ORAL REHYDRATION THERAPY IN NIGERIA

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REPORT SUMMARY

I. SUMMARY DESCRIPTION OF THE SCOPE OF WORK (including changes made to initial SOW)

The consultant will (1) monitor ORT programs in Borno, Gongola, and Sokoto states, (2) assist UNICEF/Nigeria and Federal Ministry of Health staff with planning and preparation of materials for the national ORT planning workshop, (3) assist UNICEF/Nigeria and the Federal Ministry of Health with development of budget estimates for Nigeria's ORT promotion campaign, and (4) collaborate with ORT zonal coordinators and WHO consultants in developing an appropriate design for supervision, monitoring, and evaluation of the developing ORT programs.

II. PURPOSE OF THE PROJECT

Assist AID/Lagos and UNICEF/Nigeria in ORT efforts with Child Survival Programs.

III. METHODOLOGY

(1) Visits to ORT units in Maiduguri (1), Yola (1), Sokoto (2), and Lagos (1), with testing of various forms of data-gathering instruments for monitoring visits.

(2) Collaborating with UNICEF and Federal Ministry of Health staff, worked on background material for discussions to be held during the national planning workshop on ORT, especially in the areas of organization, management, and budgeting.

(3) At the request of the Director of Planning, Federal Ministry of Health, and UNICEF staff, expanded budget projections developed initially for guidance of state health personnel to cover all sectors for the entire national campaign (a three-year period).

(4) Discussed findings in existing programs and needs, purposes, and methodology for on-going supervision, monitoring, and evaluation with ORT zonal coordinators, Federal Ministry of Health and UNICEF staff working on ORT promotion, WHO consultants to the ORT promotion effort, and UNICEF consultants working on monitoring and evaluation of the EPI and water and sanitation projects.

IV. SUMMARY OF OBSERVATIONS AND FINDINGS

(1) An ORT methodology specifically adapted for Nigeria has been developed which is scientifically sound, is appropriate and applicable throughout the Nigerian health care system, has the enthusiastic support of leading pediatricians, and has shown its ability to win rapid and enthusiastic support by pediatric nurses in every state of the Federation.

(2) There is almost a tendency for employment of this method to become a self-propagating popular movement within the health care system. This leads inevitably to some inaccuracy and inadequacy in the way the method is being applied in existing facilities, as use of the method is outstripping present capabilities for supervision and in-service training of health staff. Staff in most of the new ORT units need further training, especially in the areas of clinical assessment of dehydration and appropriate monitoring of patients during rehydration.

However, even where the needs for improvement in application of the method are greatest, its use is probably resulting in better overall care of children with diarrhea.

(3) Primary responsibility for funding and administration of health care programs in Nigeria lies with the state governments. Oral rehydration therapy is attractive to state health administrators, because of its proven potential for producing better care at much lower cost. However, many states lack staff with the needed skills in public health program planning and program-based budgeting to develop effective ORT implementation programs at state level.

(4) So far, no specific plans have been made for impact evaluation of the ORT promotion campaign in Nigeria.

V. MAIN CONCLUSIONS

(1) There is potential for very rapid implementation of oral rehydration therapy in Nigeria, with the possibility of nationwide coverage within three years.

(2) There is urgent need for a supervision and monitoring methodology appropriate to this unique situation.

(3) There is immediate need for appropriate assistance to state health care administrations in program design and budgeting for ORT at the state level.

(4) There is urgent need for collection of baseline data for impact evaluation.

VI. PRIMARY RECOMMENDATIONS

(1) The continued very rapid expansion in the use of oral rehydration therapy in Nigerian health care facilities should be actively encouraged and promoted.

(2) Appropriate assistance with planning and budgeting for ORT promotion at the state level should be made available to state health care administrators as rapidly as possible, in order to secure appropriate state-level support of the program.

(3) National level staff for monitoring and supervision of ORT activities should be expanded under the leadership of the present zonal coordinators, and state level cadres of monitoring/supervisory staff should be trained for each state.

(4) Linked monitoring/supervision and in-service training modules should be used to make every supervisory visit a specific step toward improvement of ORT services.

(5) Process evaluation should be closely linked to program implementation, for immediate feed-back to guide planning and administration of program activities.

(6) Joint evaluation research should be planned for impact assessment of the EPI, water and sanitation, and ORT programs in Nigeria, with initial data collection to begin as soon as possible.

(7) Federal/international assistance should be directed primarily to support of training activities, development and production of training materials, consultation on program design for state health administrations, supervision and monitoring, and evaluation research.

(8) No separate structures for ORT promotion in Nigeria should be maintained for more than three years: after two years of an intensive ORT promotion campaign at all levels, integration of both the health services and the public education aspects of the program should be completely incorporated into the routine operation of the health services by the end of the third year.

ORAL REHYDRATION THERAPY IN NIGERIA

I. THE BASIC DESIGN

Oral rehydration therapy has been in use in Nigeria by concerned and well-informed pediatricians and primary care professionals for many years. However, employment and teaching of the method has been very patchy and irregular over the country as a whole. Wider use and teaching of the method has not only been hampered by lack of acceptance by older professionals, clinging to less appropriate but more familiar methods of primary treatment. It has also been hampered by the lack of agreement among enthusiastic advocates for the method as to what constitutes an appropriate solution for oral rehydration therapy of Nigerian children. There was a fairly ready consensus among experienced practitioners that pre-packaged oral rehydration salts should be confined to health care facilities, and that mothers should be taught home use of a sugar-salt solution, since this is the only kind of solution for which the materials could be expected to be constantly available in the rural areas. However, discussions of how to promote the use of ORT tended to break down into unresolved squabbles over what the best formula for a home-based solution was.

In January of 1985, UNICEF/Nigeria sponsored a meeting of leading pediatricians from three Nigerian medical colleges (Lagos, Ibadan, Enugu) for the express purpose of trying to agree on an appropriate home-based formula based on uniform measures that would be applicable throughout Nigeria. The outcome of this meeting was the adoption of a formula using, as measuring devices, a 3-ml plastic teaspoon found in markets throughout the country, and a beer bottle or mineral bottle, also widely available,even in rural areas. (See Appendix A.) The report of that working group was able to win the support and thus unify the efforts of interested professionals. A multiplicity of competing methods and fragmentation of efforts have been superceded by a strong consensus in support of a sound and practical design appropriate for use throughout Nigeria. This design incorporates the following important features:

(1) Use of pre-packaged ORS, using the WHO citrate (rather than bicarbonate) formula for oral rehydration therapy of children in health care facilities.

(2) Home use of oral rehydration with a somewhat less concentrated solution of sugar and salt, which are available throughout the country.

(3) By explanation and demonstration, teaching this simple, standardized method for early, active home treatment of diarrhea to all the mothers (or other care-givers) bringing children to the health care facilities for treatment of diarrhea.

(4) Reservation of intravenous rehydration for severely dehydrated children.

(5) No use of anti-diarrheal medications, and no medications at all for children with diarrhea except as prescribed for specific disease indications.

This sound and practical basic design deserves the most energetic and concentrated effort possible to implement its application throughout the country at every level of health care delivery, from the university teaching hospitals down to, and especially including, the homes in rural villages.

II. IMPLEMENTATION STATUS

Three leading pediatricians, from the university teaching hospitals in Lagos, Enugu, and Zaria, have been recruited to serve as zonal consultants , providing strong leadership for Nigeria's ORT promotion campaign. Under their guidance, with assistance from UNICEF/Nigeria and the Federal Ministry of Health, zonal demonstration units for ORT have been established in Lagos, Enugu, Yola, and Sokoto. These units have been set up as specialized outpatient units for oral rehydration therapy of children with acute diarrhea. Children are not admitted as inpatients in these units, and no parenteral fluids are administered in them. Cases requiring hospitalization or parenteral fluid treatment are admitted to inpatient wards. Initial set-up of these units has been based on a relatively brief and simplified period of training for the designated staff by the zonal consultants .

Presentations by the zonal consultants have won enthusiastic support of the method by nursing staff and health care administrators everywhere, and by most of the physicians to whom the method has been presented. Promotion of the method is being supported and actively advocated by both the Pediatrics Association of Nigeria and the National Association of Nigerian Nurses and Midwives. Pediatric nurses from every state have attended a one-day workshop in a zonal center to learn the basics of ORT unit operation, and at least one unit has been started in each state. These new outpatient oral rehydration programs have greatly reduced the need for IV fluids and the frequency of hospitalization for pediatric diarrheas in the hospitals with which they are associated. Health professionals associated with the new ORT units have become crusaders for the method, and additional units have sprung up in many places without further stimulus or guidance from the national level. Enthusiasm for the method and eagerness for its immediate implementation have far outstripped the existing capacity for organization, training, monitoring, and supervision of the new services.

This situation is as full of problems as it is of promise, and has led some professionals to question whether the mushrooming expansion of use of the method ought not to be restrained in some way. However, even the poorest of the new ORT programs probably represents an improvement over previous standards of care for diarrhea in children. And the pre-

sent impetus for rapid widespread adoption of the method is an asset which the ORT promotion effort can ill afford to lose. In fact, encouragement of this trend, combined with a strong effort to meet the challenges it raises, could be the key to success in the enormous tasks ahead: the task of converting Nigeria's entire health care system to the use of appropriate oral fluids as the primary treatment of choice for acute diarrheas, and the task of establishing early use of appropriate oral fluids at home as the accepted first response to diarrhea.

III. PROBLEMS TO BE ADDRESSED

A number of problems have been identified which are in urgent need of attention. These include problems in the areas of quality of clinical care, training of health professionals, public education, development of teaching materials, monitoring and supervision, organization, management, and budgeting, and evaluation.

A. QUALITY OF CLINICAL CARE

Clinical assessment of the severity of dehydration can be a problem even for experienced doctors and nurses, especially in places where signs of dehydration may be masked by kwashiorkor or mimicked by marasmus. So it is not surprising to find that this is an area in which the staff of existing ORT units tends to be weak. An estimate of the severity of dehydration is not always recorded, and an estimate of the volume of rehydration fluid needed even less frequently so. Times of admission to the ORT units are not generally being recorded, and volumes of ORS given tend to be recorded erratically. Thus, it would be difficult to determine whether a child is making satisfactory progress in rehydration on the basis of his present condition and any existing records. Monitoring of clinical progress is generally not being done in any systematic way. This constitutes less of a problem where staff are highly skilled and conscientious, because they will watch the sickest children closely and have a reasonably good sense of whether progress is satisfactory. However, lack of systematic monitoring of patient condition and lack of clear criteria for discharge certainly contribute to the present situation, where some children are held in the ORT units far longer than they need to be, and others are discharged while still significantly dehydrated.

The physical signs of dehydration cannot be distinguished until a child is already significantly dehydrated, and are likely to be confounded by nutritional status in Nigerian children. The one easily distinguishable sign of complete hydration, i.e. adequate urine output, is not being used routinely in clinical assessments on the ORT units. Use of frequent urination as an indicator of full hydration would give an end-point to aim for which provides a much greater margin of safety for the child with diarrhea than just the disappearance of physical signs of dehydration. Furthermore, it could be taught to mothers as the best sign of safety for the child with diarrhea, with the reasonable

expectation that they would be able to use it effectively at home. This can scarcely be said of teaching them to detect early clinical signs of dehydration.

No standard format for clinical record-keeping has yet been adopted. A reasonably complete individual record form proposed by Dr. T. Okeahialem has been in use in some of the new units. (See Appendix B.) Others have tried to eliminate the need for individual patient record forms by recording the essential information on each patient in tabular form in a patient register. Nurses that have used the individual record form tend to feel that it contributes to the quality of care by helping them to keep better track of patients' condition. However, if a satisfactory register format could be devised, it could eliminate dependence of adequate clinical care on separate forms for patient records. With the high cost of paper products and printing in Nigeria, this could be an important factor in making proper use of the method more consistently accessible in primary care facilities with meager resources. Even if it is decided to recommend the use of individual patient record forms as an aid toward maintaining high standards of care, it would be wise to provide an approved register format for patient records to be used in case of delay or failure of the supply of individual record forms.

The scheme of administration of ORS which is being recommended for treatment of dehydration calls for administration of the estimated volume required within the first 4-6 hours, together with continued breast-feeding in breast-fed babies. In children who are no longer breast-fed, it is recommended that 100-200 ml of plain water be given after the initial volume of ORS, before continuing with further administration of ORS. (See Appendix C, p. 14.) While staff of most units do encourage continued breast feeding, they are not giving the extra free water recommended for children who are not being breast-fed. Although the risks of hypernatremia or over-hydration are admittedly small, the addition of free water to the ORS regimen as recommended would probably represent a better standard of clinical care.

The routing of children with acute diarrheas to an ORT unit with a minimum of delay is most important if its potential for reducing morbidity and mortality is to be realized. In many places this will mean that children brought into the unit have not yet been adequately screened for disease problems requiring specific therapy in addition to rehydration. In some of the existing units, all children are seen by a physician before discharge. In others, diagnosis and treatment of such problems depends on referral by the ORT unit staff. As use of the method expands beyond the teaching centers, it will become increasingly important to train all health staff who will be carrying out oral rehydration therapy how to screen effectively for patients who may need other specific treatment. Use of a standard checklist as a guide for such screening might be helpful.

The primary long-term effect to be hoped for from visits to an ORT unit by children with acute diarrhea is that their mothers will begin to give early appropriate treatment for diarrhea at home, using methods learned in the ORT unit. Most of the existing units are doing a

reasonably good job of teaching preparation of the recommended sugar--salt solution by explanation and demonstration, often having the mothers participate in actual preparation of the solutions. A technical problem which arises in these demonstrations is that the granulated sugar gets damp and sticky during wet weather and becomes very difficult to measure properly. It will be important to teach all staff trained to teach this method to keep sugar supplies in small batches, sealed in plastic bags or airtight jars to keep out moisture.

Proper preparation of an appropriate hydration solution is the most important element in good home management of diarrhea, and that is being taught fairly well. However, there are important questions about care of the child with diarrhea which are not being addressed effectively in the teaching done in the ORT units: How much fluid should be given, and for how long should it be continued? How will the mother know when a child with diarrhea needs to brought to a health care facility? What if the child is vomiting? How should the child with diarrhea be fed?

If there are problems teaching health professionals to judge disappearance of the clinical signs of dehydration, teaching village mothers to do it will be even more difficult. An acceptable alternative guideline for the amount of fluid to give, which can be easily taught and more reliably applied by mothers at home, is that the child should be given enough fluid to make him pass urine every 3-4 hours during the day for as long as he has diarrhea. Mothers can be taught that alertness and frequent urination are signs of safety for the child with diarrhea, while excessive drowsiness or weakness, infrequent urination, faintain, confusion, or convulsions are danger signs that mean the child should be brought to a health care facility immediately. They should also know that the child whose diarrhea is accompanied by rash, fever, blood or much mucus in the stool, or whose diarrhea lasts longer than five days, needs to be brought to a health care facility to be examined.

Because of the tendency to withhold all foods and fluids after a child vomits, every teaching session needs to point out specifically that giving of fluid should be resumed after only a few minutes wait after vomiting. The need to continue feeding the child with diarrhea is being mentioned in the teaching of mothers, but could perhaps receive more emphasis and be reinforced by the suggestion that the child with diarrhea should be given soft, bland foods (such as pap, milk, porridge, bread, biscuits, ripe bananas, or pounded yam) every 2-3 hours, and should be encouraged to eat all kinds of foods as soon as he has the appetite for them.

The primary immediate effect to be hoped for from the use of oral rehydration therapy in health care facilities is better care and lower mortality in children with diarrhea. Since virtually all diarrhea deaths are due to dehydration, a careful look should be taken at what is happening to the more severly dehydrated children who are brought for care. In most of the existing ORT units, only relatively mild cases of dehydration are treated in the unit. More severe cases tend to be admitted for inpatient treatment with IV fluids. Many professionals still look at ORT as inadequate treatment for moderately severe dehydration.

In October, 1985, in Massey Street Children's Hospital in Lagos, where the first of the new ORT units was established, active administration of ORS and teaching of mothers was going on in the outpatient ORT unit for children with diarrhea but no dehydration, or with mild dehydration. Upstairs in the ward, an extremely dehydrated child was found lying motionless on a cot, still able to focus his eyes on passers-by, but growing weaker by the minute. He was attended only by his mother, who leaned her head against the cot with a look of despair, waiting for womeone to come and start the IV fluid that hung ready at the head of the cot. The ward staff appeared to feel that everything possible had been done until someone came to start the IV. The one child at the hospital in most critical need of the ORS wasn't getting any. The child appeared to be still alert enough to take oral fluids, and there were plenty of ORS, cups, and spoons just down one flight of stairs. With a cup of ORS, a spoon, and a little guidance, that mother could almost certainly have kept the child from becoming moribund while waiting for IV fluids. He would obviously have been much better off downstairs in the ORT unit, and it looked very much like the decision to admit him might turn out to be his death sentence.

This kind of tragedy continues to occur for no better reason than that ORT has been tagged as an outpatient procedure, and inpatient ward staff have not been trained for it or instructed to use it. It is most urgent to correct this situation. Wherever it exists, we are selecting the children most likely to die of dehydration and denying them the most immediately available effective treatment for it.

The staff of every pediatric ward should be trained to give ORT and should have ready access to the necessary materials. Every child admitted for IV fluid therapy who can still swallow should be given ORT continuously while waiting for his drip to be started. In order to stop the needless waste of children's lives in our health care failities, we need to campaign vigorously for appropriate use of ORT in inpatient wards as well as outpatient units.

B. TRAINING OF HEALTH PROFESSIONALS

Even though physicians will not normally be administering ORT in person, it is of the highest importance that they be trained in its proper use. In the clinical setting, they are the arbiters of therapeutic standards. They establish standing orders, and when choice of therapy is in doubt, they are called on to make the decisions. In general, physicians tend to be therapeutically conservative, relying on traditional methods of treatment until both the weight of the evidence and the published opinions of recognized experts are overwhelmingly in favor of newer, improved methods. It can certainly be said that these criteria have been met for the use of ORT as the primary treatment for diarrheal disease in children. However, physicians in Nigeria tend to have such heavy work loads and such limited access to recent medical literature that many of them have not yet been effectively exposed to that information. The establishment of demonstration units to show the effectiveness of the method and presentations by leading pediatricians

from Nigerian medical colleges have been able to win the support of younger physicians and better-informed physicians. Those most likely to remain unconvinced seem to be older physicians trained outside Nigeria who have not had any refresher courses or advanced training in several years. These same physicians are often in very senior positions, and have considerable influence over public expectations regarding treatment as well as over standards of practice in the local clinical facilities.

The full cooperation and support of the entire medical community is needed. Therefore, every effort should be made to deliver the most convincing, highly professional, well-documented presentation possible to every physician in the country. The presentations should always be made by senior physicians and, insofar as possible, should involve pediatricians from the university teaching hospitals. Because the physicians most in need of the training are probably the least likely to attend regional seminars on ORT, a physicians' seminar needs to be held in every hospital that offers primary care for children. These should not be combined with seminars for nursing staff, because a physician is much more likely to accept a challenge to his opinion in the context of professional debate in a meeting with other physicians. If challenged in front of his nursing staff, he is likely to be resentful, to feel his authority is being undermined, and to be far less receptive to new ideas.

The presentation for physicians needs to include the most clear, concise, and convincing published research data, and statements by the most widely recognized experts on the treatment of diarrheal diseases. Since access to current medical literature is very limited in most of Nigeria, actual copies of key publications need to be provided. Publications chosen need to include prestigious, internationally recognized professional journals. Authors chosen should include older leaders in the field whose names are more likely to be recognized by older professionals. The annotated bibliography on oral rehydration therapy published by PAHO in 1983 (PAHO Scientific Publication No. 445) is an excellent resource. Copies have been provided for the zonal coordinators, and for UNICEF and Federal Ministry of Health staff connected with the ORT promotion effort. It would be very desirable to provide a copy of this reference to every physician in Nigeria who treats or supervises treatment of sick children. Twelve articles from the recent medical literature are suggested as examples of materials appropriate for use in presenting the method to physicians. (See Appendix D.) A copy of each of these has been left with UNICEF's ORT Promotion Officer.

The UNICEF/FMOH ORT promotion team has developed a one-day workshop format for "basic training" in the use ORT and the teaching of mothers. This is proving a very workable means of getting started and spreading the method rapidly. However, there is general agreement that this is not adequate training for the staff who will be administering ORT, and an appropriate design for systematic upgrading and further training is urgently needed.

The most practical approach would seem to be combining monitoring and supervision of ORT activities with continued training of the staff in some patterned way. Training modules need to be developed which will

divide all the needed further training into units appropriate for use in a one-day supervisory visit. Training modules could be linked to monitoring and supervision in the same areas of concern. For example, one training/supervisory visit might make observations on the quality of patient caree, followed by a training module on quality of care. Another might monitor record-keeping and accountability, followed by a training module on record-keeping and accountability. In this way, specific problems identified during the monitoring could receive appropriate emphasis in the training session. This design would also permit modifications recommended on the basis of experience to date to be introduced in a systematic way.

As individual ORT units are found to be carrying out essential functions satisfactorily, they can be designated as training centers where other staff can receive "basic training" in the method. All staff involved in the care of acute illnesses in children could then be offered in-service training rotations through the ORT unit to get "hands-on" experience in application of the method. Staff of health facilities in the area which are not yet using ORT could be posted for short assignments to such a training center preparatory to starting ORT services in their own facilities.

To carry out the needed upgrading and on-going training for the rapidly expanding number of ORT facilities implies a large, well--organized and well-trained body of supervisors and trainers. Each state will need its own cadre of supervisory and training staff for ORT. At the central level, a plan for training the trainers is needed.

C. PUBLIC EDUCATION

Converting the health care system to the use of ORT for primary treatment of diarrheal disease is the necessary first step in changing public understanding and attitudes toward treatment of diarrhea. The UNICEF/Nigeria and FMOH (Federal Ministry of Health) staff are promoting plans for early extension into the wider community through intensive community mobilization campaigns in every LGA (Local Government Area). Health education units at the state level have been growing and upgrading their functions, and can play a major role in putting the ORT message before the public. Another major resource for spreading usable information about ORT for home use is the school system. If a state's Ministry of Education were committed to implementation of a joint program with its Ministry of Health, every primary and secondary classroom in the state could have instruction in the proper home management of acute diarrheas, with demonstration of the proper preparation of the recommended sugar-salt solution. All home economics and health science teachers, and as many other school-teachers as possible, should be trained to teach the method.

D. DEVELOPMENT OF TEACHING MATERIALS

A manual for health workers has been developed which presents the recommended methods for management of diarrhea in children, and will be

an appropriate basic training material and guide to clinical care for professional health workers. (See Appendix C.) A good set of posters designed to carry the basic ORT message is also in use, and is in the process of being revised and improved. These are primarily for use in the teaching of mothers in health facilities, and it has been noted that the verbal message delivered with them is not always accurate or appropriate. Provision of a brief written message to be read in conjunction with each poster could make presentations easier and more accurate for less experienced health workers. These could also be translated into various local languages for more effective presentations, especially in rural areas where fewer of the women will speak English. Using the basic poster set in a flip-chart format for teaching situations where it is not appropriate to post all the posters separately has been suggested, as has using a set of cards or a mini-flip chart format for small-group or individual teaching.

A whole series of teaching modules for continuing education of ORT unit staff needs to be developed, preferably in conjunction with monitoring and supervision modules with which they would be linked. These materials may need to be adapted for use in health facilities too small to have a separate ORT unit, or where physian referral may not be readily available. For physicians, a separate packet of materials needs to be prepared, to include actual copies of carefully selected published references. Special materials for the public media, for students of medicine, nursing, and health technology, for schoolteachers, and for schoolchildren also need to be developed.

Development and production of all the needed teaching materials will be a formidable and expensive undertaking, but one which should receive the very highest priority. This is one area in which additional technical experts may need to be engaged. However, teaching materials development should be carried out in Nigeria, and in close consultation with the ORT zonal coordinators and the UNICEF/Nigeria and FMOH staff, so as to fit with and effectively support the unique program design being worked out for Nigeria.

