO recommended one

The review team then outlined the steps to be taken to further promote the CDD activities.

2. OPERATIONAL RESEARCH

EMRO realizes the need to support the health services with operational research to enable the national programme managers implementing CDD activities in line with situation prevalent in their countries. Continuous correspondence with the principal investigators have taken place to monitor the progress of the on-going projects. The progress is satisfactory and implementation is according to schedule.

Status of projects financially supported by WHO

As you are aware in your last meeting you have recommended three research proposals to be financially supported by EMR. Administrative steps were taken in this respect and agreements signed with the principal investigator.

In addition one proposal was submitted from Democratic Yemen to the office since your meeting costing less than \$ 5 000. The approval of the chairman of the RSWG and the national programme managers of Democratic Yemen was sought before supporting it (Annex 1). This brings the total of projects supported by EMRO since the inception of the programme to 26 projects.

We have been following the ongoing financially supported researches and you may wish to note that four researches have been successfully completed since your last meeting (Annex 2). The progress report on the remaining on-going projects is summarized in Annex 3. Annex 4 presents the status of the research projects up to date.

I wish to inform you that the allocation for the operational research for 1984/1985 biennium is now \$ 419 000. Out of this amount about \$ 150 000 has already been committed in 1984 for the projects approved by you during your last meeting.

Activities with respect to research proposals:

During the period under review the office received the following research protocols and letters of intent to conduct research studies

1. Research proposals

Only four proposals were received during the period under review with the following titles:

1.1 "An epidemiological and aetiological study of viral gastro-enteritis in infants and children in Shiraz, Iran"

Although a purely aetiological study, the protocol was reviewed by two reviewers who had technical comments on the procedure and their comments were communicated to the principal investigator for further clarification and modification.

1.2 "A study the disorder of osmolality in diarrhoeal dehydration of infancy and childhood"

The proposal needed extensive modifications. It included a request for a visit to some research institutes. In view of the potentials of the principal investigator EMRO is offering the principal investigator a research training grant to visit or more research institutes. This will enable him modify his protocol or submit another one in line with the regional research priorities.

1.3 "Study of Post-measles diarrhoea - Effectiveness of ORS interventions in reducing mortality"

The protocol was reviewed and was found that the proposed study is more or less a study of the epidemiology of measles and of post measles diarrhoea was very marginal. The principal investigator was advised to reconsider the proposed protocol putting more emphasis on post measles diarrhoea.

1.4 "Epidemiology of bacterial enteric infections in Peshawar city and neighbouring villages"

This protocol was referred to us from CDD, WHO, Geneva. On reviewing the protocol, it was found out that it overlaps with the ongoing study supported by WHO in Pakistan "Multi-Centre hospital based control study of the aetiology of diarrhoea in the first three years of life" and also the study on "Knowledge, attitude and practices of health workers and mothers in relation to the use of ORS in diarrhoea case management". The principal investigator was informed accordingly.

2. Letter of intent

6 letters of intent were received to carry studies on:

2.1 "A study to assess the magnitude of diarrhoeal diseases morbidity and mortality and the habits and attitudes in the management of acute diarrhoea in Saudi Arabia"

WHO technical paper WHO/CDD/SER/84.6 and an application form for research grant was sent to the principal investigator.

2. " A study on chronic diarrhoea"

As steering committee on drug development and management of acute diarrhoea is developing this protocol, the principal investigator was advised tht a copy of the protocol will be sent to him as soon as it is made available to EMRO.

2.3 "The use of actual cautery in treating acute diarrhoea".

The principal investigators are aiming at extracting the active substance being released from the site of cautery or burn and investigate its anti-diarrhoeal effect. The topic is more of a basic nature and it might add a new knowledge for the treatment of acute diarrhoea. It was therefore referred to WHO, Geneva.

2.4 "Study of possible viral aetiological agents of infantile gastro-enteritis in Egypt"

This letter was sent to CDD, Geneva for possible funding. The principal investigator is at the moment benefiting from a research grant on the aetiology of diarrhoea supported by EMRO. He was therefore advised that this is a part of his on-going study.

