PN-ABQ 013

84196

Implementing Diarrheal Disease Control Programs

The PRITECH Experience

Edited by Karen White and Eileen Hanlon

Management Sciences for Health
Academy for Educational Development
1993

PRITECH (Technologies for Primary Health Care), sponsored by the U.S. Agency for International Development, is a consortium of experienced, internationally known organizations led by Management Sciences for Health. Subcontractors include the Academy for Educational Development, the Johns Hopkins University School of Hygiene and Public Health, the Program for Appropriate Technology in Health, the Centre for Development and Population Activities, and Creative Associates International. PRITECH assists developing countries to implement national diarrheal disease control programs and related activities, often as part of integrated programs of maternal and child health.

This document was funded by the Agency for International Development under contract #DPE-5969-Z-00-7064-00, project #936-5969.

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This publication may be reproduced if credit is properly given. Suggested citation: K. White and E. Hanlon (eds.), "Implementing Diarrheal Disease Control Programs: The PRITECH Experience," Management Sciences for Health PRITECH Project, Arlington, VA, 1993.
ISBN 0-913723-30-4

Design by: Gerald Quinn

Production by: Cesar Caminero, Communications Development, Inc.

Printed on recycled paper.

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INTRODUCTION: THE PRITECH EXPERIENCE

by Glenn O. Patterson and PRITECH staff

The development of an inexpensive, safe, and effective oral rehydration solution (ORS) revolutionized the management of diarrhea in developing countries. This simple technology greatly expanded access to life-saving therapy for cholera and other dehydrating diarrheas. It formed the basis for the establishment of diarrheal disease control (CDD) programs in more than 100 developing countries throughout the world.

Glenn O. Patterson is the Project Director.

The development of ORS, however, was only the beginning of the story. To reach its life-saving potential, ORS had to be imported or manufactured, packaged, financed, and distributed. Health workers had to be trained and supervised in the use of ORS. National policies had to be developed and negotiated. The population had to be alerted to the availability of ORS through appropriate communication channels. Other aspects of diarrhea case management—such as the initial home management of diarrhea, indications for referral to a health facility, effective feeding recommendations, the appropriate use of antibiotics, and the management of complications—had to be defined. Systems had to be created to manage these tasks, to address problems, and to monitor and evaluate progress. These activities comprise the essence of the PRITECH experience.

The PRITECH experience thus refers to a ten-year effort to initiate, develop, and support diarrheal disease control efforts in countries suffering high rates of diarrheal morbidity and mortality. The lessons learned include successes and failures, challenges and obstacles. The relevance of these lessons extends far beyond the field of CDD. It is hoped that by documenting them, this volume will facilitate a variety of other disease control efforts.

What is PRITECH?

A.I.D. initiated the five-year PRITECH (Technologies for Primary Health Care) Project in 1983 as a means of implementing oral rehydration therapy, one of its twin engines for improving child survival in developing countries (the other engine being immunizations). PRITECH II, the second five-year project, ran from 1988 to 1993. The Office of Health in A.I.D.'s Bureau for Research and

Development financed part of the $36 million budget for PRITECH II. USAID field missions financed the remaining share through buy-ins for country-specific programs.

During the life of the project, PRITECH operated twenty-seven country and regional programs in Africa, Asia, and Latin America. Typically, PRITECH organized a project design team that worked with the local USAID mission and the public health authorities in the country to plan a multi-year program of assistance. The assistance usually included development or refinement of a national plan of action, implementation of a training program, initiation of communication activities, financing and coordination of consultant services, and support of operations research. During the second half of the project, PRITECH also provided considerable technical input to help parastatal companies produce ORS and to encourage local commercial production. Resident representatives worked directly with national CDD teams to implement country programs. PRITECH also established regional offices in Senegal and Cameroon to provide additional support to country programs in the Sahel and in Eastern and Southern Africa. Another regional office was established in Honduras to facilitate activities in Central America.

The project was carried out under the leadership of Management Sciences for Health in collaboration with the Academy for Educational Development, the Johns Hopkins University School of Hygiene and Public Health, the Program for Appropriate Technology in Health, the Centre for Development and Population Activities, and Creative Associates International. In all of its work, PRITECH has collaborated closely with the World Health Organization, UNICEF, and other public and private donors, at both the headquarters level and within individual countries.

Lessons Learned

Some of the many lessons learned from ten years of implementing diarrheal disease control programs are documented in this volume. The opening paper discusses the country representative as a mechanism for building capacity within countries and for implementing programs. The first group of papers describes a variety of methods, some unconventional, for communicating messages about the prevention and home management

of diarrhea. It also includes a description of PRITECH's extremely popular information dissemination effort. The second section describes a series of preservice and inservice programs to train health workers to provide effective case management of diarrhea. Collaboration with nongovernmental organizations and commercial companies is the subject of the last section and represents the area in which PRITECH has done the most innovative work.

These papers, most of which describe individual country experiences, capture only a fraction of the lessons learned through the PRITECH experience. A number of more general lessons emerge from the combined experience of the twenty-three country programs:

Systematic training is effective in changing health worker behavior.

The diarrhea case management approach has established new standards for the treatment of sick children in health facilities. Health workers no longer respond to a mother's complaint of diarrhea with a prescription alone, nor do they recommend withholding food and fluids during diarrhea. Although health facility surveys show that performance is far from ideal, taking a history and conducting a physical exam is now the norm throughout the world.

CDD programs are effective in reducing deaths due to dehydration.

Prior to the introduction of ORS, health facilities were often inundated with children requiring intravenous therapy for diarrhea-induced dehydration. Now, severely dehydrated children are rarely seen. This is probably because caregivers are administering fluids and seeking help early in the course of the illness.

Continued feeding during diarrhea and nutrition counseling are critical components of diarrhea case management.

Carefully conducted studies have conclusively shown that continued feeding during diarrhea not only causes no harm, but is actually therapeutic in decreasing the severity and duration of the diarrhea. In many settings, the prevalence of malnutrition among children presenting to health facilities with diarrhea is very high.

These facts emphasize the importance of nutrition assessment and counseling during these encounters.

The commercial private sector can be a valuable ally in increasing the availability of ORS and in spreading case management messages.

Although public programs have increased the availability of ORS in health facilities, a large untapped market of other consumers still exists worldwide—a market that is ripe for increased corporate action. The commercial private sector can complement CDD efforts by making ORS a common household item. PRITECH has acquired substantial experience in enlisting the marketing strengths of the private sector in ORS production and sales and in promoting preventive measures such as handwashing and breastfeeding.

Operations research can be effectively integrated into CDD program activities.

When provided with technical assistance with study design and with analysis, national CDD programs are both interested in and able to conduct studies to answer important programmatic questions. Operations research supported by PRITECH includes studies of the distribution and use of health education materials, research to develop culturally appropriate feeding recommendations for children with diarrhea, evaluations of the effectiveness of training, investigations into the etiology of dysentery, and assessments of caregivers' performance in preparing sugar-salt solution.

Enthusiastic and committed individuals make a difference in the success of CDD efforts.

Many of the successes of the PRITECH Project can be attributed to the commitment of individuals: the diarrhea treatment unit director who created a model training and outreach program, the dynamic program manager who effectively elicited and coordinated support from a variety of funding agencies, the respected university professor who mobilized support of pediatricians in his country. An important goal of any disease control effort must be to identify, nurture, and support these enthusiastic individuals.

Challenges Ahead

Although CDD programs have made great strides in the fields of training, communications, marketing, management, and research, the tasks that lie ahead are at least as challenging as those completed. The PRITECH experience has identified a number of issues that will be key during the next ten years of CDD efforts.

More effective strategies for encouraging sustained behavior change among caregivers and health workers must be implemented.

Awareness of and knowledge about appropriate case management practices are not sufficient to achieve sustained behavior change. Health care workers and caregivers must perceive that these new practices are of personal benefit to them, and an advantage over current practices. CDD programs must therefore pay increased attention to understanding what motivates caregivers and health care workers, to presenting recommended practices in ways that appeal to their needs, and to supporting and reinforcing desired changes.

CDD programs must compete with other disease control initiatives in an atmosphere of dwindling resources.

Although childhood diarrheal deaths have been drastically reduced, it is estimated that 3 million children continue to die annually from diarrheal diseases. Gains that have been achieved will be lost if support is withdrawn. In order to maintain interest and funding, programs must systematically demonstrate their effectiveness and pursue ways of integrating activities with other programs.

Cholera control efforts must be channeled through national CDD programs in ways that support and strengthen ongoing CDD efforts.

Although more children die from non-cholera diarrhea in one day than die of cholera in one year, there is a fear that the resurgence of cholera in Africa and the Americas will distract attention and funds from CDD programs. Cholera control committees have been created outside of the national CDD programs, often with higher political status, and sometimes without the participation of the CDD program personnel. When appro-

priate, CDD programs should use the higher profile of the cholera program to upgrade their own programs and to broaden their contacts inside and outside the ministry of health. Likewise, cholera control efforts should take advantage of existing channels and mechanisms for CDD training and communications, while at the same time strengthening CDD programs.

Integration and decentralization should not be pursued as goals in themselves, but evaluated as strategies for achieving public health objectives.

Many ministries of health and donors have expressed interest in integrating CDD programs with other programs such as those for the control of measles, malaria, nutrition, and acute respiratory infections. Although there is clearly a good rationale for doing so, integration itself will not solve chronic problems of suboptimal training, inadequate budgets, poor supervision, and difficult logistics. Before large investments are put into revising training materials and reorganizing ministries, some key issues regarding integration must be addressed: What precisely is meant by "integration"? What is the best mixture of child survival programs to be integrated? Is integrated training efficient and effective? Which program components are most amenable to integration? At which levels of the health system does integration work?

Similarly, donors and national CDD programs have sought to extend the reach of CDD efforts through decentralization of CDD program activities to regional or district levels. PRITECH experience suggests that, for decentralization to promote the achievement of public health goals, the following requirements must be met: 1) involvement of peripheral CDD staff in the development and dissemination of the national CDD policy; 2) institutionalized mechanisms for communication between different levels and well-defined assigned responsibilities; 3) a carefully planned strategy to decentralize training and ensure supervision; 4) standardized policies and tools; 5) availability of sufficient resources to the local level; and 6) continued and regular supervision by central staff to provide leadership and consistency.

Collaboration with other actors and "allies" must be pursued to expand the reach of the public sector.

These collaborators might include traditional healers, nongovernmental organizations, schools, and commercial companies.

Service delivery must be adapted to meet the needs of urban populations and other high-risk groups.

Urban slums, refugee camps, and war-stricken areas all contain children at high risk for diarrheal diseases. There is still much to learn about effectively reaching high-risk populations in a sustainable way. How can a CDD program communicate with households about oral rehydration therapy? How can programs reduce the burden of disease in overcrowded areas when government resources for environmental improvements are limited and populations are growing at an exponential rate?

Clear and comprehensive protocols for the management of dysentery and persistent diarrhea must be implemented.

As programs to promote the availability and use of ORS achieve success, the number of children dying from diarrhea-induced dehydration has dramatically decreased. Deaths from other causes of diarrhea-related mortality—specifically dysentery and persistent diarrhea—have not been proportionately reduced. Therefore, in some areas, dysentery and persistent diarrhea account for roughly 30 to 50 percent of diarrhea-associated deaths in children under age five. Reducing these deaths will be an important challenge for CDD programs in coming years.

IS THE PRITECH COUNTRY REPRESENTATIVE MECHANISM A MODEL FOR THE FUTURE? A VIEW FROM THE FIELD

By Robin Waite Steinwand

Minutes from the 1992 meeting of the Technical Advisory Group on diarrheal disease control call attention to the enormous success of the country representative mechanism in the PRITECH Project. (The group is chaired by A.I.D.'s Office of Health with representatives from UNICEF, the World Bank, the World Health Organization, several universities, and nongovernmental organizations who work in child survival.) The first point listed on which the advisory group reached consensus refers to this success:

> PRITECH's use of long-term advisors in developing countries has been remarkably effective in terms of successful program implementation and cost-effectiveness. The advisors have developed relationships with the local ministries of health, coordinated donor resources in the CDD field, and helped to establish national health policy. Despite the heavy administrative burden of establishing and sustaining such long-term programs, the approach merits continuation.

Robin Waite Steinwand was the Cameroon Country Representative.

Background

Long-term technical advisors, or country representatives, are not unique to the PRITECH Project nor are they the sole answer to increasing the success of development assistance projects. Also, the maintenance of a full-time representative of a single project in-country entails a considerable cost. Nevertheless, the PRITECH Project has demonstrated considerable success in the use of resident technical advisors (country representatives) to aid the development of strong national control of diarrheal disease programs.

This paper, written from the perspective of a former country representative, looks at the evolution of the country representative role. It also identifies the characteristics that have contributed to the success of this model. The paper's purpose is to encourage discussion and consideration of the model for other assistance projects of its kind.

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Historical Context

When the PRITECH Project was conceived, there was no intent to place long-term staff in the field. Oral rehydration therapy was a proven technology, and it was widely believed that countries would require only short-term consultants from the United States and abroad to implement programs to promote oral rehydration. Some of the earliest project support was to national CDD programs in the Sahel, where a regional office fielded short-term consultants in response to country requests. A need was soon identified, however, to have individuals in-country who could assist the national CDD program with day-to-day follow-up of planned activities. In keeping with project philosophy to avoid costly in-country advisors and a budget that did not include funds for long-term advisors, and to minimize the compensation gap between national program staffs and expatriate technical advisors, the first country representatives were recruited locally for organizational rather than technical skills. In short, these representatives cost the project less than high-profile health professionals and were backed up with strong technical support from a growing regional office.

The success of the Sahel model brought an increasing realization that money invested in a full-time presence reaped program rewards worth replicating. As the PRITECH Project expanded into other countries and regions of the world, representatives were identified and hired (mostly locally) with more public health and program management expertise than before, sometimes because of availability in-country, sometimes by specific country request. Soon the range of skills and skill levels of the representatives was as varied as the countries in which they worked. Country programs with full-time technical assistance generally progressed more quickly, and funding expanded to permit this important enhancement to the project.

The PRITECH Management Model

Discussion of the PRITECH country representative must include the framework within which a representative operates. As a centrally-funded A.I.D. project, PRITECH has a Washington, D.C.-based headquarters with administrative as well as technical staff. Together

with regional staffs in Africa and Central America, they oversee and support country representatives in Africa, Asia, and Central and South America.

Sustained programs—national CDD programs that receive substantial long-term support from PRITECH—have country representatives. Intermittent programs receive only sporadic assistance, sometimes as a first step toward a fully sustained program. They have no representative and thus are not discussed here.

All country representatives with the PRITECH Project receive strong technical and administrative backup from regional and headquarters staff, but depending on the region and the particular needs of the country program, there are different management structures for their support. In general, these can be divided into two categories, described below.

Country Representative with Regional Office Supervision

Two regional offices in Africa support country programs: the Sahel Regional Office, and the Central, East and Southern Africa Office. A third, in Central America, handles primarily region-wide programs.

Sahel Regional Office

This regional management model has been quite successful in meeting the needs of the country programs. It includes a regional technical support office with its own budget and has representatives in most operational countries. Key characteristics are:

- The regional staff consists of senior managers and technical specialists recruited mostly from within the region, which strengthens local resources and strengthens PRITECH's relationships with countries.
- Routine, frequent country visits are budgeted and programmed. Trouble-shooting visits can occur as needed; short trips for specific needs are more feasible. (Travel of technical staff from headquarters requires longer trips, planned carefully in advance.)
- Regular staff development, such as participation in World Health Organization (WHO) orientation or training courses, is programmed into a regional budget and plans.
- The regional staff can facilitate good cross-fertilization among countries through visits of country represen-

tatives and their colleagues to other countries in the region and sharing of problems and solutions by regional staff with countries in similar circumstances.

- The region draws on a pool of regular consultants to supplement skills of regional staff when needed.

Central, East, and Southern Africa

Until recently, only a few of the sustained country programs have had representatives, while most country programs were intermittent programs, supported by visits as deemed necessary from a regional program manager. Since there has been only one person in the regional office, countries have depended on a combination of headquarters staff, the regional person and a bank of outside consultants for technical support.

Country Representative with no Regional Office

For the most part, country programs in this category have been larger countries in South Asia and Africa with greater in-country technical resources. Their country representatives have been more senior and more technically expert in diarrheal disease control. They tend to be more autonomous, receiving some technical support, but primarily administrative and financial support from headquarters.

Strengths of the Country Representative Mechanism

PRITECH's country representatives have been successful for a number of reasons, some of which are characteristic of long-term advisors in general. Bilateral health projects and private voluntary organizations have for years used a full-time project representative in-country. With the right combination of personalities, this person can greatly facilitate communications among parties involved in the project area, act as a catalyst, and provide important continuity often lacking when relying solely on short-term technical assistance.

Some qualities particular to the PRITECH country representative mechanism, though perhaps not unique, have largely contributed to making this mechanism an outstanding success of the PRITECH Project. These include flexibility in funding, strong technical support, an emphasis on building relationships and sustainability, and a mandate to facilitate donor coordination. (See generic position description in Box 1.)

THE REPRESENTATIVE AS CATALYST

Full-time presence in country

Not enough can be said of the value of having a project representative in place who can build a relationship of trust with the country program staff, whose role it is to gently nudge policymakers to concentrate on CDD issues and to follow through with plans. Although diarrhea is usually among the top priority diseases in a country, a well thought-out action plan may become derailed while ministry of health officials deal with other press-

Box 1. Position Description

Title: Country representative

Reports to: Senior program manager

Overall responsibilities:

The country representative manages, under the direction of the senior program manager, PRITECH's resources for carrying out "sustained" country programs. The country representative coordinates with USAID and other donors that support the program. The country representative reports to the PRITECH Project director about the progress of the country program.

Specific responsibilities:

- Assists the national CDD program manager to implement the national plan, providing staff assistance to help organize and administer program activities.
- Manage PRITECH activities in accordance with the PRITECH program plan and the annual implementation plan. Prepare drafts of the implementation plan and subsequent revisions.
- Administer PRITECH funds in accordance with A.I.D.'s contract requirements and the contractor's financial management procedures.
- Identify program implementation problems and bring them to the attention of the senior program manager and PRITECH Project director.
- Prepare regular reports as indicated by PRITECH, including periodic field notes addressed to the PRITECH Project director.
- Coordinate with other donors that support the national CDD program, and keep PRITECH's sponsor (usually USAID, or perhaps UNICEF) informed about the status of program activities.
- Facilitate the work of PRITECH consultants, including preparation of scopes of work and arranging administrative support.

Qualifications:

- Experience working in the country, preferably with health services programs.
- Fluency in the language used by the government.
- Strong managerial, organizational, and administrative skills.
- Training or work experience as an expert in a technical area of CDD desirable.
- Social science research skills will be important where PRITECH responsibilities include operations research and surveys.

ing health issues, throwing off activities scheduled months in advance. Likewise, ministries of health are often short on support personnel and well-planned activities can fail to happen for lack of follow-up on small but important details. There is no substitute for a person who can help to follow through with small details that require time and energy and an understanding of the issues.

Country representatives help the CDD team where most needed, from the mundane to the highly technical. Their role is not highly defined, so they have been able to respond to changing national needs in a very timely manner. This flexibility has greatly enhanced the level of trust that develops between the representative and host country officials.

The country representative has also provided important program continuity at times of major personnel changes within a ministry of health. As an outsider, the representative has been able to serve as a bridge between the old and new appointees, with less vulnerability to suspicions and tensions that often accompany major shakeups than the host country program staff. This has been true in Cameroon, Zambia, Pakistan, Mali, and Niger, among others.

Funding flexibility

Perhaps more than any other characteristic, the ability to disburse funds in a flexible manner has enhanced the representatives' effectiveness, credibility, and trust. Unlike many project representatives, PRITECH representatives can use country program funds to support local costs at short notice, if necessary.

This mechanism has given country representatives a certain influence over program direction that donors with fixed budget line items seldom have. Likewise, the representative is able to support creative directions of the ministry of health that might otherwise get lost in the funding process; to advance funds for crucial activities budgeted by major donors when their funds were late in arriving; and to recognize and respond to immediate unforeseen needs of the program. A full-time representative is well-placed to judge the most appropriate moments to use funds to support real program needs and when to hold off and let program managers work out solutions of their own. All PRITECH financial support, of course, must be within the budget allocations and coun-

try program strategy and annual workplan approved by PRITECH headquarters and the A.I.D. project officer.

Local recruitment and familiarity with country

What began out of budgetary necessity has proved a source of great wealth to the PRITECH Project. Most country representatives have been recruited locally. While previous in-country experience is neither a prerequisite to nor a guarantee of success in that country, local recruitment can result in identifying a country representative who has already established professional credibility with the ministry of health and other health policymakers and donors. This also allows the ministry of health to participate more fully in the selection and decisionmaking process. This selection process overall has produced a diverse international group of country representatives—a rich mixture of skills and nationalities. The representative found in-country may be an impartial outsider, able to avoid involvement in ministry politics, yet known to key players through past experience with other projects in-country. Ironically, the mostly expatriate country representatives have often been said to provide "continuity" to ministries of health in which staffing and structural changes are frequent.

The country representative in Zambia, for example, has been called a "national treasure" for his longstanding role in health planning. Before joining PRITECH, he worked with the National University of Zambia for five years and helped establish a national community health research unit and national primary health care development committees. As the new government in Zambia has embarked on major health policy reforms, the representative has helped to shape those reforms. His intimate understanding of the new policy directions has greatly enhanced his ability to act as a spokesman in Washington, D.C., for these changes, which is all the more useful for a country program whose A.I.D. support is entirely from central funds.

With previous knowledge of the country and a flexible role, the PRITECH representative has been able to adapt the PRITECH CDD agenda to facilitate achievement of overall program objectives in the light of changing host-country conditions and personnel.

In-country support of short-term technical assistance

The presence of a country representative has made an enormous difference in the effectiveness of short-term consultants to the CDD programs. The representative is in a position to recognize early and respond to ministry of health needs for outside technical assistance. The representative can help ministry staff to better define the type of assistance they need, and provides a link to available resources through the network of contacts with the regional and home offices as well as with the multinational donors. Similarly, the country representative can assist the ministry with adequate preparation for a consultant, and can oversee and help assure follow-up to the visit. The country representative can also help the ministry to assure appropriate representation of host country nationals on technical assistance and evaluation teams. This further strengthens the possibility of appropriate follow-up when the "experts" have gone home.

PRITECH generally uses its own regional or headquarters staff, plus a core of familiar consultants, for short-term technical assistance. These are people with whom country representatives have easy contact so that questions about follow-up or further information needs can be communicated. Very often, the same consultant(s) return several times to the same country. Through this system, the needs of the host country are more readily met and their confidence in the consultant has been successfully established.

Support from PRITECH/Washington

The ability of the PRITECH country representatives to provide a broad range of support to national CDD programs has been made possible by the very strong network of technical support as well as financial and administrative back-up which the project offers. PRITECH's technical experts work in concert with WHO's CDD and Acute Respiratory Infection Programme staff in Geneva; often PRITECH works under the auspices of WHO when implementing activities in countries. It is this in-house support, backed by the technical weight and guidelines of WHO, which has so enhanced the representatives' credibility.

Technical expertise

Country representatives are buttressed technically by a strong network of experts in many areas of diarrheal disease management. The project has in-house technical expertise in diarrhea case management, communications and training, operations research, supervision and evaluation, breastfeeding, project management, and private sector oral rehydration salt production and marketing. A broader range of specialists can be accessed through PRITECH's subcontractors. Through regular supervision and support visits, a regional technical officer or headquarters staff assigned to the country program can help the country representative and national CDD team to assess progress or specific program needs. When there is a difficult decision to make or an unpopular judgment on use of funds, this outside person can intervene rather than hinder the representative's relationship with colleagues in-country.

Visits by technical support people (from headquarters, the Sahel Regional Office, or PRITECH's consultant bank) are programmed according to the country program's needs and plans. Because these people work with many country programs, they facilitate sharing of experiences and program materials across countries.

The PRITECH Information Center located at headquarters provides an excellent resource, sharing the latest technical information as well as information about other country programs and materials produced. The existence of an in-house information collection and dissemination center not only lessens turn-around time on information requests by representatives for the country program, but also provides the representatives with appropriate technical material for activities related to treatment providers, policymakers, and oral rehydration salt producers. Scientific papers and the timely technical reviews in the *Technical Literature Update on Diarrhea* can help convince doubting physicians of the benefits of oral rehydration therapy. In countries where up-to-date information is hard to find, the ability to present pertinent documents or to put potential collaborators on PRITECH's mailing list for technical publications heightens the representative's credibility on CDD substantially. When the Indonesian country representative wanted to convince a multinational corporation to promote soap for handwashing to prevent diarrhea, for instance, she used supporting research from the Information Center.

Field notes and other communications

Country representatives keep regional and headquarters staff abreast of country program activities and plans through standardized documentation of program experiences (monthly field notes) as well as telephone contact when needed. Both are two-way communications. Response to the field notes from headquarters has played an invaluable part in supporting the work of the country representatives and improving the ability of field staff and technical support staff to communicate. Individual members of the technical or administrative teams read and respond to issues raised with which they can help. When the Cameroon representative wrote in her field notes of initial plans to develop a local mothers' pamphlet on oral rehydration therapy, for instance, the Technical Unit immediately sent out samples of others from around the world. Less formal telephone communications with a supervisor provide technical feedback, moral support, and the opportunity to discuss program options and issues as needed by the country representative.

Field notes are copied to CDD program managers and USAID missions, in addition to PRITECH staff, to document agreements on program plans.

Promotion and Facilitation of Communications

Communications within the Ministry of Health

With a primary task to strengthen program management, the country representative frequently encourages and helps colleagues to recognize the importance of teamwork. As an outsider, usually based in a ministry of health office, the country representative can more easily make the first attempt to bring another branch into the CDD planning process. The national CDD coordinator may be too junior within the ministry hierarchy to take the initiative to link up other services with the CDD program or for other reasons may not have pursued the advantages of integrated programming. Country representatives have quite successfully helped CDD programs to extend their planning sphere to include offices of health education, maternal and child health, research and planning, and nutrition.

In the Sahel countries, for example, PRITECH has frequently helped bring CDD program managers to work

with staff of the health education unit; health education staff receive training in materials production which then benefits all programs.

Communications between the Ministry of Health and USAID

The PRITECH representative is often based in the ministry of health complex, but since PRITECH is financed by A.I.D., the representative is perceived as having some of the authority of an A.I.D. employee. At the same time, he or she is seen as having a very detailed understanding of ministry programs and problems. Much more than chiefs of bilateral assistance projects, the country representative is perceived as a helpful broker for the interests of the host government ministry and A.I.D. The ministry of health has a representative they can trust to interpret their programming directions and requests for assistance and who, with perhaps years of experience in country, has developed an intimate understanding of ministry policies and goals.

Likewise, USAID, whose health sector is increasingly understaffed due to budgetary constraints, can turn to someone who works closely with the ministry and is fluent in the national language, and who, being bound by US government regulations for management of funds, can help to interpret those regulations to ministry officials. The representative is also in a good position to find appropriate opportunities to remind ministry officials of their commitments to the donors. At the same time, the representative, through regular written reports and frequent informal visits to USAID, serves as a CDD technical advisor to USAID.

In Pakistan, for instance, where the CDD program was heavily funded by USAID, the PRITECH representative played a crucial role in facilitating communications by organizing meetings and providing the government and USAID with regular memos and briefings on PRITECH's and each others' activities. She also promoted and facilitated visits to health centers and project sites by USAID and by visiting dignitaries such as a US Congressional delegation and commercial sector representatives.

Communications with USAID and A.I.D./Washington

Compared to projects with only short-term technical assistance, the PRITECH country representative greatly reduces the management burden on A.I.D. The repre-

sentative helps the national program staff keep the USAID mission abreast of project issues as they arise. When short-term technical assistance is needed, the country representative lays the groundwork and assures follow up. In Washington, the PRITECH central office handles necessary arrangements, usually for its own in-house staff or frequently used consultants.

Through country technical support visits and country representative communications, the PRITECH regional and headquarters staffs maintain an in-depth understanding of policy directions and program activities. The A.I.D. project officer for the PRITECH Project in Washington meets frequently with headquarters staff, supplementing the program information received from A.I.D.'s country mission. In this way, PRITECH's central office and the A.I.D. project officer remain abreast of project activities and can actively promote the project and alert their colleagues at WHO and UNICEF headquarters about emerging problems in countries that need coordinated action. By extension, the national CDD program has a strong international forum for publicizing its programs and its needs. Likewise, notable successes can be quickly communicated.

Communications among donors

The generic job description for a PRITECH country representative specifies that the representative will facilitate the coordination of donor activities in CDD. Many broader health projects overlap with CDD activities, so in practice country representatives have facilitated information sharing for many primary health care activities. The perception of the PRITECH representative as more neutral than some of the major donors enhances the ability to initiate coordination. When the country representative has been in country for some time, personal relationships allow him/her to talk about issues that may not be discussed in official meetings. This may help to initiate coordination that was lacking or to diffuse misunderstandings early on. Also, in many countries, the national CDD coordinator is required by ministry of health protocol to follow the hierarchy in order to make contact with donor agencies. Through informal contacts, the representative is able to keep donors abreast of important ministry activities in CDD and thereby decrease the possibility of misunderstandings as well as keep CDD in the donors' minds between the important formal min-

istry contacts. This informal network has been especially important in countries where no formal CDD coordinating body has been established.

The country representative uses this coordination role to mobilize donor support for the CDD program before formal negotiations begin or for special needs within a budget period. In several countries PRITECH has successfully garnered the involvement of the private sector in the national CDD program. The country representative can more easily approach the private commercial sector and smooth over any fear that discussions with government will lead to increased regulation of their business.

In one country, the country representative became aware through informal discussions that a major donor planned to circumvent communications with the ministry on its five-year funding plan. The representative was able to apply subtle outside pressure to reintroduce realistic ministry participation in the process.

Coordination with other A.I.D. projects

The country representative has frequently helped USAID and the ministry of health to coordinate CDD activities with other A.I.D centrally-funded projects, many of which have no full-time representation in country.

It is inherent to the PRITECH representative's role to help the CDD program coordinate with bilateral health projects to insure integration into global primary health care.

Issues

Although the country representative model has successfully enhanced the PRITECH Project's ability to support national CDD programs around the world, a few key issues have recurred throughout the life of the project which bear analysis here. As increasingly projects engage full-time technical assistance, it is hoped that the lessons of the PRITECH Project will help other projects make informed decisions.

Strong Presence versus the Risk of Dependency

The primary goals of PRITECH's country representatives have been to help bolster the CDD program in its

initial stages and to help the ministry of health to develop the managerial capacity to sustain the program in the long term. In itself this implies a dilemma, since long-term donor and ministry commitment to the program may depend heavily on early success.

The country representative has been an important factor in keeping the CDD program on target, often helping with unforeseen necessities common to a young program. While the need may have arisen as a result of inadequate planning, a good representative can effectively distinguish between immediate, unforeseen needs and those that should be better planned or can wait for planned funds to come through. With time, managerial skills are strengthened so that fewer and fewer situations require quick-fix funding or intervention. The representative, having established credibility and the trust of ministry personnel, can more readily take a hard line on funding when necessary. Nevertheless, the danger always exists that the representative will become too involved, too interested in immediate results to stand back and allow program personnel to confront managerial decisions. If so, the project risks creating a dependency on the representative's timely interventions. The flexibility so important to the representative and new program's success can, if misapplied, hinder the program's long-term sustainability.

Country representatives must dedicate themselves to fostering good managerial habits such as long- and short-term planning and regular meetings with interested parties. They must daily assess and make judgments as to the amount of involvement to take, never usurping the host country staff's ownership of both program successes and disappointments. The goal is to move gradually from a role of active collaborator to outside technical advisor as the program becomes more firmly planted in the ministry priorities and budget.

RECOMMENDATIONS

Both recruitment and supervision of country representatives must stress the importance of building sustainability over the need to achieve quick program growth and success.

It is incumbent on the project, once a representative is hired to assure s/he does not lose sight of the ultimate goal—a sustainable CDD program with strong manage-

ment and only sporadic outside assistance. This is an ongoing process from orientation through supervision and performance reviews.

- *Recruitment.* Selection of a country representative should favor an individual who can maintain the proper perspective and balance over more technical qualifications. Good judgment, maturity, sensitivity, and humility should figure prominently among applicant qualifications.
- *Orientation.* A solid orientation for every employee should clearly emphasize the project's position on sustainability. This might include case studies of difficult situations encountered by past representatives.
- *Supervision and personnel evaluation.* Because there is often a fine line between sustainability and program achievement, frequent contacts by supervisory personnel from the region and headquarters are necessary to give the representative an outside clear perspective. Regular performance reviews should include the development of annual workplans, which have the representative address the issue of sustainability versus dependency.

The donor (USAID) and project supervisors must acknowledge that good project management and sustainability will not be achieved overnight.

They must not value immediate results to the detriment of consensus-building and the creation of broad national support for the program.

Expatriate versus Host Country National Representative

Without a doubt, anyone involved in international health has debated this issue for years and PRITECH is no exception. PRITECH has chosen to hire primarily expatriates already living in the country of service. There are some exceptions—expatriates hired from outside the cooperating country and host country or cooperating country nationals. Flexibility has been a key factor, taking into account the wishes of ministry of health officials as well as availability of appropriate candidates in country. In many cases, PRITECH has been fortunate to find an individual living in the country and looking for work who has public health and management experience in other countries as well.

The advantages of an expatriate are many. S/he arrives as an impartial outsider, with no political attachment in country. Not duty bound to a local patronage system, the expatriate can spend less time denying favors and can more easily make unpopular decisions. Someone who has had previous experience with the US government budgetary process can talk more easily with donors and the USAID mission. If the person has in-country experience, he may have established professional credibility with local officials and have a greater understanding of the politics of business in that country. With a basic familiarity of the culture, a locally hired expatriate also tends to realize more readily the limitations of his knowledge of the culture. In a large multicultural country, a country national from one region of the country may have difficulty admitting to gaps in knowledge of other regions.

On the other hand, country nationals bring a heightened sensitivity to process to the job. Keenly aware of the cultural norms and fluent in one or several of the local languages, they can involve the right people and understand how not to offend others. However, the compensation package of a country national representative raises myriad problems. If compensated as other representatives, particularly in a country with few private voluntary organizations and generally low wages, their work can be blocked by abundant jealousy among less well-paid ministry counterparts. Compensation at a level commensurate with other nationals but different from representatives in other countries can lead to strain with the project.

One argument for hiring country nationals as project technical advisors is the need to build local resources. PRITECH has attempted a different approach, in the Sahel Regional Office, which has been very successful. Most of the staff of the regional office is from the region. Their knowledge of the region enhances their work and working relationships as technical support people, without many of the hindrances of working in a managerial and advisory role in their own country. As regional staff, they can avoid the issue of nongovernmental organization salary versus ministry of health salary levels.