E. MONITORING AND SUPERVISION

It is quite clear that achieving desirable standards of quality in clinical care and teaching in Nigeria's rapidly expanding ORT activities will require an extensive and well-organized system of monitoring and supervision linked to the necessary in-service training. Each state will need its own cadre of supervisory and training staff to monitor and guide the development of ORT activities in its health care facilities. At the central level, FMOH and UNICEF staff are needed to carry out three crucial functions:

(1) developing an appropriate design for monitoring and supervision, and assisting individual states to adapt and apply that design for use within their own health services;

(2) training supervisory staff for the states as well as for regional and national levels; and

(3) on-going monitoring and guidance of key ORT training centers in each state, and monitoring the expansion of ORT activities at state and LGA levels.

The zonal consultants will be excellent leaders for the needed program of monitoring, supervision, and in-service training. However, a much larger cadre of resource persons is needed to help them during the period of rapid expansion of ORT activities. It would be very good for each zone to have three energetic and interested young doctors, perhaps from the National Youth Service Corps, to work full-time assisting the zonal consultant with the work of program advocacy, staff training, monitoring, and supervision.

An urgent need is for development of appropriate monitoring instruments specifically designed to meet the needs of this program. A comprehensive evaluation form for looking at all aspects of an ORT unit was developed as an aid to the study of existing facilities. (See Appendix E.) Reports of visits to four working ORT units, using this general format, are attached (Appendices F-I). This type of instrument could be used to take a comprehensive look at a clinical facility's ORT program, perhaps for the purpose of assessing its suitability for use as a teaching center or a clinical research site. However, it is too long to be used in a routine supervisory visit which also needs to allow time for an in-service training session.

It may be well, for visits to new ORT facilities, to use a brief form to check the essentials: proper preparation and safe use of rehydration solutions, and acceptable standards of clinical care and teaching. Then staff training done in the same visit could address any weaknesses found in the basic essentials of ORT unit function. A monitoring form such as that shown in Appendix J might be used. Subsequent visits could use monitoring modules designed to look at the various aspects of ORT unit operation, and matched with appropriate in-service training modules.

It will be very important to establish a practical system of record-keeping and reporting in each facility. This needs urgent attention because of the Federal Ministry of Health's stated policy of supplying ORS to state programs <u>based on documentation and reporting of their distribution and use</u>. Strict inventory control and conservation of resources will be a key factor in the success of ORT programs; neither state, nor federal, nor international agencies will be prepared to keep the system supplied without credible measures to limit loss and misappropriation of the resources provided. This will be a problem for many units, even where no significant loss of materials is occurring, because of a general weakness in the keeping of inventory and supply records. To prevent this weakness from crippling the entire program, it will be necessary for supervisors to give regular attention to record-keeping, and to conduct periodic audits of inventory and supply records in all facilities. This process can be facilitated by requiring all receipts and distributions of ORT materials to be signed for in a permanent ledger, which should be available for inspection in every facility offering ORT.

F. ORGANIZATION, MANAGEMENT, AND BUDGETING

In Nigeria, provision of direct health services is primarily a state responsibility, with policy guidance, assistance with program design, and some public health equipment and commodities from the federal level. Thus development of effective, sustainable ORT implementation in Nigeria will depend on development and appropriate support of workable ORT programs at state level. Unfortunately, most Nigerian states are poorly prepared for public health program design and program-based budget planning. However, most states would be ready to provide some increased funding for public health work if requested for a specific program design supported by credible budget estimates.

If the FMOH and UNICEF staff could make competent and practical assistance with program-based budget planning effectively available to all the states, it would do more to accomplish effective ORT promotion in Nigeria than any other one measure could do. This could be done by holding budget-planning workshops for state ORT program leaders, with availability of follow-up consultation as needed to help them develop a practical support plan tailored to fit, and to be presented with, their ORT program design. Program planners may need to be helped to see that approval of a program design without approval of an appropriate accompanying budget for its support is of very questionable value.

A set of worksheets for use in planning state ORT program budgets is offered in Appendix K. This general format could be adapted to serve as a flexible framework for design of budgets tailored to fit the specific conditions and program plans in individual states.

Tentative budget projections for national expenditures for ORT have been developed in consultation with FMOH and UNICEF/Nigeria staff. These are presented in Appendix L. These budget projections are for a three-year period only, because it is not foreseen that a separate program for ORT promotion will be needed on a long-term basis. During the second year of full operation, supply and supervision of ORT activities should begin to be incorporated into the regular functions of the health care system. During the third year, proper use and teaching of ORT should be finally integrated into both preventive and curative branches of the health services, and into all pre-service training for health professionals. A suitable system for monitoring, supervision, and in-service training for ORT activities should be functioning within each state's health care system by the end of the third year of full operation. Thereafter, no separate administrative structure for ORT promotion should be needed.

There are nineteen states in Nigeria, plus the Federal Capital Territory. Thus, national budget estimates are approximately 19.3 times the estimates for an average single state (page L-1). A breakdown of each year's estimated expenditures per state is given on pages L-2 through L-4. To show how these figures were arrived at, worksheets showing the basis of calculations for first-year expenditures per state are included (pages L-5 and L-6).

These projections contain no provision for staff salaries. It is felt that existing health care staff already on salary will be able to carry out all the activities of the ORT promotion campaign. This is a reasonable expectation, as existing health staff are often under--utilized due to drastic reductions in working budgets for many public programs during this period of strained finances.

It is a matter of serious concern that no provision for the necessary vehicles to support this campaign has been made. It is not anticipated that any state in the Federation will be able to secure sufficient transport to support full operation of this program without some external assistance. Cost of vehicles to the states could be cut in half if they could arrange to purchase them through UNICEF. Even so, securing enough foreign exchange to pay for them would be very difficult. Until the problem of transport is solved, these projections cannot be said to represent a sound basis for support of the program. The tendency to grossly underestimate transport requirements because of the difficulty in purchasing and maintaining vehicles has been a major impediment to public health work in Nigeria, and it could cripple this very promising new program.

G. EVALUATION

We will need to consider two levels of evaluation: process evaluation, which monitors program outputs and measures progress toward programmatic goals, and impact evaluation, which attempts to measure the effects of these program outputs.

Process evaluation will be looking at such questions as how many mothers have been instructed in ORT, how many seminars have been held, number and percent of health staff trained, number and percent of health care facilities with active ORT programs, number of supervisory and in--service training visits, number and percent fof patients with acute diarrhea receiving primary treatment with ORT, etc. Most of the data for process evaluation should be available from program records routinely kept and periodically tabulated by supervisory staff. An appropriately designed record-keeping system needs to provide for regular recording of the basic information for pre-planned systematic process evaluation.

The impact of the ORT promotion campaign can be judged in terms of three levels of desired effects:

(1) In the clinical facilities where ORT is instituted as the primary treatment for acute diarrheas, we would hope to see decreased morbidity and mortality in children treated for diarrhea, and decreased cost of treatment.

(2) In the communities where ORT is being taught, we would hope to see improvement in knowledge, attitudes, and practice regarding the management of diarrhea, particularly in the mothers of small children.

(3) As a long-range health effect of ORT promotion, we would hope for decreased morbidity and mortality from diarrheal disease in children.

The reductions in morbidity and mortality to be looked for would be primarily due to reductions in the severity and duration of diarrheal disease episodes rather than to reduction in the number of episodes.

In large part, desired effects in the clinical facilities where ORT is instituted should be relatively easy to measure from clinical records in the facilities, together with pharmacy and supply records. It may be needed to arrange for some systematic follow-up on children treated as outpatients in order to get good estimates of their duration of illness. It should be possible to design the data collection for this level of evaluation into the routine record-keeping in the ORT programs.

Measuring changes in knowledge, attitudes, and practice regarding management of diarrheal disease implies the use of survey sampling methods, and will require carefully planned research design and specific funding. In order to get a reasonably accurate estimate of changes in knowledge, attitudes, and practice in the community as a whole, periodic population-based surveys will be needed. It would be desirable to try to get at least three such studies done in different areas of the country. Trying to do KAP surveys everywhere ORT is introduced would be needlessly expensive. However, it would be desirable to try to monitor some indicators of attitudes and practices regarding diarrhea management in at least one area in each state. Where it is not possible to undertake population-based surveys, "quick and dirty" methods may be used, such as interviewing mothers of children brought to health care facilities for non-diarrheal illnesses, monitoring trends in sales of various diarrhea remedies by local chemists, or asking school children what their mothers do for a small child with diarrhea. Results of such monitoring should be tabulated promptly for feedback into the implementation system.

Reporting of diseases and deaths in Nigeria is too incomplete to make numbers of reported cases and deaths a usable measure of morbidity and mortality. In areas where there is reasonably good coverage by health care facilities, surveillance of cases coming to specific facilities for care might be a usable tool. However, availability of essential drugs in health care facilities varies widely from year to year, and gives rise to such major shifts in levels of utilization that this effect could completely confound the results of studies based on number of cases reporting for care. Even if special support were given to maintain constant availability of essential drugs and services in a given facility, its effective catchment area would tend to vary with the availability of drugs and services in surrounding facilities. The most credible basis for drawing conclusions about shifts in morbidity and mortality as well as about shifts in knowledge, attitudes, and practice would be periodic population-based surveys.

Thus, we can see that these most important long-term effects to be hoped for from ORT promotion efforts will be relatively difficult and expensive to measure. Both outside expertise and outside funding would be required. The UNICEF staff feels that they could not justify diver-

sion of UNICEF program funds sufficient to support this kind of evaluation research. However, the need to carry out impact evaluation for this major program effort in the most populous nation in Africa deserves serious consideration. Perhaps WHO or another international agency could be interested in supporting such research.

If population-based impact evaluation research is to be undertaken, a number of points need to be considered: The research design needs to be completed and baseline data collection to begin with as little delay as possible, before the program begins to have significant effects in the study areas. The ORT program is one of three major UNICEF-assisted programs now getting actively under way in Nigeria which are specifically aimed at reducing child mortality. The other two are the EPI program and the clean water and sanitation program. These programs are expected to be coordinated and mutually reinforcing, so that unimmunized children in ORT clinics will be referred for immunizations, and teaching of diarrhea prevention in the clean water and sanitation program will be accompanied by teaching of appropriate diarrhea management methods. It is likely that an area which has an active ORT program has or will have active programs in EPI and clean water and sanitation as well. Rather than setting up separate research studies for impact evaluation of the three inter-related programs, it might make more sense to design combined evaluation research for all three programs, using just three or four carefully selected sites in different regions of the country. The sites would need to be areas where none of the three programs has yet been very active, but where all three can be expected to be actively implemented and consistently supported. As the three programs are expanding rapidly, the available appropriate sites for evaluation research shrink accordingly.

APPENDIX A

STANDARDIZED FORMULA FOR SUGAR-SALT SOLUTION

1 level (3-ml) teaspoon of salt (approximately 1.9 - 2.6 grams)

10 level (3-ml) teaspoons of sugar (approx. 25 gm), OR 5 sugar cubes

1 beer bottle OR 2 mineral bottles full of clean water (approx. 600 ml)

Registration

No———————

Serial

No———————

CLINICAL CHART
ORT TREATMENT OF DIARRHOEA

Name———————————

Address———————————

———————————

Time Onset of Treatment———————

Date Admitted———————

Age———————Sex———————

Weight——— Temp———

Clinical ———Mild
Assessment ———Moderate
———Severe

Nutritional ———Good
Status: ———Marginal
———Malnourished

Remarks:
(fill where
appropriate)

Dietary
History: Breastfed to age———————
Bottlefed from age:———————
Weaning foods (specify):———————

Time and date discharged or transferred:———

Drug Therapy:———————

Put on I. V.?———————(amount given)

Before discharge review health education

———————Feeding

———————Fluid and SSS

———————Dehydration signs.

APPENDIX B

COPY OF CLINICAL RECORD FORM (FRONT)

ESTIMATED FLUID REQUIRED_____

Time Period	Amount ORS Given Child	MENTAL STATE			EYES		Ant. Fontanelle		SKIN			Stools No. & Consistency	Vomiting	Urine Output
		Normal	Drowsy	Semi Conscious	Normal	Sunken	Normal	Sunken	Normal	Dry	Poor Elasticity			
Onset														
1 hour														
3 hours														
6 hours														
12 hours														
18 hours														
24 hours														
_____														
_____														
TOTALS														

COPY OF CLINICAL RECORD FORM (BACK)

APPENDIX C

Management of Diarrhoea:
Oral Rehydration Therapy

A Manual For Health Professionals

Prepared by

Federal Government Of Nigeria / Unicef

1985

ACKNOWLEDGEMENTS

This manual has been prepared with materials from various sources including World Health Organisation and UNICEF publications. These has been modified to meet the objectives of the Diarrhoea Disease Control Programme in Nigeria. The useful contributions and suggestions by doctors and nurses who read the draft are acknowledged.

CONTENTS

INTRODUCTION

Acute diarrhoea occurs throughout the world but it is a very serious problem in developing countries like Nigeria. It affects about 500 million children every year; out of these 5 million die. It is therefore a leading cause of death among children below the age of 5 years and it is also a major cause of malnutrition. Every doctor or nurse involved in the care of children in Nigeria is familiar with the problems of diarrhoea.

Fortunately, within the past ten years, improved ideas and simple methods for the treatment and prevention of diarrhoea have been discovered. These new methods have been tested and found to be effective in many countries. With appropriate training, these simple methods can be learned by every health worker in Nigeria. If this takes place, the number of children who die from diarrhoea will be markedly reduced, and related problems like malnutrition will be prevented.

This manual is a guide for nurses to help them better understand the *problems, treatment* and *prevention* of diarrhoea in children.

It is also a simple guide for setting up an oral rehydration unit in a clinic or hospital. This is the cheapest and most effective means of treating children brought to the clinic with diarrhoea.

Readers are encouraged to write to UNICEF Nigeria, P. O. Box 1282, Lagos with their comments on how to modify or improve the content of this manual.

UNDERSTANDING THE PROBLEMS OF DIARRHOEA

WHAT IS DIARRHOEA ?

Diarrhoea is the passage of three or more watery stools in a day. (Infants who are entirely breast fed pass soft yellow stools up to 5 times a day; this is not diarrhoea.) Diarrhoea may be associated with vomiting and fever; many mothers know when their children have diarrhoea. It occurs mainly in children between 6 months and 2 years and it is more frequent among those who are bottle fed including children below six months.

WHAT CAUSES DIARRHOEA ?

Diarrhoea is often caused when the bowel is infected by viruses and bacteria. A common cause is the ROTA virus. The onset may be sudden and last for days. Diarrhoea caused by virus will not respond to drugs.

Rota Virus

Bacteria

Diarrhoea may also occur as a clinical feature of other diseases such as measles, malaria, respiratory infections and parasitic infections. Occasionally, it also occurs in children with surgical problems such as intussusception and appendicitis. Diarrhoea frequently results from drinking dirty or contaminated water or eating food prepared with unclean hands or in an unhygienic environment. The feeding bottle is also a frequent source of infection to infants.

WHY IS DIARRHOEA DANGEROUS ?

The two main dangers from diarrhoea are Death and Malnutrition.

Death from acute diarrhoea is usually caused by loss of a large amount of water and salts from the body. This is called *dehydration.*

Dehydration

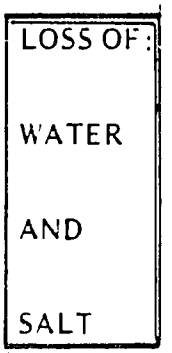
Malnutrition from diarrhoea is caused by the loss of food nutrients.

Malnutrition

from the body. This is made worse by the fact that a child with diarrhoea usually suffers loss of appetite. In addition, some mothers have the habit of not feeding their children when they have diarrhoea for some days. Some doctors and nurses encourage and support this practice of stopping feeding as a form of treatment. We now know that this is a wrong practice. Children with diarrhoea should be given food as soon as possible.

It is important to stress here the relationship of diarrhoea with malnutrition. *Diarrhoea is common in malnourished children and malnutrition results from diarrhoea.*

HOW DOES DIARRHOEA CAUSE DEHYDRATION ?



The body normally takes in the water and salts it needs through drinks and food. The body loses water and salts through stool, vomitus, urine and perspiration. When the bowel is healthy, water and salts taken in pass from the bowel into the blood. When there is diarrhoea, the intestine does not work normally and the water and salts pass into the blood more slowly, or not at all. Thus, more than the normal amount of water and salts are passed in the stool. Spicy, rich foods may irritate the infected intestine. Bland, easily digestible foods such as pap and milk are best. This greater than normal loss of water and salt from the body results in *dehydration.* It occurs when the *output* of water and salt is greater than the *input.* The more diarrhoeal stool a patient passes, the more water and salt he loses. A lot of vomiting and sweating can also cause dehydration. Dehydration occurs faster in infants and young children in hot climates and when there is fever.

WHAT CAN BE DONE, AND WHEN ?

The following sections of this guide give proper instructions to the nurse on what should be done for any patient with diarrhoea. Treatment of dehydration using the most modern and effective

techniques are included. There is also information that the nurse and other health care workers can use to instruct mothers and family members on how to give home care to the child as soon as diarrhoea occurs and subsequently prevent dehydration.

MANAGEMENT OF ACUTE DIARRHOEA

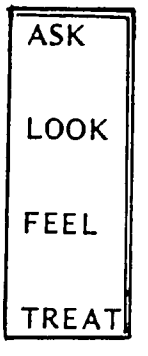
The most important aspect of managing acute diarrhoea in children is correction and/or prevention of dehydration. A child with diarrhoea may not be dehydrated at the initial stage or he may be mildly, moderately or severely dehydrated. See figure 1

TO ASSESS DEHYDRATION IN ANY CHILD

ASK about the number of STOOLS, the frequency of VOMITING the amount of THIRST, and the condition of the URINE of the patient.

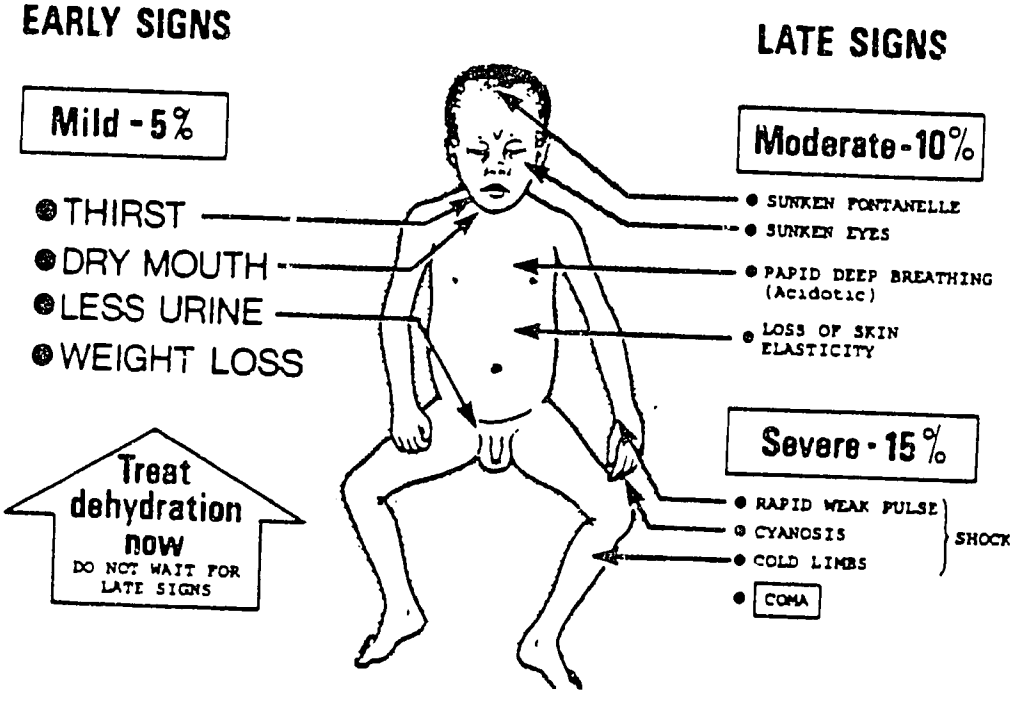
LOOK at the MENTAL CONDITION, the appearance of the EYES, the state of the MOUTH and TONGUE, and the rate of BREATHING of the patient.

FEEL the condition of the SKIN, the rate and volume of the PULSE, and (in infants) the level of the anterior FONTANELLE.



Weigh the patient if possible, and take his temperature. Then, based on the criteria outlined in Table 1 and detailed in the following three sections, you should be able to identify the state of dehydration and initiate the appropriate treatment.

DEHYDRATION IN CHILDREN



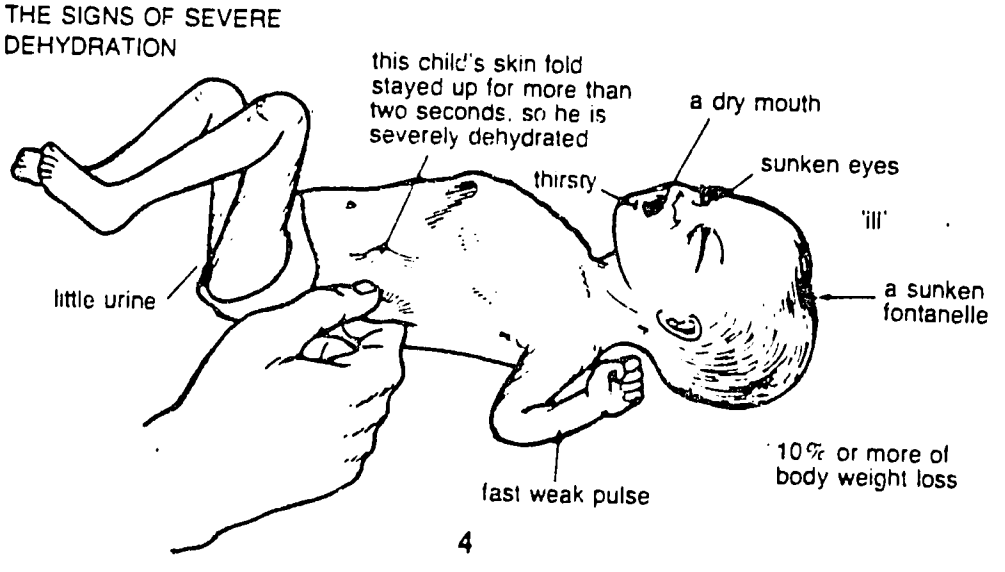


TABLE 1. ASSESSMENT OF DEHYDRATION IN CHILDREN

Signs and symptoms	Mild dehydration (A)	Moderate dehydration (B)	Severe dehydration (C)
General appearance and condition	Thirsty; alert; restless	Thirsty; restless, or lethargic but irritable when touched	Drowsy; limp, cold, extremities; may be comatose
Radial pulse [1]	Normal rate and volume	Rapid and weak	Rapid, feeble, sometimes impalpable
Respiration	Normal	Deep, may be rapid	Deep and rapid
*Anterior fontanelle [2]	Normal	Sunken	Very sunken
Systolic blood pressure [3]	Normal	Normal - low	Less than 10,7 kPa (80 mmHg); may be unrecordable
*Skin elasticity [4]	Pinch retracts immediately	Pinch retracts slowly	Pinch retracts very slowly (> 2 seconds)
*Eyes	Normal	Sunken	Deeply sunken
Tears	Present	Absent	Absent
Mucous membranes [5]	Moist	Dry	Very dry
*Urine flow [6]	Normal	Reduced amount and dark	None passed for several hours; empty bladder
% body weight loss	4-5%	6-9%	10% or more

*Particularly useful in infants for assessment of dehydration and monitoring of rehydration.

1. If radial pulse cannot be felt, listen to heart with stethoscope.
2. Useful in infants until fontanelle closes at 6-18 months of age. After closure there is a slight depression in some children.
3. Difficult to assess in infants.
4. Not useful in marasmic malnutrition or obesity.
5. Dryness of mouth can be palpated with a clean finger. Mouth may always be dry in a child who habitually breathes by mouth. Mouth may be wet in a dehydrated patient due to vomiting or drinking.
6. A marasmic baby or one receiving hypotonic fluids may pass good urine volumes in the presence of dehydration.