2.5 "Relationship between measles and diarrhoea"

An application form was sent to the Principal investigator who was encouraged to submit a protocol.

2.6 "Research on E-coli ST toxin"

The proposed study is more of a basic research and was therefore forwarded to CDD, Geneva for consideration by the Global Scientific Working Group.

3. Preparation of research protocols

Upon RSWG recommendations EMRO arranged for the drafting of research protocols in priority areas for which no proposals have been received. Three protocols were drafted in socio-cultural aspects of diarrhoeal diseases. The protocols are as follows:

3.1 Self-help in diarrhoeal diseases

3.2 Beliefs and practices in diarrhoeal diseases

3.3 Behavioural determinants of the incidence of diarrhoea

The protocols were sent to some of the members of the RSWG and other potential researchers and the proposals will be reviewed by you for possible funding.

4. Morbidity and mortality surveys

One of the areas which need strengthening in the CDD programme at national, regional and global levels is the information system. Up till now routine information that can be used with confidence in planning and evaluation of national CDD programmes are practically non-existent. It is therefore essential to rely to some extent on surveys. National CDD morbidity and mortality surveys to assess the impact of the national CDD programmes on the reduction of morbidity and mortality from diarrhoeal diseases are felt to be the best approach. The CDD programme has developed the "Guidelines for a sample survey of diarrhoeal diseases morbidity, mortality and treatment rates" document WHO/CDD/SER/84.4. We would appreciate your views on assisting the conduct of national surveys and on how much should

be allocated for each survey.

The above are few approaches which were made to compensate for the difficulties in attracting research proposals which are closely linked with national CDD programmes. We hope that you look into this problem again and provide us with your views to promote submission of proposals in priority areas.

ANNEX 1

PROPOSAL RECOMMENDED BY THE CHAIRMAN OF RSWG
TO BE FINANCIALLY SUPPORTED BY EMRO

The possible role of crows in the spread of diarrhoeal diseases -
Democratic Yemen

Principal Investigator: Dr Sallam

Budget: \$ 3 512

Contract signed: September 1984

The number of crows in Aden exceeds quarter of a million. They nest not only in mountains but also on trees surrounding the inhabited quarters. They feed on city refuse and contaminate the food to a large extent. Due to the high incidence of diarrhoea in Aden, it is felt that there might be a possible role of crows in the spread of diarrhoeal diseases. The aim of the study was to reveal that possible role.

ANNEX II

SUMMARY OF THE COMPLETED RESEARCH PROJECTS DURING
THE PERIOD UNDER REVIEW

1. Evaluation of the impact of mass implementation of oral rehydration on diarrhoeal diseases of early childhood in the Gaza strip - Gaza

A three-year study was conducted to assess the impact of ORT in reducing diarrhoea related hospital admissions, mortality and malnutrition. Data obtained was compared to the pre-study year data, and was found that diarrhoea - related hospital admissions were reduced by 35.3% in 1980 and 42% in 1981. Hospital death from diarrhoeal diseases were reduced by 34.4 and 37.4 in 1980 and 1981 respectively. Total death in the 0-3 years age groups were reduced by 28.7% in 1980 and by 41.7% in 1981. Diarrhoeal mortality was reduced by 35.6% in 1980 and 53.2% in 1981.

2. Nation-wide study on morbidity and mortality of diarrhoeal diseases with current weaning and feeding practices during diarrhoea in Pakistan - Pakistan

The aim of the study was to provide information on morbidity and mortality rates of diarrhoea, changes in normal feeding practices during diarrhoea and determining the weaning and feeding practices of infants.