Ideally, a conscientious expatriate representative will seek the national CDD staff's technical knowledge and depth of understanding of the problems to complement his own understanding and perspective. As the program

gains strength, it should be far easier for an expatriate advisor to work himself out of a job than for someone from the country who is more emotionally attached. The expatriate representative can achieve little, however, without dedicated colleagues—national counterparts.

Recommendations

In general, an expatriate can assume the role of outside technical consultant (country representative role) with more success and fewer problems than a country national.

If an expatriate can be identified who has already established professional credibility in country, this has additional benefits for the project. If a project plans not to hire country nationals as representatives, this should be stated policy with a clear justification.

A project should have a well-defined and publicized recruitment and hiring policy.

Such a policy details all aspects of the compensation package and which categories of individuals have access to them (country nationals, third country nationals, and US nationals hired locally, and so on).

Encourage the hiring of local talent and expertise.

Local personnel should be recruited when hiring a representative for a nearby country with a new program, and to staff regional offices and as regular consultants whenever possible.

Decentralization versus Strong Technical and Administrative Oversight

The PRITECH Project is relatively decentralized. Its country representatives exercise a great deal of latitude in making judgments about the technical content of the project, in developing relationships with the ministry of health and other partners, and in defining project direction based on ministry programming needs. This latitude, or flexibility, has contributed to more responsive project assistance.

Ironically, effective decentralization is possible only through strong technical and administrative support from the central staff to the representative, their decisionmaker in the field. Frustration of central or field staff

has sometimes resulted from lapses in the central system of support to the field or in communications to and from the field.

Some key elements of the support system were implemented only as the project grew, sometimes after costly errors had demonstrated a clear need for them. For example, improved financial orientation is gaining momentum because country representatives not well trained in accounting would submit confusing financial records or make transactions requiring much time and field visits to correct. For better technical orientation, in the second phase of the project, new country representatives began participating in a WHO course on CDD, giving representatives an early familiarity with the technical jargon and policy directions of ministry of health personnel.

Other components of the central support system, such as headquarters to field communications, started out on firm footing, but have fluctuated over the life of the project. Headquarters staff provided excellent and timely feedback on all field notes until staff changes and other issues at the central level usurped important time for this task. Feedback became sporadic and the country representatives more isolated.

As discussed earlier, the technical resources available to PRITECH representatives greatly extend both the depth and breadth of technical expertise they bring to the national CDD program. However, as the project has grown, it has become increasingly difficult to schedule a visit by the appropriate centrally located technical person at the time most needed. PRITECH's Sahel Regional Office, with its own cadre of specialists, has demonstrated the ability to respond more expediently to the country programs that it serves. Because of the lack of funding, this has not been replicated for other regions that are geographically far from headquarters.

The project has also experienced occasional difficulties among its tiers (headquarters, region, country representative). For example, technical staff who have the advantage of stronger technical skills and a multinational perspective may question a national policy decision which does not seem to concur with international guidelines, though the country representative may defend it as a well thought-out exception to the guidelines. The regional office may insist on being the conduit for all official communications between headquarters and the country rep-

resentative, though this can add significant delays if the regional supervisor has a heavy travel schedule.

RECOMMENDATIONS

Every effort should be made to provide strong central support necessary to enhance and maintain effective decentralization.

All support—strong technical backup, financial, and administrative support, and good field to headquarters communications—should be with the primary goal of assuring the full participation of country program staff in the successful development of their CDD programs.

Strong technical backup:

- Standardize technical orientation for all new country representatives to include preservice technical briefings by central staff and early participation in a WHO CDD course.
- Provide strong support to representatives by technical resource people (1) in response to needs expressed by the country program; and (2) through information updates distributed to keep the field abreast of current international policy directions. To facilitate the best use of technical resources, country representatives should receive a directory of technical resource people and areas of specialization.
- The Sahel Regional Office model for technical support has been very effective. To the extent other regions and projects could benefit, resources should be committed to replicate this experience.
- Information requests must be responded to quickly. PRITECH's Information Center has institutionalized the capability of rapid and thorough response to all information needs related to CDD, as well as documentation and sharing of country program experiences. This model or a centralized variation for several projects in a similar field, merits further implementation.

Financial and administrative support:

All new country representatives should receive rigorous orientation on contract and A.I.D regulations, company policies, and project financial management from the outset, with early follow-up visits as necessary. It is especially important that a country representative

whose job it is to advise the ministry of health on program management have a sound command of financial and reporting requirements for the project.

Documentation and good communications:

- Standardize field reports and provide rapid constructive response to monthly reports. Documentation of project experiences is one of the greatest missing elements in good projects, but timely feedback is probably the greatest incentive for field staff to devote time to documenting those experiences. Field reports should have a standardized format, streamlined so as to pose the least burden to people whose primary role is providing on-site technical support.
- Response to field notes is essential and should not be subject to other pressures on headquarters staff. Important elements of central feedback to reports include: (1) acknowledgment of communications within short interval; (2) positive nature of response; (3) sharing of experiences (programming dilemmas and solutions); and (4) rapid response by technical unit and information center to information needs expressed in reports.
- Field notes (from country representative to headquarters) should be copied to all interested parties (CDD program staff, the USAID health officer, the country representative's supervisor). The goal is candid reporting that can serve further discussion on program development. Issues requiring discretionary treatment should be handled separately.
- Both country representatives and supervisory staff should assure that there is adequate communication on program direction and issues through regular supervisory visits and informal telephone or other communications.

Cost of Long-term Country Representatives

The introduction to this paper refers to a quote from the 1992 Technical Advisory Group report that "the use of long-term advisors...has been remarkably effective in terms of successful program implementation and *cost-effectiveness*." [emphasis added] There is substantial evidence that the country representatives have been generally *effective*. But their cost has varied considerably over the life of the project and no systematic cost-benefit

analysis of long-term country representatives versus a series of short-term consultants has been conducted. Projects and those who fund them clearly must consider the trade-offs.

Early in the project, country representatives were hired locally and received few of the benefits contained in the A.I.D. Handbook for Contractors. Roughly, the average annual cost for a single country representative on a two-year contract was less than $50,000 during the first phase of the project. Today country representatives have a diversity of technical backgrounds (including physicians) and receive the standard benefits package allowed by A.I.D. Exact figures were not available, but some A.I.D. projects budget $200,000 to $275,000 a year to cover a family of four at the high end of the salary scale.

In addition, any consideration of the cost of a resident technical advisor must factor in the expense of the support network that so enhances his/her work. The project paid an average of $370,000 a year over a seven-year period for staff salaries and benefits of the Sahel Regional Office ($600,000 in a year when full benefits were in effect), an office that supports five to six countries (four with country representatives). Nevertheless, the existence of technical support in the region allows for less costly and more timely consultancies to the individual programs. (An average one-month consultancy from the United States costs $15-20,000, allowing for per diem, travel, salary, and other expenses.)

On top of the substantial cost to the project of a resident representative, the full benefits package presents the company managing the project with an administrative burden, requiring yet more support staff to oversee its proper implementation. The growing diversity of overseas staff adds another layer of complexity. Box 2 shows the number of administrative details that must be addressed prior to placing a staff member in the field.

Do the significant advantages of full-time country representatives outweigh the heavy financial cost and management burden of maintaining and supporting them in the field? The benefits package is the same applied to all US government employees or US contractors overseas; salary and benefits packages for private voluntary organizations, corporations, and international organizations differ almost on a par with their diverse philosophies and fiscal situations. Originally developed to lure technical experts overseas and to compensate them for

Box 2. Employment checklist

_____ to _____
Name Country

	U.S. Citizen or resident	Third country national	Cooperating country national
All employees			
Job description	Y	Y	Y
Job posting	Y	Y	Y
Resume	Y	Y	Y
A.I.D. form 1420	Y	Y	Y
Reference check (final candidate only)	Y	Y	Y
A.I.D. project officer approvals:			
Job description	Y	Y	Y
Interview travel	Y	Y[1]	Y[1]
Offer, terms and negotiations	Y	Y	Y
Task assignment	Y	Y	Y
Orientation travel	Y	Y[1]	Y[1]
A.I.D. contracting office approvals:			
Initial salary	Y	Y	Y
Federal maximum salary waiver	Y	Y	Y
Terms of assignment approved	Y	Y	Y
Benefits plan enrollment	Y	Y	Y
Direct deposit authorization	Y	Y[2]	Y[2]
Annual performance objectives	Y	Y	Y
Program training	Y	Y	Y
Overseas employees			
A.I.D. project officer approvals:			
Travel to and from post	Y	Y	Y
Educational travel:			
To and from US school	Y	Y	N/A
To and from school outside US	Y	Y	N/A
R&R travel	Y	Y	N/A
Home leave travel	Y	Y	N/A
A.I.D. contracting office approvals:			
Salary increase[3]	Y	Y	Y
Hired outside US	Y	Y	Y
Shipping from outside US	Y	Y	Y
Storage outside US	Y	Y	Y
Shipment of personal vehicle from outside US	Y	Y	Y
Shipment of foreign-made vehicle from outside US	Y	Y	Y
More than 2 weeks orientation or training	Y	Y	Y
USAID mission concurrences:			
Person	Y	Y	Y
Initial salary	N	Y[4]	Y[4]
Payment in US dollars	N	Y	Y
Travel to post[1]	Y	Y	Y
Number of work hours per week _____			
Number of work days per week _____			
Are appliances provided?			
Cost of living quarters			
List of recognized holidays			
Is a school bond required?			
Allowances:			
Post differential	N	Y	N/A
Post	N	Y	N/A
Supplemental post	N	Y	N/A
Temporary lodging	N	Y	N/A

Appliance allowance			
Living quarters	N	Y	N/A
Education	N	Y	N/A
Educational travel:			
To and from US school	N	Y	N/A
To and from school outside US	Y	Y	N/A
R&R travel	N	Y	N/A
Homeleave	N	Y	N/A
Separate maintenance	N	Y	N/A
Danger pay	N	Y	Y
Access to US Embassy health room	N	Y	N/A
Medical examinations			
Pre-assignment			
Employee	Y	Y	Y
Dependent(s)	Y	Y	N
Post-assignment			
Employee	Y	N	N
Dependent(s)	Y	N	N
Immunizations:			
Employee	Y	Y	Y
Dependent(s)	Y	Y	N
Department of State medical clearances:			
Employee	Y	Y	N
Dependent(s)	Y	Y	N
Medical records:			
Employee	Y	Y[1]	Y[1]
Dependent(s)	Y	Y[1]	Y[1]
Defense-Based Assistance insurance:			
Employee	Y	Y[5]	Y[5]
Dependent(s)	Y	Y[2]	Y[2]
Medevac insurance:			
Employee	Y	Y	Y[1]
Dependent(s)	Y	Y	Y[1]
Personal vehicle insurance:			
Employee	Y	Y	Y
Dependent(s)	Y	Y	Y
Tourist or business visas:			
Employee	Y	Y	N
Dependent(s)	Y	Y	N
Resident visas:			
Employee	Y	Y	N
Dependent(s)	Y	Y	N
Bank accounts:			
US bank[6]	Y	Y	N
Local bank[6]	Y	Y	N
Emergency locator information:			
Employee[1]	Y	Y	Y
Dependent(s)	Y	Y	Y
Individual information:			
Date arriving at post			
Number of pounds in storage			
Number of pounds to be shipped:			
Surface			
Air			

Notes:
1. If traveling to another country under A.I.D. funds.
2. If paid through US bank.
3. If more than 10 percent or if after less than one year.
4. Concur that amount is not in excess of federal compensation or prevailing wage.
5. Unless (a) person is paid in local currency, (b) blanket waiver is in effect, and (c) local workers' compensation policy is obtained.
6. For field representative only.

dangerous or hardship living situations, distance from home and family, higher cost of living, and so forth, some parts of the package may no longer be relevant or necessary in the 1990s to attract appropriate personnel.

To change the remuneration system for one project would achieve little and hurt that project. If the argument is accepted that the country representative mechanism can significantly enhance program success and should be replicated, then in the face of shrinking aid funding it will be incumbent on donors and contractors to review and revise the system across the board.

RECOMMENDATIONS

Long-term technical advisors (country representatives) can be an important component of successful development assistance and should be budgeted into major project proposals similar to the PRITECH Project.

A.I.D. should consider convening representatives of groups working in development overseas to study in earnest and propose a revised standard benefits package that better reflects circumstances today (availability of personnel, living conditions and requirements, ease of travel, and so forth).

A revised package should place less strain on overall project funds and allow for the widespread use of country representatives in future projects.

A project should have written criteria for determining eligibility for each part of the benefit package.

These standards should reflect the overall development philosophy of the funding organizations and the diverse make-up of current technical staff. Job applicants should be informed of the criteria before being hired.

THE COMPLEXITY OF HEALTH COMMUNICATIONS

Communicators used to think that communication was a one-way street, deserted but for them. This was the bullet theory of communication, when communicators were confident that if the message went out (whether spoken or written or broadcast), the audience would hear the message, understand it, and act upon it. When oral rehydration salts were being introduced into the developing world in the early 1980s, there was still a good deal of this innocent confidence—that the miraculous effects of oral rehydration salts would instantly convince people to seek it out and use it for every case of diarrhea. This is a simplification, but only a slight one.

But an innovation is rarely played out on a blank slate. Rather, an innovation usually involves the introduction of a new product or technology into a well-trod marketplace. Just because oral rehydration was new did not mean that people had not been dealing with diarrhea before. Indeed, there existed well-entrenched diarrhea therapies—both traditional and Western—that people were already using, for reasons that made sense to them.

Thus, people do not do things without reason. While health messages try to get people to change their behavior, people already have good reasons for doing what they are doing. To get them to change, we need to give them better reasons. We need to make change rewarding, remembering that the status quo is already rewarding to some degree.

The following papers show that the communication process is a marvelously vibrant affair. PRITECH's experience in health communications has extended across many countries, addressed many audiences, and used many methods. The papers in this section demonstrate the importance of the following elements in a health communication intervention.

Use of Alternative Channels

Most national programs for the control of diarrheal disease have relied on traditional information and communication channels of the ministry of health system to distribute their educational materials. As the Cameroon and Sahel papers show, however, public health workers are not using or distributing materials to the best advantage.

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In addition, many people do not use government health centers. In response to these problems, PRITECH found alternative ways to distribute educational materials to mothers. These channels included the use of village markets in rural Mexico, use of popular theater in peri-urban areas in Zambia, and the use of nongovernmental groups to distribute health education materials in Cameroon.

Participation

Not only is participatory learning a good theoretical approach, people like it. People like to have their own cultural forms used, like the Zambian popular theater or the Mexican lottery games, and people like to choose from a selection of information that they can use, as they do from information products offered by the PRITECH and ORANA information centers. People also like to be listened to and be taken seriously, a fact that must be considered in any successful implementation effort.

Targeting Specific Audiences

Addressing health education interventions to smaller, homogeneous groups is often more manageable and more successful. The messages and materials can be developed to suit the needs of a target group. And communities at higher risk of diarrheal disease can be reached directly, to help encourage better care among families that are most likely to experience the illness. For example, the Ciclope group worked in rural Mexican villages where many parents do not have access to health care services. And the popular theater groups of Zambia traveled through peri-urban areas, which other health programs had neglected.

Research and Monitoring

Listening is a basic communication skill, and in the public health communication setting, listening is done in a systematic way, called research. Research is simply systematic listening, and is the first step in the communication process. The studies from the Sahel and Cameroon demonstrate the value of and need for research and evaluation.

The days of one-way communication streets probably never really existed. Today's effective communicator knows that the work is more interesting than that, and leads to so many more opportunities.

THE CICLOPE INNOVATIONS IN RURAL COMMUNICATION: REACHING THE UNREACHABLE VILLAGES IN MEXICO

by Selene Alvarez L. and Peter L. Spain

Selene Alvarez L. is director of the Ciclope Group, and Peter L. Spain was a PRITECH Senior Program Officer.

Nobody knows how many small villages there are in Mexico, but there are tens of thousands of hamlets with fewer than 500 inhabitants scattered throughout the country. For the national health secretary, trying to provide health services broadly and equitably, these many tiny settlements offer unique challenges. People in villages are at particularly high risk for disease, due to their isolation, their lack of education, their limited diets, their lack of access to services, and often their lack of Spanish fluency. And for women, who care for children when they are sick, all these disadvantages are compounded by gender. The health secretary, responsible for the world's largest city as well as thousands of small towns, has to seek creative solutions to the needs of these numerous but far-flung rural peoples.

In January 1990, the Mexican health secretary asked PRITECH to help him to do just that. PRITECH had been working with the national diarrheal disease control program for several years by then, training Ministry of Health staff, in a cascade design intended to reach out to rural areas. However, all the constraints that make rural people high-risk in the first place had been conspiring to dilute training efforts as information diffused from the main towns. To reach beyond these constraints, PRITECH had to come up with a fresh strategy, a true rural communication strategy.

PRITECH enlisted a local consulting group, the Ciclope group. Ciclope had done research with rural indigenous people, specifically in terms of their diarrheal treatment practices, and had developed training strategies to work with them. With a unique track record in medical and anthropological research among indigenous people, Ciclope enjoyed entree to those communities.

Constraints to ORT Promotion in Rural Areas

For this first effort, Ciclope focused on two states, Hidalgo and Veracruz, for eight months through December 1991. The infant mortality rate due to diarrheal dehydration remains high in both Hidalgo and Veracruz. In Hidalgo, for 1984, the rate was 647 cases per 100,000

children under age one and 689 cases per 100,000 children ages one to five years old.[1] For Veracruz, in 1987, the rate of deaths due to diarrhea was 340 deaths per 100,000 children under age one and 49 deaths per 100,000 children ages one to five.[2]

In both states, these deaths occur mainly among the rural population. Peasants and indigenous peoples of the most distant and scattered communities are the groups that contribute most to these infant-mortality rates. In an analysis of infant and preschool mortality done on the 1980 population census, Ciclope had earlier determined which municipalities had the highest infant and child mortality rates in Hidalgo and Veracruz. Moreover, in Hidalgo, death records were studied in the civil registries of a sample of those municipalities identified by the Ciclope analysis of the 1980 census. Records that mentioned dehydration as a primary cause of death for children under five were cross-tabulated with the communities where those deaths occurred. What Ciclope had found was this: the number of deaths from dehydration increased in direct relation with the distance of the communities from the municipal center (county seat) where the civil registries are located.[3]

Ciclope conducted the same analysis for Veracruz. There, Ciclope found that the majority of the deaths were in areas where seasonal agriculture is practiced, areas where there is mainly an indigenous population.[4] For Veracruz, however, the health secretariat had determined that the areas just outside the principal cities were the areas of greatest diarrheal incidence.[5]

Most of these deaths are preventable with oral rehydration therapy (ORT). But, in these regions, ORT promotion is hindered by lack of personnel, lack of access, lack of health-system infrastructure, and the low educational level of this population.[6] Another important consideration for ORT promotion in Hidalgo and Veracruz is that ORT use is very low in both states, according to a national study done by the federal health secretariat. In Hidalgo, 14 percent of diarrhea cases were treated with ORT, while in Veracruz the figure was 4 percent.[7]

The specter of cholera had further heightened the population's interest in diarrheal disease control, and Ciclope reported that their ability to reach out to the people in their own milieu found an eager acceptance that they had not anticipated. To meet the need for information,

PRITECH supplied cholera materials from the Pan American Health Organization to the Ciclope team.

Reaching the Rural Population Through Market Events

To reduce the cases of infant and preschool dehydration due to diarrhea among the rural and indigenous populations of these two Mexican states, Ciclope decided to implement, on a state-wide level, the methods validated in their research study "An education/communication campaign in rural indigenous communities for the promotion of ORT," carried out during its education/communication campaign in parts of Hidalgo from 1987 to 1990. The approach was to use familiar media—radio, comic books, face-to-face training of health auxiliaries—in fresh ways, along with presentations at regional markets to bring messages of diarrhea prevention and management to rural people.

The Ciclope team first trained rural health auxiliaries in proper diarrhea management, and then followed them up in their own communities, offering supervision and guidance for their encounters with village women. In teaching health auxiliaries about correct diarrhea case management, Ciclope employed a clever teaching tool—a gourd with a face painted to resemble a baby, with holes and other adjustments made to illustrate the process and effects of diarrheal dehydration. The aim was to draw out the mothers to explain their situation and to adapt new information to it.

In implementing this strategy, Ciclope has moved away from the top-down teaching approach to one that recognizes the abilities of the learner and, indeed, the essential active role of the learner in her/his own educa-

Number of rural health auxiliaries and supervisors trained and number of training courses given, by state

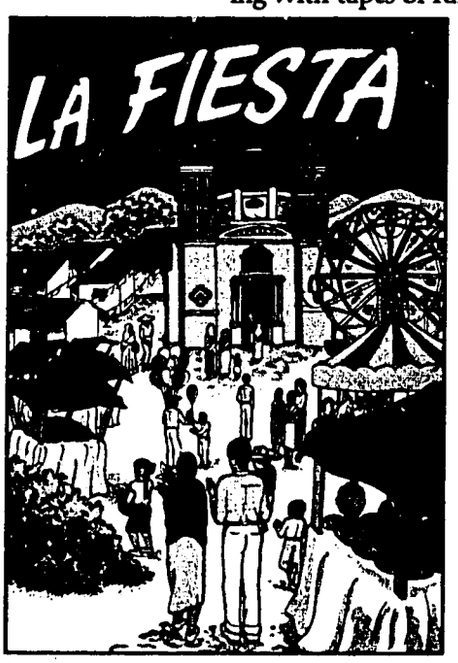
	Hidalgo		Veracruz			Courses given (total=21)	
	Auxiliaries	Supervisors	Auxiliaries	Supervisors	Total trained	Hidalgo	Veracruz
May	18	6	22	5	51	1	2
June	25	3	54	9	91	2	2
July	26	4	23	5	58	2	0
August	26	6	21	4	57	2	2
September	9	6	20	6	41	1	1
October	18	5	21	5	49	1	1
November	35	6	22	6	56	1	1
December	25	3	20	4	46	1	1
Total	**182**	**39**	**203**	**44**	**449**	**11**	**10**

tion. Ciclope training—whether for health workers, through media, or in the markets—is always participatory, with lots of games and exercises that put the learners and teachers into roles quite different from those normally found in a Mexican classroom.

But the keystone of the Ciclope approach was the market days. Ciclope could not go personally to women in their villages, but market days draw these hard-to-reach women together like a magnet, every week. Markets are unique, personal media.

After their training the auxiliaries took part in the market-day events, which were announced ahead of time on the radio to alert the region. All during the month of market-day events, the local radio also featured dramas about diarrhea management, produced in dramatic fashion by professionals, and featuring an entertaining "poetic" answer-man format.

At each market event, the level of energy projected by Ciclope staff and the retrained health workers had to compete with the bustle of the market's competing attractions. Wedged beside produce vendors and competing with tapes of ranchero music, Ciclope unfurled their banners, and hawked their own wares with a popular Mexican bingo-like lottery game, complete with prizes to winners and participants, to attract people to the booth and hold them with entertaining education (or educational entertainment). It worked: rural people, especially women, came, stayed, won prizes, and went away happy—and, we hope, a bit more savvy about caring for their children with diarrhea.



Shoppers could take home a comic book depicting the same story presented at the market.

The learning consisted of a short flipchart presentation about a dramatic case of diarrhea in which a little boy is rescued from dehydration and possible death by a mother's proper use of ORT. The entertainment consisted of the lottery game, the answers to which came from the flip-chart presentation. Thus, entertainment reinforced education, and the repetition of the

ORT information was not lost on participants in the game nor on the many spectators who crowded around throughout the day—including, eventually, some produce vendors and tape salesmen. The flip-chart was distributed in comic-book form after the presentation.

In all, 93 market events took place, with the lottery being staged 1,251 times. Those who played the lottery totaled 11,681, with another 7,500 (estimated) persons looking on. Over 15,000 comic books were given out at the markets, along with over 22,000 packets of oral rehydration salts.

The colorful flipchart tells the story of a mother treating her child with oral dehydration therapy.

Impact of the Rural Communication Strategy

To evaluate the program, interviews were done across all the markets with lottery participants and with people who had not taken part in the lottery. The result: the Ciclope booth has provided major learning gains for participants. While labor intensive, this approach has shown that it can reach rural, indigenous women, who are so critical to the health of their high-risk children, and for whom market day is their regular contact with the outside world.

Furthermore, the federal health secretariat is actively developing plans to broaden the Ciclope approach into other Mexican states.

In reviewing the overall Ciclope approach and its impact, most impressive was the use of multiple channels that were brought to bear on the education of the rural women and their health care providers. Though we may cite the market events as a clever innovation, this channel was fully integrated with other more conventional channels like training and mass media. That the intervention was not restricted to one or another intervention, with all the strengths and weaknesses of that one method, represents an exciting portrayal of the Ciclope method vis-à-vis this very hard-to-reach population of women.

In addition, drawing these women out to speak and exchange ideas in full participatory fashion, even to criticize Ciclope's ideas in a constructive and secure fashion, is a major accomplishment that will serve them in other ways besides their seeking of health care. Most stirring is to see rural women awaken to their potential, to emerge from the timidity that has been a part of their culture for so long. Bringing them out so that they become informed and perceptive health care consumers goes well beyond the scope of traditional health education. Now convinced of their own power to deal with their children's illnesses in certain definite respects, they are no longer totally dependent on either traditional indigenous healers or traditional Western medicine.

Notes:
[1] Planning Unit of the Coordinated Services, Hidalgo State, Secretariat for Health, 1984.
[2] Epidemiology Directorate, Coordinated Services, Veracruz State, 1987.
[3] S. Alvarez, "Child Survival and ORT in Mexico," UNAM, 1989.
[4] Tenth General Census of People and Homes, 1980. Veracruz State, vol. 30, Mexico, 1984.
[5] National Congress on Gastroenterology, Xalapa, Veracruz, Mexico, 1990.
[6] S. Alvarez, "Child Survival and ORT in Mexico," UNAM, 1989.
[7] "Diarrhea Mortality, Morbidity, and Treatment Survey for Mexico," General Directorate for Epidemiology, Health Secretariat, Mexico, 1986.

ZAMBIAN POPULAR THEATER DRAMATIZES DIARRHEA TREATMENT AND PREVENTION

by Paul J. Freund and Benedict Phiri

When PRITECH began work in Zambia in 1986, there were few health education materials available on diarrhea and oral rehydration therapy. Nor was there an active social campaign to promote the local oral rehydration salts, *Madzi-a-Moyo*. The parastatal company producing *Madzi-a-Moyo* complained that the product was not being aggressively promoted. The parastatal had very limited resources either for distribution or advertising and depended on the Ministry to fulfill these functions.

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The Maloza Theater Group performs.

To address this problem the PRITECH representative organized a health education and social mobilization committee as a subcommittee of the national control of diarrheal diseases (CDD) coordinating committee. The subcommittee, chaired by the Ministry's health education specialist, included representatives from the World Health Organization and PRITECH, and specialists in the areas of nutrition, primary health care, and media. The subcommittee's mandate was to outline a CDD health education strategy and workplan. The emphasis was on developing cost-effective ways to promote oral rehydration therapy to the community, to increase awareness by decisionmakers, and to sensitize journalists to child-survival issues.

Why Use Popular Theater?

Popular theater is commonly defined as a people's theater speaking to the common man in his language, and dealing with problems of direct relevance to his situation. It is termed "popular" because it involves the whole community, not just small groups or specific social classes. Popular theater can be an effective tool in development programs because it can be used as:

- *Entertainment.* Popular theater can attract and hold the interest of large numbers of people.
- *An oral medium.* It can involve the poorest groups and classes who are often left out of development activities because of their illiteracy.
- *A dramatic representation of local problems.* Popular theater provides a codification of reality that can be used by the participants in analyzing their situation.
- *Collective expression and a communal activity.* It creates the context for cooperative rather than individual thinking and action.[1]

One of the most important and useful aspects of popular theater is its dramatization of local situations and problems. Popular theater allows people to view themselves and their situation in new ways. This experience spurs people to discuss their problems and to offer suggestions on what can be done about them. Popular theater is not an end in itself but serves as a catalyst for education and action. It is a medium of social transformation and a way of making art socially relevant.

[1] R. Kidd and M. Byram. 1978. "Popular Theatre and Participation in Development: Three Botswana Case Studies," Bosele Tshwaraganang Publications 3, University College of Botswana, Gabarone.

Using Popular Theater

The PRITECH representative had previous experience in using a popular theater group in a World Health Organization project on alcohol abuse, and he believed that this approach would be effective in promoting oral rehydration therapy. In view of the high costs of radio and television spots and the fact that only 20 percent of Zambians own a radio—and even fewer a television—it seemed appropriate to find a solution that was cost-effective, culturally appropriate, community-based, and able to reach large numbers of people. The use of popular theater seemed to satisfy all of these requirements.

A Three-Month Trial

The subcommittee agreed to implement the method on a trial basis. Two popular theater groups—the Bakaya and the Maloza—agreed to work full-time on the project. Both had previous experience performing plays on social issues such as youth unemployment, alcohol abuse, and nutrition.

Each of the groups was asked to develop a short play (twenty to thirty minutes) on the theme of diarrhea and

to include messages on the use of oral rehydration salts, breastfeeding, continued feeding, and the use of other fluids during diarrhea. The play was also intended to promote the use of *Madzi-a-Moyo*. The groups were provided with literature on the national CDD program, diarrhea, oral rehydration salts, and related issues.

After three weeks the submitted scripts were reviewed by members of the health education subcommittee and revisions suggested. Each group was then requested to present the play for the committee members. The performances, which included singing and dancing, were presented in the local language (Nyanja) and lasted approximately thirty-five to forty-five minutes. After a few more changes suggested by the subcommittee, arrangements were made to draw up a performance schedule for each group.

With formal letters of introduction from the Ministry of Health, the groups traveled to local communities. Each group performed six times a week, covering forty different peri-urban, high-density compounds in Lusaka. The schedule was arranged so that the two groups would not be performing at the same time in the same compound.

The groups were responsible for advertising performance times and locations within the communities. The Maloza group preceded each performance with a door-to-door campaign informing households that a play on Madzi-a-Moyo would be held. If the household members could not attend, they were given a brief description of oral rehydration salts. One member of the group was costumed in a traditional Makishi mask (used during initiation ceremonies) and was known as Mr. Madzi-a-Moyo.

The Bakaya group preferred more extensive singing and drumming to attract an audience for their plays. The basic structure of the plays by each group was similar: one group presented a child getting diarrhea through poor sanitation and hygiene,

Mr. Madzi-a-Moyo.

then visiting the health center and receiving instructions on use of oral rehydration salts; the other group focused on bottlefeeding as one of the causes of diarrhea.

The groups were also asked to keep a journal to record the results of audience discussions and numbers of people attending the performances. Each group followed the performances with discussions with the audience. The performances were held in a variety of places including community halls, market places, outside clinics, work sites, schools, and along busy roadsides. Each group was periodically visited by subcommittee members to monitor their performance, to correct misinformation, and to suggest revisions in their technique.

By the end of a three-month period, the two groups had succeeded in reaching an estimated 80,000 people, predominantly women and children. Many local political leaders expressed their appreciation for the groups' performances, and clinic staff wrote letters praising their work. One of the performances of the Maloza group was recorded and broadcast several times on local-language radio programs. The evaluation by the subcommittee and the self-assessment by the groups' leaders were very positive and both felt that the approach was an excellent way to disseminate health education messages and to raise awareness of oral rehydration therapy.

After completion of the first round of performances the theater groups concentrated on expanding their repertoire, refining their techniques, organizing training for other groups in Lusaka and other provinces, and performing for various events (such as national health days and agricultural shows). Following the success and positive response to the initial three months of performances, Maloza was chosen to carry out another round of performances. The second period began in 1988 and included more emphasis on the proper mixing of oral rehydration salts, the importance of continued feeding during and after diarrheal episodes, and illness prevention. The subcommittee reviewed and refined the new plays, and asked the theater group to work more closely with community and health workers in the performing areas.

Spreading the Message

One of the concerns of the subcommittee was how to use popular theater to spread the message beyond the

Lusaka urban area. The subcommittee decided to build on earlier work by the Department of Cultural Services, which had promoted the formation of theater groups in local districts to present plays on agricultural development and youth unemployment. Because many of these local theater groups were either from secondary schools or working closely with schools, the subcommittee decided to target teachers interested in drama. UNICEF agreed to sponsor two workshops for drama teachers, which allowed them to share ideas about popular theater, receive instruction from theater artists and Ministry of Health personnel, and to carry out practical work in nearby villages. The teachers then returned to their respective schools and began teaching their own groups the health education plays they had learned, or created new ones based on the information and ideas shared during the workshops.

THE CHOLERA PLAYS

Zambia had experienced periodic cholera outbreaks between 1978 and 1988 that were confined to the northern regions of the country. But in 1990, cholera quickly spread to five provinces—resulting in over 2,000 cases and 144 deaths—marking the beginning of an epidemic that has persisted to the present day. The fact that cholera had affected urban areas and resulted in a high death rate prompted the Ministry of Health to put into place various measures, including a national cholera surveillance committee, to organize logistics and coordinate and monitor donor support. Cholera treatment centers were set up, health workers were called from other areas to assist, and the social mobilization campaign was intensified.

Soon after the cholera outbreak of 1990 hit Lusaka, the PRITECH representative and the Maloza group leader discussed the possibility of using popular theater to spread cholera awareness and prevention messages. Unfortunately, due to the banning of all social gatherings and school closings, the group was unable to perform. Nevertheless, the Maloza group leader took the initiative to organize a workshop to assist other theater groups to develop plays on cholera. Technical support was provided by the health education unit, CDD program staff, and PRITECH. Seven theater groups took part in the workshop, which included discussions and practice in script development and performance techniques.

Each group developed plays on various health messages, such as hygiene, control and prevention of cholera, water storage, handwashing, food hygiene, and the importance of going to the clinic early when cholera is suspected.

The Maloza theater group restarted work in urban Lusaka in March 1991. During the most recent outbreak in Lusaka (October 1992 to March 1993), the theater groups have continued their involvement in cholera activities. The Maloza group has focused on developing more effective ways to mobilize community action groups. They have also worked with schools, in collaboration with UNICEF, to improve hygiene and sanitation practices. In addition, the Maloza cholera play was filmed by the Zambia National Broadcasting Corporation and has been broadcast periodically since November 1992.

Finally, the Maloza group performed for a video on cholera filmed by the Educational Trust for the Environment, sponsored by the World Health Organization. The video, which focuses on positive responses to a cholera epidemic, will be shown to policymakers worldwide.

Impact

The usefulness of popular theater has more than fulfilled expectations. The groups have not only succeeded in raising awareness of oral rehydration therapy in the general community in urban Lusaka, but they have also trained drama teachers and theater groups throughout the country. The theater groups have also prompted community participation and community action through their efforts.

This includes the formation of local cholera committees and community efforts to clean their environment. The theater groups have sensitized politicians, local leaders, and the media through their participation in local community events.