A. NO DEHYDRATION

Column A in Table 1 describes treatment in cases where there is no dehydration. Features of this state include: less than four liquid stools per day; little or no vomiting; normal thirst and urine. The child should be generally well and alert, with normal eyes, wet mouth and tongue, and normal breathing. Skin and fontanelle are also normal.

This is the clinical condition of the child at home at the onset of diarrhoea. The aims of treatment at this stage are:
(a) to prevent dehydration;
(b) to continue feeding.

Mothers should be instructed to use locally available fluids and these should be given to the children as soon as diarrhoea starts. These include plain clean water, coconut water, fruit juices, and a home-made carefully measured sugar-salt solution.

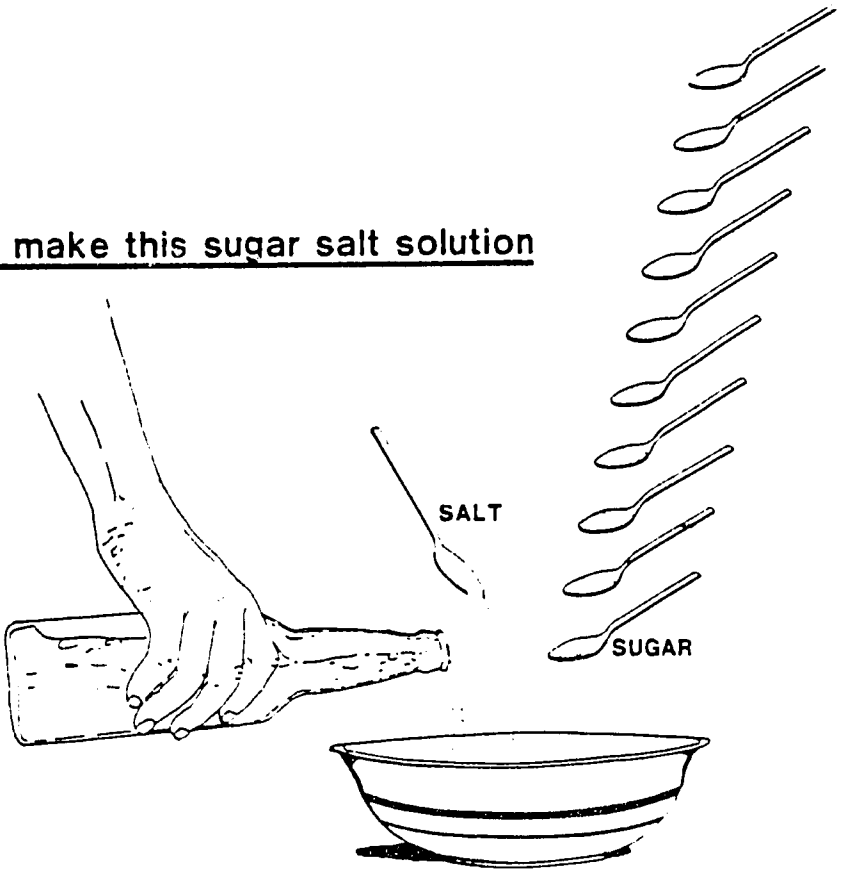
Teaching mothers how to prevent dehydration from diarrhoea with a sugar-salt solution

The sugar-salt solution described here is an effective means for preventing dehydration because the sugar helps the body absorb the water and salt quickly even though diarrhoea may continue. Mothers can be taught how to mix and give this solution to their children at home. Studies in Nigeria have shown the best method for teaching how to make the solution is to demonstrate it and then have the mothers do it once under supervision. Be especially careful to see that mothers can mix the correct amounts of salt, sugar and water, and that the mixture is not too salty as that may harm the child.

You may have been taught a formula for preparing salt-sugar solution and no doubt have passed this on to many mothers. The formula described in this manual is the correct one based on scientific findings, it should be taught to all Nigerian mothers.

How to prepare sugar-salt water solution at home;

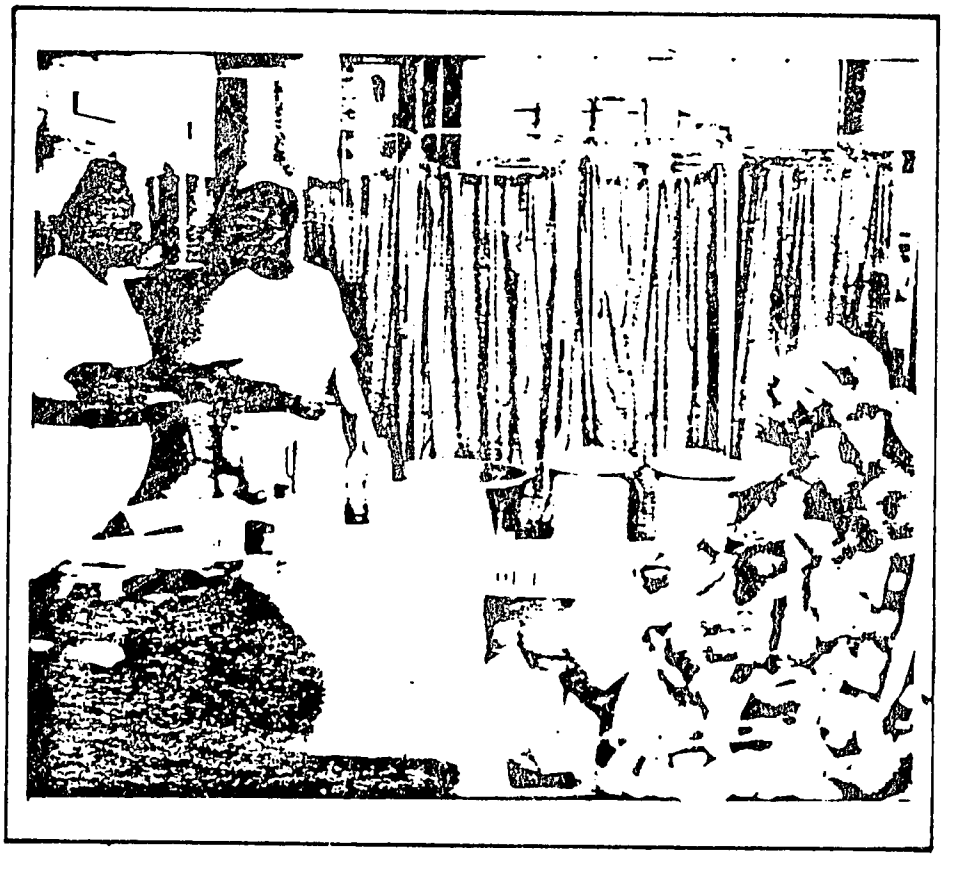
To make this sugar salt solution



MIX	1 Beer bottle of WATER	1 Level teaspoon of SALT	10 Level teaspoons of SUGAR

The appropriate containers found in most homes in Nigeria are the standard beer bottle or soft drink bottle. Either can be used to measure water in preparing the solution. The beer bottle (650 ml.) has approximately twice the volume of the soft drink bottle, so use one beer bottle full of water or two soft drink bottles full.

Instructions to Mothers for Mixing Sugar-Salt Solution



1. Wash your hands.
2. You need a bowl, the measuring bottle and a teaspoon which must be clean.
3. Use clean drinking water, preferably boiled and cool.

PUT THE WATER IN A BOWL.

(Use one beer bottle full or two soft drinks bottles full)

ADD SALT

(Use one level teaspoon of salt. To avoid too much salt, level it until there is no salt on the top edges of the spoon.*) See figure 4.

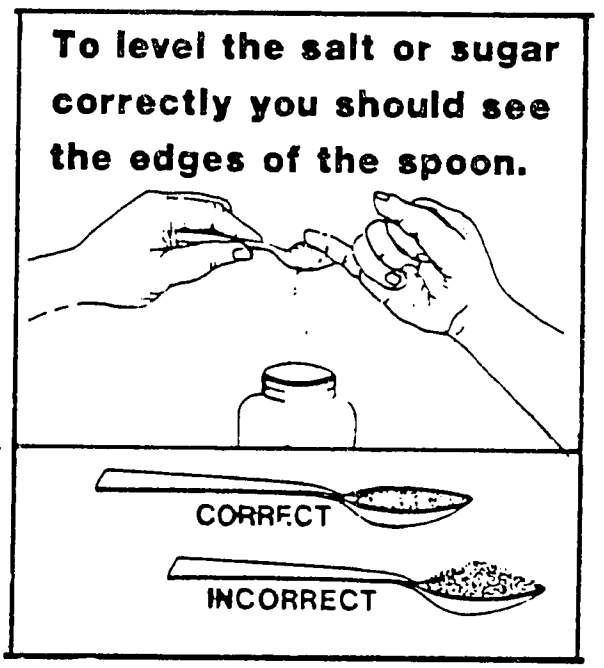


Figure 4

ADD SUGAR

(Use 5 cubes of sugar - approx. 26 grams - or
Use ten level teaspoons of granulated sugar.) See figure 4.

Mix the contents well. Taste the mixture. It should have a good taste and not be too salty. This SALT-SUGAR SOLUTION is then ready for use.

Treatment should begin with the onset of diarrhoea by giving the child the solution. Give as much as the child wants to take, but slowly. Give by cup and spoon. Do not force the child. About 3 to 5 teaspoons every 10 minutes is a good amount.

*The spoon described here is the common household teaspoon, which holds about 3 ml. It is not the larger 5 ml. teaspoon that comes with some medicine packages. Half a level measure of that larger teaspoon will give about the right amount of salt.

Encourage mothers to exercise patience with this treatment. A child who is vomiting can retain the fluid if it is given slowly. The mothers should also continue with breast feeding and normal feeds.

Many children can be treated with this simple home therapy; however, if there are signs of dehydration (which the mother should be taught to recognise) or vomiting persists, the mother must take the child to the nearest health clinic. Teach the mother how to look and feel for the signs of dehydration, especially:

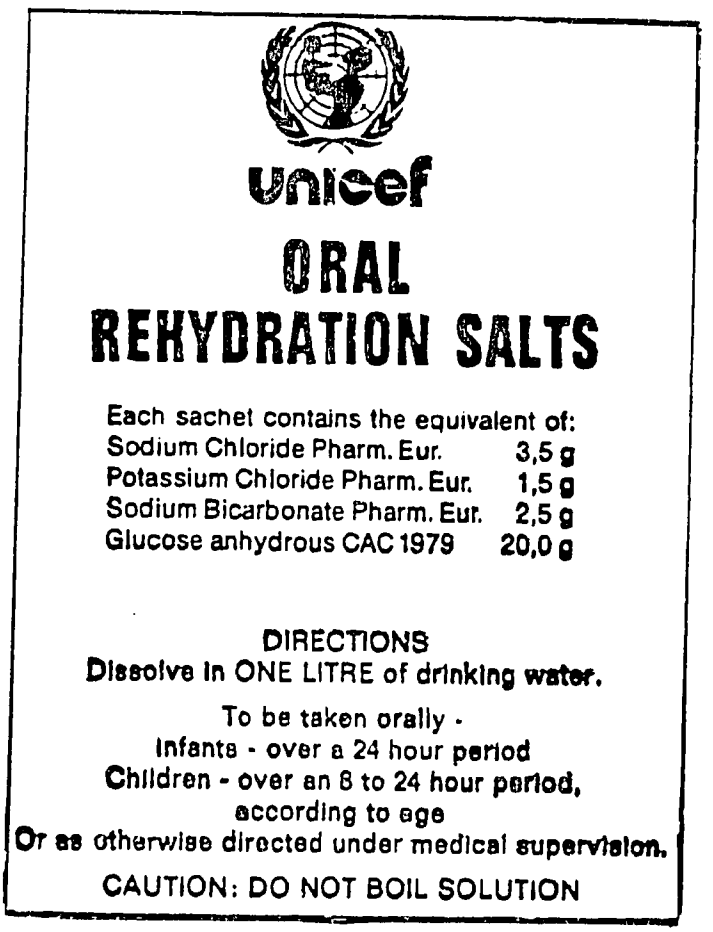
Greater Thirst.
Dark Urine.
Unwell, Sleepy, or Irritable Condition.
Sunken Eyes.
Sunken Soft Spot on the Top of the Head.
A Pinch of Skin Goes Back Slowly.

B. MILD AND MODERATE DEHYDRATION

The aims of treatment here are to:
(a) treat the dehydration;
(b) prevent further dehydration; and
(c) continue feeding.

Among the features of mild to moderate dehydration are: 4 to 10 watery stools a day, some vomiting, increased thirst, urine decreased in amount and dark, child is irritable or sleepy, sunken eyes, mouth dry, pinch of skin goes back slowly and fontanelle (if an infant) is sunken.
These signs indicate there has already been a loss of water and electrolytes from the body and these must be replaced. The losses include sodium, and potassium. Some chemical changes have also taken place in the blood which have to be corrected. The best and easiest way to replace these losses is by mouth. The best medicine for this is a solution made from Oral Rehydration Salts (ORS). These ORS come in a standard WHO/UNICEF packet containing the following ingredients and amounts:

INGREDIENT	AMOUNT
Glucose (a form of sugar)	20 grams
Sodium Chloride (ordinary salt)	3.5 grams
Sodium Bicarbonate or citrate	2.5 grams
Potassium Chloride	1.5 grams



These packets have been distributed and used in many parts of the world especially by UNICEF. It has been shown to be very effective in the treatment of diarrhoea in children, it reduces the need for intravenous therapy by more than 90% when used in an Oral Rehydration Unit in a hospital or clinic.

Packets that contain these amounts of ingredients are made to be mixed in 1 litre of water (approx. 3 soft drink bottles of clean water). This mixture is called ORS solution. (Note: some packets of ORS are made for smaller volumes of water; they have smaller amounts of the same ingredients.) However there are in the market some ORS packs or ORS solution in bottles which do not contain the ingredients in the proportions recommended by WHO. They should not be used.

ORAL REHYDRATION
THERAPY UNIT

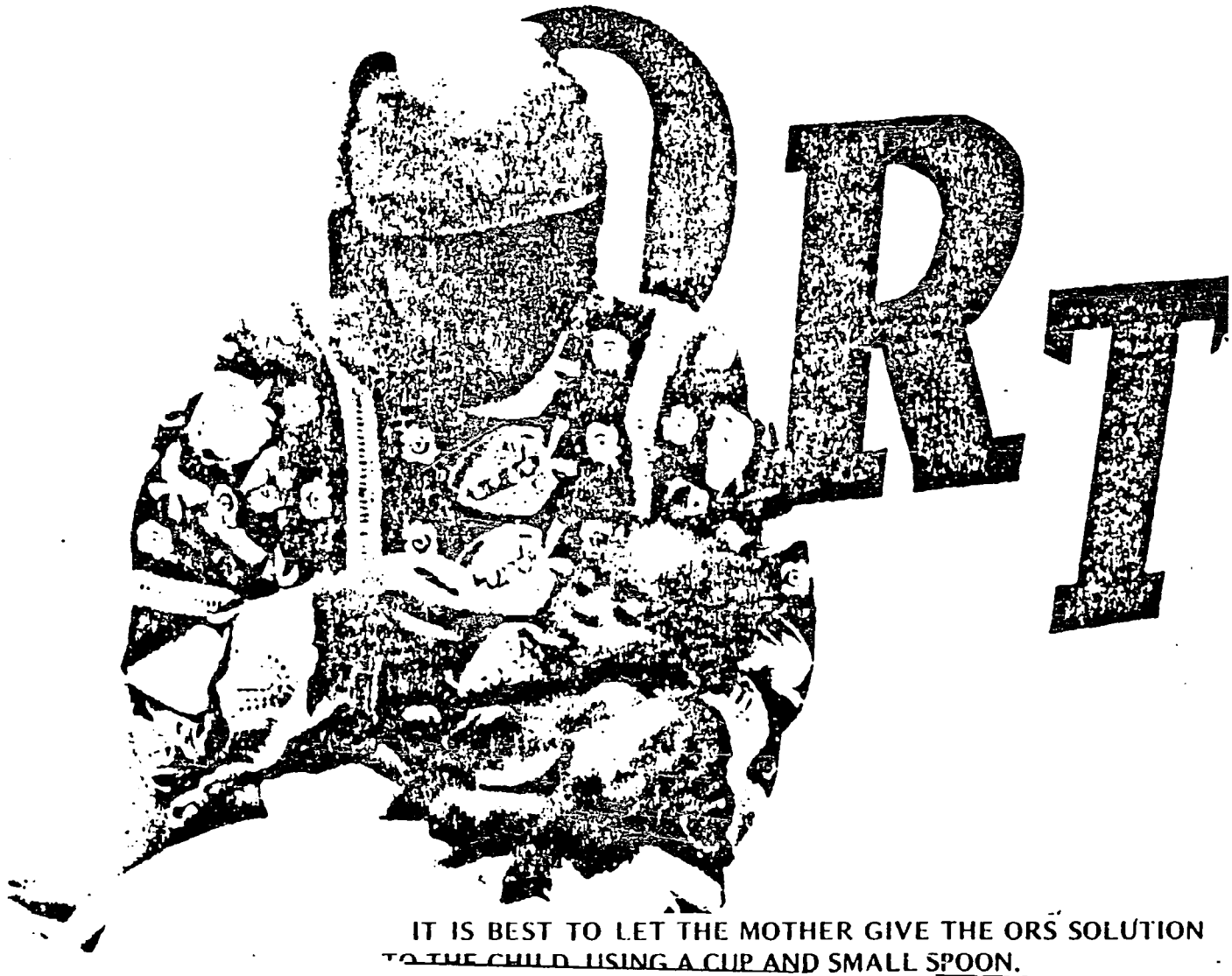
THE PREPARATION AND USE OF ORS ARE DESCRIBED BELOW:

1. Mix the ORS solution in a clean bowl, preferably with boiled, cooled water. (Do not boil the solution after it has been mixed, as this will destroy its effectiveness). This solution can be prepared in bulk every morning for use in the oral rehydration unit of the hospital or clinic. Try to estimate the amount needed for each day as closely as possible, as the mixture must be thrown away after 24 hours.

2. The amount of ORS to be given to a dehydrated child depends upon the age, weight, and condition of the patient. Table 2 (at top of next page) contains general guidelines on amounts to give during initial treatment of dehydration, as well as during subsequent maintenance to prevent dehydration from coming back. Please read carefully the note at the top of the table as well.

3. It is best to let the mother give the ORS solution to the child, using a cup and small spoon. Give the mother about 200 ml. of the solution in a cup. Tell her to give the solution to the child. Tell her to give it slowly, using the spoon. Tell her to give about 3 to 5 teaspoonsful, then wait 5-10 minutes, and repeat.

   If the child vomits, tell the mother she may be giving the solution too fast. Wait for about 10 minutes, and then have her continue with the treatment.



IT IS BEST TO LET THE MOTHER GIVE THE ORS SOLUTION TO THE CHILD USING A CUP AND SMALL SPOON.

TABLE 2: HOW MUCH ORS SOLUTION TO GIVE

These are guidelines only. If the patient wants more ORS solution, give more. If the eyelids become puffy, stop giving ORS solution and continue giving other liquids. Start ORS solution again when puffiness is gone and if diarrhoea continues.

Patient's Age (Months)	2 - 4 months	5 - 9 months	10 - 12 months	12 - 24 months	24 months and above
Patient's Weight (Kgs)	3 - 6 kgs	6 - 8 kgs	9 - 11 kgs	12 - 14 kgs	15 kgs and above
For Treatment of dehydration in the first 4 to 6 hours	200-400 ml	400-500 ml	500-600 ml	600-800 ml	800-1000 ml
For Maintenance To prevent dehydration from coming back, give the following after each diarrhoea stool	50 ml	100 ml	100 ml	150 ml	150 ml

4. Periodically ASK, LOOK, and FEEL for signs of dehydration. *If the signs of dehydration are worse or there is still some dehydration and the child cannot drink, call the attention of the doctor.*

5. After 4-6 hours, if the signs of dehydration have not gone but the child is taking the ORS Solution well, give the same amount again in the next 4-6 hours. During this period, if an infant is breast-fed, the mother should offer breast milk freely, in addition to ORS Solution. If an infant is not breast fed he should be given 100–200 ml of plain water before the ORS Solution is continued. *Repeat this procedure until the signs of dehydration have gone, then go to step 6.*

6. After the signs of dehydration have gone: If the child is still having diarrhoea look at Table 2 and see how much ORS Solution she needs for maintenance to prevent dehydration from coming back. Then — instruct the mother:

   —to give the *needed amount* of *ORS* Solution (or sugar salt solution in the home) until there are less than 4 loose stools each day.

   —*to start feeding the child* and giving other fluids as in plan A. Feed frequently (5-7 times a day) until normal; then give one extra meal each day for a week.

   —to bring the child again quickly *if the signs of dehydration come back*, or if the diarrhoea is continuing *and the child will not take the ORS solution.*

C. SEVERE DEHYDRATION

The features of severe dehydration include: drowsiness; cold extremeties, wrinkled fingers and toes; rapid, feeble pulse; deep and rapid respiration; pinch of skin retracts slowly; very sunken eyes; sunken fontanelle; mucous membrane very dry; scanty urine.

The aims of treatment here are:
(a) to start treating the dehydration;
(b) to refer the child for additional treatment in a hospital.

The child with severe dehydration may die if special treatment is not given quickly.

If the child can drink, he should be given ORS Solution while he is on his way to the hospital.

If the child is semi-conscious, it is dangerous to attempt ORT.

Many severely dehydrated children are seen in clinics and hospitals

throughout the country. Many more without access to health facilities die at home. The widespread prevalence of severe dehydration in Nigeria results from wrong and ineffective treatment at home, in the chemists shops, patent medicine stores and by tradjtional healers. Remember that the effects of these forms of treatment may contribute to the clinical state of the severely dehydrated child. Thus:

Severe dehydration = loss of water and electrolytes
plus
effects of previous treatment

It is important therefore to obtain a detailed history from the mother about treatment which had been given before admission. The child will require intravenous fluids. If you have been trained to give intravenous therapy, you can adopt this guideline. The ideal solution is Ringer Lactate (Hartman's Solution):

Give 40ml/kg in the first hour
Give 50ml/kg in the next 4 hours

This would ensure a rapid increase in the blood volume. The radial pulse should be palpable. Keep a pulse chart during this treatment. Intravenous therapy should be followed by ORS administration as soon as the child is conscious and able to take fluids by mouth.

If Ringer Lactate is not available, normal saline and half-strength Darrow's solution should be used:

Give normal saline rapidly 40ml/kg for the first hour. For next four to six hours, replace normal saline with one-half strength Darrow's solution. Give 50ml/kg in the next four to six hours.

ORS administration should be used as subsequent treatment. If the child is breast-feeding, this should be continued. Normal diet should be re-introduced as soon as the child can take it. If the

child is unable to take enough food, it is advisable to feed with a high protein mixture which can be given by a naso-gastric tube.

It is important to remember that a severely ill child in this environment may be suffering from other diseases which have been masked by the clinical features of severe dehydration; these include tuberculosis and meningitis. A thorough examination of the child is therefore essential.

IS THERE A PLACE FOR DRUGS IN THE TREATMENT OF DIARRHOEA?