The investigator found out that the infant mortality rate is 123 per thousand live births with insignificant interprovincial and urban/rural variations, the child mortality (0-5) is 55 per thousand children of the corresponding child population. 51% of the children suffer from diarrhoea in summer and 30% had diarrhoea in the winter. It is more urban than rural in the large provinces while it is more rural than urban in the small provinces. 98% of the children with diarrhoea are given some kind of treatment. From them 34% are treated with home remedies in the form of soup, tea, rice water and fruit juices. 37% of the children with diarrhoea are treated with ORS, its use is more in urban than rural areas. Very few cases were treated with I.V. About the 1/4 of children suffering from diarrhoea receive medical treatment. This proportion is more in rural than urban areas. The mortality rate from diarrhoea is 19.7 and is higher in urban than rural areas. The death ratio of diarrhoeal diseases is 0.34.

95% of the mothers are breast feeding their babies, out of them 61.5% continue breast feeding up to 18 months. 63% of the children were given supplementary food at age of 5-6 months, increasing to 80% at the age of 7-9 months. 37% of the mothers increase fluids during diarrhoea and 29% feed their children normally during diarrhoea episodes.

3. Study of factors for optimizing ORS delivery system in Attock district - Pakistan (Pilot study)

The objective of the study is to determine for the target population (the diarrhoea susceptibles) the period of maximum incidence, inventory requirements of ORS, delivery system, communication and KAP study.

By using the distribution of the 729 diarrhoea cases by age group and months of the year, 12 poisson modules corresponding to the 12 months of the year under consideration were developed. From the values of frequencies of poisson distribution for each month, the estimates of cases belonging to each age group were developed. The overall estimate for 1982 amounts to 1995 diarrhoea cases. Results showed that the target population are children less than 3 years and the peak period is May to August. Using the overall figures for the diarrhoea cases, estimates of the incidence of diarrhoea during the 6th plan period (1984-1990) in Attock district were developed, assuming that the distribution by age group and month of the year is likely to be stable and have the same pattern during the sixth plan period. On the basis of this model, the unit requirements for a population unit of 10 000 is estimated at 520 of 1/2 litre packets for one year. At a present price of around 0.85 Rs per packet of 1/2 litre size, there is no constraint on off-take. The principal investigator therefore recommended that the estimated needed quantity should not be supplied in a single operation about 60% of the stock should be made available with the outlets being the public and private sector.

The operational characteristics of the public and private outlets differ quite radically, while the public outlets have almost infinite capacity to stock the product and a very poor capacity for sale promotion, the private outlets on the other hand have the capacity for sale promotion but limited capacity for stock piling. The public sector delivery system needs to be simplified. It was found necessary to improve professional communication.

4. ORS formulation based on currently used home remedies - Lebanon

The objective of the study was to identify the most popular and appropriate home made remedies, traditionally used in Lebanon for the treatment of diarrhoea and to select a preparation that proves to be the most appropriate and effective.

The investigator found out that the most popular home remedy is the rice water with 1/2 - 1 teaspoonful of sugar, tea with sugar, plain or salted

yoghourt and lemonade. The physicians sometimes prescribe carrot and apple powder solutions. Milk feeding, breast or bottle, is withhold completely in 61% of cases and replaced by solid food as mashed potato and rice. The investigator recommends the promotion of ORS as an adjunct to these traditional solutions and not as a replacement.

ANNEX III

STATUS OF ON-GOING PROJECTS

1. Study of aetiologies of diarrhoeal diseases in an urban and rural setting Lebanon.

After beginning the study, the situation in Lebanon did not permit its completion.

2. Multi-centre hospital based control study of the aetiology of diarrhoea in the first three years of life - Pakistan

Peshawar centre had some problems with the specimen collection and the principal investigator is trying to solve it. Field work started in May 1983 sampling and laboratory work were done according to WHO manuals and procedures. The results obtained so far show differences between and within the various provinces. However, in all, rota virus was identified as a main cause of diarrhoea. The important bacterial pathogens among cases were EPEC, ETEC, and to a much lesser extent shigella and salmonella. EPEC and ETEC and also Salmonella and shigella were typed. In the controls Giardia Lamblia was identified. Rota virus was identified in one case. No salmonella or shigella were diagnosed, but EPEC were recovered from 14% of the samples.