Moreover, the success of the Maloza group has inspired others to form theater for development groups, which have developed and performed plays on health and development issues. The rapid spread of the use of popular theater by other programs and organizations since 1986 confirms the value and potential of the approach to disseminate health education and development messages. The use of popular theater for health education caught on quickly and other programs within the Ministry of Health (such as AIDS, nutrition, and maternal and child

health), and nongovernmental organizations (NORAD, UNICEF, YWCA, Rotary Club) began using the groups for their programs.

The benefit to the CDD program has been very important both in terms of raising awareness of oral rehydration therapy in the early stage of the CDD program and for the promotion of related issues (such as breastfeeding, nutrition, immunization, and water and sanitation). Raising awareness of oral rehydration salts has led to their increased use, as confirmed by staff in peri-urban Lusaka clinics.

Lessons Learned

Popular theater is a cost-effective, culturally appropriate way to reach large numbers of people.

It has broad implications for CDD as well as for other development programs, particularly those intended to reach the community and instigate community action. First, in contrast to the $30,000 spent on posters and leaflets, the total expenditure for two popular theater groups to work full-time for three months cost less than $5,000. Second, the approach is obviously preferable to imposed programs, which often do not lead to community participation. Popular theater can be adapted to different situations and nontraditionals locations (such as bus stops, markets, and schools), and performances can be revised to keep them informative and entertaining.

Popular theater does not replace other health education techniques.

The use of popular theater is not an end in itself and it is important to distinguish between informing and educating. While popular theater may succeed in raising awareness, it is not entirely appropriate to provide education on proper mixing of oral rehydration salts, or to deliver detailed health education messages.

Popular theater should be used in conjunction with other efforts. For example, theater groups can increase their effectiveness if they work with clinic staff by either performing at clinics as part of the clinics' health education program or by having clinic staff attend and participate in audience discussions. Finally, the audio- and videotaping of popular theater performances can extend the impact of popular theater considerably.

Popular theater is participatory.

A major advantage of popular theater is that it involves the community as an audience and creates genuine communication between health care workers and the community. It is not top-down propaganda; instead it allows free expression that enables the community to analyze its problems and to develop ways of dealing with them. The popular theater approach can easily incorporate audience dialogue to correct popular misconceptions and to gauge how well the message was received.

The success of popular theater has led to its sustainability.

The number of organizations and programs using popular theater to deliver health education messages and to promote community action has increased considerably over the years. The popular theater groups are currently in the process of forming their own association that will strengthen their ability to respond to Ministry of Health and donor requests and to organize training activities.

COLLABORATING FOR EFFECTIVE HEALTH COMMUNICATION IN CAMEROON

By Robin Waite Steinwand and Hugh Waters

Information, education, and communications activities have figured prominently in the evolution of Cameroon's national program for the control of diarrheal diseases (CDD). In 1989, prior to launching the communications component of the national CDD program, Ministry of Health officials mapped out an ambitious program intended to overcome many of the difficulties previously encountered with communications activities in Cameroon and elsewhere.

Robin Waite Steinwand and Hugh Waters are both former Cameroon Country Representatives.

Multisectoral collaboration was the major emphasis of the first annual communications campaign for CDD, launched in 1990, and of the subsequent annual campaigns. The CDD program initially took the lead in organizing a wide-ranging coalition at the national level, including representatives of other ministries and members of the press, dedicated to raising public awareness of the treatment and dangers of childhood diarrhea. Strong contacts were established between national- and provincial-level health education representatives, and collaborative CDD activities were organized with nongovernmental organizations, community development agents, and community-based religious groups.

The CDD program and PRITECH developed a series of high-quality print materials on the treatment of diarrhea for the campaigns. These materials were developed after conducting studies to determine culturally appropriate messages. The materials were also extensively pretested. The CDD program also emphasized timely evaluation of the distribution strategies used and of the materials themselves.

This paper chronicles the efforts of the national CDD program and PRITECH to promote and ensure multisectoral collaboration for CDD communication activities, including the unique advantages and difficulties that this approach presented.

Developing a Strategy

The national CDD program was launched in 1987, with the production of the country's first five-year plan for the control of diarrheal diseases. Although the program initially emphasized training of key health profes-

Materials Produced by the Cameroonian CDD Program

Program Logo

Provincial health educators returned home from the health communication workshop with three designs for a national program logo, which each was to field test in his/her province. Comments received from the pretesting indicated one omission: failure to define the ultimate message of the logo in advance hampered interpretation of pretest results. Nevertheless, the entire process of involving a multisectoral group in the design and pretesting of the logo proved an excellent experience.

The resulting logo, chosen finally by national program staff as best representing the message of good home management of diarrhea, was printed on stickers for wide distribution for general promotional purposes. It also appears on all print materials. Logo tee shirts were printed for distribution to important collaborators and to Ministry of Health personnel, as well as for future use as prizes and gifts.

Successful negotiations by the CDD team with a regional matchbox producer resulted in the production of over 1 million matchboxes with the CDD logo, with no production or marketing fee. These matchboxes were distributed or sold throughout a vast marketing area, encompassing all of Cameroon and neighboring Chad and the Central African Republic.

Health Care Calendar

In 1989, PRITECH, the CDD program, other services of the Ministry of Health, and other donors worked with the health education service to produce an annual primary health care calendar. Each month deals with a specific health topic, suggesting a theme for health education sessions throughout the month. October, a peak month for diarrheal illness, is reserved for the messages from the CDD program.

Mixing Flyer

Pending studies to determine the safety and efficacy of traditional home solutions, national policymakers decided to emphasize the use of oral rehydration solution during diarrhea. Therefore, the first flyer designed for use by child caretakers provided accurate mixing and administration instructions for standard one-liter oral rehydration salt packets. The Atelier de Matériel Audiovisuel and the Ministry's health education service assisted with design of the flyer, which was then extensively pretested by the service. The CDD program produced a total

of 120,000 flyers for distribution to health facilities along with oral rehydration salt packets. Instructions for health workers on how to use the flyer were also prepared, stipulating that each mother would receive one flyer with two packets of oral rehydration salts for home use.

Home Treatment Flyer

The national CDD program, PRITECH, the Atelier de Matériel Audiovisuel, and the health education service produced a second flyer describing four rules of home management of diarrhea:

- Continue breastfeeding
- Continue feeding
- Give plenty of fluids (expressed in general terms)
- Seek care at a health center in case of danger signs.

One hundred and twenty-five thousand copies of the flyer, plus instructions for health workers, were distributed through a combination of public health channels and other community-based groups.

Reprint of Posters

A three-poster set describing treatment in health facilities was the first product developed by the CDD program. After three years of use, the CDD program revised and reprinted the poster series. Revisions to the first two posters took into account suggestions from users and the director of the CDD training program. The third poster now more accurately parallels the mothers' flyer for home treatment, and reflects revisions in WHO policy. This second printing produced enough posters to place one set in every health facility in the country.

In acknowledgment of the cultural and linguistic diversity of Cameroon, the flyers and posters were produced in three versions:

- A French version with appropriate illustrations for northern Cameroon
- A French version with appropriate illustrations for southern Cameroon
- An English version with appropriate illustrations for southern Cameroon.

sionals, the strategy document also defined a critical health communication component for parent education for home case management of childhood diarrhea.

The program's early preoccupation with improving diarrhea case management by health professionals through training reflected the conviction that good home management behaviors, including timely referral, would only be achieved and sustained with the support of health care providers.

Thus the first print materials produced by the program in 1988 were a three-poster series for clinic and hospital staff on the evaluation and treatment of diarrheal dehydration. An adaptation of the World Health Organization (WHO) evaluation and treatment chart, they were designed, tested and produced by the CDD program and the Atelier de Matériel Audiovisuel (a nongovernmental health education organization). Although the posters primarily described treatment in the health center, one poster guided the health worker in teaching mothers about home management.

Only at the end of the first program year did the CDD program begin preparation for health education activities. Working in collaboration with the Ministry of Health's health education service, the program undertook a national qualitative (that is, focus group) study of cultural beliefs, attitudes, and practices regarding childhood diarrhea. The study examined six different sociocultural areas across Cameroon.

In a workshop at the conclusion of the study, CDD program staff met with national- and provincial-level health educators, representatives of other Ministry of Health services, and collaborating ministries to finalize national and regional conclusions. They also drafted recommendations for policy and future action using the focus group study results. Pending an opportunity to study the safety and effectiveness of the many home solutions identified in the study, the group decided that only water and oral rehydration salts would be promoted for use in diarrhea episodes.

A PRITECH assessment of the national CDD program, conducted in March 1989, praised the focus group study as a foundation for developing appropriate health messages and recommended that communication activities proceed without further delay. However, the assessment team agreed with the program's decision to begin health communication training before a communications effort. The PRITECH team proposed that a national workshop be held to produce "a detailed national communications strategy for CDD and operations plans to

implement the strategy under the leadership of the health education service and the CDD team."[1]

With tacit agreement from the health education service, the CDD program staff and PRITECH held a ten-day intensive communication planning workshop in June 1989. This was a multisectoral workshop: in attendance were ten health education service staff; two national-level staff; the provincial health educator from each province; staff from the nutrition, hygiene and sanitation, and primary health care services of the Ministry of Health; and representatives from CARE, the Atelier de Matériel Audiovisuel, the national radio and television stations, and the Ministries of Agriculture and Women's Affairs.

Participants of the workshop were enthusiastic about the resulting preliminary communication strategy, which built on the recommendations from the focus group research and incorporated the strengths of multisectoral collaboration. In addition to the strategy, the group developed and began pretesting models for a national program logo. For many, this was a first experience with pretesting materials.

The communication strategy laid the base for a national CDD campaign in six phases, with distinct messages for each phase according to the diarrhea season. Provincial activities were to parallel the national media campaign, and print materials were produced and distributed to support the mass media through interpersonal communication. (See the box for a description of the materials produced.)

Problems with the National Campaign

Most of the CDD program's health communication activities were carried out in collaboration with other government offices or organizations. Although these activities were successful, difficulties within the Ministry of Health and in keeping the collaborators interested slowed progress. The principal barriers were insufficient financing, competition from better funded public health programs, and a generally weak health education service.

The national communication campaign for diarrheal disease control was scheduled to be launched by the minister of health in October 1989, just prior to the peak diarrhea season. But a number of circumstances intervened to delay the actual launch date by four months,

until late February 1990. This delay not only affected the timeliness of the messages, but eroded much of the enthusiasm of the multisectoral group and confused provincial health educators who were attempting to follow the initial calendar without support from the central level.

Organizational Changes

Shortly after the communication workshop, the Ministry of Health was completely reorganized, placing the CDD program and the health education service under two separate directorates. The working relationship between these two services, which had previously been based on informal understandings, succumbed to perceived turf battles in the new structure, without formal written documentation of the working relationship and division of responsibilities. The lengthy process of filling new positions delayed resolution of the problem. Furthermore, the already limited CDD staff members had to spend most of their time covering unfilled positions, and the PRITECH representative temporarily and unwittingly became the primary spokesperson for diarrheal disease. Ministry leadership became too mired in the reorganization and appointment process to provide the oversight necessary for an undertaking as crucial as a year-long media campaign.

A Coalition in Jeopardy

Concerned about the seriousness of these difficulties, the Minister of Health delayed his support for the campaign. As the official launch date was delayed several times, partners in the campaign, perceiving ambiguity of the leadership toward diarrheal disease control, wavered in their support.

This perceived lack of leadership within the Ministry of Health for the CDD communication campaign contributed to decreased interest on the part of potential collaborators and the loss of potential human and financial resources to other Ministry programs. Sensing a change in Ministry priorities, a new UNICEF medical officer proposed a shift in UNICEF funding from CDD to the vaccination program, with ultimately negative effects for the CDD program. Multisectoral members of the CDD coali-

tion began to lose interest as the campaign appeared less and less important to the Ministry of Health.

A related problem was competition among donor-financed disease control programs for the attention of key Ministry of Health personnel and the media. The AIDS control program, for example, became increasingly important in Cameroon and was well-financed by WHO and other donors. Both Ministry of Health personnel and members of the media were inclined to increase their involvement with the AIDS program, partly due to the lure of overseas travel opportunities and seminars paying handsome per diems. The CDD program, with comparatively insignificant external financing, successfully relied on strong personal working relationships with key collaborators. However, the CDD program also had difficulty in achieving recognition and obtaining radio air time (ostensibly free for public health programs) as appropriate given the importance of diarrheal diseases in Cameroon.

Ironically, all of the above problems with the CDD communication campaign called attention to the dire need for CDD staff. By the time the campaign was launched, not one but two people were appointed to work full-time for the national CDD program.

Inadequate Supply of Oral Rehydration Salts

As the programmed campaign launch date approached, the CDD team learned that a large order for oral rehydration salt packets, scheduled to arrive before the campaign, was never placed due to financial difficulties at the national pharmaceutical parastatal. The uncertain supply threw into question a previously firm policy to promote oral rehydration salts instead of locally available home solutions.

Inadequate Distribution and Use of Educational Materials

Anecdotal evidence and observations by supervisors suggested that traditional methods for the distribution of health education materials (from the national level down through several tiers of the health system to health centers) frequently resulted in materials being stockpiled in an interim warehouse. Inadequate storage conditions,

with the risk of rodent and climatic damage, seriously damaged materials before they reached their target audience.

During supervisory visits prior to preparing the communication strategy, the national CDD team encountered health center personnel complaining of a lack of health education tools while several old educational flipcharts sat dust-covered and out-of-reach in the center. Furthermore, supervisors observed that in one-on-one consultations with mothers of small children, health workers rarely made use of available visual aids.

Thus, in developing its communication strategy, the national CDD team decided to emphasize better end-use of materials in two ways:

- Testing and evaluating new distribution approaches, including the use of non-health sectors to reach the population, and
- Enhancing communication skills of health and outreach workers who explain and distribute health education materials.

Overcoming the Problems

Some of the key problems related to the first CDD communication campaign were resolved in later campaigns. New approaches, such as distribution of flyers through alternative channels, were employed to address existing problems.

The 1990-1991 and the 1992-1993 campaigns reiterated the different messages that had been designed for the first campaign. The messages were slightly revised and distributed to health education staff at the central and provincial levels as well as to newspaper and radio representatives. The friction between the Ministry departments containing the CDD program and the health education service was resolved when a formal, written agreement was signed authorizing one of the key service staff to work nearly full-time with the CDD program.

The contributions of this service staff member, and the new CDD staff added in 1990, enabled individual planning sessions with health education representatives in nearly all of the provinces. Increased personnel working with the CDD program permitted new initiatives, including negotiations with a private company for the widespread distribution of matchboxes containing the CDD logo. Additionally, the service became more involved in the development

and pretesting of educational materials for the CDD program, particularly the flyers.

Despite the strength of these personal contacts, and the importance of CDD communication initiatives at the provincial level and in pilot areas, the national campaigns never achieved the high profile and visibility that had been envisioned at the outset of the CDD communication strategy.

New Distribution Approaches

The first flyer produced by the national CDD program, discussing proper preparation of oral rehydration salts, was distributed almost exclusively through Ministry of Health channels to public health facilities, where it was intended to be given to mothers. However, severe bottlenecks in the Ministry system and a lack of clarity as to the purpose of the flyer combined to reduce the potential effectiveness of this important educational tool.

Distribution of the second flyer, on home treatment of diarrhea, was designed to avoid bottlenecks in the Ministry of Health distribution system and involve other potential distribution agents to supplement distribution through the official health system. In addition to controlled distribution through health centers in certain parts of the country, three pilot zones were targeted for intensive distribution of the flyer. In each zone, the method of distribution was different, enabling eventual comparison of the effectiveness of the methods used. The following are the provinces and distribution methods used:

- The Extreme North Province, through community-based health centers supported by CARE,
- The Littoral Province, through the Ministry of Agriculture's community development agents,
- The Northwest Province, through community-based religious groups.

In the Littoral and Northwest Provinces, the CDD program and PRITECH organized short seminars with the distributing organizations, discussing technical points related to diarrhea case management and helping with the development of specific plans for distribution of the flyer. During the seminars, emphasis was placed on the importance of providing personal counseling to mothers receiving the flyer.

Improving Use of Materials

To help health workers make the best use of visual materials distributed by the CDD program for quality health education, the program implemented the following three-pronged approach:

Active involvement of provincial educators

Prior to the 1989 communications planning workshop, the health education service appointed a health educator in each province to organize and supervise the service's activities and to oversee materials distribution. These provincial health education representatives participated in the formulation of the communication strategy and messages, in pretesting materials, and in organizing local efforts for multisectoral distribution. The CDD team took advantage of a family planning workshop to present and explain the mixing flyer to these representatives before its distribution.

Technical training

The CDD clinical management course was revised to highlight good health worker-patient communications as an essential part of correct case management. Available print materials are now presented and used during training.

Instructions for print materials

The CDD program developed detailed instruction sheets for health and outreach workers to be used with each flyer. These sheets explain how to use and distribute the flyers and provide a more detailed explanation of the technical content of the messages.

Impact

Widespread communication activities for diarrheal disease have been undertaken for a relatively short time in Cameroon. While significant data are available concerning awareness of the dangers and treatment of childhood diarrhea, some caution should be used in interpreting the influence of the CDD program on such awareness.

The messages emphasized by the CDD program's print materials and radio spots have been those of effective home treatment for diarrhea: giving liquids (includ-

ing oral rehydration salts), feeding, breastfeeding, and recognizing danger signs of dehydration.

A WHO household survey conducted in two provinces in 1991 indicates that, in general, the Cameroonian population is well aware of the importance of these measures.[2] Although the survey showed a low overall use rate of oral rehydration salts (only 5 percent of mothers treating a diarrheal episode in the last twenty-four hours administered oral rehydration salts), rates were high for continued giving of liquids during diarrhea episodes (88 percent of caregivers), continued feeding (76 percent of caregivers), and continued breastfeeding (99 percent of breastfeeding mothers). Thirty-seven percent of caregivers demonstrated knowledge of all four criteria for referral to a health facility. Another 1991 survey showed that, nationally, 18 percent of caregivers had given oral rehydration salts during a diarrheal episode within the last two weeks.[3]

The evaluation of specific health education efforts has been more conclusive. A health facilities survey in 1991 sought to identify the percentage of health workers giving correct advice to caretakers—a key emphasis during CDD training of health workers.[4] Fifty-seven percent of health workers interviewed provided effective advice concerning the importance of increased fluids in treating diarrhea; 71 percent provided advice concerning the preparation of oral rehydration solution.

In 1992, a study of the home treatment flyer and its distribution was carried out in those pilot areas where the flyer had been distributed. The study showed promising results: 12 percent of caregivers randomly interviewed had received a copy of the flyer; of these, 79 percent had kept it. Sixty-four percent of the flyer's recipients referred to it when their children subsequently had diarrhea. These results lend credibility to the experimental approaches used by the CDD program to distribute the flyer.

The home treatment flyer study shows the importance of counseling in the distribution of print materials. Mothers who received the flyer and mothers who merely saw it at a health facility showed similar levels of understanding of the message when counseling from the health workers was controlled for. In light of this finding, it might be more practical and less expensive to print a more durable educational aide, perhaps printed on loose cardboard and laminated in plastic. However, other fac-

tors should also be considered, including the intangible psychological value of providing health workers and other distributing agents with materials to distribute to the caregivers. These materials have a perceived value in the eyes of individuals receiving them, thereby enhancing the credibility and the professional satisfaction of the distributors.

Radio, television, and newspaper contributions to the communication efforts have been strong at times, but sporadic. Typically, newspaper and television coverage has resulted from individual initiatives or special events and has not had a regular, institutionalized character. Radio messages have been broadcast with regularity on five of the ten provincial radio stations, and sporadically by the national radio station. Support from the press of CDD has only come about through individual interventions on behalf of the CDD program—the sustained nationwide coalition that was originally anticipated by the program never took root.

Lessons Learned

COLLABORATION

From the beginning, the national CDD program has pursued a multisectoral approach to its communication component. Collaborative relationships with other government services, sectors, donors, and nongovernmental organizations can strengthen and enhance the reach of a communications effort. However, the following points should be addressed in developing and sustaining collaborative relationships for health communications:

The program must have strong commitment and support from the Ministry of Health and from donors.

The broader the collaborative network, the more authority—and financial resources—will be needed to maintain it.

The Ministry of Health must build and support a strong health education service.

Strengthening the service should not be a splintered effort by each program or donor-supported project. The service should have clear written guidelines for working with and meeting the health education needs of the

diverse programs and projects of the Ministry of Health. Successful multisectoral collaboration in communication requires a positive collaborative relationship between the lead program (such as CDD) and a strong health education service.

Other ministries and sectors offer varied channels and reach different audiences.

Collaboration with other sectors, such as agriculture, community development, and women's affairs, can enhance a program's ability to get its messages and materials to previously neglected population groups. Similarly, nongovernmental organizations (religious and community groups, volunteer organizations) provide new outreach channels that usually have fewer bureaucratic and political constraints.

Personal collaborative relationships at the lower levels can be valuable.

Provincial personnel should be used to organize local multisectoral efforts. Personal relationships at this peripheral level can be more easily translated into sustainable working arrangements. This is particularly true in working with the media to provide ostensibly free coverage for national health programs. Health workers, too, can be considered primary collaborators in passing essential messages about home treatment. However, to do so, they must receive improved training in health education and interpersonal communications.

Preparation and Follow-up

A successful communications effort necessitates careful planning as well as policy statements and messages that accurately reflect local realities to the extent possible. The timing of a communication initiative should balance the need for sufficient planning and research with the need to move forward with the education of child caretakers and creation of demand for the kind of diarrhea management health workers are being trained to provide. The Cameroon experience demonstrates the importance of the following prerequisites to launching a communications campaign:

Prior to a communication effort, the CDD program should develop and publish national policy guidelines.

Existence of a policy will assure consistency between health education messages and the information transmitted to health workers in training. Studies should be planned to seek information still needed to define more specific policies, such as choice and exact preparation of home solutions.

Formative research, such as the focus group studies, aids in the development of culturally appropriate messages.

At the provincial and peripheral levels, messages tailored to local practices can enhance program credibility.

CDD program personnel must ensure adequate supplies.

All supplies defined in policy as a part of the program (packets of oral rehydration salts, containers for mixing, and so forth) must exist in adequate quantity where needed before launching a communication effort. Though this may imply prior resolution of a systemic problem within the health system (such as a drug distribution network), the credibility of the CDD program and viability of the communication effort will depend on it.

Where a large collaborative effort is planned, all collaborating partners should participate in strategy and message development.

The pre-existence of firm policy helps the program to maintain control over the process and final planning products.

A well-organized national communication effort will only succeed through extensive follow-up with all partners responsible for its implementation.

This implies the need for sufficient core staff (in the CDD program and the health education service) from the outset.

Conclusions

This paper underlines the complications and difficulties associated with a government-led nationwide communication program with multiple partners. The

Cameroon CDD communication campaigns lacked important elements necessary for success. These elements included dynamic support from the leadership in the Ministry of Health and sustained long-term funding.

Nevertheless, the Cameroon CDD program has been able to achieve a considerable amount in the area of health education. A conscientious and thorough approach to the development of print materials has produced culturally appropriate and effective materials that will continue to be used by the program well after the completion of the PRITECH Project.

Strong interpersonal contacts between the CDD program and individual members of the press have produced positive if not constant newspaper and radio contributions to CDD. Similar contacts with health educators at the provincial level, and with representatives of nongovernmental organizations, have led to a wide range of successful pilot activities for health communications, and have reached a significant portion of the population.

Notes:

[1] Agma Prins, Owona Essomba Rene, Ndeso S. Atanga, and others, "PRITECH II Assessment: Cameroon National Control of Diarrheal Diseases Program," Arlington, VA, Management Sciences for Health PRITECH Project, STP-012-CA, 1989.

[2] WHO, "Enquête sur la morbidité et la prise en charge des cas de diarrhée," Arlington, VA, Management Sciences for Health PRITECH Project, RAD-067-CA, August 1992.

[3] Martin Balépa, Médard Fotso, and Bernard Barrère, *Enquête démographique et de santé, Cameroun 1991*, Columbia, MD: Macro International Inc, December 1992.

[4] Moussa Coulibaliy, "Etude de la prise en charge des cas de diarrhée dans les formations sanitaires des Provinces du Littoral et du Sud au Cameroun," Arlington, VA, Management Sciences for Health PRITECH Project, RAD-056-CA and LPC-032-CA, March 1993.

POSTERS, FLYERS, AND FLIPCHARTS: USE OF HEALTH EDUCATION MATERIALS IN THE SAHEL

by Elizabeth Herman and Suzanne Prysor-Jones

Elizabeth Herman is a Technical Officer, and Suzanne Prysor-Jones was the Senior Program Manager, Sahel Regional Office.

PRITECH has provided technical and management assistance in the establishment and implementation of national diarrheal disease control (CDD) programs in the Sahel region of Africa since the early 1980s. The first CDD action plans developed by the ministries of health in Niger (1984), Mali, Mauritania, and Senegal (1985) concentrated on training health workers in case management and on developing communication strategies to promote appropriate household management of diarrhea. This represented the first systematic effort in these countries to coordinate the practices of and advice given by health workers with public health messages promoted through the mass media and other communication channels.

PRITECH assisted the CDD program and health education staff in each country to identify culturally appropriate strategies and messages to promote recommended practices at the household level. The available literature was reviewed and focus group research carried out among different ethnic groups in each country. This initial research was conducted with mothers of young children, older women, and other local experts (including health workers) in the treatment of sick children.

CDD program and health education staff, in some cases in collaboration with a national CDD committee, determined the type of educational materials that were developed. The decision was based on examples from other CDD programs, previous experience with educational materials within the country, and the CDD program's communication goals. All four countries chose to develop radio and television spots as well as printed materials.

Printed materials developed for face-to-face communication included:

- Home-care flyers illustrating the preparation of oral rehydration salts and other recommended practices. It was intended that these "memory aides" would be explained and distributed to mothers by health staff, village health workers, traditional birth attendants, and educators from other sectors.

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- Illustrated booklets to be kept by health staff, village health workers, and school teachers and used for teaching about diarrhea prevention, dehydration, feeding during and after diarrhea, and the preparation of oral rehydration salts or sugar-salt solution.
- A flipchart comprised of the same pictures as the illustrated booklet (Niger only). This was for use during group education sessions in health facilities.
- A poster depicting a mother administering oral rehydration therapy (oral rehydration salts or sugar-salt solution, according to the country's policy) and including the same pictorial instructions as the home-care flyer.

All printed materials used national languages (approximately five per country). They were pretested by the CDD and health education staff using focus group discussions or interviews with mothers, village health workers, traditional birth attendants, and health staff.

The Mali CDD program organized a campaign to launch the communication activities. This consisted of a national song contest, coordinated teaching activities in all the schools in Bamako, and radio and television spots. The other countries introduced activities more gradually.

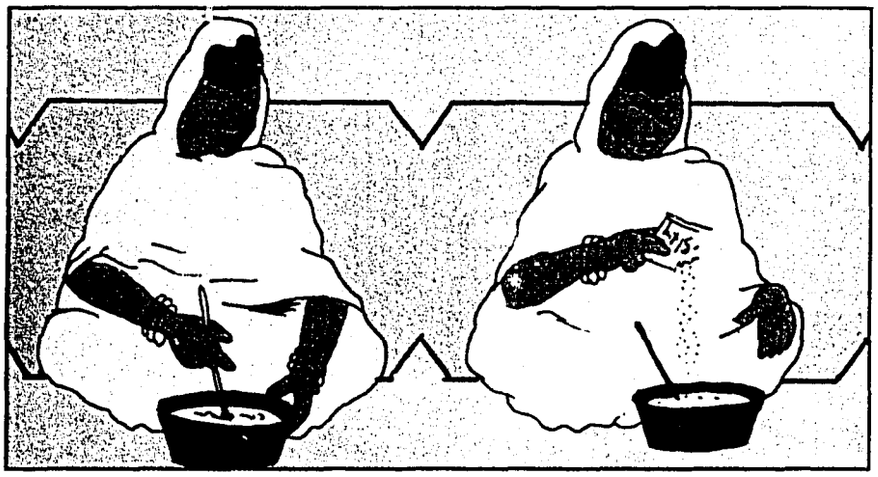
Printed materials were to be included in the decentralized training of health and other workers in each country. Photocopies of draft materials were provided for initial sessions for which final versions were not yet available. The training was designed to include instruction on the use of the face-to-face educational materials. Role plays were recommended but not always carried out in practice.

The printed materials were distributed throughout the public health system. Each regional and district director was responsible for assuring that the materials reached all levels of the health sector as well as school teachers, literacy workers, and other development agents. The materials were packed with a note explaining the purpose and intended user for each type.

Underuse of Educational Materials

Initial training and communication or health education activities were evaluated in a number of ways. Household surveys of knowledge, attitude, and practices (KAP) related to diarrheal diseases showed that the activities had made a considerable impact on mothers' aware-

ness and use of oral rehydration therapy. The percentage of mothers using oral rehydration therapy to treat a recent diarrheal episode has increased to between 24 percent (Senegal) and 40 percent (Mali and Mauritania), compared with less than 7 percent before the activities of the national CDD programs. The KAP studies also showed that more than 60 percent of mothers with knowledge of oral rehydration therapy had gained it from contacts with health staff. Changes in other behaviors related to the household management of diarrhea, such as feeding and giving adequate amounts of fluids, were negligible.



Unfortunately, the results of subsequent health facility surveys suggested a problem with the use of the face-to-face communication materials produced and distributed by the national CDD programs. Observations made at the time of CDD supervisory visits confirmed that the CDD program materials were not displayed in many health facilities, and they were rarely, if ever, referred to during interactions with mothers and other caregivers. Outreach activities also required improvement as rehydration therapy knowledge and rates of use varied considerably between towns with health facilities and villages without them.

The reasons for the underuse of CDD health education materials and ways of improving the situation were, however, not evident. Did the problem lie with the materials themselves? Were the formats or the content inappropriate? Were the materials too complex or too bulky

for easy use? Alternatively, was the problem one of distribution and management? Were the materials reaching the health facilities? If so, had they been distributed to the wrong people and simply locked away in closets? Were there administrative or organizational barriers to the use of educational materials? Did the existing attitudes of health workers or their supervisors discourage their use?

The answers to these questions would have important implications for the national CDD programs. Without understanding the reasons for underuse of the materials, it was impossible to know what measures to take to address it. After the initial set of materials had been distributed, programs had to decide whether to simply reprint the materials as initially developed, to revise them, or to abandon the idea of supplying print materials to health facilities.

Given that the problem of underuse of CDD health education materials appeared to be common throughout many countries in the region, PRITECH's Sahel Regional Office proposed to coordinate a series of brief investigations into the reasons behind this situation. A research proposal was developed by a West African social scientist in coordination with PRITECH regional and headquarters staff. It was subsequently adapted and implemented by CDD programs in four countries in the region.

Investigating the Reasons for Underuse

Study Design

A standard survey format was used to conduct interviews with health care and social service workers in their places of work. The methodology employed open-ended interviews and direct observations. An observation guide was used to record the kinds of educational materials available in health facilities and to document interactions between health workers and patients with diarrhea (or their caregivers).

Studies were conducted in four Sahel countries. Fifty-seven health facilities were visited in Mauritania (19), Mali (9), Niger (12), and Senegal (35). The health facilities were selected to include all levels (from the national referral hospital to local health posts) in both urban and rural areas. In two of the studies, private facilities were represented as well as public facilities.

One hundred and seventy-three health care and social service workers were interviewed individually: 43 in Mauritania, 31 in Mali, 32 in Niger, and 67 in Senegal. The workers were well distributed in terms of age, gender, and number of years in service.

The study observed and inquired about the use of all types of educational materials including those produced by other programs or interventions. It also sought to verify reported educational activities by reviewing facilities' schedules and activity reports.

Study Results

Availability of materials within health facilities

The most common type of educational material found in all the facilities visited was the poster. Flyers, flipcharts, and items for demonstration were less frequently encountered. Unfortunately, two of the researchers noted that the posters were not always easily visible to patients or their caregivers, and appeared to be positioned as decorations rather than as teaching aids. The investigators in Mauritania and in Niger noted a large number and variety of materials promoting pharmaceutical products.

With a few exceptions in Mali[1] and Niger,[2] most of the hospitals visited, particularly the large referral hospitals and teaching facilities, lacked significant educational materials and activities. This is of particular note since the hospitals are generally located in the national or regional capitals and are easily accessible to the distribution centers. Hospitals with diarrhea treatment units and feeding rehabilitation units were more likely to have materials in those settings.

In Senegal, the availability of posters and other print materials in lower-level health facilities was quite good.[3] Demonstration materials (for mixing oral rehydration salts and for family planning) were limited to the maternal and child health centers. In Mauritania, posters on CDD, immunizations, family planning, and hygiene were available in 15 of 19 facilities visited. In Niger and Mali the availability was quite variable among facilities. The availability was not a function of rural versus urban location of the health facility, nor of the accessibility of the facility.

Thus, the distribution system, although not ideal, did not appear to be a major factor in the underuse of educational materials. In fact, many of the facilities that

had no materials displayed were found to have them stored away and forgotten in closets.

Attitudes toward health education

When asked directly, all the health workers interviewed acknowledged the importance of health education and the usefulness of health education materials. Further questioning, however, revealed less favorable attitudes. In Mauritania, for example, only five of the forty-three workers interviewed identified health education as an essential activity to which they accorded more time than other activities. Four of those were lower-level health auxiliaries. Most of the health workers felt that health education was not an important part of their own jobs for a variety of reasons.

The twenty-five physicians interviewed in the four studies all attributed their nonuse of health education materials to lack of time. Both physicians and nurses placed priority on the activities of consultation, prescription, and treatment. Although they reported providing verbal instructions to patients at the time of consultation, observations suggested that this was seldom the case.

Although midwives reported playing an active role in health education and expressed interest in obtaining more materials and training, they were unwilling to identify themselves as health educators. Paramedical workers including public health agents and "social action personnel" were the most motivated and available to provide health education. But they received little training in health education techniques and seldom had access to educational materials.

Thus, although almost all of the health workers interviewed acknowledged the importance of health education, in practice these activities appeared to be assigned to individuals at the bottom of the health worker hierarchy. The individuals assigned to "do" health education were unlikely to be the ones sent for in-service training. They were also the individuals least likely to have the authority to make decisions or to set priorities within health facilities.

The location of health education activities

In all four studies hospital staff consistently expressed the attitude that there is a lack of time for health education in a referral setting in which the most seriously ill cases are managed. The low use of educational materials was also attributed to the absence of

materials and lack of interest in education on the part of the senior and technical staff. Similarly, health education activities were not established in the health centers and were not reflected in routine work schedules and plans.