Many drugs are sold by the pharmacists and patent medicine stores and even prescribed by some doctors as treatment for diarrhoea. Recent studies have shown that most of these are not effective, and some can be dangerous. Among drugs commonly used are:

1. Antimicrobial agents – These include sulphonamides (e.g. septrin) and antibiotics (e.g. chloramphenicol, neomycin, tetracycline, and ampicillin). They should not be used routinely in the treatment of diarrhoea. Most cases of diarrhoea in children are due to viral infections, and these do not respond to anti-biotics. However, if there is evidence that the diarrhoea is caused by a specific organism (bacteria or parasite) the effective drug should be added to ORT. for example, in:

Cholera	-- Erythromycin
Shigella (dysentery)	-- Ampicillin, Septrin
Amoebic dysentery	-- Metronidazole
Giardiasis	-- Metronidazole

2. Antidiarrhoeal agents -- These include kaolin, Pectin , metoclopramide (plasil), loperamide (imodium), chlorpromazine (largactil). Some of these drugs act by hardening the stool, relieving pain temporarily, and by slowing the movement of the intestines. Removal of the infective organisms in the gut is thus delayed, and

the diarrhoea is likely to recur. Some of these drugs produce side effects. For instance, metoclopramide and chlorpromazine (largactil) used for suppressing vomiting, can cause seizures or abnormal movements of the eyes and limbs. It is important to find out if these drugs have been given when a child with diarrhoea presents with these abnormal signs. Loperamide (imodium) may decrease the movement of the intestines, and produce distension of the abdomen.

HOW TO PREVENT DIARRHOEA AT HOME

Before discharge, the mother should be instructed on how to prevent diarrhoea at home.

1. Hygiene

   * Talk to the mother about her local beliefs on causes and treatment of diarrhoea. For instance, some mothers believe that diarrhoea is a normal feature of the teething child.
   * Explain to the mother why some local practices and beliefs are harmful, but at the same time encourage her to maintain those which are probably useful.
   * Let her know that diarrhoea is caused by germs from dirt, stool, urine, and dirty feeding bottles. These can be obtained through food prepared with unwashed hands, in dirty utensils and unclean surroundings. All these are sources of infection that cause diarrhoea.
   * Explain to her the importance of personal and environmental hygiene and how this can be achieved. There should be proper disposal of stool and urine. Rubbish should be burnt or taken far away from the house.
   * Instruct mother to wash her hands before preparing the family meals. It is a good habit for every family member to learn to wash his/her hand after using the toilet or latrine and before meals. Foods and drinks should be covered when stored to keep away flies; they carry germs.

2. Water:

* Although good drinking water is difficult to obtain in some parts of the country, emphasize to the mother that what she gives to the child should be as clean as possible. Preferably, the water should be boiled before drinking.
* Water should be stored in a container with a cover to keep away insects and domestic animals. If this is a pot, water should be fetched from it with a cup specific for this purpose. The water is then poured into another container used for drinking. Ideally, water should be pipe-borne or obtained from a bore-hole by a pump.

3. Feeding:

It has already been mentioned that the malnourished child is likely to have repeated episodes of diarrhoea; diarrhoea also causes malnutrition. Therefore it is very important to let the mother know this.

This is why the mother should continue feeding the child during the treatment of diarrhoea. After treatment with oral rehydration therapy, the child regains his appetite quickly.

* Mother should increase the food intake of the child. She should use high energy foods without spices, such as mashed yam, boiled or fried ripe plantains with palm oil. In addition she should give fruit juices; oranges, pineapples and mashed bananas All these contain vitamins and some potassium which the child needs.

* Breast feeding should be continued. This is an opportunity to stress the importance of breast milk to the mother. Tell her that this prevents diarrhoea and the child will remain healthy. She can continue breast feeding for up to 18 to 24 months.

4. Immunization:

It is possible that the mother may not have heard of immunization, or attended any child welfare clinic before. Find out about the immunization status of the child and advise the mother on

what to do.

* Do not blame her if the child has not been immunized. There may be reasons for this; find out.

* Tell her that if her child is fully immunized it is likely he will not have measles which is a cause of diarrhoea. The child will not have other infections which lead to loss of weight and subsequently malnutrition.

ESSENTIAL KNOWLEDGE

Know:

1. what is diarrhoea.

2. how to make salt-sugar solution: start giving it to the child at the onset of diarrhoea.

3. the importance of continued feeding including breast feeding during diarrhoea.

4. the signs of dehydration and teach the mother as well. She should know when to take her child to a treatment centre.

5. the correct treatment of mild and moderate dehydration using oral rehydration salts (ORS) solution.

6. how to prevent diarrhoea at home with emphasis on hygiene, water, food and immunization.

APPENDIX D

EXAMPLES OF RESOURCES FROM THE MEDICAL LITERATURE SUITABLE FOR USE IN PRESENTING THE METHOD TO PHYSICIANS

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APPENDIX E

DRAFT OUTLINE FOR EVALUATION OF WORKING ORT UNITS

EVALUATION OF A WORKING ORT UNIT

Unit visited: _____

Site visitor: _____

Dates of visit: _____

OUTLINE FOR EVALUATION OF WORKING ORT UNITS

CONTENTS

ABBREVIATIONS KEY

NX = not examined

\+ = yes, satisfactory

0 = no, none

NA = not applicable

E = excellent

G = good

F = fair

P = poor

I. FACILITIES

Adequacy of space

Separation from other activities

Latrine facilities

Water supply

Surfaces washable and easy to clean

- -floors
- -walls
- -furnishings

Ventilation

Screening

Secure storage for equipment and supplies

Location

- -accessibility
- -proximity to general pediatric inpatient/outpatient facilities

II. STAFFING

Medical supervision

Unit supervisory staff

Other patient care staff

Cleaners

Other ancillary staff

24-hour distribution of staff coverage

Interest/enthusiasm of staff for ORT program

Knowledge and competence in ORT administration

Friendly, helpful attitude toward mothers

Teamwork and cheerful cooperation among staff

Take personal responsibility for the work situation, including cleanliness of the environment

Care of equipment and supplies

Staff ideas for improving services

III. EQUIPMENT

Cups

Spoons

Beer bottles or mineral bottles

Liter measure or bucket graduated in liters

Long-handled spoon for stirring solution

100-200 ml measure of known volume for dispensing ORS

Covered buckets or plastic jerricans for storing drinking water

Hand-washing basins

Towels

Towel racks or hooks

Basins for washing babies

Buckets or basins for cleaning floors and furnishings, washing clothing

Cleaning cloths

Fly swatters

Bedpans

Emesis basins

Cots for children, with plastic-covered mattresses

Chairs for mothers

Weighing scales

Thermometers

Tables and chairs for staff

Patient register

Clipboards for patient records

Other equipment

IV. SUPPLIES

ORS

Sugar

Salt

Drinking water

Disinfectant

Soap

Patient record forms

Other supplies

Adequacy of supplies

Security of supplies

V. MANAGEMENT OF CHILDREN'S DIARRHEA

Evaluation of severity of fluid loss

- objective criteria
- accuracy
- consistency

Screening for complications

- objective criteria
- accuracy
- consistency

Appropriateness of formula(s) used

Accuracy of preparation

Consistency and effectiveness of application

Establishment of care-givers' trust and cooperation

Participation of care-givers in treatment

Reducing spread of infection

Input/output monitoring

Frequency and accuracy of clinical re-evaluation

Criteria for going to parenteral fluid use:

- objective clarity
- appropriateness
- application

Use of other medications

Measles immunization

VI. HYGEINE

Who is responsible for sanitary condition of the environment?

Who is responsible for sanitary condition of the equipment?

Responsibility for hygeinic conditions shared by all staff

Involvement of mothers in maintaining hygeinic conditions

Cleanliness of floors, walls

Cleanliness of equipment

Presence of flies

Disposal of feces and vomitus

Latrine facilities for staff, patient families

Handwashing arrangements

- one basin or two?
- how often changed?
- soap?
- disinfectant rinse?
- clean, dry towel?

Handwashing practices of staff, patient families

Provision for washing patients, their cots, their clothing

Adequacy and accessibility of basins, cleaning cloths, disinfectant solution

VII. PATIENT/FAMILY EDUCATION

Who teaches?

Content of teaching

- diarrhea management
- diarrhea prevention
- immunizations
- nutrition
- malaria prevention
- other

Teaching techniques

- individual explanation
- group presentation
- question and answer
- visual aids
- demonstrations

Frequency of presentations

Length of presentations

Documentation of teaching activities

- for unit activities
- for individual patient care-giver

Change from ORS to SSS as child improves?

Training for SSS preparation and use

- verbal/visual
- demonstration
- practice and use in the ORT center

VIII. TRAINING FUNCTION

In-service training for unit staff

Rotation of staff from other areas of hospital/clinic for training

Assignment of staff from other institutions for training

Accept community volunteers for training in ORT

Involve trainees in all aspects of unit's function

Test knowledge/competence of trainees

Provide letter of recognition on completion of training

IX. RECORD-KEEPING

Equipment inventory

- permanent records
- accurate, up to date
- signed records of additions, removals

Supply inventory

- permanent ledger
- accurate, up to date
- signed records of receipts, distributions

Requisitions/requests for equipment, supplies

- standard form
- copies retained
- prepared and submitted at regular intervals

Patient register

- patient name, sex, age
- date/time of admission and discharge
- reason for discharge
- condition at discharge
- other information recorded
- register complete, up to date, and legible

Individual patient records

- standardized form
- preserved permanently
- weight, temperature on admission and discharge
- objective assessment of condition at specified intervals
- input/output record
- other information recorded
- completeness and accuracy of records maintained

Service/assignment records of staff, trainees

Log of educational activities

Log of physician visits, patients reviewed

X. UTILIZATION/COMMUNITY RAPPORT

Admission trends over time

Satisfaction of mothers on the unit

Problems raised by mothers on the unit

Awareness of the service among local residents, community leaders

Value/problems of the service related by local residents, community leaders

Staff assessment of appropriateness of level of utilization

Any segments of the community whose children are seldom or never brought to the unit; possible explanations

Problems in community relations of which staff are aware

XI. INTEGRATION WITH OTHER PRIMARY HEALTH SERVICES FOR CHILDREN

Relationship to clean water and sanitation program

Relationship to EPI program

Relationship to well-baby clinics, malaria prevention, other MCH programs

Relationship to nutrition programs

Relationship to pediatric outpatient services

Relationship to pediatric inpatient services

XII. PROFESSIONAL/INSTITUTIONAL RELATIONSHIPS

Parent/host institution of this unit

- hospital
- hospital satellite clinic
- maternity
- health center, clinic, or dispensary
- other

Administrative responsibility

- federal government
- state government
- local government
- university
- voluntary agency
- other private ownership

Interest in/support of ORT unit by administration of parent institution

Acceptance of ORT by physicians

Acceptance of ORT by hospital nurses

Acceptance of ORT by health sisters

Acceptance of ORT by other health staff in the area

XIII. ORGANIZATION, MANAGEMENT, AND MONITORING

Who has responsibility for day-to-day operation of the unit?

To whom is that person responsible?

How often does he/she discuss the unit operation with the person to whom he/she is responsible?

What staff are accountable to the unit supervisor?

How often does the supervisor meet with staff to discuss unit operation?

Who is responsible for medical supervision of the unit?

How often does the medical supervisor meet with the unit supervisor/staff to discuss unit operation?

Does the medical supervisor participate in in-service training of staff?

How often are medical rounds made on the unit?

Do the supervisor and other professional staff take personal responsibility for all aspects of unit operation, including cleanliness of the unit area?

Does the supervisor lead by example?

Does the supervisor treat other staff with respect and give due consideration to their suggestions?

Are registers and patient records kept consistently in standardized form?

Are accurate, up-to-date inventories of supplies and equipment kept, with adequate documentation of receipts and distributions?

Are stocks on hand of reasonable size to meet short-term needs?

Are stocks re-ordered in appropriate amounts in plenty of time for delivery?

How promptly are orders filled?

Are the amounts requested supplied?

- if not, why not?

What statistics, if any, are routinely reviewed to monitor the work of the unit?

How often are reports of unit activities prepared, and to whom do they go?

XIV. STATISTICAL INDICATORS OF FUNCTION

Patients admitted in a specified number of days

- specify dates
- closing date should be before admission date of any children still on the unit

Patients of this group discharged adequately hydrated

- percent of admissions

Patients of this group transferred to another treatment unit

- for parenteral fluid therapy
- percent of admissions
- other reasons for transfer
- percent of admissions

Patients of this group who died in the unit

- percent of admissions

Patients of this group discharged against medical advice

- percent of admissions

Patients of this group withdrawn without discharge

- percent of admissions

Patients of this group unaccounted for in the records

- percent of admissions

Sum of lengths of stay of all for whom length of stay can be determined

- number of patients

Mean length of stay

Patients of this group given parenteral fluids on the ORT unit

- percent of total admissions
- intravenous
- intra-peritoneal
- subcutaneous clysis

Sum of admission weights of those with both admission and discharge weights recorded

Sum of discharge weights of those with both admission and discharge weights recorded

- number of patients

Mean admission weight

Mean discharge weight

Mean weight gain

Mean weight gain as percentage of admission weight

Number of admissions of each sex in each of the following age groups:

< 6 months	M:	F:	T:
>= 6 months and < 12 months	M:	F:	T:
>= 12 months and < 18 months	M:	F:	T:
>= 18 months and < 24 months	M:	F:	T:
>= 24 months and < 36 months	M:	F:	T:
>= 36 months	M:	F:	T:
TOTALS	M:	F:	T:

Sum of ORS volumes used for all those with complete records on ORS use

- number of patients

Mean ORS intake per patient

Estimated ORS use for all admissions during the period

ORS stock in inventory at beginning of the period

ORS stock in inventory at end of the period

ORS stock received during the period

ORS distributed from inventory during the period

- issued to ORT unit

- other distributions

Total ORS consumption by the unit for the period

Sum of SSS volumes used by all those with complete records of SSS use

- number of patients

Mean SSS volume used per patient

Estimated SSS volume used for all admissions during the period

Weight of sugar required to make this volume of SSS

Sugar stock in inventory at beginning of the period

Sugar stock in inventory at end of the period

Sugar stock received during the period

Sugar stock distributed from inventory during the period

- issued to ORT unit

- other distributions

Total sugar consumption by the ORT unit for the period

ADDITIONAL NOTES AND COMMENTS

APPENDIX F

EVALUATION OF A WORKING ORT UNIT

Unit visited: MAIDUGURI GENERAL HOSPITAL ORT UNIT

Site visitor: DR. (MRS.) JOYCE B. MATHISON

Dates of visit: 20 AUGUST 1985

OUTLINE FOR EVALUATION OF WORKING ORT UNITS

CONTENTS

ABBREVIATIONS KEY

NX = not examined

\+ = yes, satisfactory

0 = no, none

NA = not applicable .

NK = not known

E = excellent

G = good

F = fair

P = poor

I. FACILITIES

Adequacy of space F/G: SOMEWHAT CROWDED WITH PRESENT CASE LOAD, BUT PATIENT AREA COULD REASONABLY BE EXPANDED ONTO ADJACENT SCREENED VERANDAH WHICH IS NOT NOW BEING USED.

Separation from other activities G

Latrine facilities E: 1 FLUSH FOR STAFF, 2 FOR PATIENTS.

Water supply G: HOSPITAL'S PIPED WATER SUPPLY HAS OVERHEAD TANK, NEVER RUNS OUT. WATER SUPPLY FOR THE UNIT IS IN THE NURSING OFFICE, NOT IN THE ORT PATIENT AREA. A SINK WITH RUNNING WATER IN THE PATIENT AREA FOR MOTHERS' HANDWASHING HAS BEEN REQUESTED.

Surfaces washable and easy to clean

-floors F

-walls G

-furnishings G/E

Ventilation E

Screening YES, BUT THERE IS A LARGE UNSCREENED OPENING AT THE ENTRANCE, ADMITTING LOTS OF FLIES. THERE ARE PLANS TO SCREEN THIS OPENING AND PLACE A SCREEN DOOR.

Secure storage for equipment and supplies THEY ARE KEPT IN THE ORT UNIT NURSES' OFFICE, BUT THERE IS NO LOCKED STORAGE AT PRESENT.

Location

-accessibility G

-proximity to general pediatric inpatient/outpatient facilities G

II. STAFFING

Medical supervision — A PEDIATRICIAN FROM THE CHILDREN'S WARD, AND DR. BWALA, THE PMO I/C OF THE HOSPITAL, WHO IS ALSO TRAINED IN PEDIATRICS.

Unit supervisory staff — MRS. COMFORT R. HAMIDU, A SENIOR NURSING SISTER

Other patient care staff — 9 NURSES

Cleaners, Other ancillary staff — 1 ATTENDANT

24-hour distribution of staff coverage — STAFFED 24 HOURS X 7 DAYS A WEEK BY QUALIFIED NURSING PERSONNEL. EVENINGS AND NIGHTS THERE IS ONLY ONE NURSE ON DUTY, BUT THE CASE LOAD IS VERY LIGHT DURING THESE HOURS.

Interest/enthusiasm of staff for ORT program — G/E

Knowledge and competence in ORT administration — F

Friendly, helpful attitude toward mothers — G

Teamwork and cheerful cooperation among staff — G

Take personal responsibility for the work situation, including cleanliness of the environment — G/E

Care of equipment and supplies — G/E

Staff ideas for improving services — A LARGER WORKING SPACE IS NEEDED; A SINK FOR THE PATIENT CARE AREA HAS BEEN REQUESTED, AS HAS SCREENING FOR THE ENTRANCE. ADDITIONAL ITEMS OF EQUIPMENT HAVE BEEN REQUESTED, AND A BETTER SUPPLY OF DETERGENT FOR CLEANING IS ALSO NEEDED. SISTERS ARE ACTIVELY INTERESTED IN FURTHER WORKSHOPS OR TRAINING OPPORTUNITIES IN ORT.

III. EQUIPMENT

Cups +

Spoons + PLASTIC LU'DE, A SMALL DRINKING DIPPER, BEING USED TO GIVE THE ORS...VERY NICE.

Beer bottles or Fanta bottles + FANTA BOTTLES

Covered buckets or vats for mixing ORS, storing drinking water +

Liter measure, graduated in milliliters 0 NEEDED

Long-handled spoon for stirring solution 0

Hand-washing basins + FOR STAFF USE ONLY

Towels + FOR STAFF USE ONLY

Towel racks or hooks +

Basins for washing babies 0

Buckets or basins for cleaning floors and furnishings, washing clothing + FOR STAFF USE ONLY

Cleaning cloths NX

Fly swatters 0

Bedpans 0

Emesis basins 0

Cots for children, with plastic-covered mattresses + (4)

Chairs for mothers + BENCHES WITH BACKREST; MORE REQUESTED.

Weighing scales 0 REQUESTED

Thermometers 0 REQUESTED

Tables and chairs for staff + MORE REQUESTED

Clipboards for patient records 0 TWO REQUESTED

Other equipment NA

IV. SUPPLIES

ORS +

Sugar +

Salt +

Drinking water +

Disinfectant NX

Soap +

Patient registers +

Patient record forms 0

Other supplies NA

Adequacy of supplies F/G

Security of supplies F/G

V. MANAGEMENT OF CHILDREN'S DIARRHEA

Evaluation of severity of fluid loss

- objective criteria + DO NOT INCLUDE URINE OUTPUT. STATUS OF OBJECTIVE INDICATORS IS RECORDED, BUT NO OVERALL ESTIMATE OF SEVERITY IS MADE.
- accuracy F
- consistency NX

Screening for complications

- objective criteria 0
- accuracy NX
- consistency NX

Appropriateness of formula(s) used G

Accuracy of preparation P: SEE NOTE 1.

Consistency and effectiveness of application P/F: SEE NOTE 2.

Establishment of care-givers' trust and cooperation G

Participation of care-givers in treatment G

Reducing spread of infection F

Input/output monitoring INPUT ONLY RECORDED; ACCURACY QUESTIONABLE.

Frequency and accuracy of clinical re-evaluation P: NO FORMAL STATUS EVALUATION AFTER ADMISSION UNLESS REFERRED TO THE PEDIATRICIAN, AND SOME CHILDREN ARE BEING DISCHARGED TO HOME CARE WHO STILL APPEAR CLINICALLY DEHYDRATED.

Criteria for going to parenteral fluid use: ON JUDGEMENT OF ATTENDING PEDIATRICIAN, WHO VISITS THE UNIT 1-3 TIMES DAILY AND SEES ALL THE MORE SERIOUS CASES. LESS THAN 1% HAVE HAD TO GO TO THE WARD FOR DRIPS.

- objective clarity NX
- appropriateness NX
- application NX

Use of other medications ONLY FOR SPECIFIC DISEASE INDICATIONS, AS FOR MALARIA. ADMINISTERED IN NURSES' OFFICE OR PEDIATRIC OUTPATIENT DEPARTMENT, NOT IN ORT PATIENT CARE AREA.

Measles immunization UNIMMUNIZED CHILDREN REFERRED TO IMMUNIZATION CLINIC.

VI. HYGEINE

Who is responsible for sanitary condition of the environment?

ATTENDANT, NURSING STAFF, SUPERVISOR.

Who is responsible for sanitary condition of the equipment?

NURSING STAFF, SUPERVISOR.

Responsibility for hygeinic conditions shared by all staff G/E

Involvement of mothers in maintaining hygeinic conditions 0

Cleanliness of floors, walls G

Cleanliness of equipment G

Presence of flies + MANY

Disposal of feces and vomitus PROMPT FLOOR CLEANUPS BY STAFF

Latrine facilities for staff, patient families E

Handwashing arrangements FOR STAFF ONLY

- one basin or two? 1
- how often changed? NX WATER CLEAN
- soap? +
- disinfectant rinse? 0
- clean, dry towel? +

Handwashing practices of staff, patient families STAFF - F/G.

NO HANDWASHING FACILITIES ARE AVAILABLE TO PATIENT FAMILIES AT PRESENT.

Provision for washing patients, their cots, their clothing 0

Adequacy and accessibility of basins, cleaning cloths, disinfectant solution

FOR STAFF USE ONLY

VII. PATIENT/FAMILY EDUCATION

Who teaches? NURSING STAFF. IT IS ALSO PLANNED FOR NUTRITION STUDENTS FROM POLYTECHNIC TO TEACH NUTRITION TO MOTHERS IN THE UNIT ON A REGULAR BASIS.

Content of teaching

- diarrhea management + HOME USE OF ORT WELL TAUGHT, BUT NOT RECOGNITION OF COMPLICATIONS, DANGER SIGNALS.
- diarrhea prevention "GENERAL HYGEINE" TAUGHT.
- immunizations 0
- nutrition + EMPHASIS ON NEED FOR CONTINUED FEEDING OF CHILDREN WITH DIARRHEA
- malaria prevention 0
- other 0

Teaching techniques

- individual explanation +
- group presentation +
- question and answer +
- visual aids 0
- demonstrations +

Frequency of presentations APPROXIMATELY HOURLY DURING THE MORNINGS.

Length of presentations APPROPRIATE.

Documentation of teaching activities

- for unit activities 0
- for individual patient care-giver 0

Change from ORS to SSS as child improves? 0

Training for SSS preparation and use

- verbal/visual +
- demonstration +
- practice and use in the ORT center 0 EXCEPT THAT ONE MOTHER PARTICIPATES IN EACH DEMONSTRATION

VIII. TRAINING FUNCTION

In-service training for unit staff +

Rotation of staff from other areas of hospital/clinic for training 0

Assignment of staff from other institutions for training + TWO-WEEK ROTATIONS

Accept community volunteers for training in ORT 0

Involve trainees in all aspects of unit's function +

Test knowledge/competence of trainees NOT ESTABLISHED (FIRST GROUP STILL IN SERVICE).