3. Multicentre study of aetiology of diarrhoea in the first three years of life - Egypt

The beginning of this study has been delayed till April 84 due to delay in the delivery of the materials and supplies. 4 centres have been identified, a total of 427 cases and controls have been examined up till now. The final results will be drawn as soon as they examine the proposed sample size by end of April 85.

4. Domiciliary approach to diarrhoeal diseases prevention & control - Egypt

This project is progressing well. The planning phase has been completed last year. It involved training personnel for the preliminary census and for conducting the house surveys and manual sorting of 25% of data obtained from the survey. Then a KAP study was conducted to get more information on specific problems related to diarrhoea and to enable the investigator to design the domiciliary programme. It enabled as well the research team to select women who have the potential abilities to be leaders to involve them in the implementation phase. A 25% sample was drawn and was manually sorted and

the data obtained was used for the planning of the third part of the programme which is the implementation of the domiciliary programme. For the domiciliary programme, various educational units have been designed for trainers of mothers for self care in diarrhoeal diseases problems. For each unit, the objective, content, strategy and evaluation have been designed. Trainers have also attended a one-week course at the Regional Rehydration Centre at El Shatby Hospital. Monitoring the performance of trainers was continuously carried out by observational check list, discussions with the trainers and interviewing mothers in their homes. Field implementation has already started and will last till July 1984 and then data will be analyzed and evaluated. Final report is expected mid 1985.

5. Behaviour of mothers in episodes of diarrhoea in children under five, trends in clinical management - Jordan

The sample size (1000 households) has been drawn in a manner to represent the total population. The study questionnaire has been finalized and printed in Arabic. Four field workers have been trained and began their work. Steps were taken to complete the field work of the second part of the study which involves the doctors' behaviour.

6. Impact of safe water supply and sanitation on diarrhoeal diseases prevention in the Gezira scheme of Central Sudan - Sudan

The questionnaire for the KAP study was carried out in the five villages. A baseline survey on diarrhoeal diseases morbidity and mortality was made and female health workers were trained to follow up the initial survey and monitor the incidence of diarrhoeal diseases. The national administration for water agreed to provide the wells and handpumps for three villages from the five under study. Latrine production began at the project facility and an adequate number of the concrete slabs are now available. Drilling of wells have been completed. Ten pit latrines have been and the slabs were fixed. The follow up survey is being conducted by female observers. The bi-weekly questionnaire is being filled up regularly. It was found out that the prevalence of diarrhoeal diseases in the 5 villages under study was 32.5%, mortality and fatality rates are 32 per thousand and 9.8% respectively.

7. National diarrhoeal diseases survey - Sudan

After the sample size and the areas to be studied were determined in collaboration with the department of statistics, approval of the health authorities of the regions was obtained and field work already started. Data collected are being processed and final report is expected this year.

8. Multi-centre hospital and health centre based control study of aetiology of diarrhoea in the first five years of life - Bahrain

The study started in February 1984. All the cases of diarrhoea admitted to Salmaniya Medical Centre were included in the study provided they satisfy the criteria set for selection. Up till August 1984, 171 cases were included in the study. The investigator is finding some difficulties in the selection of controls and only 75 controls were so far included. The investigator contacted the office to solve some technical problems.

9. Knowledge, attitudes and practices of health workers and mothers in relation to the use of ORS in diarrhoea case management - Pakistan

30 urban and 30 rural clusters were identified and 900 households were selected randomly for these clusters. A sociologist and a lady health visitor were trained on the pre-tested questionnaire and in turn they trained all the interviewers. All households have been interviewed. The principal investigator is in the process of implementing the survey for medical and paramedical staff. Data obtained so far for the interviewed mothers indicate that majority of mothers have either seen or heard about ORS and more than 70% have used it. Doctors do prescribe ORS in combination with antibiotics and anti-diarrhoeal drugs. Traditional methods of treatment are also used to some extent such as green tea, eggs with water, Khaki powder and soup of phakki.