Throughout the Sahel, the maternal and child health center is considered the optimal site for health education. Most have educational materials and rooms or spaces adaptable for group sessions. Indeed, the group education session, occurring before consultations, is the most common form of health education. Most centers post a schedule of presentations on topics such as family planning, nutrition, immunizations, and diarrheal disease control. Ironically, however, printed health education materials are seldom referred to during these sessions. There is even a question as to whether all the scheduled sessions actually take place. For example, one researcher noted the fact that health education group sessions are usually scheduled at 8:00 or 8:30 in the morning, while health workers do not usually report until 9:00 a.m.[4]

In other health facilities, health education activities are reported to be "informal." None of the studies, however, found evidence that individual counselling takes place. The reasons given to explain this deficiency included the lack of training in education and communication, the lack of materials, the lack of time, an underlying attitude that educational efforts are ineffective in changing behavior, and internal management problems regarding the storage of materials.

It appears, therefore, that just as health workers tend to delegate health education activities to the individuals who are lowest in the health worker hierarchy, health facilities also tend to shirk their responsibility for these activities, delegating them primarily to the maternal and child health centers. Although health education activities and materials are visible in these centers, the place of health education still appears to be marginal to other curative activities. Health education seems to be viewed as an activity that is separate from case management and that is somewhat of a luxury that can be dispensed with when time and resources are short. There is little understanding that health education deals not only with public health and prevention, but is also an integral part of good case management.

Attitudes toward and understanding of materials

Questioning about the specific health education materials available in facilities revealed that the quality

and cultural appropriateness of the materials did not appear to be a problem. There were many recommendations to diversify the type of materials provided. It was noted that posters, the most common type, must be limited to one or two messages. Flipcharts, flyers, and audiovisual equipment would be helpful in providing a more comprehensive presentation of a topic. Health workers in urban areas were particularly anxious to have access to movies and videos.

It is questionable, however, whether this is a positive recommendation as most hoped that audiovisual materials would "free them" from the responsibility of providing health education and allow them to tend to more important duties.

Although testing mothers' comprehension of education materials was not part of the study design, the investigators in Mauritania conducted brief interviews with seven mothers who brought their children to health facilities for consultations. They found that only two of the mothers could correctly interpret a poster distributed by the CDD program. This questions the utility of posters that are distributed to be simply pasted on the walls of health facilities.

Training in health education

Specific training in health education was extremely limited. Senegal was the only country in which any of the interviewees had received special training in health education techniques and in the use of health education materials. The training, however, had been limited to regional health officers and to senior health education personnel.

A proportion of health workers in all four countries had received some form of training in health education in the context of courses organized by programs (such as CDD, AIDS, family planning). The researchers' assessment of the effectiveness of that training varied. The study in Mali concluded that the nurses who had received training in health education and who had received some educational materials did not use the materials because of their preoccupation with curative care. In Mauritania, however, the researchers concluded that health education training had greatly improved the attitudes and performance of those trained.

Most of the health workers interviewed expressed interest in receiving training in health education techniques. The interest was particularly strong among "social action" personnel and public health personnel.

Using the Results of the Investigation

Prior to conducting the studies on the distribution and use of health education materials, the CDD programs in the Sahel had planned to reprint materials on the household management of diarrhea, and to develop others on oral rehydration salts, hygiene, and nutrition. It was decided, as a result of the findings, to proceed more cautiously before undertaking another round of mass production and distribution. The CDD programs decided to join with other programs and projects to attempt to improve health education activities within the countries.

Meetings were held with health education staff and with regional CDD and health education supervisors to discuss the research findings and to explore possible solutions to the problems identified. In Mali and Senegal, these meetings coincided with the start-up of HealthCom project[3] activities. As a result, training in interpersonal communication skills became a focus of the Ministry of Health and HealthCom workplans. In Niger, Senegal, and Burkina Faso, increased emphasis was placed on health education techniques and the use of educational materials in subsequent training-of-trainers workshops and decentralized training sponsored by the CDD programs.

To support these efforts to improve health education skills, PRITECH's Sahel office modified the manuals used for the training-of-trainers sessions and for inservice training to strengthen the health education component and to include role-plays involving the use of educational materials. The modules for use by nursing schools in the region were similarly modified.

In Mali and Niger, local production of oral rehydration salts began after completion of the research. The results of the studies influenced the decision to print fewer materials for the general public and to produce more materials for prescribers and drug sales persons. Radio and television spots were developed as before.

Ethnographic research and household trials on feeding during and after diarrhea are being conducted in several countries in the region. The results of these studies will be used to develop counselling cards and other materials related to child nutrition. When introducing these materials, the emphasis will be placed on training health workers to use the materials to help them counsel effectively.

Finally, the results of the studies have inspired other countries to critically evaluate the effectiveness of materials developed by the CDD programs. For example, the CDD program of Cameroon recently completed a study of two home care flyers that were to be distributed to mothers through the public health system and through community organizations. The program studied caregivers' recognition of the flyers, the availability of flyers in households, knowledge about the content of the flyers, and influence of the flyers on reported behavior.

Lessons Learned

When CDD programs were initiated in the Sahel, it was assumed that making appropriate educational materials available to health staff and other educators would ensure widespread and effective education and counselling on oral rehydration therapy. The results of the four studies summarized in this paper caused serious questioning of this assumption and pointed to problems with health education activities in general. It is now recognized that the provision of high quality materials is necessary but not sufficient for improving health education.

The problem is not limited to the CDD program but relates to the undervaluing of, and perhaps the perceived ineffectiveness of, health education activities. This problem of attitude and priorities is too often reflected in the limited budgets and low status afforded to health education departments and programs. The value placed on health education must be reflected by its position within the ministry and communicated to health workers at all levels.

The importance of health education can be communicated and reinforced in a number of ways:

- Training in use of education materials must be part of health worker preservice and inservice training. It is necessary that the training include very basic concepts such as showing the pictures to the individual who is to be educated, and following the script of the materials. Training must include demonstration of, practice of, and appropriate feedback on communication techniques.
- Health education materials and activities must be integrated into the routines of hospitals and other acute-care facilities as these are the training sites for upper-level health workers. If health education continues to be ignored in these settings, not only will the patients

suffer, but students will have no models for incorporating health education into case management. It is important to stress that health education is not only a preventive measure, but is part of good case management. Educational materials, when used properly, can increase patient understanding, improve compliance, save time and improve outcome.

- Senior-level health workers and supervisors must be trained in how to teach, supervise, and support the use of educational materials. This may require a redefinition of their job descriptions to include the distribution of materials and the encouragement of health education activities through supervision and monitoring.
- Training in appropriate techniques and in the use of materials should be provided to those health and community workers most actively involved in health education. This will clearly require collaboration with other health programs and other sectors.

The studies also point to the need for more careful evaluation of the use and effectiveness of different types of materials. For example, the results suggested that posters, although the most common type of material, are used as decorations and seldom explained to patients or caregivers. Simple follow-up studies are needed to determine whether counseling cards, flyers, and other materials that can be easily used in face-to-face communication are more useful and effective.

It is generally felt that printed materials are still lacking in health facilities at all levels in the Sahel and that more are needed. There is now, however, a greater understanding that the appropriate use of educational materials is not automatic and that there is no short-cut to improving health worker motivation and skills. Resolving the problems will require considerable time and resources and must take place systematically through the concerted effort of different national programs supported by donors and nongovernmental organizations.

Notes:

[1] Makane Kane, "Utilization du matériel éducatif par les agents de santé au Mali." Arlington, VA, Management Sciences for Health PRITECH Project, RAD 024-SA, July 1990.

[2] Mamadou Sene, "Utilisation du matériel éducatif dans les structures de santé au Niger." Arlington, VA, Management Sciences for Health PRITECH Project, RAD 024-SA, December 1990.

[3] Mamadou Sene and Mbaye Diop, "Utilisation du matériel éducatif par les personnels socio-sanitaires au Senegal." Management Sciences for Health PRITECH Project, RAD 025-SA, September 1991.

[4] Sidy Baidy Kane and Moussa Fall. "Etude sur l'utilization du matériel éducatif par les personnels de santé en Mauritanie." Arlington, VA, Management Sciences for Health PRITECH Project, RAD 024-SA, August 1991.

[5] Communication and Marketing for Child Survival, or HealthCom, is a project managed by the Academy for Educational Development for A.I.D. The project aims to increase the impact of health and child survival programs through improved communication and social marketing activities.

WE COULDN'T HAVE ASKED FOR MORE! LESSONS LEARNED IN INFORMATION DISSEMINATION

by Karen White and Lisa Dipko

The Need for Health Information

Karen White is the Information Manager and Lisa Dipko was an Information Specialist.

For many people in the developing world, information is a scarce and precious commodity. Unlike their counterparts in industrialized countries, who are often hard pressed to keep up with the literature, health practitioners and policymakers in developing countries often make decisions without the benefit of the most up-to-date information. Health workers in rural Tanzania, for instance, stated that they could not adequately perform their duties because of their academic and professional isolation and the lack of access to libraries near their workplaces, among other factors.[1] Similarly, a survey found that doctors and clinical officers in Zimbabwe felt isolated, with no means of improving their professional skills.[2] The majority of such health workers have no access to current information whatsoever, despite the fact that information is critical to the success of health programs.

Even in urban areas, libraries in medical schools and hospitals can rarely afford more than a handful of core professional journals, much less the online databases, research reports, and monographs commonly found in US libraries. Most libraries lack the foreign currency to pay for foreign journal subscriptions, and donor agencies are reluctant to fund recurrent costs.

Opportunities for continuing education through training courses may also be few and far between. Even officials responsible for setting health policy and implementing primary health care programs in ministries of health have limited access to information or training. Information is such a valuable commodity that some policymakers hide reports and articles away in their desks or at home, convinced that information, rare as it is, represents power and should not be shared.

Information Center Services

Information clearinghouses are one vehicle for meeting the pressing need for information on the part of health workers and others. A clearinghouse is a special-

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ized information dissemination center that collects information on one topic, repackages and synthesizes it, and distributes it to a target audience. It is different from a library in several ways. First, while libraries mainly serve clients who visit in person, clearinghouses mainly serve clients by mail or phone, often receiving no visitors at all. Second, while libraries collect information on a broad range of topics, clearinghouses usually limit their acquisitions to one field, such as diabetes or cancer. Finally, clearinghouses emphasize outreach, or dissemination, of information.

The PRITECH Information Center collects information about diarrheal disease control and other related health interventions and disseminates it to health practitioners and policymakers worldwide. The collection consists mainly of published journal articles, documents from the World Health Organization (WHO) and other donor agencies, and reports generated by the PRITECH Project. The Information Center helps increase awareness of the proper treatment of diarrhea and management of programs for the control of diarrheal diseases (CDD) through the following mechanisms:

What Do Clients Ask For?

- A pharmaceutical company in Mexico asked whether ORS containing glycine was more effective than ORS with glucose. The Information Center sent articles that demonstrated that it was not.
- The CDD program manager in Madagascar asked for examples of CDD policies from other countries. The Center sent policies from several other French-speaking countries.
- The director of primary health care programs in northern Peru requested materials on cholera prevention. The Center sent the WHO Guidelines for Cholera Control, as well as articles on breastfeeding, hygiene, and immunization.

Response to Information Requests

Through its database and access to online data bases, the Information Center responds to about 1,500 requests a year, primarily from health professionals in the developing world. The database, consisting of more than 6,000 documents, can be searched by author, title, subject, source, language, and country. The Center can provide computer printouts of citations on a particular topic or copies of the documents themselves. The Center also produces an annotated bibliography each year which lists the entire collection; copies of the collection's documents can be requested at no cost.

Monthly Acquisitions List

Before they can request copies of specific documents, people must know that they exist. The Information Center has several current awareness tools—mechanisms for keeping people up-to-date on the most current literature in their field. The first of these is the *Monthly Acquisitions List*, an annotated list of key child survival articles that readers can order at no cost. The Center sends the list to more than 350 policymakers and project implementers. Readers include the overseas offices of private voluntary organizations, CDD program managers, overseas information centers, and health officers at USAID missions. Another current awareness tool is the *Technical Literature Update on Diarrhea*.

Technical Literature Update on Diarrhea (TLU)

Since 1985, PRITECH has distributed the *TLU*, a bimonthly publication that reviews articles on diarrheal disease control and related interventions, such as breastfeeding promotion and nutrition programs. Each issue features abstracts of published articles on a particular topic or issue, such as sustainability of health projects or

the role of traditional healers in CDD programs. PRITECH's technical editor then provides expert commentary on the articles, explaining how they are relevant to health practitioners and policymakers involved with child survival programs. Readers can ask for copies of the articles reviewed, or for bound copies of *TLU* back issues. The *TLU* is available in English, French, and Spanish to more than 17,000 readers throughout the world. The PRITECH Information Center distributes the English and Spanish versions, while the Office de Recherches sur l'Alimentation et la Nutrition Africaines (ORANA) distributes the French. The most popular *TLU* issue to date was a special issue on cholera, produced in response to the Latin American cholera epidemic of Spring 1991.

Documenting PRITECH's Country Program Experiences

Since the Information Center is part of a project that implements CDD programs overseas, it serves as the institutional memory of PRITECH, as well as a clearinghouse of technical documents. This is accomplished through two mechanisms: maintaining the project's central files, and producing reports on PRITECH program experiences in developing countries. Without a documentation effort, PRITECH's experiences in helping to manage CDD programs would be lost. The Information Center publishes a quarterly highlights report, which documents the project's progress on a quarterly basis; a series of country program profiles, which describe PRITECH activities in country programs; and a series of occasional papers, which provide useful "lessons learned" in CDD program implementation.

Target Audiences

The PRITECH Information Center currently serves two distinct groups of people: child survival policymakers and project implementers; and health practitioners such as physicians, nurses, and community health workers. However, the Center's target audiences have evolved over time. In 1983, the Information Center targeted a small group of users to receive information products, including health officers at USAID missions, technical officers at A.I.D./Washington, PRITECH staff, and managers of CDD programs in developing countries.

Later, when the project acquired long-term country representatives stationed in developing countries, they became yet another user group.

For country representatives, the Center could provide access to technical information as well as serve a cross-fertilization function. Since many of the representatives had no contact with each other, they could not learn from each other's successes or failures. The Center identified reports, forms, and audiovisual materials produced by PRITECH field offices that could be shared with the others. Country representatives also used articles in leading medical journals, such as the *New England Journal of Medicine* and *The Lancet*, to convince developing country physicians that oral rehydration therapy is endorsed by the US medical establishment. A country representative in an Asian country used technical articles from the Information Center to convince manufacturers of oral rehydration salts to promote continued feeding and breastfeeding along with the salts, as they would improve its efficacy.

As the Information Center mandate and the range of project publications expanded, the Center attempted to reach additional groups. In 1989, for instance, the Center decided to translate the *TLU* into French and Spanish, which enabled the project to reach health professionals in Latin America and French-speaking African countries. Since then, the Center has successfully targeted the following groups:

- *Health practitioners*, such as physicians, nurses, and community health workers, in developing countries. In 1988 and in 1992, the Information Center conducted readers' surveys of the *TLU*. Although the main purpose of the surveys was to determine the usefulness of the *TLU*, the surveys also asked the readers to supply names of other individuals and organizations that would benefit from receiving the *TLU*. In 1992, readers generously provided some 4,000 names in response. Word of mouth was another mechanism by which many health workers learned about the Information Center; they mentioned having seen a PRITECH publication on the desk of a colleague. PRITECH has reached many additional health practitioners by distributing publications at national and international health conferences. Health workers in developing countries now make up fully 25 percent of the Information Center's clients.

- *Field offices of the private voluntary organizations* registered with A.I.D. working in the area of child survival. The field offices of such organizations as CARE and Save the Children are staffed largely by country nationals who are implementing projects in maternal and child health, nutrition, CDD, and immunization. They constitute one of PRITECH's most enthusiastic groups of information consumers. In 1989, private voluntary organizations made up just 3 percent of PRITECH's information requests; today, they make up 15 percent.
- *Medical schools in sub-Saharan Africa.* In 1991, the American Association for the Advancement of Science contacted 100 African medical schools and research organizations on PRITECH's behalf through its journal distribution program. As a result, many organizations have asked to receive the *TLU* on a regular basis.

The current mix of Information Center clients is shown in figure 1.

From the beginning, the Information Center has also targeted health information centers in developing countries to help them expand their collections. One of these is the ORANA Information Center on Child Survival in Dakar, Senegal.

Collaboration with the ORANA Information Center

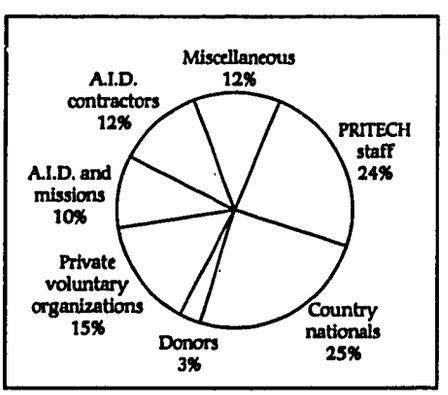

Figure 1. Users of the PRITECH Information Center, 1992

In 1985, PRITECH contracted ORANA in Dakar, Senegal, to create a regional information center focusing on CDD to respond to the needs of Francophone African countries. Because of PRITECH's involvement in the national health systems of several Sahelian countries, PRITECH could assess information needs at different levels and identify ways of reaching health policymakers and practitioners with CDD materials.

The ORANA Information Center on Child Survival maintains strong links to the PRITECH/Sahel Regional Office in Dakar and to the PRITECH Information Center. The Sahel Regional Office provides technical guidance to the ORANA Information Center and publishes docu-

ments in collaboration with ORANA. The PRITECH Information Center maintains an exchange relationship with ORANA, contributing substantially to ORANA's collection of technical articles on child survival topics.

Like the PRITECH Information Center, ORANA distributes acquisitions lists and sends them to a mailing list of 850 decisionmakers in ministries of health and international organizations; teachers, students, and libraries in schools of health; researchers; and journalists in the Francophone Africa region who are concerned with child survival issues. ORANA also distributes the French version of PRITECH's *TLU*.

In addition, ORANA translates and distributes full-text technical documents that are deemed to be of special importance to those working in the CDD area in Africa. To date, about twenty such documents have been distributed on topics such as the relation between diarrhea and nutrition, improved weaning practices, and management of dysentery cases. ORANA has also published compilations of technical documents originally published in French.

Since 1985, ORANA has produced a number of key publications in the diarrheal disease field in collaboration with the PRITECH Sahel Regional Office. These publications are particularly noteworthy because they focus on studies, statistics, or health education materials that have been developed in Africa. ORANA has taken advantage of its location in West Africa to develop a collection rich in

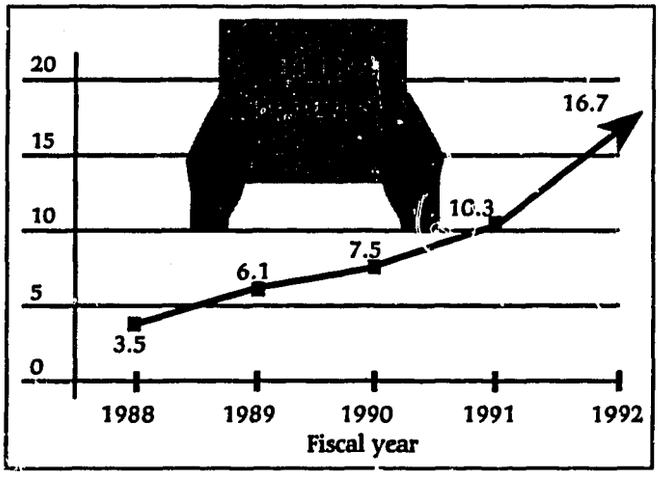

Figure 2. Number of TLU readers (in thousands)

African documents, such as theses in the CDD field from medical schools in francophone Africa.

The ORANA Information Center has made a special effort to reach out to regional medical and nursing school libraries. Periodically, the Center identifies a particularly useful document, such as an up-to-date training manual on diarrhea from the World Health Organization, and requests a sufficient number of copies from the publisher to send each school (numbering about ninety) a set. Between 1985 and 1991, three such groups of documents were sent to these schools, for a total of forty-two documents each. Distribution of the mini-libraries enables professors and students in a variety of health-related fields to have access to the newest information about diarrheal disease, nutrition, and vitamin A.

Impact on Users

One of the best indicators of success in information dissemination is growth in the number of requests. Figures 2 and 3 show that the mailing list of the *TLU* and the number of requests handled each year have grown tremendously since 1989, when the Center began keeping statistics. In addition, many information requests come from repeat customers, who have been so pleased with the information received the first time that they have returned for more.

Comments from Readers

- The manager of a child survival project in Malawi writes that "since PRITECH started to send me documents...my work has been made easier to carry on. I have at least some material to refer to when making decisions."
- A nurse in Nigeria writes, "I am very grateful for the slides and audiocassette sent to me...especially now that we are grappling with an outbreak of cholera in this area. The materials are very helpful in our health education activities."
- A doctor in Kathmandu writes that "receiving the *TLU* would help the regional offices and myself to deal with the severe diarrhea problems we face...In countries like Laos or Nepal, it is almost impossible to find a good medical library."

Reader's Surveys

In 1992, PRITECH conducted a survey to determine how readers use the *TLU*. Eight percent (or 822) of those contacted by mail returned the survey. Forty-six percent of the respondents reported that reading the *TLU* has changed the way they teach by keeping them updated with the latest scientific information. Many reported using the *TLU* as a reference for preparation of lectures and as reading material for students. Similarly, 43 percent of respondents stated that the *TLU* has changed the way they manage diarrheal disease cases. In general,

respondents reported that their use of antidiarrheal drugs, unnecessary antibiotics and intravenous therapy had decreased, while their commitment to oral rehydration salts and promotion of breastfeeding and feeding during diarrhea increased.

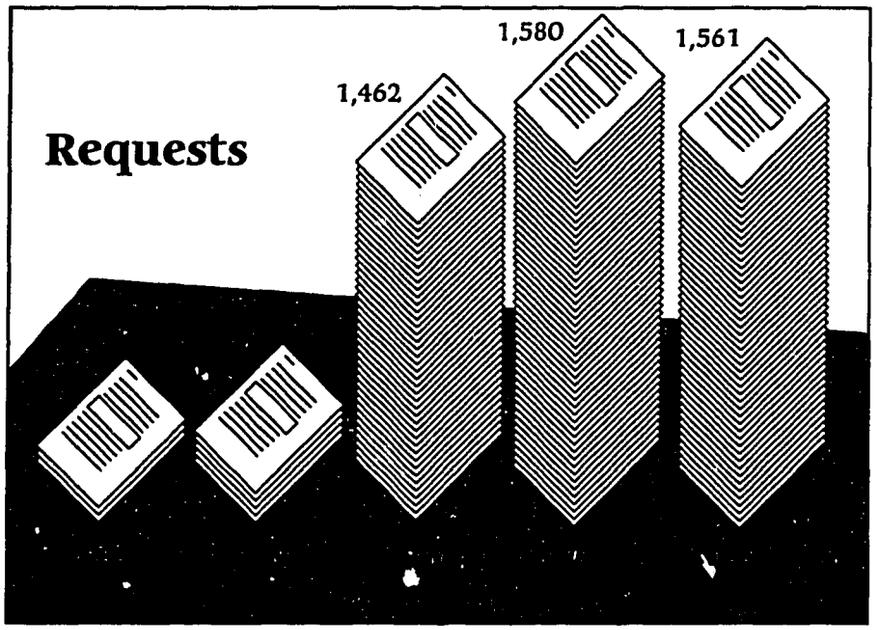

Figure 3. Number of requests handled by the PRITECH Information Center

That same year, the Information Center conducted a survey to determine how readers use the *Monthly Acquisitions List* and with whom they share it. Twenty percent of those contacted by mail returned the survey. Virtually all of the respondents, which include USAID health officers, CDD program managers, private voluntary organizations working on child survival, and overseas information centers, reported that the *Monthly Acquisitions List* was effective in keeping them current on CDD topics. For example, the director of the Office of Population and Family Health of USAID/Amman commented that "the PRITECH Acquisitions List is excellent and keeps me up to date on CDD."

The majority found the list to be well-formatted and easy to use. Two-thirds reported that they share the list with colleagues and national counterparts; of these, one-third share the list with seven or more people. The field offices of private voluntary organizations were particu-

larly enthusiastic about the service, since they have limited access to child survival articles. A program officer at Project Concern International commented that "the PRITECH Acquisitions List has been a fabulous, efficient resource and has improved the technical quality of our work."

Impact of the ORANA Information Center

A recent readers' survey conducted by ORANA revealed that for almost 50 percent of respondents, the ORANA Information Center was their only source of information in the CDD field. In addition, as an African organization, ORANA has more credibility among other African organizations than would a US-based organization. Certainly, other African organizations have displayed a degree of willingness to share resources that might not have been the case with American- or European-based organizations.

In collaboration with the PRITECH Sahel Regional Office, ORANA has produced several documents that are uniquely West African: a bibliography of documents written by Africans or about Africa on diarrheal diseases and related issues; a bibliography of theses collected from universities and schools of health in Francophone Africa; a guide to CDD health education materials from Africa;and a statistical manual on the epidemiology of diarrheal diseases and the impact of CDD programs in the Sahel.

Lessons Learned

Demand for information among developing country health professionals is insatiable.

The growing volume of information requests (and repeat requests) from developing country health professionals has shown that demand for information is not being met elsewhere. Health professionals desperately need information that will help them manage diarrheal disease cases and train other health workers, and have little access to information in-country. For most health practitioners and policymakers in developing countries, access to current awareness tools, such as bibliographies, is not enough. In fact, bibliographies may only tantalize and frustrate developing country readers, who have no hope of obtaining the documents listed. Free document

delivery to support current awareness tools is therefore essential. The A.I.D. Office of Health approved increases in the Information Center's budget over the years that allowed the Center to cover the costs of photocopying and postage for document delivery. Without free document delivery, the Center's effectiveness would have been crippled.

Building up a clientele overseas takes years.

Originally, the Information Center had few clients in developing countries. Several factors changed this situation. First, the installation of field representatives in many developing countries provided the Center with a group of enthusiastic promoters of PRITECH products. Several field representatives volunteered to distribute hundreds of copies of the *TLU* in their respective countries, or set up small information centers within ministries of health. Second, the Information Center adopted a proactive strategy of identifying and disseminating documents of interest to particular target audiences. When the cholera epidemic began in Latin America, for instance, the Center developed an information package consisting of documents on cholera treatment and prevention and sent it to health officers at USAID missions. The Center also attended international and regional health conferences to publicize its services. In addition, many health practitioners learned about the Center through word of mouth.

Demand is greatest among project implementers for practical, rather than technical, information.

An analysis of the documents that project implementers (such as the field offices of private voluntary organizations) request has shown that they are most interested in project evaluations, practical, "how-to" articles about establishing successful child survival programs, and the like, rather than technical articles on epidemiology of diarrheal diseases. Every effort should be made to identify and disseminate such material.

A project information center should disseminate information about the project, as well as technical information.

While disseminating up-to-date technical information has increased the knowledge and skills of many health practitioners, the Center plays an equally valuable

role in documenting the experiences of PRITECH country programs. As mentioned earlier, demand for practical information about the success and failure of child survival programs is extremely high. Without documentation of current program efforts, implementing agencies are doomed to repeat the mistakes of the past.

Reaching overseas libraries and information services is particularly important, since these institutions reach hundreds of developing country nationals.

The ORANA Information Center, for example, receives a good proportion of all its documents from PRITECH. These documents are in turn sent out to an audience of 850 policymakers in the health field throughout francophone Africa. The PRITECH Information Center also sends documents to child survival information centers in Uganda, Pakistan, the Philippines, Indonesia, Guatemala, and Bangladesh. Another important user group is medical libraries in developing countries. During 1991, the Center focused on reaching more students in medical and nursing schools, who will use the information they receive from PRITECH to benefit their patients throughout their medical careers.

The idea of a regional information center that specializes in collecting regional information and in distributing information to the countries in that region is a viable one.

The constant level of demand for ORANA's products demonstrates the need for CDD information among African policymakers and health professionals. In addition, establishment of the ORANA Information Center has built local capacity in the areas of information and publication management. Furthermore, translation, printing, and document distribution at the regional level is both a feasible and effective use of resources.

The relationship between the PRITECH Sahel Regional Office and the ORANA Information Center has been mutually beneficial. From ORANA's point of view, the Information Center has benefitted from the technical guidance that the Sahel Regional Office has offered in development of materials, such as a chart on the pathophysiology of diarrhea and the health education manual. On the regional office's side, the Information Center has provided the office with a convenient and effective

mechanism for production and distribution of important technical products. Both organizations have gained.

Exchange relationships are very helpful in building a collection.

Early in its history, the Information Center established relationships with the other A.I.D.-funded health information centers in the United States, as well as with overseas institutions such as the Instituto de Nutricion de Centro America y Panama in Guatemala, the International Centre for Diarrhoeal Disease Research, Bangladesh, and the Appropriate Health Resources and Technologies Action Group in England. Other information centers can not only supply copies of hard-to-acquire documents, they can offer advice in mailing list and publication development. Collaboration on joint projects is another possibility. PRITECH and AHRTAG are currently planning to produce a diarrheal disease information directory together.

It would be useful if A.I.D. required compatible software systems for all A.I.D.-funded information centers.

The A.I.D. Office of Health currently funds many information centers both in the United States and overseas. A.I.D. does not, however, specify which kind of software a new information center should use, even though it encourages information centers to exchange documents and collaborate. The fact that each contractor may have a different software system prevents contractors from communicating by modem and being able to search each other's collections. It also makes collaboration on projects, such as joint bibliographies, or sharing mailing lists, more difficult.

Information dissemination is rewarding.

In contrast to development interventions that may take years to mature, positive feedback from information dissemination is often immediate. Readers frequently write by return mail to express their satisfaction with the materials. As the director of a Nigerian health clinic wrote recently, "We couldn't have asked for more!"

Notes:
[1] Wilson Lendita and Sheila O'Sullivan, "Findings of a Resource Centre Needs Assessment Survey undertaken in the Continuing Education Zonal Centres, Tanzania," London, AHRTAG, 1991.
[2] Helga Patrikios, "Getting Information to Health Workers," *Health Policy and Planning*, vol. 4, no. 3, 1989, pp. 257-260.

TRAINING AND THE QUALITY OF CARE

The goal of training in the area of diarrheal diseases is to change the behavior of health workers so that they will provide high-quality health services to children in need. This means training health workers to assess diarrheal episodes and treat patients according to the World Health Organization (WHO) guidelines. It also means the retraining of health workers to use antibiotics only in cases of dysentery or cholera and to discontinue all use of antidiarrheal drugs.

Training objectives not only apply to clinical activities, but to the supervision of health workers as well, to sustain performance after training and continually update skills.

During the first few years of the project, PRITECH's technical input for training activities was limited to the design and support of medical education activities. PRITECH depended on WHO to develop guidelines for in-service case management and supervisory training programs. In turn, PRITECH funded many WHO courses through PRITECH country programs.

But as national control of diarrheal disease (CDD) programs developed and matured, CDD managers became increasingly interested in evaluating the effectiveness of their training activities and in ways to update the content as well as training methods. The development of training efforts in Uganda, Cameroon, and the Sahel from the "needs assessment" stage to the incorporation of CDD issues into routine training programs are traced by Prysor-Jones, Steinwand, and Casazza in the following papers. All three point to the need to involve the users early in curriculum development and the importance of participatory learning and practical experience in addition to didactic lectures.

But the quality of the health workers' performance is related to other factors too. Casazza and Endsley document this lesson in their paper on training in the Philippines. Other factors found to affect the success of training include the quality of internal supervision and the availability of a "critical mass" of other trained workers working in the same facility. In another paper set in the Philippines, Alt describes the development of an ordering system for oral rehydration salts that greatly improved the avail-

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ability of sufficient supplies, a prerequisite to case management.

Finally, CDD training must be responsive to changing clinical and programmatic needs. The recent outbreak of cholera in the Americas stimulated the development of relevant case management training for clinicians in the Caribbean. In another paper, Sack and Hospedales describe the regional clinical case management course offered by the Caribbean Epidemiology Center and how it affected cholera case management in Guyana.

PRITECH's experience and other reviews of health worker performance after training in case management and supervision highlight the following issues that still need to be addressed:

- Integration of CDD training into the basic and inservice training of nurses and doctors to meet newly emerging clinical needs, such as cholera.
- Design and implementation of national CDD training strategies that decentralize and integrate training, and provide follow-up support to trainees.
- Identification of training gaps and weaknesses in the evaluation of the training itself, to improve training activities continually.
- Design of methods to assess training and health worker performance, identifying those elements in addition to current training practices that are obstacles to implementation of the training.

At this point, those involved in CDD training are learning to frame the questions related to measuring training outcomes better. It is hoped that this will lead to a greater return on investment, better training techniques, and improved quality of care. But much work remains to be done; methodologies need simplification and refinement and content requires revision. Moreover, the process for developing these solutions within the context of a national CDD program is a major challenge. All national CDD programs as well as the technical assistance agencies supporting them should direct their energies to these points.

The lessons learned from diarrheal disease control efforts can have broad application to other child survival training activities such as acute respiratory infections, immunizations, and nutrition education. We hope that the experience gained in these CDD training efforts will find application in the design of new, more integrated curricula as well as in a broader view of training as an integral part of any health intervention.

INTEGRATING DIARRHEA CONTROL TRAINING INTO NURSING SCHOOL CURRICULA IN THE SAHEL

by Suzanne Prysor-Jones

PRITECH established the Sahel Regional Office in 1985 to provide sustained supervision and follow-up to countries in the Sahel region that requested PRITECH assistance. Technical and managerial assistance in the development and implementation of national diarrheal disease control (CDD) programs for six Sahelian countries—Burkina Faso, The Gambia, Mali, Mauritania, Niger, and Senegal—is provided by three regional officers based in Dakar.

Suzanne Prysor-Jones was Senior Program Manager, Sahel Regional Office.

The Need for Preservice Training

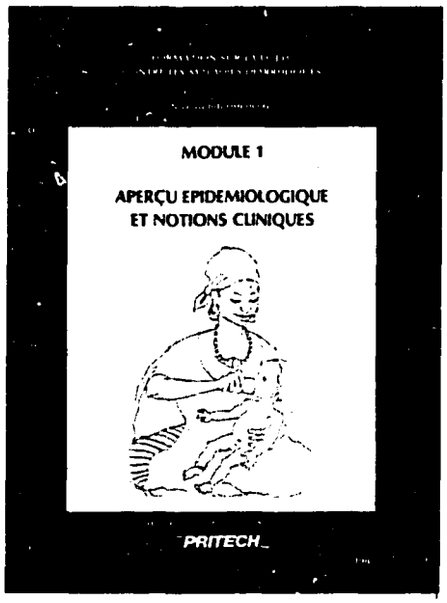
In the Sahel, as elsewhere, nurses working at the community level are frequently in charge of managing health centers and supervising health workers. Acceptance and effective use of oral rehydration therapy in the national health service ultimately depends on the nurses. The strategies for reaching nurses and other health professionals with information on oral rehydration therapy include preservice training (at the nursing or medical school level) and inservice training (retraining health professionals through workshops or seminars after they have entered practice). Reaching health professionals at the preservice level is a more cost-effective strategy. However, nursing school curricula in the mid-1980s in the Sahel did not cover information on oral rehydration therapy. Changing curricula in the schools of nursing has therefore become an important element of PRITECH's strategy in the Sahel.