Provide letter of recognition on completion of training NOT ESTABLISHED

IX. RECORD-KEEPING

Equipment inventory

- permanent records + FILED (NOT IN A LEDGER).
- accurate, up to date NX
- signed records of additions, removals NX

Supply inventory

- permanent ledger 0
- accurate, up to date NA
- signed records of receipts, distributions + IN-HOSPITAL REQUISITION FORMS

Requisitions/requests for equipment, supplies

- standard form +
- copies retained 0
- prepared and submitted at regular intervals + WEEKLY

Patient register

- patient name, sex, age +
- date/time of admission and discharge DATES ONLY, NO TIMES.
- reason for discharge)
- condition at discharge) "OUTCOME"
- other information recorded ADDRESS, HOME TREATMENT, DURATION OF DIARRHEA, MEASLES VACCINE, BREAST FEEDING, SUNKEN EYES, SKIN TURGOR, MENTAL STATE, NUTRITION (BY ARM CIRCUMFERENCE RANGE), TOTAL ORT GIVEN.
- register complete, up to date, and legible F/G

Individual patient records 0 BUT THE ORT REGISTRATION NUMBER IS RECORDED ON THE CHILD'S OUTPATIENT CARD

- standardized form NA
- preserved permanently NA
- weight, temperature on admission and discharge 0
- objective assessment of condition at specified intervals 0
- input/output record 0 BUT ORS VOLUMES RECORDED IN PATIENT REGISTER
- other information recorded NA
- completeness and accuracy of records maintained NA

Service/assignment records of staff, trainees NX

Log of educational activities 0

Log of physician visits, patients reviewed 0 BUT REFERRALS TO PHYSICIAN NOTED IN PATIENT REGISTER

X. UTILIZATION/COMMUNITY RAPPORT

Admission trends over time — OVER 700 PATIENTS IN THE FIRST 3 WEEKS OF OPERATION (SINCE 31 JULY), 231 IN THE PAST WEEK.

Satisfaction of mothers on the unit — F/G

Problems raised by mothers on the unit — NX

Awareness of the service among local residents, community leaders — NX

Value/problems of the service related by local residents, community leaders — NX

Staff assessment of appropriateness of level of utilization — G

Any segments of the community whose children are seldom or never brought to the unit; possible explanations — NX

Problems in community relations of which staff are aware — NX

XI. INTEGRATION WITH OTHER PRIMARY HEALTH SERVICES FOR CHILDREN

Relationship to clean water and sanitation program — NX

Relationship to EPI program — UNIMMUNIZED CHILDREN ARE REFERRED TO THE EPI IMMUNIZATION CENTERS; THERE IS ONE LOCATED IN THE HOSPITAL COMPOUND.

Relationship to well-baby clinics, malaria prevention, other MCH programs — NX

Relationship to nutrition programs — NUTRITION STUDENTS FROM THE LOCAL POLYTECHNIC WILL DO REGULAR TEACHING IN THE ORT UNIT.

Relationship to pediatric outpatient services — PEDIATRICIAN COMES TO THE ORT UNIT AND SEES CHILDREN REFERRED BY UNIT STAFF, EVALUATES THEIR NEEDS, AND PRESCRIBES ANY NEEDED MEDICATION, SO THAT THEY CAN GO DIRECTLY TO THE PHARMACY OR OUTPATIENT TREATMENT AREA WITHOUT HAVING TO WAIT IN LINE FOR EXAMINATION IN THE OUTPATIENT DEPARTMENT.

Relationship to pediatric inpatient services — THE ATTENDING PEDIATRICIAN SEES SERIOUS OR COMPLICATED CASES ON THE ORT UNIT AND ADMITS DIRECTLY TO THE NEARBY INPATIENT WARD WHEN INDICATED.

XII. PROFESSIONAL/INSTITUTIONAL RELATIONSHIPS

Parent/host institution of this unit

- hospital +
- hospital satellite clinic
- maternity
- health center, clinic, or dispensary
- other

Administrative responsibility

- federal government
- state government +
- local government
- university
- voluntary agency
- other private ownership

Interest in/support of ORT unit by administration of parent institution E

Acceptance of ORT by physicians E

Acceptance of ORT by hospital nurses E

Acceptance of ORT by health sisters NX

Acceptance of ORT by other health staff in the area NX

XIII. ORGANIZATION, MANAGEMENT, AND MONITORING

Who has responsibility for day-to-day operation of the unit?

SENIOR NURSING SISTER MRS. COMFORT HAMIDU

To whom is that person responsible? HOSPITAL MATRON

How often does he/she discuss the unit operation with the person to whom he/she is responsible?

NX

What staff are accountable to the unit supervisor? 9 NURSES, 1 ATTENDANT

How often does the supervisor meet with staff to discuss unit operation?

NX

Who is responsible for medical supervision of the unit? PMO I/C OF THE HOSPITAL PLUS AN ATTENDING PEDIATRICIAN

How often does the medical supervisor meet with the unit supervisor/staff to discuss unit operation?

SEVERAL TIMES A WEEK

Does the medical supervisor participate in in-service training of staff?

NX

How often are medical rounds made on the unit? 1 TO 3 TIMES A DAY

Do the supervisor and other professional staff take personal responsibility for all aspects of unit operation, including cleanliness of the unit area?

G/E

Does the supervisor lead by example? G/E

Does the supervisor treat other staff with respect and give due consideration to their suggestions?

G/E

Are registers and patient records kept consistently in standardized form?

G

Are accurate, up-to-date inventories of supplies and equipment kept, with adequate documentation of receipts and distributions?

F

Are stocks on hand of reasonable size to meet short-term needs? NX

Are stocks re-ordered in appropriate amounts in plenty of time for delivery?

+

How promptly are orders filled? G

Are the amounts requested supplied? 0

- if not, why not? HOSPITAL SUPPLY CONSTRAINTS WHICH APPLY EQUALLY TO OTHER AREAS OF THE HOSPITAL.

What statistics, if any, are routinely reviewed to monitor the work of the unit?

0

How often are reports of unit activities prepared, and to whom do they go?

NOT ESTABLISHED

XIV. STATISTICAL INDICATORS OF FUNCTION

Patients admitted in a specified number of days 231

- specify dates 13 AUG 85 - 19 AUG 85, INCLUSIVE.

- closing date should be before admission date of any children still on the unit

Patients of this group discharged adequately hydrated NK

- percent of admissions NK

Patients of this group transferred to another treatment unit NK

- for parenteral fluid therapy NK

- percent of admissions NK

- other reasons for transfer NK

- percent of admissions NK

Patients of this group who died in the unit 0

- percent of admissions 0 %

Patients of this group discharged against medical advice 0

- percent of admissions 0 %

Patients of this group withdrawn without discharge NK

- percent of admissions NK

Patients of this group unaccounted for in the records NA THERE IS NO SYSTEMATIC WAY OF RECORDING TRANSFERS OR DISCHARGES

- percent of admissions NA

Sum of lengths of stay of all for whom length of stay can be determined

NA TIMES OF ADMISSION AND DISCHARGE ARE NOT RECORDED.

- number of patients 0

Mean length of stay NK

Patients of this group given parenteral fluids on the ORT unit 0

- percent of total admissions 0 %

- intravenous 0

- intra-peritoneal 0

- subcutaneous clysis 0

Sum of admission weights of those with both admission and discharge weights recorded

NA NO WEIGHTS ARE RECORDED.

Sum of discharge weights of those with both admission and discharge weights recorded

NA

- number of patients 0

Mean admission weight NK

Mean discharge weight NK

Mean weight gain NK

Mean weight gain as percentage of admission weight NK

Number of admissions of each sex in each of the following age groups:

< 6 months	M: 18	F: 20	T: 38 (16%)
>= 6 months and < 12 months	M: 30	F: 32	T: 62 (27%)
>= 12 months and < 18 months	M: 23	F: 26	T: 49 (21%)
>= 18 months and < 24 months	M: 10	F: 6	T: 16 (7%)
>= 24 months and < 36 months	M: 19	F: 15	T: 34 (15%)
>= 36 months	M: 16	F: 16	T: 32 (14%)
TOTALS	M: 116	F: 115	T: 231

Sum of ORS volumes used for all those with complete records on ORS use

NA

- number of patients 0

Mean ORS intake per patient NK

Estimated ORS use for all admissions during the period NA

ORS stock in inventory at beginning of the period NX

ORS stock in inventory at end of the period NX

ORS stock received during the period NX

ORS distributed from inventory during the period NX

- issued to ORT unit NX

- other distributions NX

Total ORS consumption by the unit for the period NX

Sum of SSS volumes used by all those with complete records of SSS use

NA SSS NOT BEING ADMINISTERED ON THE UNIT.

- number of patients 0

Mean SSS volume used per patient 0

Estimated SSS volume used for all admissions during the period 0

Weight of sugar required to make this volume of SSS NA

Sugar stock in inventory at beginning of the period NX

Sugar stock in inventory at end of the period NX

Sugar stock received during the period NX

Sugar stock distributed from inventory during the period NX

- issued to ORT unit NX

- other distributions NX

Total sugar consumption by the ORT unit for the period NX

ADDITIONAL NOTES AND COMMENTS

NOTE 1: PREPARATION OF ORAL REHYDRATION SOLUTIONS

The ORS was being prepared using a cup to measure the water which holds exactly 2 Fanta bottles full, almost exactly 600 ml. The cup was being used in place of a liter measure, which was not available. 14 ORS packets intended for solution in 1 liter of water each were being dissolved in 14 X 600 ml, yielding a solution 1.67 X as concentrated as it should have been. The supervisor told me that when she made the solution herself, she had used only 12 packets, knowing that the cup they were using did not really contain a liter. This would yield a solution containing 1.43 X the required concentration of salts. I went through the calculations with her, and pointed out that she could prepare a correct solution by using 15 600 ml cups of water (= 9,000 ml) to dissolve 9 ORS packets. I also reported my findings and calculations to the attending pediatrician when she made her rounds on the unit. My explanations seemed to be appreciated, and I believe the problem will be corrected.

The teaching of sugar-salt solution preparation was very well done, and technically correct, but the mixing was done in a cup containing the required 600 ml. when full to the brim. This meant stirring a completely full cup, likely to lead to spilling of the solution and/or incomplete mixing. On reflection, it occurs to me that many practical mothers are likely to avoid this by using less water, yielding a solution more concentrated than recommended. Therefore, it would seem advisable to encourage the use of a covered bowl for preparation of the SSS, and to discourage the use of any container which would be completely filled by the addition of the required amount of water.

NOTE 2: CONSISTENCY AND EFFECTIVENESS OF APPLICATION OF ORT

There seems to be a tendency to give just 200 ml. of ORS regardless of the age or size of the child, or the severity of the dehydration. Accuracy of volumes recorded seems somewhat doubtful, and no compensation for loss through spillage was evident. Total volumes recorded as given appear small to me. Although admission and discharge times are not recorded, I have the impression that duration of stay on the unit may be less than needed for many patients. Some closer observation and more individual guidance and encouragement for mothers of the sicker children would probably be beneficial.

Some of these problems may be partly due to overcrowding of the facility during the busy morning hours. Also, it must be remembered that this is a very young unit, not quite three weeks old, not yet fully equipped, and already serving a staggering patient load (an average of 33 patients a day during the week preceding this visit). Any risk of under-treatment in these circumstances is minimized by the excellent, committed physician coverage, good communications between the nursing staff and physicians, and consistent cautioning of departing patient families to return the next day if the child is not better.

COMMENTS: This new unit deserves congratulations for the energetic start they have made in oral rehydration therapy. The interest and commitment of both nursing staff and physicians, and the way in which they are working together, make it likely that this will develop into an outstanding program. The nursing staff are actively interested in further workshops or training opportunities in ORT, and additional training for them could benefit the program greatly. They can benefit from all possible encouragement and expert guidance during this critical early period in development of their program. That will be more important to them than any material or financial aid. Perhaps the use of appropriately designed individual patient records would help them overcome their weaknesses in the area of clinical assessments and patient monitoring.

Given the needed training and guidance for the permanent staff of the unit, this could become an excellent health staff teaching center within the next four to six months.

APPENDIX G

EVALUATION OF A WORKING ORT UNIT

Unit visited: YOLA GENERAL HOSPITAL ORT UNIT

Site visitor: DR. (MRS.) JOYCE B. MATHISON

Dates of visit: 22 AUGUST 1985

OUTLINE FOR EVALUATION OF WORKING ORT UNITS

CONTENTS

ABBREVIATIONS KEY

NX = not examined

\+ = yes, satisfactory

0 = no, none

NA = not applicable

NK = not known

E = excellent

G = good

F = fair

P = poor

I. FACILITIES

Adequacy of space G

Separation from other activities G

Latrine facilities E: 2 TOILETS, BASIN, AND SHOWER FOR MOTHERS, 1 TOILET, BASIN, AND SHOWER FOR STAFF, APPROXIMATELY 40 FT. AWAY FROM PATIENT CARE AREA.

Water supply CARRIED FROM BATHROOMS. TAPS DO GO DRY OCCASIONALLY, BUT WATER CAN ALWAYS BE CARRIED FROM A RESERVE SUPPLY INSIDE THE HOSPITAL COMPOUND.

Surfaces washable and easy to clean

-floors G

-walls F

-furnishings G

Ventilation E: UNIT IS IN A LARGE OPEN VERANDAH WITH A HALF-WALL AROUND IT.

Screening 0

Secure storage for equipment and supplies G

Location

-accessibility E

-proximity to general pediatric inpatient/outpatient facilities

E: LOCATED IN THE HOSPITAL COMPOUND BETWEEN OUTPATIENT PEDIATRICS DEPARTMENT AND INPATIENT PEDIATRICS WARD.

NOTE: THIS NEW FACILITY HAS BEEN OPEN ONE MONTH.

II. STAFFING

Medical supervision PHYSICIAN IN NEARBY PEDIATRIC OUTPATIENT DEPARTMENT

Unit supervisory staff SENIOR NURSING SISTER MRS. BANSI

Other patient care staff 11 NURSES AND MIDWIVES; 1 STUDENT NURSE ASSIGNED FOR EVENING AND NIGHT SHIFTS

Cleaners 2

Other ancillary staff 0

24-hour distribution of staff coverage STAFF COVERAGE 24 HOURS X 7 DAYS A WEEK. EVENING AND NIGHT SHIFTS, WHEN PATIENTS ARE FEW, 1 NURSE AND 1 STUDENT NURSE ARE ON DUTY

Interest/enthusiasm of staff for ORT program E

Knowledge and competence in ORT administration G

Friendly, helpful attitude toward mothers G

Teamwork and cheerful cooperation among staff G

Take personal responsibility for the work situation, including cleanliness of the environment G

Care of equipment and supplies G

Staff ideas for improving services PHYSICIAN ROUNDS ON THE ORT UNIT ARE NEEDED. USE OF INDIVIDUAL PATIENT RECORD FORMS WOULD FACILITATE BETTER PATIENT MONITORING.

III. EQUIPMENT

Cups +

Spoons +

Beer bottles or Fanta bottles +: BEER BOTTLE

Covered buckets or vats for mixing ORS, storing drinking water +

Liter measure, graduated in milliliters 0: PLASTIC BUCKET GRADUATED IN LITERS

Long-handled spoon for stirring solution 0

Hand-washing basins +

Towels +

Towel racks or hooks +

Basins for washing babies 0, BUT MOTHERS CAN USE SHOWER AND BASIN 40 FT. AWAY WHICH ARE FOR EXCLUSIVELY FOR ORT UNIT USE.

Buckets or basins for cleaning floors and furnishings, washing clothing

FOR STAFF USE ONLY

Cleaning cloths NX

Fly swatters 0

Bedpans 0

Emesis basins 0

Cots for children, with plastic-covered mattresses 0: REQUESTED

Chairs for mothers BACKLESS BENCHES

Weighing scales 0

Thermometers +

Tables and chairs for staff +

Clipboards for patient records NX

Other equipment NA

IV. SUPPLIES

ORS +

Sugar +

Salt +

Drinking water +

Disinfectant 0

Soap +

Patient registers +

Patient record forms (+): SOME ARE LEFT FROM PREVIOUS USE, BUT THE SUPPLY AND USE OF THEM WAS DISCONTINUED AFTER DR. GRANGE'S VISIT, WHEN SHE SAID THEY WERE NOT NECESSARY.

Other supplies NA

Adequacy of supplies G

Security of supplies G

V. MANAGEMENT OF CHILDREN'S DIARRHEA

Evaluation of severity of fluid loss

- objective criteria F/G
- accuracy F/G
- consistency F/G

Screening for complications

- objective criteria F/G
- accuracy F/G
- consistency F/G

Appropriateness of formula(s) used WHO/UNICEF STANDARD

Accuracy of preparation G

Consistency and effectiveness of application G

Establishment of care-givers' trust and cooperation G

Participation of care-givers in treatment G

Reducing spread of infection F

Input/output monitoring INPUT ONLY RECORDED; APPEARS REASONABLY ACCURATE.

Frequency and accuracy of clinical re-evaluation NOT SCHEDULED OR RECORDED. NURSES SEEM FAIRLY ALERT TO PATIENTS' CONDITION; FLUID VOLUMES VARY WITH INDIVIDUAL PATIENT NEEDS; AND PATIENTS APPEAR TO BE IN REASONABLY GOOD CONDITION ON DISCHARGE.

Criteria for going to parenteral fluid use: NX: NO PARENTERAL FLUIDS ARE GIVEN ON THE ORT UNIT. THE MORE SERIOUS PATIENTS ARE SENT TO SEE THE PEDIATRICIAN IF NOT IMPROVING IN 4-8 HOURS, DEPENDING ON SEVERITY.

- objective clarity NX
- appropriateness NX
- application NX

Use of other medications NONE IN ORT UNIT. FOR INVESTIGATION AND TREATMENT OF SPECIFIC DISEASE CONDITIONS, CHILDREN ARE SENT TO THE PHYSICIAN IN THE PEDIATRIC OUTPATIENT DEPARTMENT.

Measles immunization UNIMMUNIZED CHILDREN ARE REFERRED TO MATERNAL AND CHILD WELFARE CLINIC OR THE IMMUNIZATION STATION IN THE PEDIATRIC OPD, BOTH LOCATED WITHIN 500 FT. OF THE ORT UNIT, DEPENDING ON THE AGE OF THE CHILD.

VI. HYGEINE

Who is responsible for sanitary condition of the environment?

CLEANERS AND NURSES.

Who is responsible for sanitary condition of the equipment?

CLEANERS AND NURSES.

Responsibility for hygeinic conditions shared by all staff G

Involvement of mothers in maintaining hygeinic conditions F

Cleanliness of floors, walls G

Cleanliness of equipment F/G

Presence of flies VERY MANY

Disposal of feces and vomitus PROMPT FLOOR CLEANUPS BY STAFF

Latrine facilities for staff, patient families E

Handwashing arrangements

- one basin or two? 2
- how often changed? PRN; WATER IS KEPT CLEAN.
- soap? +
- disinfectant rinse? 0
- clean, dry towel? F: MORE TOWELS NEEDED IN ORDER TO KEEP A DRY ONE.

Handwashing practices of staff, patient families E: ALL MOTHERS WASH HANDS WITH SOAP AND WATER AND DRY ON A CLEAN TOWEL TO PRACTICE PROPER LEVELING OF A TEASPOON FULL OF SALT. THEY USE THE SAME HAND-WASHING FACILITIES AS THE NURSES, WHICH I BELIEVE TO BE A VERY GOOD THING. MANY OF THE WOMEN HAVE PROBABLY NEVER BEFORE BEEN ABLE TO PICTURE THEMSELVES PRACTICING THE SAME HYGEINIC HABITS AS THESE RESPECTED HEALTH PROFESSIONALS.

Provision for washing patients, their cots, their clothing MOTHERS MAY WASH IN THE BASINS IN THE UNIT'S BATHROOMS, ABOUT 40 FT. FROM THE PATIENT CARE AREA.

Adequacy and accessibility of basins, cleaning cloths, disinfectant solution

P

VII. PATIENT/FAMILY EDUCATION

Who teaches? NURSING STAFF

Content of teaching

- diarrhea management +
- diarrhea prevention +
- immunizations +
- nutrition +
- malaria prevention 0
- other 0

Teaching techniques

- individual explanation +
- group presentation +
- question and answer +
- visual aids 0
- demonstrations +

Frequency of presentations ALMOST CONTINUOUS, LONGER HEALTH TALKS DAILY.

Length of presentations APPROPRIATE

Documentation of teaching activities

- for unit activities 0
- for individual patient care-giver 0

Change from ORS to SSS as child improves? 0

Training for SSS preparation and use

- verbal/visual +
- demonstration +
- practice and use in the ORT center EACH MOTHER MUST MEASURE A LEVEL TEASPOON FULL OF SALT TO SHOW HOW.

VIII. TRAINING FUNCTION

In-service training for unit staff +

Rotation of staff from other areas of hospital/clinic for training

+: 3 PERMANENT NURSING STAFF, OTHERS ROTATING

Assignment of staff from other institutions for training 0

Accept community volunteers for training in ORT 0

Involve trainees in all aspects of unit's function +

Test knowledge/competence of trainees 0

Provide letter of recognition on completion of training 0

IX. RECORD-KEEPING

Equipment inventory

- permanent records FILED (NO LEDGER)
- accurate, up to date NX
- signed records of additions, removals NX

Supply inventory

- permanent ledger 0
- accurate, up to date NX
- signed records of receipts, distributions NX

Requisitions/requests for equipment, supplies

- standard form +: HOSPITAL WARD REQUISITION FORM.
- copies retained +
- prepared and submitted at regular intervals +: WEEKLY

Patient register

- patient name, sex, age +
- date/time of admission and discharge DATES ONLY, NO TIMES.
- reason for discharge)
- condition at discharge) "OUTCOME"
- other information recorded ADDRESS, HOME TREATMENT, DURATION OF DIARRHEA, STOOL FREQUENCY AND CONSISTENCY, BLOOD OR MUCUS IN STOOL, MEASLES IMMUNIZATION, BREAST-FEEDING, SUNKEN EYES, SKIN TURGOR, MENTAL STATE, NUTRITION (BY ARM CIRCUMFERENCE RANGE), TOTAL ORS GIVEN.
- register complete, up to date, and legible E

Individual patient records NONE PRESENTLY IN USE. ACCORDING TO THE NURSES, THEY DISCONTINUED USE OF INDIVIDUAL PATIENT RECORDS BECAUSE DR. GRANGE TOLD THEM THEY WERE UNNECESSARY.

- standardized form 0: (+, FORMERLY)
- preserved permanently NA: (+, FORMERLY)
- weight, temperature on admission and discharge 0
- objective assessment of condition at specified intervals 0: (+, FORMERLY)
- input/output record 0: (+, FORMERLY)
- other information recorded NA
- completeness and accuracy of records maintained NA

Service/assignment records of staff, trainees +

Log of educational activities 0

Log of physician visits, patients reviewed NA

X. UTILIZATION/COMMUNITY RAPPORT

Admission trends over time THE UNIT IS JUST 3 MONTHS OLD. AFTER VERY HIGH RATES OF ADMISSSION THE FIRST TWO MONTHS, PATIENT LOAD IS NOW BEGINNING TO DECLINE. THE LAST WEEK IN MAY, THERE WERE 260 ADMISSIONS; THIS PAST WEEK THERE WERE 113 ADMISSIONS. WHILE THIS MIGHT BE DUE TO SEASONAL VARIATIONS, WHICH HAVE NOT YET BEEN LOOKED AT, OR TO OTHER FACTORS, WE HOPE IT IS DUE TO A LARGE NUMBER OF MOTHERS BEGINNING TO USE ORAL REHYDRATION EFFECTIVELY AT HOME.

Satisfaction of mothers on the unit E

Problems raised by mothers on the unit NX

Awareness of the service among local residents, community leaders NX

Value/problems of the service related by local residents, community leaders NX

Staff assessment of appropriateness of level of utilization

G: STAFF BELIEVE THE DECLINING PATIENT LOAD IS RELATED TO BETTER-INFORMED HOME CARE FOR DIARRHEAL DISEASES.

Any segments of the community whose children are seldom or never brought to the unit; possible explanations NONE. AMENITY WARD AS WELL AS GENERAL OPD PATIENTS ARE REFERRED TO THE UNIT FOR ORAL REHYDRATION. PATIENTS COME FROM ALL RELIGIOUS GROUPS AND ALL SOCIO-ECONOMIC LEVELS.

Problems in community relations of which staff are aware

AT FIRST, THERE SEEMED TO BE SOME DOUBT OF THE VALUE OF THE METHOD, AND PEOPLE WOULD MAKE JOKES, SAYING GONGOLA STATE WAS SO POOR THEY NOW HAD TO GIVE SUGAR AND SALT INSTEAD OF MEDICINE. HOWEVER THE PROGRAM SEEMS TO HAVE WON OVER MOST SKEPTICS, AND THERE IS A GENERAL ACCEPTANCE OF THE EFFICACY AND IMPORTANCE OF THE ORT METHOD.