10. Role of feeding and weaning practices in management of infantile diarrhoea Pakistan

Progress will be reported in the forthcoming meeting as there was a delay in implementing the study.

11. Sanitation and diarrhoeal diseases - Egypt

12 The currently used home remedies and management of diarrhoea in early childhood .- Egypt

13. Promotion of ORS using school teachers and children in Khartoum, Province, Sudan

For the last three protocols, no enough time has been elapsed since signature of agreements, to report on the progress of their work.

ANNEX V

STATUS OF PROJECTS UP TO DATE (MARCH 1985)

T I T L E	Country	Budget in US\$	Date Recommended	Date Completed	On going
1.Comparison of pre-packed sucrose salt rehydration mixture with the pre-packed oralyte	Egypt	10 000	1980	1982	
2.The role of rota-virus & bacterial pathogens in the aetiology of infantile diarrhoea	Egypt	10 000	1980	1983	
3.Evaluation of the impact of mass implementation of ORT in diarrhoeal diseases	Ghaza	6 000	1980	1984	
4.The effect of anti-biotics on the duration of diarrhoea and the speed of rehydration	Egypt	10 000	1981	1983	
5.Assessment of the effect of feeding practices on diarrhoea in children	Egypt	7 500	1981	1983	
6.A pilot study on diarrhoeal diseases morbidity & mortality	Dem.Yemen	2 620	1982	1982	
7.Follow up of children who participated in the controlled field trial of the Ty21a vaccine	Egypt	5 000	1982	1983	
8.The role of rota-virus in the aetiology of gastro-enteritis in young children	Lebanon	11 500	1980		In abeyance
9.ORS formulations based on currently base home remedies	Lebanon	8 600	1981	1984	

T I T L E	Country	Budget in US\$	Date Recommended	Date Completed	On going
10.A nation wide morbidity and mortality surveys on current weaning & feeding practices during diarrhoea	Pakistan	25 000	1982	1984	
11.Study on 2 Egyptian Governorates of the incidence of mortality rates of diarrhoea associated illness	Egypt	27 000	1982	1984	
12.A national multi-centre hospital based control study of the aetiology of diarrhoea in the first 3 years of life*	Pakistan	25 000	1982		X'
13.A multi centre study of the aetiology of diarrhoea in the first 3 years of life	Egypt	25 000	1982		X
14.Dommciliary approach to diarrhoea cases prevention & control	Egypt	14 000	1982		X
15.Behaviours of mothers & medical practitioners in episodes of diarrhoea in children under five years	Jordan	34 000	1983		X
16.Impact of safe water supply and sanitation on diarrhoea case prevention in the Gezira irrigated scheme	Sudan	28 500	1983		X
17.National diarrhoeal diseases survey	Sudan	25 000	1983		X
18.Promotion of ORT using school teachers & children in the Khartoum province (1st phase)	Sudan	5 000	1983	1983	

T I T L E	Country	Budget in US\$	Date Recommended	Date Completed	On going
19.Study of the factors optimizing ORS delivery system (Pilot Study)	Pakistan	5 000	1983	1984	
20.Knowledge,attitude and practices of health workers and mothers in relation to the use of ORS in diarrhoea case management	Pakistan	9 000	1983		X
21.Role of feeding and weaning practices in management of infantile diarrhoea	Pakistan	17 800	1983		X
22.Study of the aetiology of diarrhoea in the first 5 years of life in a multi centre hospital and health centre based control study.	Bahrain	27 532	1983		X
23.The currently used home remedies and management of diarrhoea in early childhood	Egypt	10 000	1984		X
24.Sanitation and diarrhoeal diseases	Egypt	15 000	1984		X
25.Promotion of ORT using school teachers & children in Khartoum province (2nd phase)	Sudan	25 000	1984		X
26.The possible role of crows in the spread of diarrhoeal diseases	Dem.Yemen	3 512	1984		X

* Co-funded with Global Scientific Working Group.