Development and Follow-up of Nursing School Modules

In 1986, Dr. Suzanne Prysor-Jones, PRITECH regional director for the Sahel, and Dr. Diego Buriot, World Health Organization (WHO)/AFRO Diarrhoeal Disease Programme coordinator, developed a plan for revising curricula at schools of nursing in the Sahel. WHO/AFRO provided about 50 percent of the funding required, including the time and travel costs of an advisor and all the costs pertaining to two regional workshops. PRITECH contributed the time of Dr. Prysor-Jones and Dr. Adama Kone of the Sahel office, as well as the

printing costs of the training modules developed. PRITECH has also covered the cost of following up on the use of the modules by working with twenty-one nursing schools in the region.

It was agreed that a set of competency-based modules of intermediate level (that is, for workers between the community-health level and physicians) would be appropriate for preservice training, and that schools of nursing in five countries should be approached to participate in the curriculum development and application. The five countries initially involved were Mali, Niger, Senegal, Mauritania, and Burkina Faso. In all but the latter, PRITECH was already involved with national CDD programs.



After a series of discussions on form and content among WHO/Brazzaville, WHO/Sub-Region I, PRITECH, national CDD coordinators, and training school authorities, a small team formed, composed of PRITECH/Sahel staff and a WHO consultant resident in Dakar. Although the WHO Control of Diarrhoeal Disease Programme had developed a training course for health workers,1 it was not specifically aimed toward nursing students. The team used the WHO materials as a starting point, adapting them for the Sahel region and revising them to build nursing skills. The team developed a first draft of the following booklets:

Module 1. Epidemiological Overview and Clinical Concepts
Module 2. The Treatment and Prevention of Diarrhoeal Disease
Module 2. Appendix: Cholera
Module 3. Application of Health Education Techniques to Diarrhoeal Disease Control Programs
Module 4. Elements of a National Program to Combat Diarrhoeal Diseases
Field Training Workbook
Teacher's Guide

Modules 1 to 4 are used in the classroom, while the training workbook is used during practicums.

An important element of the development of the modules was the participation of key personnel at the nursing schools themselves. During the summer of 1986, the PRITECH/WHO team visited eleven schools in Mali, Niger, Burkina Faso, Mauritania, and Senegal to discuss the current teaching of CDD, introduce the idea of the modules, and propose an outline of their content. Later, PRITECH and WHO invited two representatives from each school and the national CDD coordinator from each participating country to attend a workshop to discuss the first draft of the modules in detail. During the first half of 1987, WHO and PRITECH revised the modules following the workshop recommendations and comments from WHO/Geneva, WHO/Brazzaville, and PRITECH advisors. By August 1987, 6,000 copies of the modules had been printed in French.

The next step involved a second visit to the eleven schools to discuss integration of the new modules into the school curriculum. Many schools have large classes, which make group activities more difficult. PRITECH continued to communicate with the schools through visits and phone calls after use of the modules had begun, to encourage use and help them overcome integration problems.

Several characteristics made the modules useable in the different Sahel countries. First, the francophone countries have similar school systems, making integration strategies and material to be covered similar across the Sahel. Second, educational materials from the national CDD programs from each country were integrated into the modules. Finally, drawings showing scenes and peoples from the region were used to illustrate the booklets.

In 1988, an Arabic version of the modules became available, and in 1989, the English translation was printed specifically for nursing schools in The Gambia. Over the next few years, ten more schools expressed interest in incorporating the modules into their curricula, bringing the total count to twenty-one.

The modules are now being used in sixteen of the twenty-one schools in the six Sahel countries in which PRITECH works. The active involvement of the national CDD programs has been an important factor both in adopting and in following up on the modules. The CDD programs in Mali, Niger, Burkina Faso, Mauritania, and The Gambia have played important roles in ensuring the

continued adoption of the modules. In Senegal, which did not have an active CDD program from 1988 to 1992, the adoption rate has been poor.

The PRITECH Sahel Regional Office has attempted to follow up on the schools during visits to the different CDD programs. These visits have commonly served as a stimulus for CDD programs to become more involved with the training schools.

Impact of the Nursing School Modules

No systematic evaluation of the modules has taken place to date. Such an evaluation would probably show considerable variability in results. Encounters with recent graduates during a health-facility survey, carried out in late 1990 by the Ministry of Health and PRITECH in Burkina Faso, showed that some graduates had a good level of knowledge and practice, whereas others (from the same school) were poor in both.[2] The apparent conclusion is that teaching and learning have been uneven. However, there are several indications that the modules have made a positive impact on nurse training and have also provided a possible model for other public health programs.

First, use of the modules has resulted in the allocation of more time to CDD issues in all participating nursing schools. According to information collected during the initial visits to the schools, CDD issues, including hygiene and cholera, were previously allocated a maximum of eight to ten hours of teaching time. By current estimates, schools now average at least thirty hours of CDD training, not including workbook use during practicums.

Second, informal interviews with teachers and students have revealed considerable satisfaction with the modules. The modules have been characterized by students in Mali as "easy to follow," "clearly and concisely presented," "good for reference," and "different [positively] from the frequent lecture and note-taking system." Similarly, teachers have tended to have few criticisms of the modules as far as form and content are concerned.

Third, the existence of the modules has facilitated communication links between national CDD programs and training schools, providing a possible model for other priority public health programs. In all six countries, the

modules provided the CDD programs with the first occasion for approaching the training schools.

CDD program coordinators often found to their surprise that teachers had very little awareness of the national CDD program and its implications for the tasks that would be demanded of the students in the field following their training. The coordinators also found that education materials developed or used by the CDD programs (such as local liter containers, posters, flyers, and booklets) were usually not available for teaching. CDD programs have, on the whole, followed up by providing educational materials and other assistance.

Finally, the modules have generated considerable interest from countries outside the region. The CDD program in Chad, for instance, intends to introduce the modules in its nurse training school. The CDD program in the Comoros has requested twenty-one sets. And, district medical officers in Burkina Faso have requested large numbers of modules to be used for inservice training. This prompted the development in 1988 of an inservice training manual, Manuel de recyclage, based on the modules, using the same format and content.

This inservice manual is more concise than the teaching modules and is published in loose-leaf form, so that it can be easily updated or changed to fit national program needs. So far, the manual has been widely used in Burkina Faso and in Niger. The CDD programs in Niger and Senegal have reprinted their own versions of the manual. It has also been adapted for Mauritania and used there on a small scale.

Common Problems Encountered

Schools have difficulty finding sufficient time in the curriculum to teach all of the modules.

Directors tend to complain that the modules take up too much time in the curriculum, though most have managed to accommodate them in one way or another. Module 3, for instance, which is on educational techniques for CDD, is often taught in health education classes.

Some of the auxiliary-level, two-year training courses do not use Modules 3 and 4. In fact, some of the learning objectives of Module 3 and most of the objectives of Module 4 are designed mainly for state registered nurse-level training.

The pedagogical ability of the teaching staff is quite uneven in many of the schools and refresher courses within the schools have been difficult to organize.

Many of the teachers in the schools are well-qualified and are quite at home with participatory teaching methods and use of materials such as the CDD modules. The part-time teachers have not always benefited from the same level of training in pedagogy, and even some of the permanent staff require refresher training.

In almost all of the schools, there are enough skills among the permanent teaching staff to ensure adequate refresher training of their colleagues and part-time staff. This is not easy to organize, however, and assistance from outsiders would probably help. One problem is the expectation that workshops will provide per diems to cover daily expenses, a request that most donors cannot fulfill when the activity takes place in the normal workplace.

Many of the teaching staff require training in CDD policy and case management.

Many of the teachers have only a sketchy knowledge of CDD program issues and ORT case management practices. As CDD programs organize more inservice training courses, it would be beneficial to include them as participants.

The teaching of the modules by part-time staff jeopardizes the sustainability of the modules' teaching.

The modules are usually taught by permanent school staff, with the help of part-time staff, such as a pediatrician. But when the teaching has been done entirely by a part-time teacher, the use of the modules was discontinued when the teacher concerned terminated his involvement with the school.

Some of the obstacles to improvements in teaching methods are financial.

Several schools have complained of difficulties doing some of the practical exercises in the community or in health services (outside of practicums) because of lack of transportation. Others have found some creative solutions to this. Means of transport to prepare the staff at rural practicum sites and to follow up the students dur-

ing their practicums is a problem cited by almost all of the schools.

Student practicums are often ill-prepared and barely supervised.

Most nursing students in the Sahel must fulfill a one- to three-month practicum requirement in order to graduate. However, students tend to be used mainly as extra hands for miscellaneous routine activities, which limits their opportunities for learning new skills. Most schools do not have clear guidelines for the practicums (except for schools using the CDD field training module). Sometimes there are learning objectives, but these are not translated systematically into *specific learning activities*. The Field Training Workbook is thus a big departure in methodology.

A PRITECH visit to a sample of nursing students from Dakar during their rural practicum showed considerable variation among students. About 50 percent were using the Field Training Workbook, but the exercises requiring case follow-up, community work, and group education sessions tended not to be done. The other 50 percent were completely absorbed by the routine activities of the centers to which they had been assigned. The Senegal school does do a preparatory visit to the health centers, so recommendations for better preparation of the resident health staff during this visit were made to the school.

Case management is poor in some of the health facilities where students do their urban and rural practicums.

It is usually difficult, if not impossible, for teachers from the schools to intervene in the case management practices of the health services where the students are placed. It is not always possible to choose services with good case management practices as practicum sites, as there are many students to place and relatively few services willing to accommodate them.

The national CDD programs have a key role to play here in working to upgrade case management practice in general, to ensure that there will be some consistency between what the students see in the field and what they have learned in school. PRITECH is assisting with the establishment of oral rehydration units in most of the countries, and practices are slowly improving.

Participation of schools in the development of the modules was a motivating factor in their subsequent use.

Nine of the eleven schools that participated in the development of the modules are in fact using them. One of the participating schools not using them did use them in the past but, because of personnel changes, discontinued their use. The other school not using them has had a complete change of personnel.

For those schools not involved in developing the modules, a workshop to introduce them can be useful. A three-day workshop on teaching methodology and some CDD content was organized in The Gambia for teachers from the four training schools in May 1989, once the modules had been translated into English. Two of the four schools are now using the modules and a third has asked the national CDD program for assistance in their use.

In the new school in Ouayaguiya, Burkina Faso, a workshop seems to have been unnecessary; the modules are being used there without one. Some of the teachers already had experience with them elsewhere, and a pediatrician who has long championed the cause of oral rehydration therapy teaches in the school.

The active involvement of the national CDD program is a key factor in adopting the modules.

As mentioned above, the CDD programs in Mali, Niger, Mauritania, and The Gambia have played an important role in ensuring adoption of the modules. The involvement of each CDD program is also necessary for effective problem-solving after initial adoption.

The certified nurses' school in Bamako, for example, was distributing the modules to students without actually teaching them. The teachers seemed to have difficulty with their integration and teaching. Since the two other schools in Bamako were already using them quite well, the Mali CDD program arranged for a teacher from one of these schools to provide assistance. This was apparently well-received by all, and the modules are now integrated into the curriculum.

The intervention of an outside agency is often necessary to support the follow-up efforts of the CDD program.

The nursing school systems are often not under the Ministry of Health. Thus, national CDD programs may not always have adequate authority or leverage to encourage new teachings. In some countries, CDD program staff prefer to have the participation of PRITECH personnel when contacts with the schools are made. The schools are usually fairly autonomous and the presence of an outsider, working on a regional basis, gives a certain legitimacy and weight to the intervention and can circumvent sensitivities. This has been the case particularly in Mali and Mauritania.

In the absence of a structured CDD program (as in Senegal and in Burkina Faso until late 1990), PRITECH has been alone in working with the schools. This is definitely a sub-optimal situation; the success in changing curricula comes with the strength of cooperation between the national CDD programs and PRITECH.

It is possible to introduce CDD teaching modules into a curriculum that is not run on a modular basis.

Sixty-six percent of the schools contacted are now using the CDD modules. All but one of them have spread the CDD modules throughout the curriculum, usually over a two-year period. Only one school has run a week-long seminar to go through all of the modules at one time.

Having enough sets of training materials available for teachers and students alike is an important motivating factor for the introduction of new content.

Students and teachers expressed appreciation that everyone concerned has a set. This allows students to prepare by themselves outside the classroom, and to keep the modules as reference materials.

Although the provision of modules for all students requires resources and organization, the cost of a set of modules at the time was only US$6.00 (6,000 sets were printed in French to last through 1992). The English version cost US$14.00 per set (only 600 copies were made, for The Gambia). The Arabic version has only been photocopied so far, because final corrections of the language have not yet been submitted by the Mauritanian school.

The modules seem to be quite usable in an English school system, judging by the Gambian experience.

Although Gambian school officials did not participate in the drafting of the modules and Gambian schools are based on the British system, the state registered and state enrolled nursing schools adopted the modules with little apparent difficulty. Workshops were conducted to introduce the modules to the school staff.

Improvements in teaching methods require considerable follow-up.

As with attempts to change behavior in any setting, steady and periodic follow-up is required to improve teaching methods. School authorities in Mauritania, for example, agreed in January 1990 that a meeting on teaching the CDD modules should be held with all the permanent and part-time staff and the national CDD program. It took another PRITECH visit to the school in May, several proddings from the CDD coordinator, indirect messages from Dakar, and a change of directorship at the school before the meeting finally took place.

Notes:
[1] Control of Diarrhoeal Disease Programme. *Management of the Patient with Diarrhoea: Supervisory Skills.* Geneva: WHO, 1987 rev. 1990.
[2] Burkina Faso Health Facilities Survey 1990.

SUCCESSFUL DIARRHEAL DISEASE TRAINING: LESSONS FROM CAMEROON

by Robin Waite Steinwand and Ndeso Sylvester Atanga

The foundation for the current national control of diarrheal diseases (CDD) program in Cameroon was established in early 1987 during a national conference on oral rehydration therapy. Prior to this conference, diarrhea treatment in Cameroon was haphazard. Medical personnel treated most diarrheas with medications and intravenous therapy, even though most cases could have benefited from simple oral rehydration therapy (ORT). While most of these practitioners had heard of ORT, few could describe the technique of application. Research prior to the conference showed that morbidity and mortality from diarrhea in children under age five constituted a serious threat to health (half of all deaths were associated with diarrhea), but there was little indication that health authorities took this threat seriously.

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The conference brought diarrhea to the attention of health planners and providers. Representatives from many sectors and all provinces in Cameroon debated and recommended treatment policies and goals and strategies for the achievement of good case management and diarrhea prevention. Though adjustments have been made to meet the evolving needs and realities of the health care system in Cameroon, the principles established at the conference remain the foundation of the CDD program. Not surprisingly, it was decided that training would play a major role in establishing universal good diarrhea care.

The conference participants outlined a basic "trickle-down" approach to training that has undergone only minor modifications since 1987. According to the trickle-down strategy, the program would first seek to train the most influential group of health care providers—physicians in charge of preventive medicine, pediatric services, and maternal and child health services at the national and provincial levels. Unless these people fully accepted and practiced "good case management" including ORT, any others trained might soon abandon their own use of ORT. These doctors would in turn train nurses and other doctors at the provincial level, who would train divisional staff and so on through to the health center personnel at the periphery and the ultimate health care providers—the parents.

With a structural reorganization in late 1989, the Ministry of Health, in collaboration with several donor organizations, began an expansion of primary health care coverage known as "the reorientation of primary health care." Based on the Bamako Initiative, this approach emphasizes community involvement, cost-recovery, integrated primary care, and supervision of health care activities within a health district. Implications for the CDD program are a more concrete framework for training and supervision of activities, and a system for better management of essential program supplies (oral rehydration salts and education and demonstration materials). It has also meant that the CDD program has moved gradually from its initial status as a developing ("vertical") program to its integration into a functioning primary health care system. Similarly, the training program has been adapted to meet the needs of the system.

Difficulties with Early Training

The first national course trained thirty physicians, and the participants returned to their posts, apparently enthusiastic. However, after several months, conversations with field personnel and visits to the field showed that these physicians were neither practicing ORT nor training others. Cartons of oral rehydration salts had been forgotten about in provincial warehouses; intravenous therapy was still routinely used in hospitals; and children with diarrhea were sent home from health centers with no treatment other than a prescription—the mother having received no counseling for home treatment.

While maintaining the essential focus of the training strategy, program personnel undertook a careful analysis of field realities and barriers to success. Over the next eighteen months they designed, tested, and revised a successful training program and complemented this with non-training program support. That process and some of the successful innovations are described below.

The failure of the initial training program to have the desired multiplier effect was attributed to four problems:

- Trained personnel returned to work in health facilities that had no materials for oral rehydration. Many workers also believed that this important new technology (ORT) required the establishment of an ORT "unit"; when space or personnel constraints prohibit-

c ⁱ the opening of a separate room for ORT, the therapy was quickly abandoned.

- Although workers trained in the first clinical course were all medical professionals with a high level of technical knowledge, most possessed few, if any, skills for organizing or conducting effective participatory training. They also had no training model or course design, no teaching materials, and no funds for training.
- Most participants were not actually aware of what specific follow-up was expected of them.
- In light of all of the above, the workers perceived that ORT was not a priority of the Ministry of Health.

Implementing the Solution

Targeted Action

Having identified these problems, the national CDD program team responded with the following actions:

Elaboration and wide dissemination of a national CDD program strategy statement

By compiling a concise document detailing national policy and program strategy, which was signed by the minister of health, ministry officials were finally able to convey the importance of good case management and diarrhea prevention. The training section of this document clearly described the trickle-down strategy for training health personnel with annual targets and designated responsibilities. The CDD program leaders sensed a need to give the training increased visibility and credibility, and the minister appointed a high-level and esteemed pediatrician as the CDD training coordinator.

Provision of health facilities with basic equipment and materials for ORT

The minimum of materials considered essential for providing and demonstrating to parents good case management was supplied to all major health facilities (hospitals and maternal and child health clinics). As the program continues, materials are also provided to health centers with trained personnel or to centers that have demonstrated earnest efforts to implement program policy. The importance of assuring trained personnel an

uninterrupted supply of rehydration salts also cannot be overstated.

The program eventually redefined ORT "unit" to ORT "corner," meaning adequate space for treatment and counseling. Larger (training) units, like provincial hospitals, are strongly encouraged to mirror an actual treatment setting with an emphasis on minimizing material needs.

Training of trainers

In order to establish a pool of trainers at the national and provincial levels, the program organized three training-of-trainers courses: one for national-level clinical (pediatrics, and maternal and child health centers) and Ministry of Health program personnel, and two for provincial supervisors—both doctors and nurses (one each for French speakers and English speakers).

Development of training modules

During the training of trainers, participants developed a detailed task analysis for diarrheal disease control activities (good case management and prevention) at the health center. This task analysis provided the basis for the development of clinical training modules. World Health Organization (WHO) guidelines and training materials, as well as materials from several other countries, were gleaned to develop modules best suited to Cameroon's realities.

The modules consist of a trainer's guide and trainee handouts. The trainer's guide for each session includes:

- Session objectives,
- Approximate time for session,
- Materials (trainee handouts and trainer handouts, which provide additional technical information for the trainer),
- Learning activities (step-by-step descriptions of activities for participatory learning).

The trainee handouts constitute a packet of useful reference material for the health worker upon return to his work site.

The modules were tested during several training courses over an eighteen-month period. Modifications were made after each course based on evaluations and feedback by trainers and trainees.

Key Characteristics of the Training Strategy

As the new training strategy was developed and tested, several ideas, detailed below, were implemented in an attempt to address difficulties that had been identified either in previous training in Cameroon or in other countries. Some are characteristic of general trends in training worldwide (such as participatory training, integrated primary health care, use of local educational materials and workplans). Others, though perhaps not unique to Cameroon, are unusual and have worked quite well (such as provincial training teams, strong emphasis on communications and use of local terminology, team approach, role plays of specific difficulties encountered by trained personnel).

Creating a pool of skilled trainers in each province. Trainers skilled in participatory training can be a valuable asset to all health programs. The CDD program trained several key health professionals at the provincial level whose job entails training and supervision (as mentioned above in the training of trainers). Many of these people have developed into skilled trainers, demonstrating their usefulness for CDD training, and now can effectively train health workers in other aspects of primary health care. Program personnel have built in an incentive system in that someone identified with strong training skills from one province can be used to assist with a course in another province. This person can then serve as a model for less experienced trainers.

Result: Because workers initially trained as trainers are also in charge of other provincial primary care programs, many have been used as trainers for the immunization program, AIDS, health education, and so forth. This pool of trainers at the provincial level thus enhances the government's efforts at integrating primary care and has two distinct advantages for the CDD program over the use of a national training team.

First, the program can train a large pool of personnel in a relatively short period of time and at a reasonable cost, because neither trainers nor trainees need to travel far from their work site, and several training sessions can be held concurrently in different provinces. Second, by virtue of this system, the supervisees are often trained by their supervisor who is already convinced of the efficacy of good case management.

Training health personnel from different categories as a team. To the extent possible, doctors and nurses are trained together—their skills and experiences complement each other in training as in the treatment setting.

Result: The depth of information desired or understood by different levels of practitioners during the training poses some difficulties, which trainers have tried to surmount by making additional literature available to those who want more detail. In general, however, this system has produced excellent teamwork, and evidence during training sessions of a great deal of mutual respect.

Supervisory visits to posts where the team has been trained have shown generally very good leadership from the physician in charge of implementing CDD goals.

Using participatory training instead of more dogmatic training methods. The clinical training assumes that the participants are health professionals with substantial knowledge and experience working with children with diarrhea and related illness and with their parents. It seeks to build on these experiences and allows the participant to discover for himself the value of the treatment and prevention strategies promoted by the Ministry of Health and WHO. Role plays, active discussion, team exercises (group work), and especially supervised hands-on experience all encourage self-discovery.

Result: In general we observed very active participation from all participants in a training session. The end of course evaluations have mostly praised the "active learning" parts of training.

Promotion of integrated primary health care throughout training. Though there are specific treatment protocols for diarrhea that must be mastered by the health worker, it is important that the trainee understand the interrelationship of illnesses. (Physicians reluctant to embrace ORT have commonly cited the danger of overlooking related illness.) Health workers are encouraged throughout the course to use every patient contact to assess nutritional problems, verify and improve vaccination status, identify other infections, and provide appropriate counseling for continued health (breastfeeding, nutrition and weaning, child spacing, hygiene, and so on). A skills checklist for hands-on practice assesses the trainee's ability to consider all aspects of the child's health (see Box 1).

As the Ministry of Health moves to implement the reorientation of primary health care through health districts, the CDD program has adapted its training materials accordingly, targeting the health district supervisors for early training—the chief medical officer and the primary health care coordinator. The revised materials include new sections on community involvement for CDD and on managing CDD activities at the health district level, as well as the topics of nutrition and cholera. A streamlined version of the course (three days rather than five) has also been produced—intended to be used in a one-week integrated primary care training covering other interventions, such as immunizations or malaria.

Result: Although trainees have improved markedly in their attention to the whole patient during training, the results of a recent training evaluation indicate that this skill is still weak in practice (see page 115). However, the overall reorientation to further emphasize integrated management of care is intended to remedy this situation.

Box 1. Supervisory Skills Checklist for Hands-on Practice

Evaluation
- Evaluate the degree of dehydration
- Evaluate other signs for related illness
- Select appropriate treatment

Treatment
- Determine the quantity of oral rehydration solution to be given
- Determine the duration of treatment
- Administer treatment him(her)self first
- Teach the mother to administer the treatment

Advice to be given to the mother
- Advice on breastfeeding
- Advice about liquids
- Advice about nutrition
- Advice on the danger signs (when to seek referral)
- Advice about what to do for future episodes of diarrhea
- Advice on difficulties that may be encountered during the administration of ORS

Communication with the mother
- Facilitate dialogue with the mother
- Reassure the mother
- Ask open-ended questions
- Ask questions to verify comprehension

Other problems
- Verify vaccination and nutritional status
- Correct referral if necessary

Participants plan the training follow-up. To be certain that trained personnel clearly understand their role in assuring good case management and diarrhea prevention activities after training, each participant prepares a three-month plan for follow-up, which he presents on the last day to colleagues and trainers for critique and feedback.

Result: The presentations and critiques have provided a lively end to training sessions and indicate that a great deal of thought is given to follow-up. In the revised training, participants present as a district team. A copy of the workplan is submitted to provincial supervisors. Trainees are visited by national or provincial staff within the three-month period after training and the plan is consulted, though the degree to which it is emphasized in follow-up varies.

The order of topics in training reflects program priorities. Because improved health worker-parent communication figures prominently in program goals, counseling (form and content) is covered in detail early in the course.

WHO's treatment plans A and B, which comprise most of all diarrhea cases that a health worker will see, are taught at the beginning of the course. Plan C, for the treatment of severe diarrhea, is presented near the end of the course, once the trainee has gained full confidence in correct management of the majority of cases. In this way, plan C can be taught in the detail it requires, and the mastery of plans A and B is not clouded by the more complex equations for intravenous and oral solutions that plan C entails. (See Box 2.)

Result: There has been much resistance to this order of topics among trainers who previously took an ORT course with the traditional clustering of topics (physiology; evaluation and treatment plans A, B, C, and medicines all together and in the beginning of training). But once trainers are convinced, the trainees seem to respond well, giving the desired priority and energy to such early topics as counseling—the key component of treatment of plan A cases (no apparent dehydration) in the health facility.

Emphasis is placed on improved communications.

Good case management begins at home. Thus, health workers are encouraged to use center-based treatment as a tool for convincing parents of the efficacy of

EVALUATION OF DEHYDRATION			
	PLAN A	PLAN B	PLAN C
GENERAL CONDITION	Good, alert	"Restless, irritable"	
EYES	Normal	Sunken	
TEARS	Present	Absent	
TONGUE AND MOUTH	Moist	Dry	
THIRST	Normal	"Thirsty"	
SKIN PINCH	Returns quickly	"Returns slowly"	
CHOOSE PLAN	NO SIGNS OF DEHYDRATION ↓ USE TREATMENT **PLAN A**	At least 2 of these signs present, including at least 1 sign with a: MODERATE DEHYDRATION ↓ WEIGH THE PATIENT AND USE TREATMENT **PLAN B**	

ORT and training them in its application. In addition to verifying clinical skills, the checklist for hands-on practice assesses communications skills—such as listening, asking open (not leading) questions, and confirming parents' understanding of instructions for home care.

Result: When there are actual cases for hands-on practice during training, the existence of communications skills on a checklist has helped to maintain the importance of those skills. However, there has been a chronic problem of too few actual cases for thorough hands-on practice by all trainees.

Participants are encouraged to use local terminology and beliefs for improved communication. Case studies and classroom examples teach and encourage the use of local terminology when communicating with mothers about diarrhea and its symptoms. The program conducted qualitative research to identify terminology and traditional beliefs about diarrhea, and these results have been written up for the health workers, including local vocabulary lists. Case studies from WHO's modules were modified to reflect beliefs and include local terms found during the research.

Throughout the training, participants are encouraged to improve communication through better awareness of traditions and to:

- Encourage positive traditions,
- Discourage only harmful traditional practices
- Leave alone those that are neither useful nor harmful.

Result: As training progresses, participants begin to talk with greater ease about local beliefs and their own adherence to some. Two recent studies (a health facility survey and a study of educational materials) have not specifically looked at whether there is any long-term impact of this approach. At the very least, however, there is empirical evidence of a much improved attitude during training toward communicating with mothers using their own terms and belief framework.

Role plays help anticipate challenges after training.

Participants are selected for key role plays of difficult situations that trained personnel have frequently encountered when they return to their post:

- Presenting a three-month workplan to his local supervisor and convincing same of value and importance of ORT.
- Convincing a colleague not to prescribe antidiarrheal drugs.
- Convincing a mother not to abandon breastfeeding during child's diarrheal episode.

The other participants critique their colleagues' role play and offer some ideas for confronting these difficulties.

Result: These role plays have helped many participants to solidify their beliefs and prepare to be challenged about them. In addition, they help the trainers identify points of uncertainty and lack of conviction among participants before the last day of training.

Visual materials prepared in Cameroon are used whenever possible as models.

All communication or health-education materials produced for the Cameroon program are used in some way during the training. Through clinical training with the posters, communications training with the flyers, and their combined use in hands-on work, trainers can demonstrate the usefulness of locally produced information materials and increase health worker awareness of

their availability. Also, posters and flyers are distributed through training (although not exclusively).

Result: No evaluation has been conducted of the impact of training on the use of information and educational materials during counseling, though a health facilities survey found a high percentage of trained personnel (92 percent) used appropriate tools for counseling (demonstrations or print materials). Pending the ability of program personnel to do specific training in counseling and use of materials, the use of these materials in clinical training sets an excellent example.

Impact of the Training

The PRITECH Project assisted the Ministry of Health to carry out a health facilities survey[1] in June 1991 as part of an evaluation of the CDD program at the end of its first five years of operation. The survey helped to assess the ability of health workers to manage diarrhea cases effectively according to the national CDD program guidelines. As one objective of the survey was to evaluate the clinical training to date, evaluators compared personnel who had been trained by the CDD program with those who had not participated in a CDD course.

Although there were too few actual diarrhea cases to permit any conclusive comparison of trained and "untrained" personnel through direct observation, the results of the interviews with personnel indicated consistently better knowledge of good diarrhea case management among those trained by the program. Trained personnel correctly cited the criteria for evaluating a case of diarrhea in 72 percent of respondents versus 54 percent of untrained personnel. For assessment of dehydration, 81 percent of those trained responded correctly versus 62 percent, and 44 percent of trained personnel correctly calculated four treatment regimens against 25 percent of those not trained.

Regarding the improper use of medicines, a habit the training program has tried very hard to break, 91 percent of untrained personnel were found to prescribe antidiarrheal drugs compared with 61 percent of trained personnel.

Survey results also demonstrated better awareness of trained personnel concerning counseling methods and content, though the overall results in the area of communications are not yet as satisfying. For example, only 33 percent of trained personnel correctly cited all four pieces of advice on home treatment (versus 19 percent for untrained personnel): fluids, feeding, breastfeeding and danger signs.

Since mothers are the primary care providers for diarrhea, their own "training" by health personnel through improved communications cannot be overemphasized.

The evaluation results also demonstrate clearly the importance of other program support to trained personnel, in addition to training. Some examples include:

ORS Supplies and Supply Management

Personnel who have good theoretical knowledge of the treatment of patients with moderate or severe dehydration are nevertheless unable to adhere to the correct treatment without the necessary oral rehydration salt packets and intravenous solutions. Thirty-six percent of all health facilities surveyed were without oral rehydration salts at the time of the evaluation.

Health Education and Communication Supplies

Enhanced training in counseling techniques is only as good as the ability of the health personnel to apply the techniques (for example, use of visual materials while giving individual health education). The diarrhea treatment chart was seen in 47 percent of facilities visited during the evaluation. Brochures for mothers on ORS preparation were available in only 6 percent of the facilities, whereas those for diarrhea treatment and prevention, printed more recently and distributed through community extension sources, were found in 21 percent.

Other Materials for ORT and Nutrition

Personnel are encouraged to demonstrate the preparation of ORS to mothers of children with diarrhea and others. However, the health facility survey found that in only 33 percent of observed cases was demonstration used as an education technique. This result could in part be due to the fact that only 28 percent of centers inventoried had the materials necessary for a demonstration. Similarly, all children with diarrhea should be weighed and their growth charted, both for the purposes of determining treatment quantities and for assessing risk for malnutrition, recurring diarrhea, and so forth. Forty-three percent of facilities were without child scales.

Widely Disseminated National Policy

The use of antidiarrheal medicines remains unacceptably high, both in theory (when interviewed) and in practice, despite strong messages during training that these medicines are strictly contraindicated. This misuse might only be successfully curtailed when importation policies reflect ministry standard treatment policies.

Supervision

Once trained, it is essential that skills be reinforced by supervisors who understand their support role. Only one-third of health workers interviewed had received at least one supervisory visit in the previous twelve months.

In summary, experience and research have shown that the Cameroon CDD training program has been highly successful. The central-level CDD staff has worked

Lessons Learned

with people at all levels and in several branches of health to develop a training program appropriate to the country's specific needs and in keeping with new directions in health policy. The process will continue as evaluations point to other needs. The CDD reorientation training course has now taken place in four provinces in close collaboration with the donor organizations working with those provinces and the Ministry of Health. The CDD training approach has been seen as a model for other vertical programs seeking to become integrated into the new health care system.

Two major dilemmas have been confronted in this program for which there are no easy answers. There are trade-offs which each country must assess in light of its own priorities.

Trickle-down training versus complete control over training of all personnel.

A key element of this training program remains the idea that district-level supervisors, trained directly by the CDD program, in turn train the health-center-level personnel within their districts. Essentially this means relinquishing control over the quality of training received by the health-center personnel. The Cameroon program made this choice for reasons of economic necessity and

in order to train as many people as quickly as possible after a core group of field personnel were trained (that is, convinced of the essentials of good case management). For the original core of trainers to train all health personnel would take too many years and would leave the trainers unable to perform other important support to those trained (for example, supervision and supply management). Also, it was deemed necessary to spread the work quickly so that those trained would not become discouraged as the only disciples of a new treatment and abandon it. However, with the trickle-down training approach, the selection of the first layer of trainees in each district is of critical importance. Unless extreme care is taken in the selection of these original participants, they cannot be counted on to train others reliably.

Thus, the program has identified several qualities that should be sought when selecting participants:

- Leadership skills,
- Individual initiative,
- Good communications skills,
- Dynamic character,
- Discipline,
- Good social skills,
- Academic qualifications.

Beyond identification of these qualifications, the field supervisor sending the candidates for training must be made to understand the rationale for the selection process. Alternatively, CDD program staff can select trainees during supervisory visits or operational studies like the health facilities survey. Ideally, all candidates (future trainers) will be individuals who will not only train and inspire others in the field, but will be capable of mobilizing the community to participate in good home management of diarrhea.

CDD training versus integrated primary health care training.

This is perhaps the most debated issue in training design today and there are trade-offs to both approaches. The Cameroon program has successfully used both approaches in an attempt to balance of the needs of the CDD program and the need to conform to the country's health policy development. Early in the program, when many in the medical community staunchly opposed oral rehydration for the management of diarrhea, a five-day in-depth course

with plenty of time to observe actual cases was essential to bring key physicians and nurses around. Integrated primary health care training simply would not have been effective for the CDD program.