XI. INTEGRATION WITH OTHER PRIMARY HEALTH SERVICES FOR CHILDREN

Relationship to clean water and sanitation program ORT IS BEING TAUGHT IN THE RURAL BASIC SERVICES PROGRAM.

Relationship to EPI program CHILDREN ARE BEING REFERRED TO THE CHILD HEALTH PROGRAM AND THE IMMUNIZATION STATION IN THE PEDIATRIC OPD, IN NEARBY BUILDINGS, FOR FULL EPI IMMUNIZATIONS.

Relationship to well-baby clinics, malaria prevention, other MCH programs
MOTHERS OF INFANTS ARE BEING ENCOURAGED TO ATTEND WELL-BABY CLINICS REGULARLY.

Relationship to nutrition programs THERE IS APPROPRIATE ON-THE-SPOT NUTRITION TEACHING AS WELL AS REFERRAL TO WELL-BABY CLINICS.

Relationship to pediatric outpatient services DIRECT REFERRAL TO PHYSICIAN IN NEARBY PEDIATRIC OPD FOR TREATMENT OF SPECIFIC DISEASE PROBLEMS AS NEEDED.

Relationship to pediatric inpatient services THROUGH THE PHYSICIAN IN CHARGE OF PEDIATRIC OPD.

XII. PROFESSIONAL/INSTITUTIONAL RELATIONSHIPS

Parent/host institution of this unit

- hospital +
- hospital satellite clinic
- maternity
- health center, clinic, or dispensary
- other

Administrative responsibility

- federal government
- state government +
- local government
- university
- voluntary agency
- other private ownership

Interest in/support of ORT unit by administration of parent institution

G

Acceptance of ORT by physicians SOME INITIAL RESISTANCE BY OLDER PHYSICIANS. SEE NOTE 1.

Acceptance of ORT by hospital nurses G/E

Acceptance of ORT by health sisters G/E

Acceptance of ORT by other health staff in the area G/E

XIII. ORGANIZATION, MANAGEMENT, AND MONITORING

Who has responsibility for day-to-day operation of the unit?

SENIOR NURSING SISTER MRS. BANSI

To whom is that person responsible? ASSISTANT CHIEF NURSING OFFICER MRS. GIDEON.

How often does he/she discuss the unit operation with the person to whom he/she is responsible?

2-3 TIMES A WEEK.

What staff are accountable to the unit supervisor? 11 NURSES AND MIDWIVES, 2 CLEANERS.

How often does the supervisor meet with staff to discuss unit operation?

NX

Who is responsible for medical supervision of the unit? THE PHYSICIAN IN CHARGE OF PEDIATRIC OPD.

How often does the medical supervisor meet with the unit supervisor/staff to discuss unit operation?

NEVER. SEE NOTE 1.

Does the medical supervisor participate in in-service training of staff?

0

How often are medical rounds made on the unit? NEVER. SEE NOTE 1.

Do the supervisor and other professional staff take personal responsibility for all aspects of unit operation, including cleanliness of the unit area?

E

Does the supervisor lead by example? NX

Does the supervisor treat other staff with respect and give due consideration to their suggestions?

G/E

Are registers and patient records kept consistently in standardized form?

+

Are accurate, up-to-date inventories of supplies and equipment kept, with adequate documentation of receipts and distributions?

0

Are stocks on hand of reasonable size to meet short-term needs? +

Are stocks re-ordered in appropriate amounts in plenty of time for delivery?
+

How promptly are orders filled? SAME DAY

Are the amounts requested supplied? NOT ALL

- if not, why not? HOSPITAL SUPPLY CONSTRAINTS WHICH APPLY EQUALLY TO OTHER AREAS OF THE HOSPITAL.

What statistics, if any, are routinely reviewed to monitor the work of the unit?
0

How often are reports of unit activities prepared, and to whom do they go?
NO REPORTS HAVE BEEN PREPARED EXCEPT ON SPECIFIC REQUEST OF UNICEF OR HOSPITAL STATISTICS OFFICE.

XIV. STATISTICAL INDICATORS OF FUNCTION

Patients admitted in a specified number of days 124

- specify dates 15 AUG 85 - 21 AUG 85, INCLUSIVE.

- closing date should be before admission date of any children still on the unit

Patients of this group discharged adequately hydrated NK

- percent of admissions NK

Patients of this group transferred to another treatment unit NK

- for parenteral fluid therapy NK

- percent of admissions NK

- other reasons for transfer NK

- percent of admissions NK

Patients of this group who died in the unit 0

- percent of admissions 0%

Patients of this group discharged against medical advice NK

- percent of admissions NK

Patients of this group withdrawn without discharge NK

- percent of admissions NK

Patients of this group unaccounted for in the records NA

- percent of admissions NA

Sum of lengths of stay of all for whom length of stay can be determined

- number of patients 0

Mean length of stay NA

Patients of this group given parenteral fluids on the ORT unit 0

- percent of total admissions 0%

- intravenous 0

- intra-peritoneal 0

- subcutaneous clysis 0

Sum of admission weights of those with both admission and discharge weights recorded
0

Sum of discharge weights of those with both admission and discharge weights recorded
0

- number of patients 0

Mean admission weight NK

Mean discharge weight NK

Mean weight gain NK

Mean weight gain as percentage of admission weight NK

Number of admissions of each sex in each of the following age groups:

< 6 months	M: 6	F: 6	T: 12 (10%)
>= 6 months and < 12 months	M: 12	F: 29	T: 41 (33%)
>= 12 months and < 18 months	M: 12	F: 9	T: 21 (17%)
>= 18 months and < 24 months	M: 10	F: 5	T: 15 (12%)
>= 24 months and < 36 months	M: 9	F: 6	T: 15 (12%)
>= 36 months	M: 10	F: 10	T: 20 (16%)
TOTALS	M: 59	F: 65	T: 124

Sum of ORS volumes used for all those with complete records on ORS use 55,100 ML.

- number of patients 124

Mean ORS intake per patient 444 ML.

Estimated ORS use for all admissions during the period 55,100 ML.

ORS stock in inventory at beginning of the period NX

ORS stock in inventory at end of the period NX

ORS stock received during the period NX

ORS distributed from inventory during the period NX

- issued to ORT unit NX

- other distributions NX

Total ORS consumption by the unit for the period NX

Sum of SSS volumes used by all those with complete records of SSS use NA

- number of patients NA

Mean SSS volume used per patient NA

Estimated SSS volume used for all admissions during the period NA

Weight of sugar required to make this volume of SSS NA

Sugar stock in inventory at beginning of the period NX

Sugar stock in inventory at end of the period NX

Sugar stock received during the period NX

Sugar stock distributed from inventory during the period

- issued to ORT unit NX
- other distributions NX

Total sugar consumption by the ORT unit for the period NX

ADDITIONAL NOTES AND COMMENTS

NOTE 1: PHYSICIAN SUPERVISION AND ROUNDS

Unfortunately, the consulting pediatricians in Yola have been less than enthusiastic about the ORT program, and have not participated actively in its development. The sisters would like to have physician rounds on the unit, but so far dehydrated children with other medical problems still have to go and sit in the outpatient line to be seen by the doctor. With the support and guidance of the hospital administration, the Health Services Management Board administration, and the state Epidemiology Unit, the sisters are doing an excellent job. It is hoped that the active support of the pediatricians may yet be enlisted. Perhaps scientific seminars on ORT for hospital physicians would be the best first step in the establishment of new hospital ORT programs. This might promote more of the interest and active support these programs need from hospital medical staffs.

COMMENT:

In just three months of operation, this unit has established a commendable level of service. Its most attractive feature is the apparent positive relationship between the staff and mothers of the children. One has the impression that the mothers have a great deal of confidence in the unit staff and are likely to try to follow their advice on leaving the unit.

The clinical competence of the nurses seems very good. This may have been promoted by two factors: (1) The fact that they started their work using an individual patient record form may have helped establish a closer attention to clinical details than would otherwise have obtained. It is interesting to note that the nurses themselves feel the use of individual patient records would help them to take better care of patients. (2) The unfortunate lack of regular medical supervision and consultation on the unit have made it necessary for the nurses to assume complete responsibility for clinical decisions on the unit.

The fly problem is noticeable in spite of a high standard of cleanliness in the area. It would be a great improvement if means could be found to enclose the unit area with screening.

This unit can already be recommended as a training center for staff from other health care facilities. Its value as a demonstration unit would be improved if arrangements could be made for some interested staff physician to make regular rounds on the unit, providing guidance to the sisters in clinical evaluations, and prescribing needed treatment for specific disease problems in the children receiving oral rehydration therapy. Ready availability of physician consultation on the unit might also make it possible to safely rehydrate more severely dehydrated children orally as outpatients, resulting in greater savings on intravenous fluids and inpatient care costs.

APPENDIX H

EVALUATION OF A WORKING ORT UNIT

Unit visited: SOKOTO UNIVERSITY TEACHING HOSPITAL ORT UNIT

Site visitor: DR. (MRS.) JOYCE B. MATHISON

Dates of visit: 11-12 SEPTEMBER 1985

OUTLINE FOR EVALUATION OF WORKING ORT UNITS

CONTENTS

ABBREVIATIONS KEY

NX = not examined

\+ = yes, satisfactory

0 = no, none

NA = not applicable

E = excellent

G = good

F = fair

P = poor

I. FACILITIES

Adequacy of space F

Separation from other activities F/G

Latrine facilities NX

Water supply WATER MUST BE CARRIED FROM AN ADJACENT AREA OF THE HOSPITAL; HOSPITAL SUPPLY IS RELIABLE.

Surfaces washable and easy to clean

-floors G

-walls G

-furnishings G

Ventilation G

Screening 0

Secure storage for equipment and supplies NX

Location

-accessibility E

-proximity to general pediatric inpatient/outpatient facilities

E: SCREENED-OFF SECTION OF PEDIATRIC OUTPATIENT CLINIC AREA.

II. STAFFING

Medical supervision DR. ODIACHIE

Unit supervisory staff NX

Other patient care staff NX

Cleaners NX

Other ancillary staff NX

24-hour distribution of staff coverage NX

Interest/enthusiasm of staff for ORT program G/E

Knowledge and competence in ORT administration G

Friendly, helpful attitude toward mothers G

Teamwork and cheerful cooperation among staff NX

Take personal responsibility for the work situation, including cleanliness of the environment NX

Care of equipment and supplies G

Staff ideas for improving services NX

III. EQUIPMENT

Cups +

Spoons +

Beer bottles or mineral bottles NX

Covered buckets or vats for mixing ORS, storing drinking water +

Liter measure, graduated in milliliters +: 500 ML, STAINLESS STEEL, GRADUATED

Long-handled spoon for stirring solution NX

Hand-washing basins +

Towels NX

Towel racks or hooks 0

Basins for washing babies 0

Buckets or basins for cleaning floors and furnishings, washing clothing NX

Cleaning cloths NX

Fly swatters NX

Bedpans NX

Emesis basins NX

Cots for children, with plastic-covered mattresses 0

Chairs for mothers BENCHES

Weighing scales +

Thermometers NX

Tables and chairs for staff +

Clipboards for patient records +

Other equipment ORT POSTERS PROMINENTLY DISPLAYED. RECOMMENDED AMOUNTS POSTER OVER NURSES' WRITING DESK.

IV. SUPPLIES

ORS +

Sugar +

Salt +

Drinking water +

Disinfectant NX

Soap +

Patient registers +

Patient record forms +

Other supplies NX

Adequacy of supplies NX

Security of supplies NX

V. MANAGEMENT OF CHILDREN'S DIARRHEA

Evaluation of severity of fluid loss

- objective criteria +
- accuracy NX
- consistency NX

Screening for complications ALL CHILDREN ARE SEEN BY A PHYSICIAN EITHER JUST BEFORE OR JUST AFTER THEIR STAY ON THE ORT UNIT.

- objective criteria NX
- accuracy NX
- consistency NX

Appropriateness of formula(s) used G

Accuracy of preparation G

Consistency and effectiveness of application NX

Establishment of care-givers' trust and cooperation G

Participation of care-givers in treatment G

Reducing spread of infection NX

Input/output monitoring RECORD ONLY FLUID VOLUMES GIVEN; URINATION NOT RECORDED

Frequency and accuracy of clinical re-evaluation NX

Criteria for going to parenteral fluid use:

- objective clarity NX
- appropriateness NX — PARENTERAL FLUID VERY RARELY USED NOW.
- application NX

Use of other medications SPECIFIC THERAPY FOR OTHER DISEASES AS PRESCRIBED BY PHYSICIANS. NO MEDICATIONS FOR DIARRHEA GIVEN IN ORT UNIT.

Measles immunization SENT TO CLINIC IMMUNIZATION AREA IF UNIMMUNIZED.

VI. HYGEINE

Who is responsible for sanitary condition of the environment? NX

Who is responsible for sanitary condition of the equipment? NX

Responsibility for hygeinic conditions shared by all staff NX

Involvement of mothers in maintaining hygeinic conditions NX

Cleanliness of floors, walls G

Cleanliness of equipment G

Presence of flies +

Disposal of feces and vomitus NX

Latrine facilities for staff, patient families NX

Handwashing arrangements

- one basin or two? 1
- how often changed? POURING METHOD USED. WATER NOT KEPT IN BASIN FOR HAND-WASHING.
- soap? +
- disinfectant rinse? 0
- clean, dry towel? NX

Handwashing practices of staff, patient families HANDWASHING FACILITIES APPARENTLY PROVIDED ONLY FOR STAFF AND POSSIBLY THOSE ABOUT TO PARTICIPATE IN DEMONSTRATIONS; WHEN I ASKED IF I COULD WASH MY HANDS, THE STAFF SAID NO, THERE WASN'T ENOUGH WATER. IT APPEARED THIS WAS AN UNUSUAL REQUEST.

Provision for washing patients, their cots, their clothing 0

Adequacy and accessibility of basins, cleaning cloths, disinfectant solution
NX

VII. PATIENT/FAMILY EDUCATION

Who teaches? NURSING STAFF

Content of teaching NX

- diarrhea management NX
- diarrhea prevention NX
- immunizations NX
- nutrition NX
- malaria prevention NX
- other NX

Teaching techniques

- individual explanation NX
- group presentation NX
- question and answer NX
- visual aids NX
- demonstrations +

Frequency of presentations NX

Length of presentations NX

Documentation of teaching activities

- for unit activities NX
- for individual patient care-giver NX

Change from ORS to SSS as child improves? 0

Training for SSS preparation and use

- verbal/visual +
- demonstration +
- practice and use in the ORT center +

VIII. TRAINING FUNCTION

In-service training for unit staff ON-GOING, BY ENTHUSIASTIC ATTENDING PEDIATRICIAN.

Rotation of staff from other areas of hospital/clinic for training NX

Assignment of staff from other institutions for training NX

Accept community volunteers for training in ORT NX

Involve trainees in all aspects of unit's function NX

Test knowledge/competence of trainees NX

Provide letter of recognition on completion of training NX

IX. RECORD-KEEPING

Equipment inventory

- permanent records NX
- accurate, up to date NX
- signed records of additions, removals NX

Supply inventory

- permanent ledger NX
- accurate, up to date NX
- signed records of receipts, distributions NX

Requisitions/requests for equipment, supplies

- standard form NX
- copies retained NX
- prepared and submitted at regular intervals NX

Patient register

- patient name, sex, age +
- date/time of admission and discharge DATES ONLY; TIMES NOT RECORDED.
- reason for discharge NX
- condition at discharge NX
- other information recorded NX
- register complete, up to date, and legible G

Individual patient records

- standardized form +; SIMILAR TO DR. OKEAHIALEM'S; SEE NOTE 1.
- preserved permanently +
- weight, temperature on admission and discharge NX
- objective assessment of condition at specified intervals +
- input/output record NX
- other information recorded NX
- completeness and accuracy of records maintained NX

Service/assignment records of staff, trainees NX

Log of educational activities NX

Log of physician visits, patients reviewed NA; ALL PATIENTS SEEN BY CLINIC PHYSICIANS

X. UTILIZATION/COMMUNITY RAPPORT

Admission trends over time NX

Satisfaction of mothers on the unit G

Problems raised by mothers on the unit NX

Awareness of the service among local residents, community leaders NX

Value/problems of the service related by local residents, community leaders
NX

Staff assessment of appropriateness of level of utilization NX

Any segments of the community whose children are seldom or never brought to the unit; possible explanations
NX

Problems in community relations of which staff are aware NX

XI. INTEGRATION WITH OTHER PRIMARY HEALTH SERVICES FOR CHILDREN

Relationship to clean water and sanitation program NX

Relationship to EPI program NX

Relationship to well-baby clinics, malaria prevention, other MCH programs
NX

Relationship to nutrition programs MALNOURISHED CHILDREN ARE REFERRED TO THE NUTRITION UNIT, WHICH DOES NUTRITION EDUCATION OF MOTHERS WITH DEMONSTRATION OF FOOD PREPARATION.

Relationship to pediatric outpatient services E: INTEGRATED. MALARIA TREATMENT CONSISTS OF CHLOROQUINE + ORT.

Relationship to pediatric inpatient services THROUGH CLINIC PHYSICIANS, WHO SEE ALL THE CHILDREN.

XII. PROFESSIONAL/INSTITUTIONAL RELATIONSHIPS

Parent/host institution of this unit

- hospital +
- hospital satellite clinic
- maternity
- health center, clinic, or dispensary
- other

Administrative responsibility

- federal government +
- state government
- local government
- university +
- voluntary agency
- other private ownership

Interest in/support of ORT unit by administration of parent institution

NX

Acceptance of ORT by physicians G/E

Acceptance of ORT by hospital nurses G/E

Acceptance of ORT by health sisters NX

Acceptance of ORT by other health staff in the area G/E

XIII. ORGANIZATION, MANAGEMENT, AND MONITORING

Who has responsibility for day-to-day operation of the unit? NX

To whom is that person responsible? NX

How often does he/she discuss the unit operation with the person to whom he/she is responsible?
NX

What staff are accountable to the unit supervisor? NX

How often does the supervisor meet with staff to discuss unit operation?

NX

Who is responsible for medical supervision of the unit? DR. ODIACHIE, ATTENDING PEDIATRICIAN, WITH DOCTORS WORKING IN PEDIATRIC OUTPATIENT CLINIC.

How often does the medical supervisor meet with the unit supervisor/staff to discuss unit operation?
FREQUENTLY; DR. ODIACHIE IS AN ACTIVE, INTERESTED SUPERVISOR WITH EVIDENT TEACHING SKILLS.

Does the medical supervisor participate in in-service training of staff?

YES

How often are medical rounds made on the unit? NX; ALL PATIENTS ARE SEEN BY DOCTORS IN THE PEDIATRIC OUTPATIENT CLINIC.

Do the supervisor and other professional staff take personal responsibility for all aspects of unit operation, including cleanliness of the unit area?
NX

Does the supervisor lead by example? NX

Does the supervisor treat other staff with respect and give due consideration to their suggestions?
NX

Are registers and patient records kept consistently in standardized form?
G

Are accurate, up-to-date inventories of supplies and equipment kept, with adequate documentation of receipts and distributions?
NX

Are stocks on hand of reasonable size to meet short-term needs? NX

Are stocks re-ordered in appropriate amounts in plenty of time for delivery?
NX

How promptly are orders filled? NX

Are the amounts requested supplied? NX

- if not, why not?

What statistics, if any, are routinely reviewed to monitor the work of the unit?
NX

How often are reports of unit activities prepared, and to whom do they go?
NX

XIV. STATISTICAL INDICATORS OF FUNCTION: NOT EXAMINED

ADDITIONAL NOTES AND COMMENTS

NOTE 1: Dr. Odiachie, after discussing the problems of clinical assessment of level of dehydration, volunteered to try keeping patients on the unit until they are urinating, and recording urination in a column added to the individual record.

COMMENT: An excellent start, with accurate preparation of solutions, appropriate teaching of sugar-salt solution preparation and use, medical supervision of all cases, a clean, well-ventilated work space, and an excellent supervising/training relationship of the medical supervisor with the unit staff. The pattern of integration into pediatric outpatient clinic seems to be working very smoothly to the benefit of patients and mothers. The very busy and crowded pediatric inpatient ward has at present no children on IV treatment for diarrhea. This is now done very rarely at Sokoto University Teaching Hospital.

The head of pediatrics, but not the medical supervisor of the ORT unit, does still prescribe antidiarrheal medications for patients admitted to the ward with other problems, but none are given on the ORT unit.

This unit appears ready to function as a training center for ORT already. The only addition I would like to see is hand-washing facilities more readily available to the mothers as well as the staff.

APPENDIX I

EVALUATION OF A WORKING ORT UNIT

Unit visited: SOKOTO WOMEN'S AND CHILDREN'S WELFARE CLINIC

Site visitor: DR. (MRS.) JOYCE B. MATHISON

Dates of visit: 11-12 SEPTEMBER 1985

OUTLINE FOR EVALUATION OF WORKING ORT UNITS

CONTENTS

ABBREVIATIONS KEY

NX = not examined

\+ = yes, satisfactory

0 = no, none

NA = not applicable

E = excellent

G = good

F = fair

P = poor

I. FACILITIES

Adequacy of space F/G

Separation from other activities G

Latrine facilities NEARBY

Water supply NX

Surfaces washable and easy to clean

-floors G

-walls G

-furnishings G

Ventilation E

Screening E

Secure storage for equipment and supplies NX

Location

-accessibility E

-proximity to general pediatric inpatient/outpatient facilities

INTEGRATED INTO A MATERNAL AND CHILD HEALTH CLINIC WITH ANTENATAL, MATERNITY, FAMILY PLANNING, EPI, ORT, INFANT WELFARE, NUTRITION, AND OUTPATIENT PEDIATRIC SERVICES IN THE SAME COMPLEX. CHILDREN REQUIRING HOSPITALIZATION ARE REFERRED TO SOKOTO UNIVERSITY TEACHING HOSPITAL.

II. STAFFING

Medical supervision DR. (MRS.) EASAW

Unit supervisory staff NX

Other patient care staff NX

Cleaners NX

Other ancillary staff NX

24-hour distribution of staff coverage NX

Interest/enthusiasm of staff for ORT program E

Knowledge and competence in ORT administration G/E

Friendly, helpful attitude toward mothers NX

Teamwork and cheerful cooperation among staff G

Take personal responsibility for the work situation, including cleanliness of the environment NX

Care of equipment and supplies G

Staff ideas for improving services NX

III. EQUIPMENT

Cups +

Spoons +

Beer bottles or mineral bottles NX

Liter measure or bucket graduated in liters +

Long-handled spoon for stirring solution NX

100-200 ml measure of known volume for dispensing ORS NX

Covered buckets or plastic jerricans for storing drinking water NX

Hand-washing basins +

Towels ONLY TOWEL HAD BEEN WASHED AND WAS DRYING

Towel racks or hooks NX

Basins for washing babies NX

Buckets or basins for cleaning floors and furnishings, washing clothing NX

Cleaning cloths NX

Fly swatters NX

Bedpans NX

Emesis basins NX

Cots for children, with plastic-covered mattresses 0

Chairs for mothers BENCHES

Weighing scales +

Thermometers +

Tables and chairs for staff +

Patient register +

Clipboards for patient records NX

Other equipment NX

IV. SUPPLIES

ORS +

Sugar +

Salt +

Drinking water NX

Disinfectant NX

Soap +

Patient record forms NX

Other supplies NX

Adequacy of supplies NX

Security of supplies NX

V. MANAGEMENT OF CHILDREN'S DIARRHEA

Evaluation of severity of fluid loss

- objective criteria +
- accuracy NX
- consistency NX

Screening for complications

- objective criteria NX
- accuracy NX
- consistency NX

Appropriateness of formula(s) used G

Accuracy of preparation G

Consistency and effectiveness of application NX

Establishment of care-givers' trust and cooperation NX

Participation of care-givers in treatment NX

Reducing spread of infection NX

Input/output monitoring INPUT ONLY

Frequency and accuracy of clinical re-evaluation NX

Criteria for going to parenteral fluid use:

- objective clarity
- appropriateness
- application

NONE USED IN THIS FACILITY.