However, three years into the program, several hundred people had been trained and the health facility survey results showed that 93 percent of diarrhea cases observed were prescribed ORT (either oral rehydration salts or sugar-salt solution), though most of those cases were treated by people not yet trained. A certain level of acceptance in the medical community had been achieved. Thus, at a point in which ORT was generally becoming more accepted for case management, the Ministry of Health began a strong push to integrate and decentralize primary health care services. The gradual change to a shortened training program integrated with other components of primary health care could now occur without impeding the program's ability to achieve its goals. To reinforce its training within the integrated health center concept, CDD program staff have compiled a health center manual highlighting good case management and communications activities from the full training materials.

In summary, some important elements of the Cameroon training remained critical to its success, whether as a vertical program or as part of integrated primary health care. Prior to training, the Ministry of Health must develop clear policy guidelines and disseminate these guidelines through directives to health personnel and public health education. During the actual training, the use of skilled (trained) trainers, local language and appropriate in-country examples, guided hands-on practice, a variety of participatory activities drawing on the trainees' experiences, and clear reiteration of the program's policies and priorities (for example, good communications, integrated health care) are all very effective. Good training is only as good as the follow-up and support received by the health worker. Thus, supervision within three months of training which refers to an action plan prepared by the trainee is critical, as is effective management of other program components: supply management, evaluation, and communications.

Notes:
[1] Moussa Coulibaly. *"Etude de la prise en charge des cas de diarrhée dans les formations sanitaires des provinces du littoral et du sud au Cameroun."* Arlington, VA, Management Sciences for Health PRITECH Project, RAD-056-CA and LPC-032-CA, March 1993.

LINKING TRAINING AND PERFORMANCE: AN EVALUATION OF DIARRHEA CASE MANAGEMENT TRAINING IN THE PHILIPPINES

By Lawrence J. Casazza and Scott Endsley

This paper presents the methods and results of a collaborative evaluation of the training efforts of the Philippines national control of diarrheal diseases program. It represents the combined effort of participants from the PRITECH Project, Quality Assurance Project, the Division of Control of Diarrheal and Acute Respiratory Diseases Programme of the World Health Organization (WHO), and most importantly, the diarrheal diseases program of the Philippines Department of Health. This evaluation attempted to link results obtained from assessment of actual training courses in diarrheal case management with evaluation of the subsequent performance of the health worker in the field.

Lawrence J. Casazza and Scott Endsley are Technical Officers.

This evaluation design was innovative in two respects: it attempted to measure not only acquired knowledge but also acquired skills of health workers through use of simulated cases, and it attempted to link documented skills attainment during training with actual performance in a health facility. Moreover, it attempted to identify factors beyond training that may affect the quality of case management in health care settings.

Since the establishment of WHO's Programme for Control of Diarrhoeal Diseases in 1980, considerable progress has been achieved in reducing mortality due to acute dehydration. Today, more than 125 national diarrheal disease control programs are active worldwide. A cornerstone of these efforts is the training of health workers in correct case management of diarrhea in children. WHO has produced and distributed standardized training materials for different levels of health workers, including a comprehensive curriculum for diarrhea training units. Diarrhea training units are publicly funded centers for training trainers and health workers in diarrheal case management. They are usually located in health facilities that see large numbers of diarrhea cases, to allow sufficient hands-on training.

The Need for Evaluation

The Philippines national program for diarrheal diseases control has been one of the global leaders in pro-

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motion of oral rehydration therapy. Since the establishment of the National Rehydration, Treatment, and Training Centre in Manila in 1985, the national program has had an active, national-level training program in diarrheal case management training. There are now three national diarrhea training units as well as seven regional diarrhea training units. Despite these intensive training efforts, evidence from supervisory visits indicated that case management by health workers might not be as good as expected.

The Philippines Department of Health requested that the PRITECH Project conduct an evaluation of the diarrhea training units. To meet this request, PRITECH collaborated with the WHO, the Quality Assurance Project, and the Philippines diarrheal disease control program. Together, they designed and implemented a two-phase evaluation: first to assess the quality of training in diarrhea training units (Part A), and then to assess the performance of graduates upon return to their home facility (Part B). Part A was conducted in September 1991 and Part B in January and February 1992.

Methodology

The fundamental premise of training is that good training produces skilled health workers upon graduation who are capable of performing adequate case management upon return to their health facility. Case management is the clinical assessment, treatment, and counseling for children with diarrhea.

But two questions arise from this training premise. Does the actual training, which follows the prescribed curriculum, lead to skilled graduates? And how are the workers' skills affected by a variety of extrinsic factors upon return to the health facility? This last question can be schematically represented in the behavior model shown in figure 1. This model proposes that there are both intrinsic and extrinsic factors that have an impact on the quality of diarrhea case management. Furthermore, these factors may precede or result from the case-management performance.

The evaluation design was comprised of two parts. The instruments designed to collect information for the evaluation are shown in Table 1. The two columns on the left were applied in Part A, the one on the right to Part B.

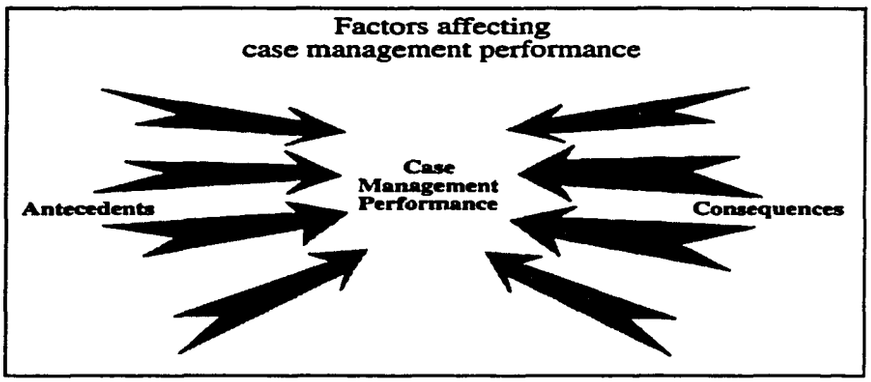


Figure 1.

The two national-level diarrhea training units that were chosen for Part A of the evaluation had much experience using WHO's training unit curriculum. The quality of the training was assessed using detailed standardized course observations and participant questionnaires. The level of knowledge and skill of each trainee was assessed through written pre- and post-tests, instructor evaluations, exercises in action plan development, and case simulations. The simulation exercises included a series of five standardized case simulations designed to measure assessment, treatment, and counseling skills.

Table 1. **Instruments used to collect evaluation data**

Part A *Observation checklists*	**Part B** *Case observation*
• Practicals	• Health worker interview
• Case presentations	• Supervisor interview
• Class exercises	• Case simulation
• Planning sessions	• Facility inventory
• Director interview	
• Trainee valuation	
• Written exam	
• Facilitator evaluations	
• Case simulations	

In Part B, a modified version of the WHO Health Facility Survey[1] was used to examine the quality of case management in the health facility, as well as to identify intrinsic and extrinsic factors that may have an impact on the quality of performance. Some of the factors identified are listed in Box 1.

Box 1. **Factors Affecting Health Worker Performance**

Formal training
External supervision
Internal supervision
Training coverage
Inservice training
Facility equipment
Information resources
Facility procedures
Health worker satisfaction
Rewards and punishments

When selecting health facilities for Part B, attempts were made to identify facilities in which a graduate who had been trained since 1990, using a curriculum similar to that observed during Part A, could be located. The survey of the health facilities included the observation of health workers managing actual

childhood diarrhea cases, interviews with health workers and their supervisors, another standardized case-management simulation, and an inventory of materials and supplies related to diarrhea case management. The case simulation exercise was a composite of four of the five case simulations used in Part A.

Results

During Part A, groups of thirteen to fifteen participants were observed and tested during training courses at two national diarrhea training units. Both courses were judged to be "adequate" in terms of content and methods of instruction, although one diarrhea training unit course had too few patients available for practical training.

It was determined from written pre- and post-tests that all participants improved their knowledge in case management and diarrhea prevention. Participants of the two courses differed, however, in the adequacy of the applied knowledge demonstrated during the case simulations. Performance in clinical assessment and treatment was judged satisfactory for trainees in the course with more exposure to hands-on practicals, but was weaker for trainees who were in the course with fewer patients. In the latter, more time was available for additional lectures and role plays about communicating with mothers. So, trainees in this course demonstrated better counseling skills in simulations. The evaluation shows that it is difficult to replace experience and confidence gained in managing actual cases with any other training method. The results of the case simulations strongly suggest that the better skills in assessment and management of diarrhea are associated with more extensive practical experience with patients.

Action plans, specifying training and service modifications to be made upon return to the home facility, were developed by trainees as part of the diarrhea training unit curriculum. Part A found that the designs of action plans were well-developed in both diarrhea training units. This was confirmed during Part B, when nearly all (91 percent) of the training unit graduates reported having been able to implement some or all of their action plans.

During Part B, seventeen health facilities in five regions were visited. One hundred and eleven health workers were interviewed, and 106 of these participated in the case simulations. Forty-two actual cases of diarrhea

were observed being managed, thirty of these being managed by health workers who had also been interviewed and given the case simulation. But only eleven of the twenty-seven health workers trained in Part A were evaluated in Part B, thus pointing out the logistical complexity of following up a specific subsample of trainees observed during a given training course. Box 2 summarizes some of the key characteristics of the health facilities visited and the health workers interviewed.

The key findings to note in Box 2 were that all of the facilities had ORT units, and that three-quarters of pediatric department heads responsible for these units had been trained in diarrhea case management, as were three-quarters of the medical staff reporting to the department heads. But only a fourth of these facilities were judged to be adequate in the areas of basic ORT equipment, ORS supplies, staffing, and staff motivation.

The health workers' diarrhea case management was excellent, regardless of their previous training (see Table 2). Sixty to 80 percent of health workers performed adequately on assessment and treatment of cases, based on knowledge testing, case observation, and case simulation. Counseling performance was considerably weaker. The lack of significant differences between groups of workers (that is, those trained at diarrhea training units and those not) was interpreted as reflecting the extensive in-house training (or "echo training"). Sixty-seven percent said that they had organized formal echo training upon return from the training unit; 83 percent said that they had given training to another worker, formally or informally.

Beyond training itself, other factors that were found to affect case management performance significantly included: practicums in training, internal supervision, and adequate training coverage (defined as more than 50 percent of the

Box 2. Key Characteristics of Part B

Health facilities (17 visited)

80 percent were hospitals (60 percent regional or provincial)
76 percent had trained department heads
100 percent had ORT units
30 percent (five) had diarrhea training units
41 percent had adequate drug supplies
64 percent had adequate ORS supplies
41 percent were adequately equipped
82 percent had adequate IV supplies
75 percent had adequate staffing

Health workers (111 interviewed)

86 percent were female
71 percent were physicians
69 percent had previous experience
75 percent were formally trained (of which 67 percent at a diarrhea training unit)
70 percent routinely treated children with diarrhea
83 percent had trained other workers
20 to 25 percent were satisfied with space and equipment
40 percent were satisfied with their supervision
5 percent prescribed antidiarrheals

Table 2. **Percentage of doctors showing adequate case management**		
Skill	**Doctors who trained at diarrhea training unit**	**Doctors who did not train at training unit**
Actual cases		
History	69	46
Clinical	62	69
Treatment	100	85
Counseling	8	15
Simulated cases		
History	74	80
Clinical	72	80
Treatment	69	80
Counseling	26	15

health workers that see children with diarrhea having been trained).

As can be seen in Figure 2, adequate practical experience in assessment, treatment, and counseling during training is significantly associated with better performance in the health facility. This reinforces the strong, underlying tenet of the WHO training unit curricula, which is that participants learn by doing.

An unexpected finding from Part B was that internal, but not external, supervision was associated with improvement in case management. The external supervision system for diarrheal disease control in the Philippines is focused on supervising health facilities as opposed to health workers' performance. Upgrading of health worker skills is seen as a function of department heads and others trained in case management. Performance levels were highest in facilities in which there were a majority of health workers who had been trained and in which echo training was occurring.

Lessons Learned

This evaluation attempted to link training with performance. Even in the Philippines, which has relatively good record-keeping, it was difficult to follow up prospectively graduates of the diarrhea training unit courses observed during Part A. However, retrospective data on training were gathered through interviews, which, coupled with course evaluations, may allow national program managers to draw conclusions regard-

ing the impact of training on performance. As independent activities, course evaluation and performance evaluation are both important functions that national programs can use to improve training and to identify possible interventions to improve and sustain performance in health facilities. The following are some of the lessons learned from ' ' :s exercise.

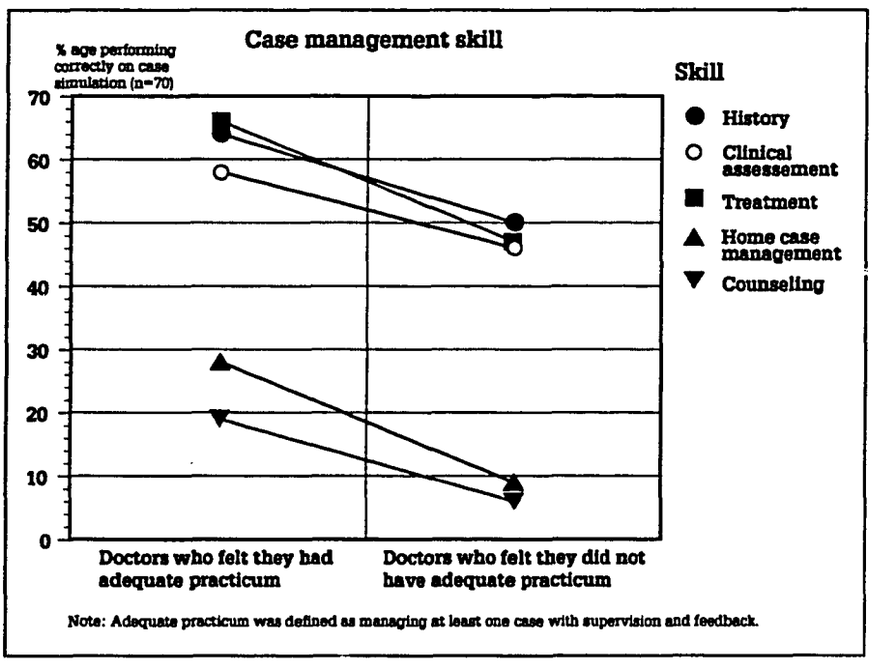


Figure 2. Case simulation performance, by quality of practicum

Health worker performance is influenced by internal supervision.

It is intriguing to note that this limited evaluation showed that the internal training and support activities of health facilities—in contrast to facility supplies and external activities, such as supervision—make a difference in the quality of performance. Internal supervision in this context consists of the presence of an immediate supervisor who occasionally observes the worker treat cases and a knowledgeable resource person available for consultation on a complicated case. The development of distance learning materials and a training curriculum for small health facilities could improve this in-house learning.

Case simulation exercises for diarrhea case-management training warrant further development.

Given the finding that one of the two diarrhea training unit courses had difficulty finding sufficient numbers of patients for practical experience, case simulations—both as a training approach and as an evaluative approach—need further development. This evaluation was not a good validation of simulation because the levels of actual case performance were so high. A different sampling strategy for health facilities would allow wider variance in performance, and would possibly permit validation of simulation as a substitute for observation. Simulations as a training approach have been successfully used in other interventions, such as lactation management training and training for the management of acute respiratory infections.

The methodology developed for this strategy has potential future applications for training, evaluation, and supervision.

The potential future applications of this evaluation methodology are summarized in Box 3. The methods used in Part A could be standardized to provide a mechanism for monitoring and evaluating case-management training courses at all levels. In this way, course organizers can evaluate their own programs and then improve components for which deficiencies are found. The methods used in Part B could, in a revised form, be used for monitoring and evaluating the performance of workers during supervision, periodic health facility surveys, and focused program reviews. A modified form of Part B has been recently used in the focused program reviews in Kenya and Cameroon. Finally, based on the experience of the Philippines training evaluation, WHO is currently revising the health facility survey protocol to address more comprehensively those factors that have an impact on training.

New and improved ways are needed to evaluate training of health workers systematically in developing countries, and to monitor and evaluate their performance in their work settings. As we continue to identify and address the factors that contribute to the quality of performance, it will become possible to design more appropriate interventions to improve health services.

Box 3. Future Applications

Training evaluation

Course assessments
Periodic external evaluations (training and program reviews)

Performance evaluation

Skills competency testing
Health facility surveys
Supervision
Program reviews
Training reviews

Notes:
[1] WHO Programme for the Control of Diarrhoeal Diseases, *Health Facility Survey Manual: Diarrhoea Case Management*, CDD/SER/90.1, Geneva, World Health Organization, 1990.

ORIGINS OF THE UGANDAN NATIONAL DIARRHEA TRAINING UNIT: STEPS IN THE PROCESS

by Lawrence J. Casazza

Lawrence J. Casazza is a Technical Officer.

The Ugandan Ministry of Health started a national control of diarrheal diseases (CDD) program in 1984 as one of the child survival programs working toward the goal of primary health care for all. Initially, the program was directed primarily at diarrheal case management at health centers and was linked operationally with the expanded program in immunization. In addition to promoting oral rehydration therapy in health units and hospitals, the program recently expanded to reach the community level using the health inspectorate personnel. Organizationally, the national CDD program is a part of the maternal and child health division, which also includes immunizations, family planning, and nutrition.

The national CDD program is in a continuous process of adaptation as it adjusts to the newly evolving order of the Ministry of Health and the Government of Uganda. Several emerging national and Ministry directions are helping to shape the thinking for the CDD program. These include:

- A national emphasis on decentralized budgeting, planning, and implementation of government-sponsored activities.
- A focus on the districts (thirty-nine in total) as the key unit of decentralization.
- A Ministry of Health emphasis on integrated primary health care, with a concomitant and growing emphasis on collaborative planning and implementation between the Ministry's functional (that is, training, health education, and planning) and disease-specific (such as CDD, immunizations, or AIDS) departments.

The PRITECH Project's activities in Uganda are currently focused in the following areas:

- Development of a health personnel training strategy centered on the creation of a national-level diarrhea training unit (DTU),
- Development of a strategy for the training of traditional healers,
- Development of an inservice training strategy for the health inspectorate,
- Promotion of commercial oral rehydration salt production,

- Development of planning and management capacity within the national CDD program,
- Input into diarrheal disease control by nongovernmental organizations.

This paper tracks the progress that was made between March 1990 and July 1992 in establishing the national DTU. During this period, Dr. Casazza, PRITECH technical officer, made seven trips to Uganda to assist with the DTU effort. The continuous work done by the team made up of staff from the national CDD program, Mulago Hospital, and the pediatrics department of the Makerere University School of Medicine—with support from the local UNICEF office and Sjoerd Postma, PRITECH's country representative in Uganda—was the essential element that contributed to the success of this effort.

Establishment of the National DTU at Mulago Hospital

Diarrhea training units, or DTUs, are publicly funded centers for training both future trainers and health workers in diarrheal case management. They are usually located in health facilities that see large numbers of diarrheal cases, to provide adequate hands-on practice during training. PRITECH assisted a Ugandan team in the establishment of a national DTU at Mulago Hospital. This process involved eight steps:

- Preliminary planning stage,
- Planning the physical set-up of the DTU,
- Assessing the training needs through a health facility survey,
- Collaborating with lactation management training,
- Developing an overall training strategy to include the follow-up of trainees,
- Developing a curriculum,
- Pretesting the curriculum,
- Continually revising and updating the curriculum,
- Formal opening of the national DTU.

Except for the last two steps, which continue on into the future, they correspond with the trips by PRITECH staff to Uganda to provide the team with technical assistance as it engaged in the activities to move the DTU initiative ahead.

Rationale for a DTU

The Ministry of Health's national CDD program has long recognized the need to establish a DTU associated with Makerere University's Mulago Hospital in Kampala. The hospital, which serves a large pediatric population of in-patients and out-patients, has lacked a facility to pursue diarrheal disease training and research objectives. For the purpose of this paper, the DTU function as a training institution is highlighted.

The training-related purpose of the DTU is to train medical officers, interns, residents, and medical and nursing students in correct case management of diarrheal disease. This training also includes modules to provide trainees with instruction to become CDD trainers when they return to their home facilities. Finally, the DTU staff plans to be involved with follow-up of the trainees' progress in the field.

Moving from Ideas to Action

The original plan for establishing a DTU in Uganda stipulated that the World Health Organization (WHO) would take the lead in its development. However, in March 1990, the WHO country representative and Dr.

Official opening of the Child Survival Training Unit, May 1993.

Fred Musonge, the national CDD program manager, agreed that the technical assistance responsibility for the DTU effort would be transferred to PRITECH. WHO would provide technical training materials as needed, and WHO/Brazzaville agreed to supply additional training materials. The local UNICEF and USAID offices agreed to support this arrangement as well.

Mulago Hospital had already designated a location on its compound for the DTU. Drs. George Zirembuzi and Elizabeth Kiboneka, from the Makerere University's medical school pediatrics department and Mulago Hospital staff, indicated their willingness to serve as the DTU directors. Together they brought strong technical and managerial leadership to the DTU effort. While the steps outlined in the initial implementation plan were purposely comprehensive (Box 1), they proved somewhat overwhelming to the Ugandan team, because they had many other teaching and clinical obligations in addition to the DTU planning tasks. Furthermore, PRITECH had no continuous representation in Uganda at that time that would assist them with this effort. However, continuous dialogue with Dr. Musonge through letter and telephone kept the momentum alive. Also, the team greatly benefited from the background technical information forwarded by PRITECH's Information Center, which eventually formed the nucleus of the future DTU library.

Simultaneously, the role of the future DTU was being incorporated into the five-year national CDD plan. According to the plan, the DTU was envisioned to be a key element in the CDD training strategy and would figure prominently in the plan's two main themes: decentralization of CDD responsibilities to the district level and increased emphasis on preventive efforts in diarrheal disease control.

Box 1. Preliminary Plan for the Establishment of the Diarrhea Training Unit

Facility preparation
- Site selection
- Hospital approval
- Facility remodeling
- Equipment procurement
- Library establishment

Training preparation
- DTU staff training
- Curriculum preparation
- Curriculum finalization
- Development of training schedules for:
  - Medical students
  - Housestaff
  - Nursing students
  - District hospital staff
  - Maternal and child health staff
  - District health officers

Training activities
- Selection of additional instructors
- Procurement of supplies
- Reproduction of training materials
- Lodging arrangements
- Implementation of training courses

Routine services
- Referral system design
- Record system design
- Design of reporting system for national program and hospital
- Preparation and production of forms

Evaluation
- Health facility survey
- Follow-up survey

By May 1990, the DTU directors had prepared a draft proposal for the DTU including floor plan, furniture, and equipment list for the unit, which they shared with the Ministry, UNICEF, and USAID. Three important decisions were made at this time:

- WHO would fund and provide technical assistance for a baseline national health facility survey scheduled for February 1991.
- UNICEF, while supportive of the DTU concept, would provide funds for the site remodeling only after the team had demonstrated their commitment with the institution of diarrheal case management services.
- Mulago Hospital administrators would officially assign the proposed DTU site to the master plan for the rehabilitation of Mulago Hospital, being finalized with the World Bank.

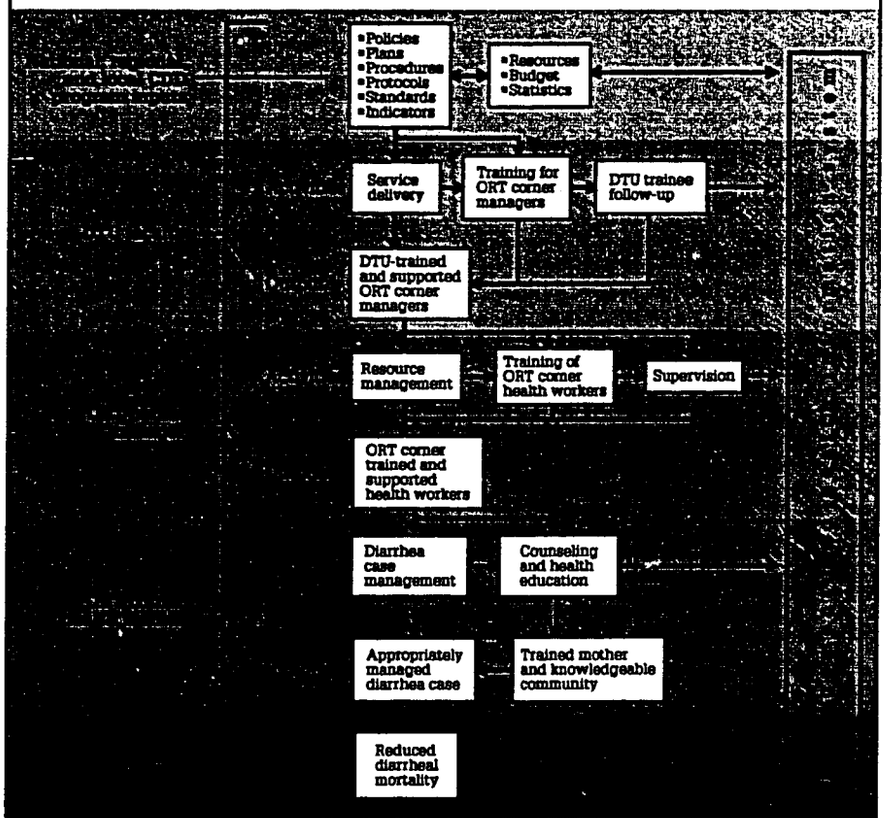
The site of the proposed DTU was ideally located in the old Mulago complex with easy access to the main pediatric out-patient triage facility where several hundred children are screened daily. It shared a building with the social pediatric ward, thus linking the unit to a home visiting program for those cases with complicating social problems.

Linking Training to Performance

In February 1991, Dr. Jeanne Newman (Quality Assurance Project), Dr. Judith Graeff (HealthCom Project), and Dr. Casazza of PRITECH traveled to Uganda. Before departing, they formulated a conceptual framework linking the DTU training to the performance of the health worker after exposure to the course. This framework, shown in Box 2, calls for a follow-up system of support and supervision for the trainees, primarily at the health facility level. This activity connects the training program to an evaluation and supervisory function useful for management purposes as well as for identifying new training needs. Implied in this framework is the importance of supplementing the training in diarrhea case management with training in the areas of supervision, communications, and inservice or on-the-job training. This approach was presented by the consultants and discussed with the CDD program director and future DTU faculty members.

The national CDD training strategy therefore adopted a comprehensive conceptual framework that included

Box 2. Conceptual Framework of the Impact of Diarrhea Training on Health Worker Performance



Source: The Quality Assurance Project

supervisory and support activities directed to the district level to ensure that the trained workers would indeed be able to perform as trained upon returning to their home facilities. This concept would come into full play only when the training program had involved decentralization of the courses to the district levels. This change will be phased in after June 1993, following the first training-of-trainers course for district-level health teams.

Role of the Health Facility Survey

The WHO Health Facility Survey of Diarrhoea Case Management was carried out in February and March 1991. The objectives of the survey, identified by the national CDD program, were: 1) to assess the quality of

diarrhea case management in health facilities where supplies for an oral rehydration corner had already been delivered, and 2) to identify strengths and weaknesses that could be enhanced or improved through training or better facility support.

Dr. Musonge decided that the surveyors for the health facility survey should be largely comprised of future DTU faculty members, thus providing them with first-hand exposure to the clinical problems and staffing constraints in the districts. This proved to be a major formative decision, as it anticipated the future role of the DTU faculty as support and supervisors to the field trainees.

On completion of the survey data collection, the same team proceeded to data analysis with technical assistance from WHO, UNICEF, and PRITECH. The results are summarized in Box 3. This exercise proved invaluable in sensitizing the participants to the real difficulties that future DTU trainees would face in implementing their acquired training in the field. Also, drawing from their field exposure to actual clinical conditions, they were convinced of the need to incorporate a strong emphasis on nutrition into the DTU training and to link their efforts with breastfeeding promotion.

Box 3. **Results of the Health Facility Survey**

- Oral rehydration salts were used frequently and were in adequate supply.
- Mothers knew good home-care practices.
- Health workers' assessment of diarrhea was inadequate.
- Inappropriate treatment was selected for children with some dehydration.
- Children with severe dehydration were not treated according to national policy.
- Antibiotics were overused, although antidiarrheals were rarely used.
- Counseling for mothers was inadequate.

With the completion of the health facility survey, the team responsible for the DTU curriculum development decided that, based on the needs assessment provided by the survey data, they needed more than a minor adaptation of existing case management training materials. Rather, the situation warranted a major effort to redesign the participants' training materials as well as those needed for the training of trainers. Dr. Musonge decided that a group composed of those who had taken part in the survey as well as additional technical specialists in nutrition, obstetrics, training, and curriculum development issues would hold a three-day workshop to design a curriculum outline.

Developing the Curriculum

The group concluded that a modular approach would be the most practical one for the DTU curriculum

because it is the most flexible in responding to the needs of the various categories of workers to be addressed in training and the particular skills required in their respective job descriptions. Additional modules could also be added as called for by the on-going training evaluation or to accommodate any possible expansion of the DTU's function in the future.

For each of the five modules named below, the possible audience was identified together with a draft list of subjects to be covered. Also, the specific performance and training objectives, resource materials, suggested teaching activities, and evaluation methods to be included in the module were defined. The modules are:

Module 1. Understanding Diarrhea (an overview of technical concepts and epidemiologic information)

Module 2. Diarrhea Case Management (much more detailed technical instruction with hands-on practice)

Module 3. Communication Skills (general concepts for effective communication and counseling)

Module 4. Supervisory Skills (general description of approaches to supervision activities)

Module 5. Training Skills (guidelines with exercises for training of trainers).

The latter three modules, while using CDD situations as illustrations, would be adaptable to other training programs such as the control of respiratory infections and breastfeeding promotion.

In the process, the members of the team learned how difficult and tedious curriculum development is to accomplish. Although most of them were experienced university-level teachers, they had never undertaken the entire process, beginning with a needs assessment and following it through to the development and testing of the final materials.

Collaboration with the Lactation Management Clinic

The first discussions concerning collaboration with the newly established lactation management clinic took place with Dr. Mukasa, the clinic's director, in May 1990. Dr. Mukasa had recently returned from a training course at Wellstart[1] (San Diego), under PRITECH auspices, along with five others who received basic training in order to establish lactation promotion activities at both

Mulago and Mbarbara hospitals. The Ugandan Wellstart associates proposed to link the development of their training curriculum to that of the DTU. This was a logical choice as the "generic" modules (Modules 3, 4, and 5) could be shared. The DTU staff also wished to incorporate breastfeeding promotion and instruction in lactation management into the DTU course. Therefore two additional modules were added to the list:

Module 6. Understanding Breastfeeding (an overview of technical information on breastfeeding and lactation)

Module 7. Lactation Management (more comprehensive technical training with practical instruction).

Once again, in April 1992, Dr. Musonge gathered a competent, hard-working group of technical persons together, most of them veterans from the August 1991 workshop in Jinja, where the modular outlines had been drafted. This time he was assisted in preparation by his competent staff and by Sjoerd Postma, who had been hired by PRITECH in October 1991 as its full-time representative in Uganda. Mr. Postma's presence greatly facilitated the in-country follow-up of progress as well as coordination with other donors and the PRITECH office in Washington.

Mary Kroeger, a nurse-midwife from Wellstart, also came to assist with developing the two breastfeeding modules. After five days of work in small groups assigned to the various modules, the team emerged with considerable detail on content, teaching activities, and specific resource materials for all seven modules. Training materials were derived from several WHO resources, the extensive CDD and nutrition literature, and breastfeeding references—all greatly contributing to the draft product.

Even with the modules developed, however, there was still no clear idea how they would be used in actual training. The team hoped that this would be clarified during their pretesting. Nor had the team yet devised a training implementation schedule, although it was envisioned that eventually DTU training would be decentralized to the district level with the national DTU staff serving as facilitators to the local trainers who had completed a training-of-trainers course at the national DTU.

By this time, the DTU had been operational for three months as a service provider for pediatric diarrhea cases coming into Mulago Hospital. But a brief assessment of

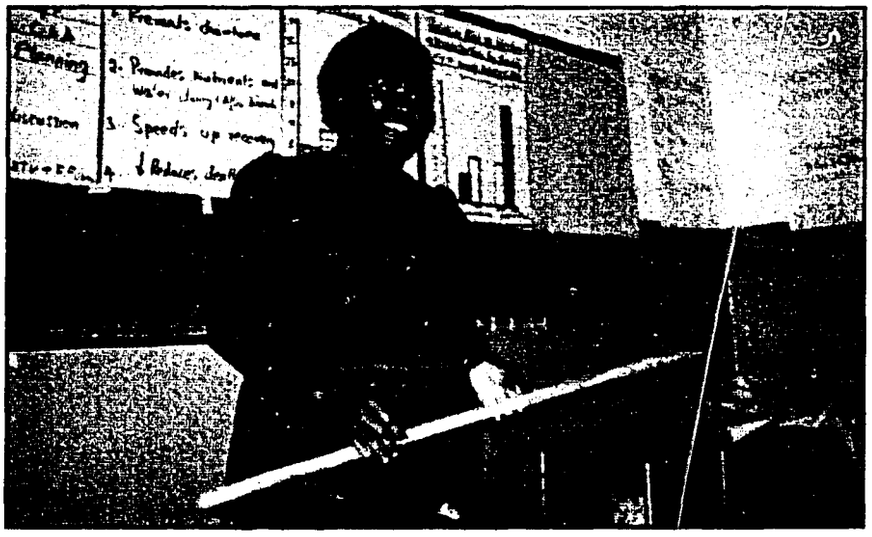
the health workers' performance pointed up the need to upgrade the standard of care as soon as possible. Except for the three faculty members who had received case management training several years before at various international CDD training centers, there were no adequately trained DTU personnel in Uganda. In fact, the curriculum development process additionally provided a necessary update of skills and knowledge to staff who had received previous CDD training.

Training-of-Trainers Course

The DTU team decided that the modules were ready for pretesting in July 1992. But in order to speed up the development process, the pretesting was incorporated into a training-of-trainers course. While this was not the ideal situation, there were significant numbers of "new" participants (all were future DTU trainers and resource persons) who had not been involved in the earlier curriculum development steps and whose direct input was important to the finished product. Now they would have "hands-on" practice with the full content of the course. Financial support for the training came from UNICEF/Uganda, and WHO sponsored the participation of Dr. Hans Troeddson, WHO representative from Zambia, as an experienced course facilitator together with Dr. Casazza, sponsored by PRITECH.

The participants included twenty-five trainees, with three coming from Mbarbara University Hospital, where a second lactation management clinic and DTU are planned. The Mulago Hospital participants included the DTU nurses and their senior nursing officer, the medical officer in-charge, and a team of supervisory pediatricians. A clinical nutritionist, a health educator, a health visitor, an obstetrician, and a nurse tutor, together with nursing officers assigned to lactation management at Mulago Hospital, rounded out the multi-disciplinary group selected as future trainers and resource persons.

During the ten-day course, the group worked through all seven modules developed in the earlier workshop. They decided to focus the course on Modules 1 and 2 dealing with diarrhea case management and Modules 6 and 7 for lactation management training. The three generic modules would be interspersed throughout the course at appropriate times. The diarrhea case management training materials consisted of selected WHO train-



Mrs. Jemina Mutabazi presenting at the training-of-trainers course.

ing materials with additional updated hand-outs from the literature. The lactation management component relied heavily on Wellstart training materials. Finally, the group agreed that the products for the course would be the revised training Modules 1 through 7, and the 1992-93 DTU training plan of action.

The general approach to the didactic training activities was as follows: the person responsible for the module presented its learning objectives in their prescribed order using all the preselected training materials and hand-outs; after the presentation of each learning objective, the audience provided feed-back to the presenter on the adequacy and clarity of the technical material as well as on the training methods employed. The speaker's use of audiovisual equipment was also critiqued.

Using the evaluation checklists, Dr. Casazza recorded his observations of the various learning activities, as well as a summary of the group's remarks. At the end of each week, the key faculty members for both diarrhea case management and lactation management, together with the PRITECH country representative and consultants, convened for a thorough review of the week's activities.

In general, the modules required only minor revisions and reorganization. It became evident that Modules 1, 2, 6, and 7 were the core modules for diarrhea case management and lactation management training; Modules 3, 4,

and 5 were important as references to be read by the participants who would incorporate the concepts presented in them within the context of the core modules.

This was especially true for the subject areas of training and communication skills.

Dr. Ezra Teri, a UNICEF health education consultant to the Ministry of Health, was helpful in clarifying the essential elements in Modules 3 and 5 dealing with training and communication skills. These modules were read as homework the night before their presentation; then their salient points were discussed as they related to CDD and breastfeeding training and clinical service. The participants' enthusiasm for more detailed instructions on how to improve lectures, demonstrations, and group discussions markedly increased as they became more aware of the importance of the methodological aspects of training to their effectiveness as teachers.

Module 4 on supervisory skills was only briefly presented as the content was seen to be more relevant to a supervisory skills course for the relevant participants, but the interpersonal skills used in supervising personnel were practiced as they are related to training skills as well. This module could serve as a useful conceptual introductory building block to follow-up training in supervisory skills.

Corresponding with the presentation order of the core modules, hands-on practice sessions for both breastfeeding and CDD were carried out at Mulago Hospital, except for one side trip to nearby Rubaga Hospital to visit a busy oral rehydration corner there. When the regular courses are offered in the future, the goal will be to dedicate about 50 percent of the total agenda time to practical training.

There was ample opportunity for all the participants to have sufficient exposure to a variety of clinical problems associated with pregnant and postpartum mothers at the prenatal clinic at Mulago and the outpatient lactation management clinic, respectively. But the overcrowded space for these out-patient services made it difficult to accommodate the trainees. Furthermore, most of the common breastfeeding problems encountered by post-partum mothers can be adequately demonstrated on the ward.

The newly remodeled DTU was the site for the CDD practicals and case presentations; it easily accommodated the busy patient flow along with the added trainees

and facilitators. During the training course the DTU initiated feeding of the patients together with rehydration; this will become a routine activity for the unit.

One of the most significant accomplishments of the training of trainers was the design and pretesting of a new DTU case management form to be used for all cases presenting to the unit. The form incorporates data collection for many of the risk factors associated with diarrheal disease in infants and toddlers as presented in the didactic portion of the training. These factors include nutritional and dietary assessment and immunization status. Furthermore, it links the information collected in the history-taking with the relevant preventive messages to be stressed in the counselling activity. Finally, it forces the health worker to conduct a thorough investigation of the whole child by responding to each and every question on the one-page form, thus promoting a degree of quality assurance to the interaction.

The training-of-trainers participants used a draft version of this form throughout the course and contributed helpful suggestions for its revision, which were incorporated immediately. It was agreed that this form would be used routinely in the DTU after its finalization and the data collected would be analyzed regularly by Dr. Charles Mugero and the DTU pediatricians.

Future Activities

The group reached a consensus that in the future there could be separate courses for CDD and lactation management, but regardless of which emphasis the course presents, all courses will contain elements of modules 1, 2, 6, and 7. Depending on the roles and functions of the health workers to be trained, the specific course agenda can be designed to include those selected learning objectives chosen from the four core modules that best reflect the course objective. For example, only nursing and medical school tutors would be possible candidates for all objectives of all modules, while pediatricians might find modules 1 and 6 redundant in view of their previous education. Modules 3, 4, and 5 would be included as appropriate for the audience.

Finally, the group agreed that the next training activities would build on the training of trainers to address the needs of: (1) the newly assigned, yet untrained DTU staff; (2) other relevant Mulago Hospital staff, especial-

ly those in the pediatric department; (3) DTU staff with major organizational and programmatic responsibilities; (4) the district-level teams who would later decentralize the CDD and lactation management training; and (5) principal tutors of training schools. Health workers who had been involved in this training of trainers would be called upon to participate in these training activities to further refine the modules and their own teaching skills. The funding for these future activities would be forthcoming from WHO, UNICEF, USAID, and the Ministry of Health.

Impact of the DTU

The DTU team agreed that there should be no outcome evaluation of the DTU efforts for at least the first six months. During this period, a series of courses will be conducted with the dual objectives of: (1) training health care workers and (2) refining the training skills of the trainers. An exchange of trainers with the national DTU in Zambia is also scheduled.

By the end of 1992, two additional courses had been conducted by the trainers, thus training fifty-two doctors, midwives, and nurses from Mulago and Mbarara hospitals. Two more courses are planned for the near future. After each course, the trainers showed keen interest in evaluating the knowledge and skills acquired by the participants as well as improving their own skills in assessing these changes. The modules will be finalized in mid-1993, incorporating comments from the course trainers and participants. So far, there has not been any supervision or support activity undertaken by DTU faculty, because the participants were comprised of faculty and staff from the two hospitals that will function as DTUs. The decentralization of training and the follow-up supervisory and support activity will begin in June 1993.

Both the Ugandan government and UNICEF/Uganda are looking to the DTU and its team of trainers to function as a potential platform for a national case management training center. Additional disease-specific modules will be developed for this purpose in order to strengthen the quality of case management applied to other major killers in the under-five population, namely, acute respiratory infections and malaria. With the

WHO case management protocol available for respiratory infections, this could be the next step for the DTU.

As a spin-off effect of the establishment of the DTU, its staff can now make a stronger case for facilities to be provided by Mulago Hospital in support of the DTU activities. These include a hostel for the trainees, regular drug supplies, and food from the central kitchen for DTU cases.

Finally, while UNICEF assisted in the development of the structural improvement of the facility, PRITECH provided computer equipment for word processing and case load monitoring, equipment for producing training materials, and minor kitchen items. The DTU (presently called the Child Survival Training Unit) now functions regularly on a twenty-four-hour basis with an average of thirty patients seen daily. Many are complicated cases with malnutrition, acute respiratory infections, or suspected AIDS, thus contributing to a greater number of moderately and severely dehydrated cases.

Lessons Learned

Training should be linked with a supervision and support system to be effective.

A major challenge to health training efforts is to develop courses that are relevant to the needs of the workers and the clients that they serve. As more emphasis is given to assessing the quality of these training efforts, the measure of success hinges more on the measurement of competency developed in carrying out new skills and changed behavior in both the health workers and the caretakers (mothers). The behavioral change measurements become the focus for the monitoring and evaluation of the training efforts. Thus, the follow-up of the trainees and the clients they serve can be an informational source for the entire program. Through a support and supervisory role assigned to the trainers (already the DTU faculty is primed for this from the experience of the health facility survey), other elements in addition to current CDD training practices can be identified as obstacles to implementation of the training received. This follow-up step provides feedback to those involved with logistics, administration, and eventually planning for the overall project.

While the implementation of the support and supervision concept has not been fully worked out for the pro-

gram at this time, the concept proved to be a strengthening element in unifying the donors and the diverse participants from the university and ministry ranks behind the rationale for the DTU.

Curriculum development is a key activity around which "national ownership" of a CDD training program can be established.

Through the steps involved in the process of developing a curriculum, the DTU faculty became intimately familiar with the needs of the health workers and the clinical conditions they treat. This process began with a "needs assessment" accomplished with the health facility survey. The actual curriculum preparation phase followed, which required interdisciplinary collaboration to address the technical content as well as the methodological issues. Most importantly, it will include a supervisory and support activity that ties the training component into the overall strategic planning and evaluation activities of the program once the training becomes decentralized.

A specific case management protocol provides a core for a clinical service delivery program.

WHO deserves much credit for the development and promotion of its case management protocol for diarrheal disease. Lending its name to the protocol gives it credibility among clinical experts in the medical field globally. But more importantly, the protocol provides the needed technical guidance for specific diagnostic, treatment, and counselling activities essential to handling patients presenting with the illness. For cases of diarrheal disease, the diagnostic and treatment procedures that the protocol advocates are more simple and cost-effective than the practices currently in place. In Uganda, the curriculum embraced all the assessment, treatment, and counseling principles of the protocol while giving it the specificity needed to make it nationally appropriate. Furthermore, it sets standards of care that can be translated into indicators for measuring not only the quality of care given by the health workers but the training they received as well. As WHO develops new protocols for use in management of the sick child, the experience gained by DTU staff and faculty can be expanded to address these clinical situations as well.

This "process development" approach is time-consuming.

The time expended from the initial discussions with the national CDD program leaders until the testing of the modules was approximately two-and-a-half years. Although some of this time was spent in site acquisition and remodeling, it is conceivable that this period would have been shorter if the available WHO materials had been directly adopted for courses. It remains to be seen just what long-term effects this process has had on the professional development of the trainers and the quality and sustainability of their work in the future. No doubt there will be revisions added to the course content as a result of feed-back from the trainees; the modules are designed to accommodate such updating as well as new subjects as needed.

Curriculum development requires adequate technical assistance inputs.

By expanding the scope of the technical content to include breastfeeding, communications, training, and supervision, the need for additional technical expertise expanded to include both local and international resources. This brought together professional resources that, if isolated by subject area (such as breastfeeding promotion or diarrheal control), would not have had the opportunity to interact and develop the integrated curriculum. Another example is the assistance of an expert from the Ministry of Education in addressing issues of general curriculum development. His guidance was essential for adherence to national educational standards required before introducing a new curriculum into government and university training programs.

Multi-donor involvement is essential from early on for successful completion and sustainability of the effort.

The DTU program represents the combined efforts of WHO, UNICEF, PRITECH and USAID, the Ministry of Health, Makerere University School of Medicine, Wellstart, and the Quality Assurance and HealthCom projects. In addition, a World Bank-sponsored team was involved in the decision on the DTU site. The persistent advocacy for the DTU by the CDD program was key to this complex coordination of donors. Also, the PRITECH resident representative assisted greatly in this effort.

With the anticipated phase-out of PRITECH funding in mid-1993, it was essential for its long-term survival that this effort have multiple agencies interested and already involved. The probability of the DTU's continuing activities and its sustainability for the future have been established at this time because of the extensive investment in funding and effort that each organization has contributed so far.

Notes:
[1] Wellstart San Diego Lactation Program educates health professionals from developing countries about lactation management.

CHOLERA CONTROL ACTIVITIES IN GUYANA AND THE ROLE OF TRAINING WORKSHOPS

by David A. Sack and C. James Hospedales

David A. Sack is a PRITECH Technical Officer and C. James Hospedales is Epidemiologist at the Caribbean Epidemiology Center.

In response to the cholera epidemic that began in Peru in 1991, the Caribbean Epidemiology Center (CAREC) developed a plan to assure adequate preparations among its member countries for possible cholera outbreaks. CAREC, a regional office of the World Health Organization, helps to prevent, control, and eliminate disease in the Caribbean, and to promote health. As part of the cholera preparedness effort, CAREC and the PRITECH Project jointly sponsored a two-day training session in clinical case management in Georgetown, Guyana for health professionals from Guyana and Suriname in May 1992.[1] Later, PRITECH and CAREC sponsored a regional workshop in clinical case management in Port-of-Spain, Trinidad. Two physicians from Guyana attended the workshop: Dr. Haydock Wilson, the chief medical officer for the Guyana Ministry of Health, and Dr. Leslie R. Persaad, the chief medical officer of the Guyana Sugar Corporation. At the time of the training sessions, cholera had not appeared in any of the CAREC countries except for Belize.

Subsequently, cholera spread from Venezuela to Guyana in November 1992 (about six months after the workshop). Dr. James Hospedales, an epidemiologist with CAREC, was called in as an epidemiological consultant immediately after cholera was detected. Since then, about 600 cases have occurred with several deaths.

In April 1993, PRITECH sent Dr. Hospedales, who directed the Trinidad workshop, and Dr. David Sack of PRITECH, who had assisted at the workshop, to Guyana for a follow-up visit. The purpose of the visit was to evaluate cholera control activites in Guyana and to describe the role that CAREC and the CAREC/PRITECH workshop played in assisting with the cholera control program and on second-generation case management training. This paper evaluates the role the training provided in enhanc-

Box 1. Objectives of the CAREC/PRITECH Training Sessions on Cholera Control

- To sensitize health care workers to the signs of cholera,
- To keep health care workers alert to outbreaks,
- To enable participants to provide appropriate and cost-effecive management of cholera cases,
- To equip participants with technical materials for training other health care providers,
- To plan for follow-on training by participants in their respective countries.

ing the ability of the medical staff to control the cholera epidemic in Guyana.

Cholera Preparedness in Guyana

Bordered by Venezuela, Suriname, and Brazil, on the northeast coast of South America, Guyana has an area of 83,000 square miles and is divided into ten administrative regions. Cholera has occurred in the three regions most proximate to Venezuela. Of the total population of 750,000, most live along the coastal areas. Several racial groups exist, reflecting Guyana's colonial past: East Indians, African, Chinese, Amerindian, and whites. The Amerindians tend to live in the remote areas and have poorer hygiene and sanitation conditions.

Box 2. Cholera-Related Events Relevant for Guyana

- Appearance of cholera in Peru (January 1991)
- CAREC/PRITECH case management seminar in Georgetown (February 1992)
- CAREC/PRITECH workshop at CAREC (June 1992)
- Appearance of cholera in Venezuela adjacent to Guyana (August 1992)
- Enhanced surveillance and training in regions adjacent to Venezuela, development of Wilson-Beard cholera cots and Wilson cholera straw (August-November, 1992)
- Appearance of first cases in Guyana (November 1992)
- Case-control study of cholera, joint project between Ministry of Health and CAREC (November 1992)
- Consultancy by Hospedales (CAREC) and Sack (PRITECH) (April 1993)

The coastal area where most people live is a riverain area (Guyana means land of rivers). Flooding is common during the wet season, and much of the land is below sea level. With estuaries, there is a shellfish industry and exports, and an increased risk of cholera, especially of the endemic form. Other tropical diseases common in Guyana include malaria (mostly *P. falciparum*), *Bancroftian filariasis*, and recently AIDS.

With the appearance of cholera in Peru and its spread to other South American countries, it became apparent that Guyana would eventually become affected. The spread from Peru continued to Ecuador, Colombia, Venezuela, and finally to Guyana. Factors that increase the cholera risk for Guyana include (1) its low-lying riverain area and estuaries, where many people rely on fishing and shellfish; (2) traditional hygiene and water behaviors practiced by many of the people; and (3) many remote areas where access to cholera treatment is difficult. Drinking water directly from the river is common, even without a water container to store water briefly, and the toilets used are frequently a bush. The Amerindian population are at especially high risk because they have retained these traditional practices, and have a preponderance of blood

group O, which makes them an especially high risk group.[2] Being remote both geographically as well as socially, they are also at higher risk of death should they become ill.

When cholera was recognized in neighboring Venezuela in August 1992, surveillance was intensified in the adjoining regions of Guyana. Dr. Wilson of the Ministry of Health led the way in this effort, visiting the hospitals and health centers, to insure that early cases would be recognized and reported immediately to the Ministry. Furthermore, supplies and logistics needed for cholera case management were organized, and health education efforts directed at drinking boiled or treated water and cooking fish and shellfish were intensified. On November 5, a case was described that appeared clinically to be cholera and was subsequently confirmed bacteriologically. The Ministry of Health responded immediately to the case description by sending teams of doctors and nurses from Georgetown, including Dr. Wilson, to the cholera-infected area. Though a few of the early patients died, most survived and the overall case fatality rate has been less than 2 percent. During the early epidemic, the Ministry of Health also rotated about forty doctors and nurses from other parts of the country to the cholera-affected area to provide them with clinical experience with management of cases.

By April 1993, the numbers of cases had dropped considerably, though two cholera deaths among three cases in a village occurred during the month of March. The cases are illustrative of many of the constraints in controlling cholera in developing countries including Guyana.

The first case was an Amerindian man who developed acute diarrhea on March 3 and was treated with oral rehydration salts in the village. He recovered by the next day, but by then his wife developed severe diarrhea. She was treated by the headman of the village with local medicines plus Lomotil, but was not taken to the health center, did not receive rehydration, and later died on March 5. The headman who had treated the wife developed abdominal discomfort two days later, followed by severe diarrhea on the night of March 9. The next morning he was taken to the health center, where he was seen by the health assistant. He was given one liter of intravenous fluid and appeared to revive, but again became dehydrated and died that day. A fecal specimen from the

headman was cultured and was positive for *V. cholerae* O1 but specimens were not obtained from the others in this cluster. Drinking water for the village was from the creek and was used directly without boiling. Tetracycline prophylaxis was given to the villagers.

Since the authors were not present during this cluster of cases, one must be careful in making judgments; however, this experience points to several aspects of cholera case management that went wrong. The first case, though it fit the description, was not recognized to be cholera. When the wife became ill, her illness also was not recognized and she was not taken to the health center. Instead, inappropriate antidiarrheal and traditional medicines were used. Why the husband, but not the wife, received oral rehydration salts was not known. Finally, the headman was taken to the health center where facilities were available to give appropriate rehydration. Unfortunately, the health assistant was not sufficiently knowledgeable or experienced to give adequate amounts of fluids to rehydrate and maintain hydration. These factors were further compounded by the occurrence of the cluster within a traditional society where water and sanitary practices are unhygienic, where access to care is poor, and where use of ineffective treatments may prevent use of effective rehydration. Better training of the health assistant should have prevented the headman's death, but better information and communications were needed for the first two cases.

Impact of the Training

The authors traveled to Georgetown in April 1993 to determine if the training activities carried out previously had had an impact on case management in Guyana. They met with key individuals in the Ministry of Health, the Public Hospital, Georgetown, including the cholera treatment ward, the emergency ward, and the laboratory; and visited one of the trainees who had come to CAREC. At the Public Hospital, Georgetown, nurses who had worked in the epidemics and had been trained by Dr. Wilson (a CAREC trainee) were interviewed. Physicians in the emergency ward, who were caring for an adult patient with severe diarrhea, were also interviewed.

It was not possible in the short time available to develop or test any formal instruments to determine the impact of the training; however, the interviews were use-

ful in gaining a perception of the role the training played in the national response to cholera.

The CAREC workshop on clinical case management in Georgetown was well attended; however, many of the key persons (especially from the Public Hospital, Georgetown) could not be present and a second session had to be planned. The workshop thus attempted to reach the maximum number of people, but not a highly selected group. On the other hand, the regional workshop in Trinidad only allowed two participants from Guyana. The two persons chosen were very appropriate: the first later became the key Ministry of Health clinician in the field when cholera spread to Guyana and became well known for his successful efforts there. The other participant was the chief medical officer for the sugar company, the largest industry in the country. Hence, key decision makers from both public and private medical care were represented at the CAREC workshop.

Usefulness of the Training

The training was felt to have accomplished several goals. First, it raised awareness in the medical community of the threat of cholera and initiated a process of dealing with it in a more realistic fashion. Stories of cholera as it affected Peru had the potential of creating unrealistic fears, and the workshops improved understanding of the disease in a manner that allowed participants to plan constructively for its control. Second, the CAREC regional workshop facilitated the personal development of two key persons who would provide leadership to the national program. Working within the Ministry of Health, Dr. Wilson organized the surveillance in the regions close to Venezuela, organized the logistics for case management, and prepared the medical staff in the area to deal with cases should they appear. When cholera did appear, he returned to the cholera-affected area, assisted with case management, and trained others. In addition to training the staff in the immediate area, he trained staff from other parts of the country to prepare them to treat cases if cholera were to break out in their regions.

Dr. Persaad, the chief medical officer of the Guyana Sugar Corporation, was the other CAREC trainee. The sugar corporation employs 22,000 workers in eight estates located in four regions, and provides medical benefits to the employees and families, totalling 120,000

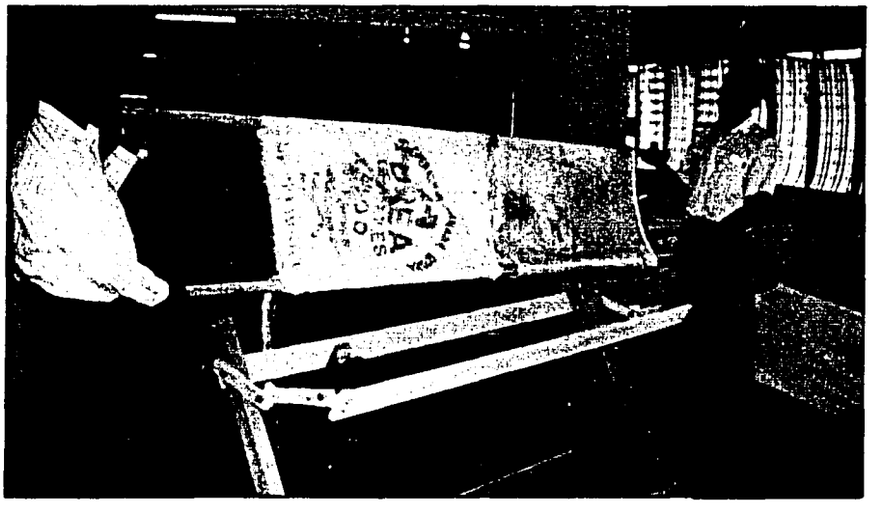
beneficiaries. Since the CAREC workshop, Dr. Persaad has: (1) held a one-day cholera workshop for his medical staff using the materials provided at the workshop; (2) insured that each of his estates have the supplies and medicines for treatment of patients (cholera cots, rehydration fluids/supplies, tetracycline); and (3) formed a cholera control committee for the sugar corporation, which has since evolved into a health and safety committee. The sugar corporation has a central medical facility near Georgetown and health centers in each of the estates, most equipped with ambulances.

In addition, the CAREC regional workshop resulted in secondary training within Guyana, and the training materials from Trinidad were used in this training. Dr. Persaad carried out a formal workshop using the training materials with the staff of the sugar corporation, and Dr. Wilson was the primary trainer for the Ministry of Health, training the hospital and health center personnel in the cholera-affected areas as well as training nurses at the Public Hospital, Georgetown, and doctors and nurses from other regions of Guyana. Based on interviews with the nurses at the Public Hospital, these staff had an excellent grasp of the concepts of cholera management, of the need for rapid rehydration, and of the appropriate use of oral rehydration therapy.

Innovations in Case Management

The training also provided a fundamental understanding of cholera treatment that led to innovations by the Ministry of Health. For example, cholera cots are usually made from army cots by cutting a hole in the middle. Unfortunately, the army cots in Guyana have a third leg in the position where the hole should be, preventing effective use of these cots. Because of a shortage of funds, Dr. Wilson and Mr. Beard designed a very inexpensive cholera cot out of locally available materials.

The Wilson-Beard cholera cot uses two long 2" by 2" boards and two plastic fertilizer bags to make a stretcher, and the stretcher fits into a locally made frame. The fertilizer bags are placed with a small gap between them, the gap serving as the hole in the normal cholera cot. The Wilson-Beard cot had several advantages. It was economical, as it uses locally available materials. The plastic fertilizer bags could easily be cleaned and soaked in disinfectant after use, and could be discarded when worn



The Wilson-Beard cholera cot.

out. The stretcher was transportable and could be used to carry patients some distance (not possible with standard cholera cots). Development of the cot addressed a practical problem of case management, and solved it in a rational and creative manner.

A second innovation was the "Wilson straw" for administering oral rehydration solution. Being short-staffed, a medical team from the peripheral hospital recognized that it would be difficult to administer oral rehydration solution and to measure the amount of solution drunk by the patient, as well as the amount of stool passed. They solved this problem by using leftover intravenous fluid bottles as pitchers for oral rehydration solution, and placing old plastic intravenous tubing into the bottle as a long straw. With the bottles on tables slightly higher than the beds, patients could suck on the straw and drink oral rehydration solution with little effort, and the volumes could easily be monitored by the nurses.

These two examples demonstrate the application of appropriate solutions to practical problems being faced with case management, using the standard principles of cholera therapy learned during the workshops.

Cholera Training as a Boost to Development of Regional Resources

One aspect of any training is that the trainer is also the learner. In this regard the professionals at CAREC—

who were experienced in epidemiology, microbiology, and nursing, but had not previously dealt with cholera—became the regional experts and the primary consultants when cholera appeared. The fact that CAREC was called and that Dr. Hospedales came to Guyana within the first few days of the first case in Guyana provides evidence of the confidence in this resource. The cooperation of the Ministry of Health with his consultations, and the success of the case control studies he carried out is further evidence of the importance of building up this type of regional capability.[3]

Cholera as an Entree to other Public Health Activities

Cholera was a stimulus for initiating other useful activities. Examples include improved communication between sanitation and health staff, and upgrading of the laboratory.

At the Guyana Sugar Corporation, Dr. Persaad organized a cholera coordination committee after returning from the CAREC workshop. The goal of the committee was to identify preventive interventions that could decrease the risk of cholera on the estates. Both medical and engineering staff were included on the committee. Surveys of the estates were carried out to identify risk factors for cholera. During the initial phase of the committee's work, several defects were detected dealing with water and sanitation, and plans are underway to correct these. During this process, other problems were detected in addition to the threat of cholera, and the committee has evolved into a health and safety committee to address the wider scope of issues. The new committee will continue to address the broader needs of the community, but cholera was the stimulus for the improved intersectoral communication.

The microbiology laboratory had fallen into a low state of preparedness during the preceding decade. Located on the grounds of the Public Hospital, Georgetown, it had nearly ceased to function, and the roof was literally falling in. The lab had fallen into such a state of disrepair that although typhoid fever is a serious problem in Guyana, the causative organism could not be isolated. With the threat of cholera, however, resources are again being put into the laboratory. Some equipment is being purchased, and a microbiologist has been recruited to

upgrade the lab. This should benefit cholera control efforts, as well as the control of other bacterial diseases in Guyana.

Deficiencies in the Training

Training in cholera management was carried out without an overall training strategy. While many persons were trained in case management, it was not clear that all of the appropriate staff had been trained. For example, physicians in the emergency ward at the Public Hospital, Georgetown, where cases were most likely to present in the capital city, were skeptical of correct case management and were not aware of many of the resources for management of cases. Physicians appeared to be quite independent in their approach, and plans to improve morale as well as case management are needed.

Second, the training was carried out with no hands-on experience, since cases were not available during the training session. Without practical experience, the trainees were not able to become proficient in proper case management during the training session. The assumption in carrying out the training without the practical aspects was that physicians would quickly learn how to apply their knowledge when they do begin seeing patients, that is, there would be a rapid and correct learning curve because of the training. Without the training, wrong practices would develop and later training would be more difficult. Despite the lack of hands-on training, however, the experience in Guyana shows that the accelerated learning did occur.

A third deficiency of the training was that it did not prepare the Ministry of Health to deal with the press. This was not a goal of the training so its failure in this regard is not unexpected. The press was very interested in the appearance of cholera, and was insistent on knowing as much as possible very rapidly. The Ministry of Health attempted to provide the information, but wanted to be sure that the information was correct before it was released. Because confirmation of cholera cases frequently requires a few days, the ministry was in the uncomfortable position of appearing to be withholding information during the time it took to confirm cases. While not a priority for training workshops, a strategy for educating the press about cholera was needed. Clearly the press can provide a service to the community by

educating them about risk factors, purifying water, and so forth, and can advise them to seek medical care if symptoms develop. However, the press can also create panic in an attempt to sensationalize the news about cholera.

Lessons Learned

The regional training model worked well in Guyana and should be replicated elsewhere.

Because the training was conducted through the regional center at CAREC, it established an available resource for assistance when cholera appeared. In the context of the Caribbean region, this was a most effective strategy. Training limited to national programs would have been much less effective, and would not have led to the development of sustainable expertise in the region. Participants in the CAREC training were recognized as experts in cholera management and control in Guyana. This recognition facilitated the plans for cholera surveillance, established cholera control leadership in the field, and helped to provide an organized response to the problem. Confidence in the trainees appeared to be a factor in the confident approach taken by the Ministry of Health in dealing with the epidemic. The CAREC training successfully raised the level of awareness within the medical community. Previously, cholera was known to be a dreaded disease, associated with fear and panic. With the training, cholera was highlighted, but it was also understood to be a problem that could be controlled.

Training should be one element in an overall cholera preparedness strategy.

The CAREC training was one part of the overall cholera control strategy. Clearly, the Ministry of Health officials, the Pan American Health Organization (of which CAREC is a part), and many others spent considerable time in managing the various aspects of the cholera control effort, and the training provided was seen as part of this overall response.

Good training should equip participants with the ability to improvise, to respond to local conditions.

The CAREC training provided an understanding of the principles of rehydration upon which cost effective innovations could be made, as illustrated by the Wilson-

Beard bed and the Wilson oral rehydration solution straw.

More physicians and nurses should have been trained prior to the epidemic.

Further training should be conducted within an overall training strategy, however, to insure that critical staff who are most likely to manage cases are the ones receiving the training, and that the training is part of an overall plan for upgrading case management of cholera and diarrhea patients.

Training using a facility with cases to provide hands-on training would have made the training more relevant and would have further accelerated the learning curve.

Simulations can partially compensate for the lack of hands-on training; however, simulations do not provide the experience for the trainee to gain confidence. One strategy to provide hands-on training has been to send trainees to an international training site, such as the International Centre for Diarrhoeal Disease Research, Bangladesh. While excellent experience can be gained, the costs of sending trainees abroad prevents such training for many participants.

Another strategy that can be used within a country is to send medical staff from unaffected areas to cholera-affected areas. This strategy has been used in Guyana. This type of training, while useful, is not adequate for high-level training of medical leaders, as it fails to provide an academic environment.

A final strategy, which has not yet been attempted, is to establish a regional training center in South America in an area where cholera cases and highly qualified staff can be found—providing both an excellent academic environment and practical hands-on experience for appropriate case management. Such a regional training center would also allow training in Spanish.

Training materials specifically designed for use by the trainees would have been helpful.

Trainees were given extensive printed documents from WHO and audiovisual materials from the US Centers for Disease Control and Prevention, all of which were useful, but were not given a packaged course specifically for second generation trainees. It would require much

additional work and a knowledge of which level of health personnel would be reached in secondary training, however, to develop such a course.

In summary, the CAREC/PRITECH training accomplished its goals and contributed to the national cholera control program. Through appropriate case management, most deaths were averted, and cost-effective innovations were effectively developed and used by the dedicated physicians and nurses in Guyana.

Notes:
[1] F. Davachi, "Cholera Case Management for Health Care Providers, Training Conference in Guyana," Arlington, VA, Management Sciences for Health, PRITECH Project, ACP-022-GY, 1992.
[2] The blood group of the Amerindian population in Guyana has not been determined, but other native groups in South America have been almost exclusively blood group O.
[3] J. Hospedales, T. Tiwan, and R. Cummings, "A Case Control Study of Cholera Outbreak in Guyana," CAREC Surveillance Report, vol. 18, November/December 1992, pp. 81-86.

IMPROVING ORS SUPPLY AND DISTRIBUTION IN THE PHILIPPINES

by David Alt

The Philippines is a nation of 7,000 islands, with a monsoon-type rainy season during which typhoons are frequent. The Department of Health in the Philippines is structured in fourteen regional health offices, sixty city health offices, seventy-five provincial health offices, and 276 district health offices. There are approximately 600 hospitals, 2,100 rural health units and 1,000 *barangay* (village) health stations in the Department of Health system.

David Alt was the Philippines Country Representative.

Lack of an ORS Ordering System

These geographic features and the complex administrative structure, combined with difficulties in oral rehydration salts (ORS) supply at the national level, were among the factors contributing to an undersupply and maldistribution of ORS in the Department of Health system. A PRITECH evaluation of the Department's control of diarrheal diseases (CDD) program in September 1988 reported that there were stockouts and an undersupply of ORS in some areas and an oversupply in others. Field visits by CDD program staff also found an insufficient and irregular supply, with some facilities being completely out of ORS and others having more than a one-year supply.

During these visits it was observed that there was no reliable system in place for determining the amount of ORS each facility should receive. As they received ORS, higher officials in the administrative chain would simply allocate it to the next lower-level facility, usually giving each facility the same amount. While in a few instances there were attempts to allocate based on the population of the catchment areas of the facilities receiving the ORS, this was basically a "push" system, with the receiving facilities passively waiting for ORS to be given, or only requesting ORS when they ran out or nearly ran out of stock. A number of problems common to the overall Department of Health logistics system—for example, inadequate warehousing, lack of transport, and lack of a logistic information system, were also observed to be adversely affecting the ORS supply.

The problem of undersupply of ORS at the national level was related to a deterioration in the Department of Health's ORS production facility and a series of delays and other problems in importing ORS from donors. By late 1989 the Department had awarded a contract to a Philippine drug manufacturer for the production of Oresol, the Department's brand of ORS. These shipments were received on schedule and in sufficient quantity, thereby ending the problem of chronic shortage of supply at the national level.

The overall problems in the system, such as warehousing, transport, and the information system, are to be addressed in a World Bank-funded project beginning in 1991. The PRITECH-assisted study leading up to the World Bank effort recommended that the physical movement of drugs and medical supplies be from three national hub warehouses directly to the district health office level. This should reduce the backtracking of supplies and the additional warehousing and handling of supplies at the regional and provincial levels. The orders for drugs and supplies and the notifications that orders have been sent will still be sent through the provincial and regional levels.

While these problems were being addressed, the CDD program also undertook to develop and implement a simple, rational system for determining how much ORS each facility should stock, and for knowing when to reorder and how much to order. Surveys of ORS supply were undertaken in 1989 and again in 1990, and showed a very encouraging improvement in ORS supply at all levels. The following section describes the ORS ordering system and explains how the system was developed and implemented.

The Philippines Ordering System

Objectives

The Philippines ORS ordering system has three major objectives:

- To minimize the number of times when facilities run out of ORS,
- To minimize the number of situations where ORS reaches its expiration date without being dispensed, and

- To achieve the above two objectives with the least amount of capital tied up in ORS inventory.

ORS Supply Pipeline

The ORS supply pipeline is designed to ensure a steady flow of ORS from the supplier to the Department of Health's central office and from there to the Department's field units.