Use of other medications NX

Measles immunization UNIMMUNIZED CHILDREN ARE REFERRED TO EPI CLINIC WITHIN THE SAME COMPLEX

VI. HYGEINE

Who is responsible for sanitary condition of the environment? NX

Who is responsible for sanitary condition of the equipment? NX

Responsibility for hygeinic conditions shared by all staff NX

Involvement of mothers in maintaining hygeinic conditions NX

Cleanliness of floors, walls E

Cleanliness of equipment E

Presence of flies ONLY 1 OR 2, ADMITTED AS WE CAME IN.

Disposal of feces and vomitus NX

Latrine facilities for staff, patient families NX

Handwashing arrangements

- one basin or two? ONE
- how often changed? NX
- soap? +
- disinfectant rinse? 0
- clean, dry towel? 0; ONLY TOWEL HAD BEEN WASHED AND WAS DRYING.

Handwashing practices of staff, patient families NX

Provision for washing patients, their cots, their clothing NX

Adequacy and accessibility of basins, cleaning cloths, disinfectant solution
NX

VII. PATIENT/FAMILY EDUCATION

Who teaches? NURSING STAFF

Content of teaching

- diarrhea management +
- diarrhea prevention NX
- immunizations NX
- nutrition NX
- malaria prevention NX
- other NX

Teaching techniques

- individual explanation NX
- group presentation NX
- question and answer NX
- visual aids ORT POSTERS PROMINENTLY DISPLAYED
- demonstrations +

Frequency of presentations NX

Length of presentations NX

Documentation of teaching activities

- for unit activities NX
- for individual patient care-giver NX

Change from ORS to SSS as child improves? 0

Training for SSS preparation and use

- verbal/visual +
- demonstration +
- practice and use in the ORT center 0

VIII. TRAINING FUNCTION

In-service training for unit staff +; BY MEDICAL SUPERVISOR

Rotation of staff from other areas of hospital/clinic for training +

Assignment of staff from other institutions for training 0

Accept community volunteers for training in ORT NX

Involve trainees in all aspects of unit's function +

Test knowledge/competence of trainees NX

Provide letter of recognition on completion of training NX

IX. RECORD-KEEPING

Equipment inventory

- permanent records NX
- accurate, up to date NX
- signed records of additions, removals NX

Supply inventory

- permanent ledger NX
- accurate, up to date NX
- signed records of receipts, distributions NX

Requisitions/requests for equipment, supplies

- standard form NX
- copies retained NX
- prepared and submitted at regular intervals NX

Patient register

- patient name, sex, age +
- date/time of admission and discharge DATES ONLY; NO TIMES
- reason for discharge
- condition at discharge
- other information recorded

} AS IN FORMAT RECOMMENDED BY DR. GRANGE; TEMPERATURE ON DISCHARGE ALSO RECORDED.

- register complete, up to date, and legible +

Individual patient records 0

- standardized form
- preserved permanently
- weight, temperature on admission and discharge
- objective assessment of condition at specified intervals
- input/output record
- other information recorded
- completeness and accuracy of records maintained

Service/assignment records of staff, trainees NX

Log of educational activities NX

Log of physician visits, patients reviewed NX

X. UTILIZATION/COMMUNITY RAPPORT

Admission trends over time NX

Satisfaction of mothers on the unit NX

Problems raised by mothers on the unit NX

Awareness of the service among local residents, community leaders NX

Value/problems of the service related by local residents, community leaders
NX

Staff assessment of appropriateness of level of utilization

GOOD IN THE ORT UNIT; MANY MOTHERS DON'T FOLLOW THROUGH AT HOME.

Any segments of the community whose children are seldom or never brought to the unit; possible explanations
NX

Problems in community relations of which staff are aware NX

XI. INTEGRATION WITH OTHER PRIMARY HEALTH SERVICES FOR CHILDREN

Relationship to clean water and sanitation program NX

Relationship to EPI program EPI CLINIC LOCATED IN SAME COMPLEX.

Relationship to well-baby clinics, malaria prevention, other MCH programs

THIS ORT UNIT IS AN INTEGRAL PART OF A COMPREHENSIVE MATERNAL AND CHILD HEALTH CENTER, WHICH INCLUDES A FAMILY PLANNING UNIT OFFERING MULTIPLE METHODS.

Relationship to nutrition programs NUTRITION UNIT WITH DEMONSTRATION PROGRAM IN THE SAME COMPLEX.

Relationship to pediatric outpatient services INTEGRATED; MALARIA PATIENTS ARE TREATED WITH CHLOROQUINE + ORT.

Relationship to pediatric inpatient services REFERRAL TO SUTH BY ATTENDING PHYSICIAN FOR CHILDREN NEEDING HOSPITALIZATION

XII. PROFESSIONAL/INSTITUTIONAL RELATIONSHIPS

Parent/host institution of this unit

- hospital
- hospital satellite clinic
- maternity +
- health center, clinic, or dispensary +
- other

Administrative responsibility

- federal government
- state government +
- local government (FORMERLY)
- university
- voluntary agency
- other private ownership

Interest in/support of ORT unit by administration of parent institution E

Acceptance of ORT by physicians E

Acceptance of ORT by nurses and midwives E

Acceptance of ORT by health sisters E

Acceptance of ORT by other health staff in the area E

XIII. ORGANIZATION, MANAGEMENT, AND MONITORING

Who has responsibility for day-to-day operation of the unit? NX

To whom is that person responsible? NX

How often does he/she discuss the unit operation with the person to whom he/she is responsible?

NX

What staff are accountable to the unit supervisor? NX

How often does the supervisor meet with staff to discuss unit operation?

NX

Who is responsible for medical supervision of the unit?

DR. (MRS.) S. EASAW

How often does the medical supervisor meet with the unit supervisor/staff to discuss unit operation?

NX

Does the medical supervisor participate in in-service training of staff?

YES

How often are medical rounds made on the unit? NX

Do the supervisor and other professional staff take personal responsibility for all aspects of unit operation, including cleanliness of the unit area?

NX

Does the supervisor lead by example? NX

Does the supervisor treat other staff with respect and give due consideration to their suggestions?

NX

Are registers and patient records kept consistently in standardized form?

NX

Are accurate, up-to-date inventories of supplies and equipment kept, with adequate documentation of receipts and distributions?

NX

Are stocks on hand of reasonable size to meet short-term needs? NX

Are stocks re-ordered in appropriate amounts in plenty of time for delivery?

NX

How promptly are orders filled? NX

Are the amounts requested supplied? NX

- if not, why not?

What statistics, if any, are routinely reviewed to monitor the work of the unit?

NX

How often are reports of unit activities prepared, and to whom do they go?

NX

XIV. STATISTICAL INDICATORS OF FUNCTION: NOT EXAMINED

ADDITIONAL NOTES AND COMMENTS

COMMENT: This outstanding facility has overcome the common tendency to fragmentation and lack of mutual support of the various services related to child welfare. There is excellent medical supervision, high staff morale, and an apparent positive team spirit here.

Although the review was an abbreviated one due to the shortness of time, this unit appears to be ready to receive staff on training rotations from other institutions.

APPENDIX J

EVALUATION PART I: CHECK THE ESSENTIALS

1. Is the ORS being prepared properly?

2. Is it being given in adequate volumes?

3. Are the children getting breast milk or other fluids in addition to ORS?

4. Are children who are not vomiting being fed?

5. Are antidiarrheals being prescribed for the children?

6. Is there screening for need of other treatment?

   - state of consciousness
   - fever
   - shortness of breath
   - blood or much mucus in stool
   - diarrhea for more than five days
   - other

7. Is the children's clinical condition being monitored adequately?

   Method:

8. Are the children adequately hydrated on discharge?

   Criteria for discharge:

   - patient alert
   - patient urinating
   - clinical signs of dehydration absent
   - other

9. Are the mothers being taught correct preparation of SSS for home use?

10. Are mothers being taught danger signs to watch for?

- extreme weakness
- confusion or abnormal drowsiness
- convulsions
- shortness of breath
- other

11. Are mothers being taught signs of safety for the child with diarrhea?

- urinating freely
- other

12. Are the essential items of equipment on hand?

- cups for feeding
- spoons for feeding
- 3 ml teaspoon
- beer bottle or mineral bottle
- large covered containers for ORS and drinking water
- long-handled spoon or rod for stirring ORS
- 100-200 ml measure of known volume for dispensing ORS
- container of known volume suitable for measuring water for ORS
- patient register
- handwashing basin
- towel

13. Are the essential supplies on hand?

- ORS
- sugar
- salt
- drinking water
- handwashing water
- soap

APPENDIX K

PROGRAM-BASED BUDGETING FOR ORT:

WORKSHEETS FOR STATE BUDGET PLANNING

Each state is unique, with its own set of needs and opportunities, resources and constraints, and management structure for delivery of health services. Therefore, each state needs its own program planning to adapt the general program design to fit the state's specific situation, and appropriate budget planned specifically to support the state's own program.

These worksheets are suggested as a guide for building workable program-based budgets for ORT promotion efforts at the state level.

WORKSHEET A: NUMBERS AND TYPES OF HEALTH CARE FACILITIES IN THE STATE

Cost estimates for the program need to be based on an accurate count of health care institutions which provide primary health care to children. The state's primary responsibility for equipment and supplies will be based on the number of state-operated facilities offering primary health care to children.

Since the federal government will need to provide full support for federally supported institutions, an inventory of such institutions in each state needs to be taken so that the responsible federal government agencies can be appropriately informed of these needs. As the federal government will also provide some ORS for LGA facilities, an inventory of LGA facilities will be needed for each state, as well.

While the government will not be providing equipment or supplies to private or voluntary agency facilities, every effort should be made to include them in training for ORT, and to encourage them to implement the method in their facilities and to train their clientele for appropriate use of oral rehydration therapy in the home. Thus, an inventory of these facilities will also be needed for state planning purposes.

Careful completion of WORKSHEET A will provide all the information about health facilities in the state needed for ORT budget planning.

The first column is simply a listing of all health care facilities in the state by type of facility and administering agency. The second column enumerates facilities which do not offer general primary care to acutely ill children. Examples of such facilities would be dental clinics, leprosy clinics, TB clinics, eye hospitals, psychiatric hospitals, and orthopedic hospitals. If in doubt whether a facility should be listed here, ask whether the facility is a place where an otherwise well child with acute diarrhea would get treatment. If the answer is no, the facility should be counted in column two. On each line subtract the number in column two from the number in column one, and enter the difference in column three. These are the facilities in which children

with acute diarrheas are likely to be treated, and should be included in planning for ORT implementation.

Of these facilities, some are large enough and have a high enough case load of acute diarrheas in children to warrant establishment of a separate ORT unit within the facility. Most general hospitals will come under this classification, and some large and active health centers may do so. In general, village level clinics and dispensaries will not. On each line, estimate how many of the facilities shown in column three will need a separate ORT unit, and enter this number in column four. Then subtract the number in column four from the number in column three and enter the difference in column five. This is the number of facilities which will be treating children with acute diarrheas, but which are not large enough to need separate ORT units.

In each column, add vertically to get subtotals by administering agency, and add these subtotals to get totals for facilities of all types. It is a good idea to check for arithmetic errors by checking the totals in the last line as follows: Column five plus column four should equal column three, and column three plus column two should equal column one.

WORKSHEET B: STANDARD EQUIPMENT LIST FOR ONE ORT UNIT

In planning implementation of ORT, the simple basic equipment needed for the method must be provided for in each facility that will treat diarrhea in children. Thus a standard equipment list will be needed for facilities with a separate ORT unit, and another list will be needed for smaller primary care facilities. It is recognized that costs of these items are likely to vary a great deal from place to place and from time to time. Take into account which items may go up significantly in price over a short period of time, and make a reasonable allowance for this in your unit price estimates. It would be wise to make generous enough provision for the essentials to ensure their availability, and to be more conservative on allowances for other items, if any. It is recommended that total cost of new equipment purchased for one unit be kept down to 250.00 or less, at least until the essentials are in place in all facilities.

WORKSHEET C: STANDARD EQUIPMENT FOR A SMALLER HEALTH CARE FACILITY

The equipment is much the same as for a separate ORT unit, except that quantities are smaller, and no large container is needed for mixing ORS. The covered bowl will be adequate for the smaller volumes of fluid needed.

WORKSHEET D: STANDARD SUPPLY LIST (PER MONTH) FOR AN ORT UNIT

While it is planned that the Federal Ministry of Health will assist states substantially with the supply of oral rehydration salts during the first year of the program, it would be wise for states to be pre-

pared to supplement the federal supply substantially if the need arisees. In estimating unit prices for commodities, it would be wise to keep in mind the wide range of prices observed over the last few years, especially for sugar. It may be wise to allow 3.00 per kilo for sugar to allow for the wide fluctuations that occur in sugar prices. A reasonable average cost for ORS packets would be 0.25 per liter, although it is not yet known what the price will be over the next two years. Again, adequate provision for essential items should take precedence over other items. It is recommended that the total monthly allowance for supplies be kept to 65.00 or less.

WORKSHEET E: STANDARD ORT SUPPLY LIST (PER MONTH) FOR A SMALLER PRIMARY PRIMARY HEALTH CARE FACILITY

Supplies for the smaller facilities are the same as for separate units, just in smaller quantities. It should be noted that the amounts are estimates of anticipated average consumption, and allocations to individual facilities will, of course, need to be adjusted according to patient loads and usage records.

WORKSHEET F: BASIS FOR ESTIMATING COSTS OF ORT EQUIPMENT

In order to determine the anticipated cost of ORT equipment for the first year of the program, the cost per facility is multiplied by the number of facilities to be equipped. Note that the number of separate units to be equipped is reduced by two, because of the expectation that the Federal Ministry of Health will provide equipment for two demonstration units per state. Likewise, it is recommended that the state provide equipment for one facility in each LGA to get them started in their LGA-level ORT promotion campaigns.

WORKSHEET G: BASIS FOR ESTIMATING COST OF ORT SUPPLIES

To estimate the total annual cost of supplies, the monthly requirement per facility is multiplied by 12 to get an annual requirement, and this is multiplied by the number of facilities to be supplied. It is assumed that states will only take responsibility for the costs of supplying state-operated health care facilities. Any exceptions will need to be supported by additional budgetary provision for supplies.

WORKSHEET H: BASIS FOR ESTIMATING TRAINING COSTS FOR DOCTORS

This worksheet estimates how much it would cost, exclusive of training materials, to provide one seminar in each state general hospital to train all the doctors in the current recommended use of oral rehydration therapy in Nigeria. If distances are substantially different, or overnight costs are expected to be different, the unit-cost estimates provided here should be adjusted accordingly.

WORKSHEET I: BASIS FOR ESTIMATING COSTS OF SEMINARS FOR ORT STAFF TRAINING

States are asked to provide training and supervision in ORT for staff of all state facilities which offer primary care to children, and to one LGA facility for each LGA in the state. Thus, the number of facilities for which staff are to be trained would be the total number of state facilities which offer primary care for children (from WORKSHEET A) plus the number of LGA's in the state.

States should also try to offer training in ORT for staff of voluntary agency and private facilities which offer primary care for children, but such staff could just be permitted to attend the state seminars in their areas at the expense of their employing agencies, and the states would not need to make any budgetary provision for their training.

It should be noted that these cost estimates do not include any provision for training materials, which are expected to be provided through the Federal Ministry of Health with UNICEF assistance.

Again, if the unit-cost estimates for travel and transport do not fit the state's own situation, these should be adjusted accordingly. For example, in a state where distances are not so great, only half of the trainees may need to stay overnight.

WORKSHEET J: BASIS FOR ESTIMATING COST OF INSPECTION AND ON-SITE TRAINING AT EACH FACILITY FOR WHICH ORT STAFF WERE TRAINED

Initial seminar training needs to be followed up by on-site inspection and training visits to each trainee's facility, to help him apply the method accurately and effectively in his own work situation. This should be considered an essential part of the training process.

WORKSHEET K: BASIS FOR COST ESTIMATES FOR SUPERVISION AND CONTINUED TRAINING

To insure continued improvement in ORT services in the facilities for which staff have been trained, they need to receive at least four visits per year from supervisory and training staff, for which travel and transport costs are estimated in this worksheet. Adjustments to cost estimates should be made as needed to accommodate the particular situation in your state.

WORKSHEET L: BASIS FOR COST ESTIMATES FOR COMMUNITY MOBILIZATION CAMPAIGNS

The goal of the program is not only to convert all state health care facilities to primary use of oral rehydration therapy for diarrhea, but aims to convert the entire health care system to primary use of ORT for diarrhea treatment, and to teach all Nigerian families to use ORT effectively in the home. Therefore, a high priority needs to be given to carrying ORT teaching into the LGA health services, and to mobilizing support for use of the method not only among health care administrators

and staff, but also among other government administrators, traditional rulers, religious leaders, school teachers, community organizations, and finally the ultimate target of the campaign, the families of all the small children in the country. Toward this end, a week-long intensive training and community education campaign needs to be undertaken for every LGA in the country, with follow-up visits by state staff to reinforce the teaching done and encourage the development of LGA programs for ORT promotion. WORKSHEET L is to estimate the cost of LGA-level campaigns and follow-up visits. Where costs estimates are not appropriate to the state's own situation, they should be adjusted to make them as realistic as possible.

WORKSHEET M: BASIS FOR ESTIMATING TRANSPORT REQUIREMENTS FOR STATE ORT IMPLEMENTATION

The success of a state's intensive training campaign for ORT necessarily depends on transport to reach all the seminar sites, health care facilities, and sites of LGA and community-level campaigns throughout the state. If adequate transport is to be available, it must be planned for and provided for on an assured basis. In order to make some reasonable estimate for how many vehicles need to be on the road to support the campaign effectively, all activities requiring transport need to be listed, and an appropriate amount of vehicle work time allocated for them. WORKSHEET M should enable you to calculate your vehicle needs for this program. The estimates for vehicle work time given here will accommodate the larger states only if several supervisory/training visits or several seminars are scheduled on each trip to areas at some distance from the state capital. Only the smallest states will be able to reduce the requirements for vehicle work time significantly.

In order to figure the number of vehicles that need to be committed to the program, the total vehicle work weeks should be divided by 52.

WORKSHEET N: BASIS FOR COST ESTIMATES FOR COORDINATION AND ADMINISTRATION

To enable the state program's leadership and training staff to keep abreast of developments in the national program, to take advantage of training and consultations available to help them in their state program, to learn what is available to the state program in the way of federal and international assistance, and to secure supplies of the latest teaching aids available, they should plan to have adequate direct contact with the Federal Ministry of Health and UNICEF staff, and to attend all national and regional conferences on ORT promotion. Therefore, specific provision needs to be made for senior staff travel out of the state several times a year. An outline for estimating the costs of such travel appears in the first part of WORKSHEET N.

Other recurrent expenditures for the program at the state level must provide for vehicle operation for liaison with government boards and ministries, LGA's, schools and colleges, voluntary agencies, private institutions, traditional rulers, community leaders, etc. Also, maintenance of the vehicles operating for the program must be provided, and should allow at least 600.00 per vehicle per year. A reasonable

monthly allowance for such expenses as paper, duplicating, postage, and office supplies also needs to be made.

WORKSHEET O: PROGRAM-BASED BUDGET TOTALS FOR ORT PROMOTION CAMPAIGN AT STATE LEVEL, FIRST YEAR

Now, with all the important component costs estimated, a realistic first-year budget total can be projected. It is very important not to lose sight of the fact that neither staff salaries nor acquirement of vehicles needed by the program is included in these estimates.

In the case of staff salaries, this can be expected to be the largest single cost of the ORT promotion effort. It is omitted because this is money that is already being spent. Staffing requirements for this program are expected to be met by existing health services personnel, and no new hiring is being recommended.

The problem of securing sufficient vehicle service time to support the program is one that deserves immediate serious consideration. Every effort should be made to get commitment of at least one vehicle already owned by the state for full-time use for ORT promotion. However, this will not be nearly enough to support the projected campaign. (See WORKSHEET M.) Planning for ORT implementation and promotion is incomplete until adequate transport has been secured, and failure to do so can be expected to result in an ineffective program. Purchase of appropriate vehicles can be expected to cost approximately 20,000.00 per vehicle if they must be purchased within Nigeria. If UNICEF-assisted purchases can be arranged, the cost may be reduced to about 12,000.00 per vehicle.

WORKSHEET A: NUMBERS AND TYPES OF HEALTH CARE FACILITIES IN THE STATE

HEALTH CARE FACILITIES LOCATED IN THE STATE	TOTAL NUMBER OF FACILITIES	NO. NOT OFFERING PRIMARY CARE FOR SMALL CHILDREN	NUMBER OFFERING PRIMARY CARE FOR SMALL CHILDREN	NUMBER LARGE ENOUGH FOR A SEPARATE ORT UNIT	NO. OF SMALLER PRIMARY CARE FACILITIES
FEDERALLY FUNDED HOSPITALS					
Teaching hospitals					
Army hospitals					
Other					
FEDERALLY FUNDED MATERNITIES					
FEDERALLY FUNDED HEALTH CENTERS					
FEDERALLY FUNDED CLINICS AND DISPENSARIES					
Attached to:					
army institutions					
police institutions					
medical colleges					
schools of health technology					
other federally funded educational institutions					
Other federally funded facilities					
TOTAL FEDERALLY FUNDED FACILITIES					
STATE GOVERNMENT HOSPITALS					
General hospitals					
Infectious disease hospitals					
Pediatric hospitals					
Other					
STATE GOVERNMENT MATERNITIES					
STATE GOVERNMENT HEALTH CENTERS					
STATE GOVERNMENT CLINICS AND DISPENSARIES					
Public					
Attached to educational institutions					
Other					
TOTAL STATE GOVERNMENT FACILITIES					
LOCAL GOVERNMENT FACILITIES					
Hospitals					
Maternities					
Health Centers					
Clinics and Dispensaries					
TOTAL LOCAL GOVERNMENT FACILITIES					
VOLUNTARY AGENCY FACILITIES					
Hospitals					
Maternities					
Health Centers					
Clinics and dispensaries					
TOTAL VOLUNTARY AGENCY FACILITIES					
PRIVATE FACILITIES					
Hospitals					
Maternities					
Health centers					
Clinics and dispensaries					
Open to the public					
For private company employees only					
TOTAL PRIVATE FACILITIES					
TOTAL FACILITIES OF ALL TYPES					

WORKSHEET B: STANDARD EQUIPMENT LIST FOR ONE ORT UNIT

ESSENTIAL:

QUANTITY	ITEM	UNIT COST	TOTAL COST
20	cups for feeding	_____	_____
20	spoons for feeding	_____	_____
3	3 ml. teaspoons	_____	_____
1	beer bottle or mineral bottle	_____	_____
1	plastic bucket with cover, graduated in liters	_____	_____
1	long-handled spoon for stirring ORS	_____	_____
1	plastic jerrican or covered bucket for storing drinking water	_____	_____
1	100-200 ml dipper of known volume for dispensing oral rehydration fluid	_____	_____
1	covered metal or plastic bowl	_____	_____
1	patient register	_____	_____
1	inventory book	_____	_____
2	hand basins	_____	_____
3	towels	_____	_____
	TOTAL FOR ESSENTIALS		_____

OTHER STANDARD ITEMS:

2	benches	_____	_____
1	table	_____	_____
1	chair	_____	_____

OTHER:

____	_____	_____	_____
____	_____	_____	_____

TOTAL FOR ALL STANDARD ITEMS (Not over 250.00) _____

WORKSHEET C: STANDARD ORT EQUIPMENT FOR A SMALLER PRIMARY HEALTH CARE FACILITY

ESSENTIAL:

QUANTITY	ITEM	UNIT COST	TOTAL COST
6	cups for feeding	_____	_____
10	3 ml. teaspoons	_____	_____
1	beer bottle or mineral bottle	_____	_____
1	plastic jerrican or covered bucket for storing drinking water	_____	_____
1	100-200 ml dipper of known volume for dispensing rehydration fluid	_____	_____
1	covered metal or plastic bowl	_____	_____
1	patient register	_____	_____
1	inventory book	_____	_____
2	hand basins	_____	_____
2	towels	_____	_____
	TOTAL FOR ESSENTIALS		_____

OTHER STANDARD ITEMS:

1	bench	_____	_____
1	chair	_____	_____

OTHER:

____	_____	_____	_____
____	_____	_____	_____

TOTAL FOR ALL STANDARD ITEMS (Not over 150.00) _____

WORKSHEET D: STANDARD SUPPLY LIST (PER MONTH) FOR AN ORT UNIT

ESSENTIAL:

ITEM	UNIT COST	TOTAL COST
ORS (packaged salts for 5 liters/day x 30 days = salts for 300 liters)	_____	_____
Sugar for 5 liters per day + wastage = 300 gm/day x 30 days = 9 kg.	_____	_____
Salt for 5 liters per day + wastage = 25gm/day x 30 days = 750 gm.	_____	_____
Soap, 15 cakes per month	_____	_____
TOTAL FOR ESSENTIALS		_____

OTHER STANDARD ITEMS:

Disinfectant, 1/2 gallon	_____	_____
Cleaning cloths, mops, towels, brooms	_____	_____
OTHER:		
_____	_____	_____
_____	_____	_____

TOTAL FOR ALL STANDARD ITEMS (Not over 65.00) _____

WORKSHEET E: STANDARD ORT SUPPLY LIST (PER MONTH) FOR A SMALLER PRIMARY HEALTH CARE FACILITY

ESSENTIAL:

ITEM	UNIT COST	TOTAL COST
ORS (packaged salts for 2 liters/day x 30 days = salts for 60 liters)	_____	_____
Sugar for 1.8 liters per day + wastage = 100 gm/day x 30 days = 3 kg.	_____	_____
Salt for 1.8 liters per day + wastage = 10 gm/day x 30 days = 300 gm.	_____	_____
Soap, 6 cakes per month	_____	_____
TOTAL FOR ESSENTIALS		_____
OTHER STANDARD ITEMS:		
Disinfectant, 1/4 gallon	_____	_____
Cleaning cloths, mops, towels, brooms	_____	_____
OTHER:		
_____	_____	_____
_____	_____	_____
TOTAL FOR ALL STANDARD ITEMS (Not over 24.00)		_____

WORKSHEET F: BASIS FOR ESTIMATING COSTS OF ORT EQUIPMENT

Standard equipment for a separate ORT unit (from WORKSHEET B) _____

No. of state facilities with separate ORT units (from WORKSHEET A) _____
- 2 (to be supplied by FMOH)
= number to be equipped x _____

Total for equipment for separate ORT units _____

Standard ORT equipment for a smaller facility (from WORKSHEET C) _____

No. of smaller state facilities (from WORKSHEET A) _____

+ No. of LGA's _____

= No. of smaller facilities to be equipped x _____

Total for equipment for smaller facilities _____

TOTAL FOR ORT EQUIPMENT * _____

---

* EXCLUSIVE OF VEHICLES.

WORKSHEET G: BASIS FOR ESTIMATING COST OF ORT SUPPLIES

Monthly requirement for a separate ORT unit (from WORKSHEET D)	_____
x 12 = yearly requirement	_____
by number of state facilities with separate ORT units (from WORKSHEET A)	x _____
Total for supplies for separate ORT units	_____
Monthly requirement for a smaller facility (from WORKSHEET E)	_____
x 12 = yearly requirement	_____
by number of smaller state facilities (from WORKSHEET A)	x _____
Total for ORT supplies for smaller facilities	_____
TOTAL FOR ORT SUPPLIES	_____

WORKSHEET H: BASIS FOR ESTIMATING TRAINING COSTS FOR DOCTORS

Medical seminars to be held in each state general hospital.

For each seminar:

2 state training staff x 1 overnight x 25.00	50.00
1 Motor driver x 1 overnight x 10.00	10.00
Vehicle operating costs other than maintenance (based on 250 km travel per seminar)	20.00
Simple refreshments, meeting arrangements, etc.	30.00
Total direct costs per physician seminar	110.00
by number of state general hospitals:	x _____
TOTAL DIRECT COSTS FOR PHYSICIAN SEMINARS	_____

WORKSHEET I: BASIS FOR ESTIMATING COSTS OF SEMINARS FOR ORT STAFF TRAINING

One seminar will be held for every 15-20 facilities for which staff are to be trained.

Two ORT unit staff will be trained for each facility.

Number of facilities: _____

Number of seminars: _____

COSTS PER FACILITY:

2 trainees x 1 overnight x 15.00	30.00
Transport cost for 2 trainees @ 12.00 each	24.00
Travel and transport cost for each facility's trainees	54.00
by number of facilities	x _____
TOTAL	_____

ADDITIONAL COSTS FOR EACH SEMINAR:

Simple refreshments, meeting arrangements	60.00
by total number of seminars	x _____
TOTAL	_____

ADDITIONAL COSTS PER SEMINAR outside the state capital:

3-Member teaching team x 1 overnight x 20.00	60.00
1 Motor driver x 1 overnight x 10.00	10.00
Vehicle operating costs other than maintenance	20.00
Additional costs per seminar outside the state capital	90.00
by number of seminars outside the state capital	x _____
TOTAL	_____

TOTAL COST OF SEMINARS FOR ORT STAFF TRAINING _____

WORKSHEET J: BASIS FOR ESTIMATING COST OF INSPECTION AND ON-SITE TRAINING AT EACH FACILITY FOR WHICH ORT STAFF WERE TRAINED

COST PER FACILITY:

2 Trainers x 2 overnights x 20.00 each	80.00
1 Motor driver x 2 overnights x 10.00	20.00
Vehicle operating costs other than maintenance	20.00
Total inspection and on-site training costs per facility	120.00
by number of facilities	x _____
TOTAL FOR INSPECTION AND ON-SITE TRAINING	_____

WORKSHEET K: BASIS FOR COST ESTIMATES FOR SUPERVISION AND CONTINUED TRAINING

Each facility for which staff have been trained should get a one-day supervision and training visit at least once a quarter, and more frequently, if possible, during the first year of their ORT program.

COST PER SUPERVISION AND TRAINING VISIT:

2 Supervisor/Trainers x 1/2 overnight x 20.00 (Overnight stay required on 1/2 the visits.)	20.00	
1 Motor driver x 1/2 overnight x 10.00	5.00	
Vehicle operating costs other than maintenance	15.00	
Total per visit		40.00
by number of facilities ____ x 4 quarters per year		x ____
TOTAL FOR SUPERVISION AND CONTINUED TRAINING		_____

WORKSHEET L: BASIS FOR COST ESTIMATES FOR COMMUNITY MOBILIZATION CAMPAIGNS

FOR INITIAL ONE-WEEK CAMPAIGN, PER LG':		
5 staff x 20.00 x 6 nights	600.00	
1 driver x 10.00 x 6 nights	60.00	
1 driver x 10.00 x 2 nights	20.00	
Vehicle operating costs other than maintenance	100.00	
Materials and meeting arrangements	220.00	
FOR FOLLOW-UP VISITS, PER LGA:		
2 staff x 20.00 x 3 nights	120.00	
1 driver x 10.00 x 3 nights	30.00	
Vehicle operating costs other than maintenance	40.00	
Total per LGA		1,190.00
by number of LGA's		x ___
TOTAL FOR COMMUNITY MOBILIZATION CAMPAIGNS		_____

WORKSHEET M: BASIS FOR ESTIMATING TRANSPORT REQUIREMENTS FOR STATE ORT IMPLEMENTATION

FOR TRAINING:

For physician seminars:

1 vehicle work week for each 3 state general hospitals ____

For staff seminars:

1/2 work week for each 15-20 supervised facilities ____

For inspection and on-site training:

1/2 work week for each supervised facility ____

FOR SUPERVISION

1 work week for each facility (4 visits a year) ____

FOR ADMINISTRATION/COORDINATION

1/2 work week per week ____

FOR LGA-LEVEL COMMUNITY MOBILIZATION CAMPAIGNS

2 work weeks for each LGA ____

==========

TOTAL VEHICLE WORK WEEKS NEEDED IN THE FIRST YEAR ____

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WORKSHEET N: BASIS FOR COST ESTIMATES FOR COORDINATION AND ADMINISTRATION

Senior staff travel out of state, per year:

To FMOH/UNICEF x 3 per year, travel costs @ _____ per round trip to Lagos	_____
Accommodations and meals in Lagos, 3 x 3 days @ _____ per day	_____
To other states, zonal meetings, national meetings x 4, travel costs	700.00
Accommodations and meals, 4 x 4 days @ 75.00	1200.00
Total for senior staff travel, per year	_____

Recurrent expenditures, per month:

Vehicle operating costs other than maintenance, for in-state staff travel for liaison with government boards and ministries, LGA's, schools and colleges, voluntary agencies, private institutions, traditional rulers, community leaders, etc.: approximately 1400 km/month	100.00	
5 Staff overnights per month on above travel @ 20.00	100.00	
Vehicle maintenance for ___ vehicles @ 50.00 per month	_____	
Stationeries, postage, duplicating, and office supplies	_____	
Total per month	_____	
x 12 Months = Total per year		_____

TOTAL FOR COORDINATION AND ADMINISTRATION, PER YEAR _____

WORKSHEET O: PROGRAM-BASED BUDGET TOTALS FOR ORT PROMOTION CAMPAIGN AT STATE LEVEL, FIRST YEAR

Total cost of ORT equipment (from WORKSHEET F)	_____
Total cost of ORT supplies (from WORKSHEET G)	_____
Total costs for physicician seminars (from WORKSHEET H)	_____
Total cost of seminars for staff training (from WORKSHEET I)	_____
Total for inspection and on-site training (from WORKSHEET J)	_____
Total for supervision and continued training (from WORKSHEET K)	_____
Total for community mobilization campaigns (from WORKSHEET L)	_____
Total for coordination and administration (from WORKSHEET N)	_____
TOTAL PROGRAM-BASED BUDGET FOR THE FIRST YEAR *	_____

* EXCLUSIVE OF SALARIES AND VEHICLES.

WORKSHEET AA: MEDICAL EQUIPMENT AND SUPPLIES

Total for ORT equipment (from WORKSHEET F)	_____
Total for ORT supplies (from WORKSHEET G)	_____
TOTAL FOR MEDICAL EQUIPMENT AND SUPPLIES	_____

WORKSHEET BB: STAFF TRAVEL

For physician seminars:

Total for staff and driver, per seminar (from WORKSHEET H)		
by number of state general hospitals (from WORKSHEET H)	x ____	
Total for physician seminars		____

For seminars for ORT staff training:

Travel and transport costs for each facility's trainees (from WORKSHEET I)		
by number of facilities for which staff are to be trained (from WORKSHEET I)	x ____	
Total for travel of trainees		____
Total for staff and driver for seminars outside the state capital (from WORKSHEET I)		
by number of seminars outside the state capital (from WORKSHEET I)	x ____	
Total for staff travel		____
Total for seminars for ORT staff training		____

For inspection and on-site training:

Total for trainers and driver, per facility (from WORKSHEET J)		
by number of facilities for which staff are to be trained (from WORKSHEET J)	x ____	
Total for inspection and on-site training		____

For supervision and continued training:

Total for supervisor/trainers and driver, per visit (from WORKSHEET K)		
by number of facilities ___ x 4 quarters per year (from WORKSHEET K)	x ____	
Total for supervision and continued training		____

WORKSHEET BB: STAFF TRAVEL, continued

For community mobilization campaigns:

Total for staff and drivers for initial one-week campaign, per LGA (from WORKSHEET L)	680.00	
Total for staff and driver for follow-up visits, per LGA (from WORKSHEET L)	150.00	
Total for community mobilization campaigns, per LGA		830.00
by number of LGA's (from WORKSHEET L)		x _____
Total for community mobilization campaigns		_____

For coordination and administration:

Total for senior staff travel out of state (from WORKSHEET N)		_____
Total for staff in-state travel, per month (from WORKSHEET N)	100.00	
by 12 months = total per year		1,200.00
Total for coordination and administration		_____

TOTAL FOR STAFF TRAVEL _____

WORKSHEET CC: TRANSPORT OPERATION

For physician seminars:

Total vehicle operating costs other than maintenance, per seminar (from WORKSHEET H)	20.00	
by number of state general hospitals (from WORKSHEET H)	x _____	
Total for physician seminars		_____

For seminars for ORT staff training:

Vehicle operating costs other than maintenance, per seminar outside the state capital (from WORKSHEET I)	20.00	
by number of seminars outside the state capital (from WORKSHEET I)	x _____	
Total for seminars for ORT staff training		_____

For inspection and on-site training:

Vehicle operating costs other than maintenance, per facility (from WORKSHEET J)	20.00	
by number of facilities (from WORKSHEET J)	x _____	
Total for inspection and on-site training		_____

For supervision and continued training:

Vehicle operating costs other than maintenance, per visit (from WORKSHEET K)	15.00	
by number of facilities ___ x 4 quarters per year (from WORKSHEET K)	x _____	
Total for supervision and continued training		_____

For community mobilization campaigns:

Vehicle operating costs other than maintenance for initial one-week campaigns, per LGA (from WORKSHEET L)	100.00	
Vehicle operating costs other than maintenance for follow-up visits, per LGA (from WORKSHEET L)	40.00	
Total for community mobilization campaigns, per LGA		140.00
by number of LGA's		x _____
Total for community mobilization campaigns		_____

WORKSHEET CC: TRANSPORT OPERATION, continued

For coordination and administration:

Vehicle operating costs other than maintenance, for in-state travel, per month (from WORKSHEET N)	___100.00_	
Vehicle maintenance for ___ vehicles @ 50.00 per month (from WORKSHEET N)	_____	
x 12 months = total per year		_____
Total for coordination and administration		_____
TOTAL FOR TRANSPORT OPERATION		_____

WORKSHEET DD: OTHER PROGRAM OPERATING COSTS

For materials, meeting arrangements, and simple refreshements:

For physician seminars, per seminar (from WORKSHEET H)	30.00	
by number of state general hospitals (from WORKSHEET H)	x _____	
Total for physician seminars		_____
For seminars for ORT staff training, per seminar (from WORKSHEET I)	60.00	
by number of seminars (from WORKSHEET I)	x _____	
Total for ORT staff training seminars		_____
For community mobilization campaigns, per LGA (from WORKSHEET L)	220.00	
by number of LGA's (from WORKSHEET L)	x _____	
Total for community mobilization campaigns		_____
Total for materials, meeting arrangements, and simple refreshments		_____
For stationeries, duplicating, and office supplies, per month (from WORKSHEET N)	_____	
by 12 months = total per year		_____
Total for stationeries, duplicating, and office supplies		_____
TOTAL FOR OTHER PROGRAM OPERATING COSTS		_____

WORKSHEET EE: BUDGET TOTALS FOR STATE ORT PROMOTION PROGRAM, FIRST YEAR

Total for Medical Equipment and Supplies (from WORKSHEET AA)	_____
Total for Staff Travel (from WORKSHEET BB)	_____
Total for Transport Operation (from WORKSHEET CC)	_____
Total for Other Program Operating Costs (from WORKSHEET DD)	_____
TOTAL BUDGET FOR THE FIRST YEAR	_____

APPENDIX L

ESTIMATED EXPENDITURES FOR NIGERIA'S ORT PROMOTION CAMPAIGN

(EXCLUSIVE OF SALARIES AND VEHICLES)

	FIRST YEAR	SECOND YEAR	THIRD YEAR
FEDERAL/ INTERNATIONAL EXPENDITURES	3,500,000	2,170,000	450,000
STATE EXPENDITURES	2,250,000	1,830,000	1,525,000
LOCAL GOVERNMENT EXPENDITURES	2,680,000	2,450,000	2,510,000
VOLUNTARY/PRIVATE EXPENDITURES	870,000	750,000	715,000
NATIONAL TOTALS	9,300,000	7,200,000	5,200,000

ESTIMATED CONTRIBUTIONS TO NIGERIA'S ORT PROMOTION CAMPAIGN

(EXCLUSIVE OF SALARIES AND VEHICLES)

	FIRST YEAR	SECOND YEAR	THIRD YEAR
FEDERAL/INTERNATIONAL	3,500,000	2,170,000	450,000
STATE (PER STATE)	116,000	95,000	79,000
LOCAL GOVERNMENT (PER LGA)	8,690	7,940	8,130

FIRST-YEAR BUDGET ESTIMATES FOR ORT PROMOTION CAMPAIGN (SINGLE STATE)

	FEDERAL/ INTERNAT.	STATE GOV'T	LOCAL GOV'T	VOLUNTARY /PRIVATE	TOTALS
I. CAPITAL EXPENDITURE					
	1,700	14,200	26 900	9,000	53,800
TRANSPORT					
TOTAL CAPITAL EXPENDITURE *	1,700	14,200	28,900	9,000	53,800
II. RECURRENT COSTS					
SUPPLIES	69,700	28,400	62,100	36,000	196,200
TRAINING MATERIALS	50,000				50,000
STAFF TRAVEL					
for training	33,600	13,900	16,000		63,500
for supervision		8,600	16,000		24,600
for coordination/ community mobilization		16,300	16,000		32,300
TRANSPORT OPERATING COSTS					
for training		2,400			2,400
for supervision		6,500			6,500
for coordination/ community mobilization		17,200			17,200
ADMINISTRATIVE COSTS		8,500			8,500
TOTAL RECURRENT COSTS **	153,300	101,800	110,100	36,000	401,300
TOTAL NEW EXPENDITURES *	155,000	116,000	139,000	45,000	455,000
PERSONNEL (Assignment of existing staff only)	145,000	1,184,000	1,071,000	945,000	3,345,000
TOTALS FOR FIRST YEAR * (PER STATE)	300,000	1,300,000	1,210,000	990,000	3,800,000

* Exclusive of transport.

** Exclusive of salaries.

SECOND-YEAR BUDGET ESTIMATES FOR ORT PROMOTION CAMPAIGN (SINGLE STATE)

	FEDERAL/ INTERNAT.	STATE GOV'T	LOCAL GOV'T	VOLUNTARY /PRIVATE	TOTALS
I. CAPITAL EXPENDITURE					
ORT EQUIPMENT	300	2,800	5,800	1,900	10,800
TRANSPORT					
TOTAL CAPITAL EXPENDITURE *	300	2,800	5,800	1,900	10,800
II. RECURRENT COSTS					
SUPPLIES	37,500	35,000	86,000	35,100	194,600
TRAINING MATERIALS	50,000				50,000
STAFF TRAVEL					
for training	20,200	8,340	9,600		38,140
for supervision		6,900	12,800		19,700
for coordination/ community mobilization		13,000	12,800		25,800
TRANSPORT OPERATING COSTS					
for training		1,460			1,460
for supervision		5,200			5,200
for coordination/ community mobilization		13,800			13,800
ADMINISTRATIVE COSTS		8,500			8,500
TOTAL RECURRENT COSTS **	107,700	92,200	121,200	36,100	357,200
TOTAL NEW EXPENDITURES *	108,000	95,000	127,000	38,000	368,000
PERSONNEL (Assignment of existing staff only)	145,000	1,181,000	1,061,000	945,000	3,332,000
TOTALS FOR SECOND YEAR * (PER STATE)	253,000	1,276,000	1,188,000	983,000	3,700,000

* Exclusive of transport.

** Exclusive of salaries.

THIRD-YEAR BUDGET ESTIMATES FOR ORT PROMOTION CAMPAIGN (SINGLE STATE)

	FEDERAL/ INTERNAT.	STATE GOV'T	LOCAL GOV'T	VOLUNTARY /PRIVATE	TOTALS
I. CAPITAL EXPENDITURE					
ORT EQUIPMENT	100	700	1,500	500	2,800
TRANSPORT					
TOTAL CAPITAL EXPENDITURE *	100	700	1,500	500	2,800
II. RECURRENT COSTS					
SUPPLIES	5,400	49,000	110,000	36,500	200,900
TRAINING MATERIALS	5,000				5,000
STAFF TRAVEL					
for training	11,500	4,200	5,000		20,700
for supervision		4,000	6,700		10,700
for coordination/ community mobilization		6,600	6,800		13,400
TRANSPORT OPERATING COSTS					
for training		800			800
for supervision		2,700			2,700
for coordination/ community mobilization		7,000			7,000
ADMINISTRATIVE COSTS		4,000			4,000
TOTAL RECURRENT COSTS **	21,900	78,300	128,500	36,500	265,200
TOTAL NEW EXPENDITURES *	22,000	79,000	130,000	37,000	268,000
PERSONNEL (Assignment of existing staff only)	145,000	1,181,000	1,061,000	945,000	3,332,000
TOTALS FOR THIRD YEAR * (PER STATE)	167,000	1,260,000	1,191,000	982,000	3,600,000

* Exclusive of transport.

** Exclusive of salaries.

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WORKSHEET FOR ESTIMATES OF ORT EXPENDITURES AT STATE LEVEL
(SINGLE STATE)

1. CAPITAL EXPENDITURES, FIRST YEAR

	Federal/ International Agencies	State Government	Local Governments	VHs, NGOs, and Private Institutions *
ORT EQUIPMENT				
for larger facilities (seperate ORT units)	(_3_ federal facilities +2) x 250.	(_15_ state facilities -2) x 250.	_5_ LGH facilities x 250.	_24_ VHs/private facilities x 250.
for smaller facilities (no seperate ORT units)	(_4_ federal facilities x 150.	(_55_ state facilities + _14_ LGHs) x 150.	(135 LGH facilities - _14_ LGHs) x 150.	_86_ VH private facilities - 150.
for training	100.	300.	_14_ LGHs x 50.	
TRANSPORT **				
TOTALS **				

* It is estimated that 50% of these facilities will participate actively.

** Exclusive of transport.

WORKSHEET FOR ESTIMATES OF ORT EXPENDITURES AT STATE LEVEL
(SINGLE STATE)

II. RECURRENT EXPENDITURES, FIRST YEAR

	Federal/ International Agencies	State Government	Local Governments	VA's, NGO's, and Private Institutions *
ORT SUPPLIES				
for larger facilities (separate ORT units)	(_2_ federal facilities x 1230.) + (_15 state facilities + _5_ LGA facilities) x 450.	_15_ state facilities x 780.	_5_ LGA facilities x 780.	_24 VA/private facilities x 1230.
for smaller facilities (no separate ORT units)	(_4_ federal facilities x 504.) + (_55 state facilities + 195 LGA facilities) x 216.	_55_ state facilities x 288.	195 LGA facilities x 288.	_86 VA/private facilities x 504.
for training	2230.	800.	_16 LGA's x 125.	
TRAINING MATERIALS	50,000.00			
PERSONNEL (present salaries of existing staff to be assigned to ORT)	(_2_ larger federal facilities x 65,000.) + (_4_ smaller federal facilities x 3,850.)	(_15 larger state facilities x 65,000.) + (_55 smaller state facilities x 3,850.)	(_5_ larger LGA facilities x 65,000.) + (195 smaller LGA facilities x 3,850.)	(_24 larger VA/private facilities x 65,000.) + (_86 smaller VA/private facilities x 3,850.)
STAFF TRAVEL				
for training	33,600.	(_70 state facilities + 16_ LGA's) x 162.	_16 LGA's x 1000.	
for supervision		(_70 state facilities + 16_ LGA's) x 100.	_16 LGA's x 1000.	
coordination/ mobilization		3,000. + (16_ LGA s x 830.)	_16 LGA's x 1,000.	
TRANSPORT OPERATING EXPENSES				
for training		(_70 state facilities + 16_ LGA's) x 22.		
for supervision		(_70 state facilities + 16_ LGA's) x 75.		
coordination /community mobilization mobilization		(_70 state facilities x 22.) + (_16 LGA's x 200.)		
ADMINISTRATIVE COSTS		5,000. + (_16 LGA's x 220.)		
TOTALS **				

* It is estimated that 50% of these facilities will participate actively.
** Exclusive of salaries.