An ORS authorized stock level is set for each facility in the Department system. The authorized stock level is based on the diarrhea caseload of the facility, and is expressed in terms of months of supply.

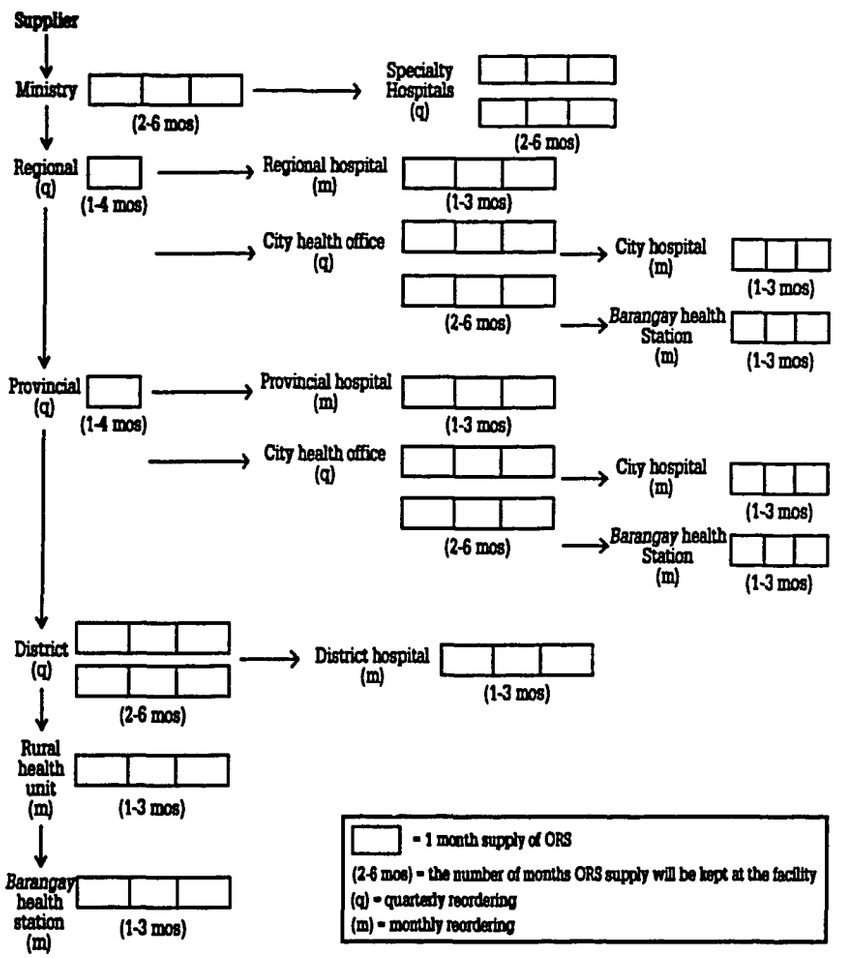
Box 1 is a diagram of the ORS supply pipeline. On the diagram the "months of supply" is expressed as a range, such as one to three months, with the higher of the two numbers being the authorized supply level. The lower number is the number of months' supply that the stock level is likely to drop to at the end of a peak diarrhea season month, when ORS is being consumed rapidly. For example, during peak season, a normal three months' supply might be used twice as fast, so that after one month, two months' supply has been used, and only one month's supply remains.

Larger amounts (months of supply) of ORS are kept at the district and city levels than at the regional and provincial levels. This is done so that the ORS is kept closest to the level at which it will be used. The pipeline is also designed this way because many regional and provincial offices do not have proper storage space for large amounts of ORS and other medicines.

The regional and provincial offices act as "pass through" facilities only. When the quarterly ORS supply is received at these levels, it is quickly (within about two weeks) sent to the next lower levels, based on the requests from those levels. The regional and provincial offices retain as a "buffer" an ORS supply sufficient for one month's use for the entire regional or provincial catchment area.

When diarrhea outbreaks occur, the ORS stock levels at the district and city offices should be sufficient to cope with them. If an area still needs ORS on an emergency basis, it can request it from a neighboring city or district office, or from the provincial or regional one-month buffer stock.

Box 1. ORS Supply Pipeline



Because diarrhea is a very seasonal disease, the authorized stock level for direct-service facilities (hospitals, rural health units and *barangay* health stations) is set at three months. This means that at the end of the month in the non-peak diarrhea season these facilities would be expected to have a balance of about a two-month supply of ORS. At the end of the month in the peak diarrhea season, the balance on hand in these facilities would be near a one-month supply of ORS.

Calculating Authorized Stock Levels

Health facilities calculate their authorized ORS stock levels only once a year. This calculation is normally done in the early part of the fourth quarter of each year to prepare for the coming year.

The top half of Box 2 is the form used by *barangay* health stations, rural health units and district, provincial, and regional hospitals for calculating their authorized stock levels. The following are explanatory notes on the form:

Line 1. If the calculation is being done prior to the end of the calendar year, the number of cases entered here can be for the most recent twelve consecutive months for which figures are available.

Line 2. Two packets are used per diarrhea episode as an average ORS consumption figure for field health facilities. Large provincial and regional hospitals which see a larger portion of dehydrated cases should use a figure of four packets on line two.

Line 3. The CDD staff at the regional and provincial levels, in consultation with their field units, determine the percentage increase or decrease to be used in line three. The expected increase or decrease is affected by activities such as training of new health workers in CDD, establishing new ORS providers, promotional activities, and so forth.

Line 4. This is the facility's estimate of the amount of ORS that it will give to other organizations and practitioners for use with their patients.

Line 7. The authorized stock level for direct-service facilities is three times the average monthly projected use.

In calculating the authorized stock level for district and city offices, the diarrhea caseload figure used on line 1 is the consolidated figure for all cases seen at facilities within the district or city office catchment area. On line 7 the figure from line 6 is multiplied by six, since district and city officers are authorized a six-month stock level. In all other respects, the calculation for district and city offices is the same as for direct-service facilities.

Similarly, the calculation for regional and provincial offices uses the same formula, except that on line 7 the figure from line 6 is multiplied by four, since regional and provincial offices have a four-month authorized stock level.

Box 2.

Calculating your authorized ORS stock level for 1991

Name of facility _____ Type _____

Location _____ Prepared by _____
Municipality/City District Province Name Title

1. Diarrhea cases of all ages seen or reported in 1990 = _____
2. Multiply line 1 by 2 packets = _____
3. Multiply line 2 by (the expected percentage increase or decrease in cases for 1991) _____ = _____
4. Expected numbers of ORS packets to be distributed to private clinics, nongovernmental organizations, etc., in 1991 = _____
5. Add lines 2, 3, and 4 = _____
6. Divide line 5 by 12 months (=average monthly ORS usage) = _____
7. Multiply line 6 by 3 (=authorized ORS stock level) = _____

Reordering ORS in a monthly basis

Month	Authorized stock level	Balance at time of order	Amount to order	Date	Amount received	Date	Remarks
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							

Once the authorized stock level is calculated for a facility, it is used for placing orders for ORS throughout the year.

ORDERING ORS

This ORS ordering system is a "pull" system. The amount of ORS sent each month or quarter from one level to the next lower level is based on the amount

requested from the lower level. No ORS is sent automatically from one level to the next.

From the national level through the district level, the ordering dates are coordinated so that each level orders its ORS in time to receive the order just prior to receiving the ORS orders from the facilities in the level below it. The following is the schedule for placing ORS orders:

- *Barangays* order ORS in the last week of each month.
- Rural health units and hospitals order ORS in the first week of each month.
- Districts and cities order ORS from the province at the beginning of January, April, July, and October.
- The provinces order ORS from the regions in the middle of March, June, September, and December.
- The regions send their quarterly ORS requests to the CDD national office by radio message at the end of February, May, August, and November.
- The Department of Health's central office ships ORS to the regions during the first two weeks of March, June, September, and December.

The bottom half of the form in Box 2 used for calculating the facility's authorized stock level is used to calculate the amount of ORS to order. The form is used for a one-year period. If the facility is re-ordering on a quarterly basis, there is one line for each of the four quarters. This form is retained by the facility, and if properly filled out provides a running record of the ORS supply situation in the facility, which can be easily monitored by supervisors.

To calculate the amount to order, the health worker at the facility writes the authorized stock level from line 7 in column 1 on the form.

She then does a physical count of ORS on hand and writes that number in column 2, "Balance of Order."

She then subtracts the balance at time of order (column 2) from the authorized stock level (column 1). The result is the amount to order (column 3). If the number in column 3 is a negative number it means the facility has more ORS than it is authorized to have; the worker does not place an order if the number in column 3 is a negative number. If the number is positive the health worker shows the calculation to the CDD coordinator at the next higher level and requests that amount of ORS. For the rural health unit and above, a standard government requisition and issue voucher is completed.

Once the health facility receives the ORS, the health worker enters the amount received and date received in column 4.

At all higher levels, the procedure for ordering is the same as that described above, with the exception that the ordering is done quarterly.

Each facility keeps a folder with its CDD records in it. This form for calculating the authorized stock level and for calculating the amount to order each time is kept in the folder. In addition, each facility keeps a copy of the form for each facility which orders from it, and updates this copy each time an ORS order is received and sent. For example, a rural health unit, in addition to its own form, should have updated copies for all the *barangay* health stations that order from it.

Exceptions to Authorized Stock Level and Frequency of Ordering

In some regions, there are provinces, districts, and rural health units that cannot be easily reached in the rainy season. These locations with limited access are usually in the mountains or on remote islands. In these cases, the facilities are given a larger authorized stock level than shown on the forms. They also order less frequently than quarterly or monthly. The Department of Health's CDD program staff, in the central office, assist the field units in adapting the ordering forms so they can be used for these special situations.

Developing and Supplementing the System

Testing the System

The PRITECH and WHO resident CDD advisors prepared an original version of the ordering system and introduced it to the regional CDD coordinators at a meeting in February 1989. It was agreed at this meeting that each region would test the new system for three to six months in one district. The regions were given a format for reporting their experiences in implementing the system. In addition to these reports the PRITECH advisor and the CDD administrative officer visited the test districts in four regions. As a result of the reports (from ten regions only as the other four were not able to do the

pilot test) and field observations, the following actions were taken:

- The formula for calculating the ORS authorized stock level was simplified by eliminating a calculation for wastage.
- The amount of ORS to be held at the regional and provincial levels was reduced. It was determined that they should act as "pass through" facilities, sending most of the ORS they receive almost immediately to the next lower levels.
- The authorized stock level for direct-service facilities (hospitals, rural health units, and *barangay* health stations) was originally set at two months, and was to be doubled for the peak season and reduced after the peak season. This decision caused confusion. The stock level was consequently raised to three months for these facilities, which is sufficient for both low season and peak season.
- Written directions, in the form of a training module, were prepared for the system.
- The two forms for calculating the authorized stock level and the amount of ORS to order were combined into a single form which can be used for a whole year.
- It was agreed that higher authorized stock levels and less frequent ordering periods could be used depending on special circumstances in various places.

All of the regions visited were eager to expand the system to the whole region.

Implementing the Revised System

The new, revised ORS ordering system was introduced to the regional CDD coordinators at a national meeting in October 1989. Because the ordering system had not been reviewed and approved by the Department of Health executive committee, its implementation in the field was not mandatory. It was agreed at the meeting that the CDD coordinators from each region would discuss the system with their regional technical staff and regional director and determine to what extent the system would be implemented. All regions implemented the system in at least some of their provinces.

Field monitoring visits to eleven of the fourteen regions during 1990 revealed that implementation of the system was going very slowly, and that it was not being implemented as extensively and as well as had been

expected. The main reason for this was that district, provincial, and regional staff were preoccupied with a host of initiatives mandated by the central office. In some cases, the training and orientation to the new system was not done until near the end of the second quarter of 1990.

A number of specific problems were observed during the field visit, including:

- Most regions had not ordered enough ORS to fill the pipeline at the start of implementation of the system. They were to have placed this "special order" to fill the pipelines based on their estimates of how much ORS was in the system at various levels. As a result, orders for ORS from lower levels in the system could not be filled completely by the higher levels. This situation was very frustrating to those trying to implement the system correctly.
- The regions had not reproduced enough copies of the form for calculating authorized stock levels and the amounts to order, even though each region had been given a set of stencils for this purpose by the national CDD office. As a result, many facilities were found to have no forms, to be using the wrong forms, or to be using handwritten forms.
- Key people at the district level sometimes missed the orientation to the system because of their involvement in other activities. This fact resulted in the system not being implemented in those districts or in being incorrectly implemented.
- In some cases the quality of the second-level training and orientation to the system had not been sufficient, resulting in confusion about the system among nurses and midwives.
- Many provincial health offices were mixing their ORS stock with that of the nearby districts, which use the same warehouse. This practice resulted in their placing smaller orders to the region than they should have. A similar problem was observed between the districts and rural health units.
- Large provincial regional hospitals were using three to four packets of ORS per case, resulting in the authorized stock levels arrived at by the formula (which assumed two packets per case) being too low.
- Some facilities with a three-month authorized stock level were dividing the stock level by three before filling in column 1 of the form, because they thought they should just order what they needed for one

month. This action seemed to have come from their earlier experience when they would be out of or nearly out of ORS before asking for more.

- Some facilities were counting only diarrhea cases in children under five when filling out line 1 of the calculation for authorized stock level, apparently because of the Maternal and Child Health Service's focus on the under-five target group. The result was too low an authorized stock level.
- Lack of transportation resulted in facilities receiving less ORS than they ordered and in receiving it late.

As a result of these visits, the regional CDD coordinators pledged to give more time to monitoring the ORS system, with special attention being given to the problems listed above. All regions found to have insufficient ORS for the initial filling of the pipeline placed very large special orders to correct the situation.

The field visits by the national CDD office staff to monitor the implementation of the ORS ordering system were made more effective by the use of a checklist for monitoring implementation of the system. During the visits, various field staff were taught how to use the checklist. The monitoring checklist appears as Box 3.

Impact of the System

The first nationwide ORS supply survey was conducted in February 1989. It covered 1,203 health facilities in sixty-eight of the seventy-five provinces of the Philippines. Forty percent, or 486 of the facilities surveyed, were found to be "at risk," meaning they had no ORS in stock, had only expired ORS in stock, less than a one-month supply of ORS (*barangays*, rural health units, cities, and hospitals), or less than a three-month supply of ORS (regions, provinces, districts). In some provinces, as many as 88 percent of the surveyed facilities were "at risk."

The overriding problem revealed by the survey was a shortage of ORS supply in many facilities. The exception to this general finding was the city health offices. Forty percent of them had more than a six-month supply of ORS, and only 11 percent had less than a one-month supply.

In July 1990, a second nationwide ORS supply survey of 1,205 health facilities was undertaken. In spite of the slow start in implementing the system, the survey

showed that in those regions and provinces where the CDD coordinators were able to introduce the new ORS ordering system and closely supervise its implementation there were marked improvements in the ORS supply situation.

In the 1990 survey, only 6 percent of the facilities were out of ORS on the day of the survey, compared to 14 percent in 1989. In addition, a total of 25 percent of

Box 3. ORS Monitoring Checklist

Facility _____ **Date** _____

Use this checklist when monitoring whether a facility is correctly using the new ORS ordering scheme. Use the back of the sheet for any additional notes.

	YES	NO
1. Does the facility have the ORS calculation and ordering form?		
2. Is it the correct form for the facility?		
3. Did the facility correctly calculate its authorized stock level? (If no, note on the back of this page what they did wrong.) What is the facility's authorized level?		
4. Did the facility place its order(s) at the correct time? (If no, note on the back of this page what they did wrong.)		
5. When they ordered, did they calculate the correct amount to order? (If no, note on the back of this page what they did wrong.)		
6. Did the facility received the amount of ORS it ordered? (If no, note on the back of this page why they did not.)		
7. If the facility received more or less than ordered, is there a comment in the remarks column as to why this happened?		
8. How much ORS does the facility have on hand (do a physical count) ORS on hand=		
9. Is this less than a one month supply? (If yes, note the reasons for this on the back of this page.)		
10. Does the facility keep an ORS stock card?		
11. Does the balance stated in the stock card match the actual balance on hand from physical count?		
12. Will the ORS reach its expiration date before it is consumed?		
13. If the facility been monitored is an IPHO, DHO or RHU does it have copies of the ORS calculation and ordering form for each of the facilities below it, i.e., the IPHO has forms for each DHO, DHO has forms for each RHU, RHU has forms for each BHS? (If not, note the reason for this in the back of this page.)		

the facilities were "at risk" compared to 40 percent "at risk" in 1989.

All regions except two showed declines in the percentage of "at risk" facilities. The two most improved regions, in terms of reduction in percentage of "at risk" facilities, went from 1989 figures of 56 percent and 48 percent to 1990 figures of 13 percent and 10 percent, respectively.

One region showed an increase in facilities "at risk" from 1989 (23 percent) to 1990 (33 percent). This region was implementing the ORS ordering system in only one of its seven provinces. That province had no facilities "at risk."

In the 1989 survey, forty-eight out of sixty-eight provinces surveyed (71 percent) had some facilities which were out of ORS. In the 1990 survey this had dropped to thirty out of sixty-eight provinces (44 percent).

Lessons Learned

Ensure that there is plenty of ORS available at the national level prior to launching a new ordering system.

This might be as much as a one-year supply if the pipeline is fairly empty. It is extremely frustrating to field personnel to introduce a system and then not be able to fill the orders. The problem in this case was the fact that a special order of 3.9 million packets of ORS from USAID and UNICEF that was supposed to have been available was found to be mislabeled. It took some time for this problem to be corrected and as a result, the central office could not fill the orders from the field.

Prepare a simple set of clear instructions and related training materials at the outset.

Because the pilot test was launched on very short notice, the instructions were only verbal. The only written materials were the forms.

Conduct the first pilot tests in fewer regions, and expand to only three full regions after the revisions.

Monitor these three regions much more closely than it was possible to do for the full fourteen regions. Expand

to all the regions only after working out the problems encountered in this expanded trial.

Involve a regular Department of Health employee from the central office in the development and implementation of the system.

The assigned counterpart, the administrative officer, was a contract employee whose services ended at the same time as those of the PRITECH advisor.

Explain clearly to the regional CDD coordinators the need to fill the supply pipeline at the outset.

A large special order of ORS at the beginning enables regional offices to fill the orders from the districts and cities. This need was not emphasized enough during the October 1989 training season.

Emphasize more clearly to the regions the importance of their providing sufficient copies of the ordering forms for all levels in the system.

Expecting provincial and district levels to retype the sample forms on stencils proved to be a significant bottleneck to implementation.

Hidrafix

TAPPING THE POTENTIAL OF THE PRIVATE SECTOR

The first two sections of this volume describe successful collaborative relationships with ministries of health in public sector programs for the control of diarrheal disease (CDD). By contrast, this section covers PRITECH's experiences in engaging the private sector in CDD activities. Data from developing countries demonstrate that the private sector, including private physicans, pharmacists, retailers, mission hospitals, and traditional healers, is the health care provider of first choice in many countries. A study in rural India, for instance, found that 83 percent of mothers consulted private practitioners for their children with diarrhea, while only 7.5 percent visited public health centers.[1]

The commercial sector, including pharmaceutical companies and consumer goods companies, is obviously a very important part of the private sector, yet national CDD programs have had little or no experience in working with it. PRITECH believes that the commercial sector should play a role in every CDD program. PRITECH has developed an approach for using commercial sector strengths to increase the availability of oral rehydration salts and health education regarding correct diarrheal disease management. The commercial sector can be enlisted to participate in the CDD effort, to promote, sell, and distribute ORS packets and to provide information about home management and prevention of diarrheal disease to a broad segment of the population.

In Pakistan, PRITECH pioneered interventions that draw upon social marketing experience and that rely primarily upon the private sector to finance its own CDD marketing effort.[2] The work in Pakistan succeeded in mobilizing the commercial sector to replace the public sector as the main channel of delivering ORS to consumers. The model developed in Pakistan has been successfully applied in Indonesia, Kenya, and Mexico. The papers by Camille Saade, Lucia Ferraz-Tabor, and Paul Freund describe the PRITECH approach to collaborating with the commercial sector and some of the lessons learned.

Nongovernmental organizations are another important part of the private sector. In Bolivia, the USAID mission helped establish a coordinating group of child survival private voluntary organizations. Ana Maria

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Aguilar and Peter Spain describe PRITECH's assistance to this group in the paper in this volume. In addition, PRITECH and the Centre for Development and Population Activities conducted a workshop for Anglophone African nongovernmental organizations (NGOs) to extend their community-based CDD activities. In her paper on working with NGOs in Kenya, Karen Blyth describes how PRITECH followed up on the workshop with Kenyan NGOs.

PRITECH has also conducted research on the attitudes and practices of traditional healers regarding diarrheal disease management, and has explored the possibilities of fruitful collaboration between national CDD programs and healers.[3] An initiative to train healers to collaborate effectively with the biomedical establishment in Uganda will be written up in a future PRITECH occasional paper.

One of the greatest upcoming challenges for the CDD field is identifying new ways of reaching the nongovernmental health sector, particularly private practitioners and pharmacists. For it is only when CDD programs take advantage of the full complement of resources in the public and private sectors that substantial progress in saving children's lives can be made.

Notes:
[1] Indian Market Research Bureau, "KAP Study on Diarrhoea: A Summary Report," report prepared for UNICEF, IMRB/HV/40326, 1988.
[2] See Lucia Ferraz-Tabor and William Jansen II *Forging New Partnerships: PRITECH's Pakistan Experience*, Arlington, VA, Management Sciences for Health PRITECH Project, 1991.
[3] See Paul Freund, "Traditional Healers and Diarrhea: Results of a Recent Survey in Zambia," paper presented at the American Public Health Association annual meeting, Chicago, October 22-26, 1989; and Janice Hogle and Agma Prins, "Prospects for Collaborating with Traditional Healers in Africa," Arlington, VA, Management Sciences for Health, PRITECH Project, 1992.

ENLISTING THE COMMERCIAL SECTOR IN PUBLIC HEALTH

By Camille Saade

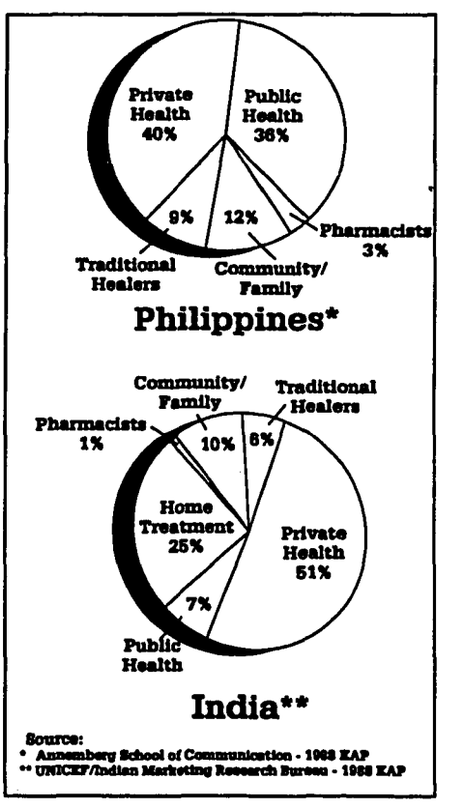
The vast majority of control of diarrheal disease (CDD) activities around the world have been organized within and continue to be implemented by the public sector. That the global CDD effort was structured in such a fashion is not surprising, because it followed conventional development models and used traditional public sector health networks. The public sector approach has realized considerable progress in certain areas, such as increasing public awareness of oral rehydration therapy (ORT) and effective use of ORT within public health facilities.[1] Statistics from many countries show that public knowledge and awareness of ORT exceed 80 percent.

Camille Saade is a Social Marketing Specialist.

Limitations of Public Sector CDD Efforts

Public sector-only approaches are, however, constrained by two basic shortcomings. First, such public sector programs have structural limitations in extending CDD services to the general populace. The figures show, for instance, that only a small percentage of people in India or the Philippines consult public sector health personnel for childhood diarrheal disease.

A very disturbing statistic that commonly emerges from developing countries is the consistently low rates of actual use of oral rehydration salts (ORS) in households during diarrheal episodes. Even in countries with general awareness levels of ORS over 80 percent, household ORS use rates are often considerably lower. According to the World Health Organization, ORS use rates do not exceed 21 percent.[2] A significant gap between ORS awareness and use clearly has emerged throughout the developing world.



Where mothers go for treatment of children with diarrhea.

One reason that ORS use is so low is that current global demand is not fully met by supply. A common limitation of public sector health systems is the regular supply and distribution of needed medical supplies to all health facilities. This is particularly true for facilities at the primary health care level.

Second, public sector programs suffer from limitations in long-term sustainability. Such programs require regular infusions of financial support from governments and donors. CDD programs that strive to reach 100 percent of the population need large quantities of financial resources over long periods of time to be fully successful. The strain of sustaining these endeavors over time could be eased considerably if substantial CDD services were undertaken by the private sector on a self-financing, commercial basis. By allocating human, material, and financial resources to cost-effective production and marketing activities, private companies could help fill the gap between total consumer demand and what was currently produced by the public sector.

In several countries, experience has shown that the commercial sector can provide useful information on ORT and sell ORS at prices sufficient to provide the different links in the distribution chain with a profit incentive. Yet these prices are affordable to significant portions of the population. The long-term sustainable availability of ORS has been accomplished with the commercial sector's own funds, investing the major part of the finances required to launch ORS, and minimizing donor and host country financing.

If the full benefit of ORT and other diarrheal disease management practices is to be realized, other sectors providing primary health care services must also be enlisted to be active users and promoters of such practices. The commercial sector is one group that can be engaged to participate in the effort to promote, sell, and distribute ORS packets, as well as to provide information regarding home management of diarrheal diseases to a broad segment of the population.

PRITECH's Commercial Sector Initiative

To address the limitations of a public sector-only approach, PRITECH embarked on an initiative to involve the commercial sector more widely in public health interventions. Specifically, PRITECH aimed to (1) complement

the ongoing efforts of the national CDD program; (2) promote oral rehydration therapy, rather than just ORS; (3) develop a sustainable marketing model; (4) maximize ORS marketing potential, acting on both demand and supply; and (5) help prevent diarrheal incidence through breastfeeding and handwashing promotion.

PRITECH's Strategy

The criteria used to select suitable candidate countries for ORS commercialization activities included: (1) countries with a commitment to and a policy endorsing the use of ORS as a home treatment remedy; (2) countries where privatization is a well-established approach supported by the government; (3) countries with a well developed commercial sector; (4) countries with a sizeable consumer market potential where ORS can be considered an over-the-counter product, available without prescription; and (5) countries in which the USAID mission supported the commercialization effort.

PRITECH typically followed a methodology developed and refined through experience working with the commercial sector. The methodology began with a rapid assessment of the ORS market situation and the attitudes and practices of consumers, health providers, suppliers, and manufacturers. PRITECH then identified ORS needs, market and environmental constraints and opportunities, and the most suitable players for each market segment. Potential companies were not limited to the pharmaceutical industry, as food and beverage companies offer a much wider distribution channel.

Findings from these assessments formed the basis of a preliminary ORS plan that incorporated the national CDD program objectives. PRITECH attempted to achieve these objectives by developing strategies ensuring the best market coverage. In collaboration with the CDD pro-

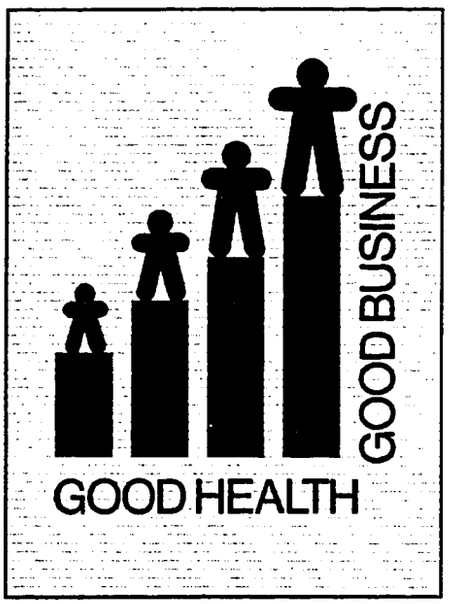
PRITECH's Methodology

To encourage the private sector to participate in CDD activities, PRITECH:

- Assesses the current commercial market and the potential for increased commercial sales (including market research).
- Identifies promising commercial sector players that can realize that potential.
- Designs a national ORS plan in coordination with the national CDD program.
- Approaches targeted commercial firms and seeks their involvement, both in terms of market potential and possible contributions to national public health objectives.
- Provides technical assistance in marketing according to each company's capacities and resources.
- Monitors and evaluates the public health impact of CDD activities undertaken by commercial firms.

gram and donor agencies, PRITECH selected and initiated the approach to the targeted companies.

PRITECH attached great importance to careful preparation of a presentation to the companies' decisionmakers. PRITECH developed a brochure—"Good Health, Good Business"—targeted to commercial companies that was used in the initial approach to decisionmakers. In some countries, PRITECH made its initial presentation to a group of companies; in others, presentations were made individually. Presentation of ORS market opportunities was tailored to each company's strengths. In addition, PRITECH strived to demonstrate that public health objectives could represent business opportunities. Typically, the solicited companies made their own marketing assessments and feasibility studies. If the company decision was favorable, PRITECH worked with the company as early in the planning process as possible.



Technical assistance offered by PRITECH aimed at strengthening the capacity of the companies in areas as varied as good manufacturing practices, quality control, market research, marketing planning, communication strategy, and material development. Throughout, PRITECH provided continuous guidance to ensure that the communication message was in line with the national CDD policy. PRITECH monitored the implementation of the ORS launch campaign and worked with the companies, the CDD program, and collaborating agencies in evaluating the impact of the intervention according to indicators incorporated into the companies' objectives.

Collaboration in Specific Countries

Honduras. The high awareness of oral rehydration therapy generated by a mass media campaign and the subsequent demand for ORS were not being met by a supply of a readily available, affordable ORS. In the private sector, only high-priced imported ORS was sold in pharmacies. The government felt there was a need for an

ORS product accessible to the large rural population most in need of it.

In 1988, a PRITECH marketing expert worked with the HealthCom Project [3] to identify and assist a pharmaceutical manufacturer to develop the ORS that the Ministry of Health wanted. An introductory marketing plan was developed jointly with the selected producer, Quimifar, in an effort to increase popular access to ORS. The marketing approach adopted by the company included a segmented marketing strategy that began with Hidrosol, a low-priced "popular" product, to be distributed in rural drug outlets and grocery stores. A higher-priced brand, distributed exclusively to pharmacies and promoted only to doctors, was expected to follow soon after the launch of the popular brand. The government agreed to continue mass advertising for the Ministry of Health's ORS brand, Litrosol, which generated a beneficial spin-off effect on the demand for the "popular" commercial brand, Hidrosol.

Indonesia. The fielding of a PRITECH representative in Indonesia in 1991 facilitated the expansion of Indonesia's ORS production and marketing. Assistance has been provided to several ORS producers to optimize their market potential, expand distribution networks, and ensure accuracy of the promotional messages. A major consumer goods company was successfully enlisted to launch a generic handwashing campaign, along with the promotion of its soap, to prevent diarrhea.[4]

Jordan. The main local ORS producer, Al-Hikma, became disenchanted with the sales performance of its ORS despite the mass media campaign funded by UNICEF. In 1989, PRITECH provided short-term technical assistance that helped Al-Hikma revitalize the marketing of its ORS. This was accomplished by refocusing the company's ORS marketing strategy on its usual target audience—physicians and pharmacists—using the company's main marketing resource: its own detailing force. PRITECH helped develop the marketing plan and the detailing material. Now ORS is part of the company's regular detailing program.

Kenya. Due to the 1990 change in government regulations regarding the standard ORS packet size, half of the ORS producers dropped out of the market. In 1991, total production and importation of ORS was about 5 million packets, mostly purchased by donor agencies and distributed by the government. With donor agencies

increasingly reluctant to continue the free supply of ORS, the government wanted to share the burden of supplying and distributing ORS with the commercial sector.

PRITECH assessed the market potential and researched the interest and ability of current and former ORS producers to mass market ORS nationwide. One company, Sterling-Health, stood out among the others for its advantageous capacities in production, quality control, mass distribution, and advertising. In coordination with UNICEF, PRITECH worked to persuade Sterling-Health to re-enter the ORS market. A market research study demonstrated to the company that there was an untapped market, especially in the rural areas, where Sterling-Health has a leading edge. Pooling resources from UNICEF, PRITECH, and Sterling-Health, an exhaustive marketing campaign was designed and advertising concepts pretested. The company is marshalling its resources to meet the anticipated launch of the new ORS brand in July 1993. In addition, PRITECH has worked with a major soap-producing company in East Africa to incorporate handwashing messages in its soap promotion campaign.

Madagascar. In 1988, UNICEF established a production line, Odiva, with an annual capacity of 1 million ORS packets within the government drug distribution facility. UNICEF also supplied the facility with enough free raw material for the estimated production of the first two years. To date, most of the Odiva packets have been channelled through the public health system, which absorbed only 300,000 to 500,000 packets a year. In 1992, with some promotion efforts, the private sector purchased 100,000 packets for sale in pharmacies and nongovernmental health facilities. However, the proceeds from the commercial sales to the private sector were not sufficient to provide Odiva with the financial returns needed to recover the operating costs of its production.

As part of the new policy towards privatization, the government now wants to shift Odiva production to the private sector. In late 1992, PRITECH assessed the commercial market, identified potential players, and developed options that would allow the government to attract the commercial sector, while gradually phasing-out from ORS production. The option selected by the government consists of first implementing an intensive promotional campaign aimed at generating ORS demand

from both retailers and consumers, in order to prime the market and make it more attractive to potential partners.

Mali and Niger. Prior to 1989, ORS was not available outside of public distribution channels in Mali and Niger. In 1989 and 1990, PRITECH provided training and technical assistance to develop commercial marketing capacity within the parastatal pharmaceutical companies that produce ORS. This new marketing function has allowed the parastatals to distribute and promote their ORS more effectively within the small but growing private sector. Areas of marketing assistance included planning, market research, distribution, promotion, merchandising, and sales training.

Mexico. Despite significant progress in ORT awareness, there are large unmet ORS needs mainly among middle- and low-income groups in rural areas. ORS sales in the private sector were dominated by high-priced liquid brands, available mostly in pharmacies in the urban areas. There were no ORS packets in the rural retail outlets. Of the local ORS packet manufacturers who produced for the government tender, none had the capacity to market ORS in any significant way.

PRITECH undertook an exhaustive market analysis to identify potential ORS marketers that could reach the under-served rural areas. In order to measure the market potential and highlight its attractiveness to potential marketers, PRITECH conducted three market research studies on consumers' and shopkeepers' attitudes toward ORS and on ORS price sensitivity. Results of the studies were presented to selected companies, which in turn made their own assessments. This led to a short list of two companies that PRITECH is encouraging to produce ORS.

Pakistan. In Pakistan, PRITECH found a huge ORS production capacity among seven ORS producers, yet latent demand from households was not being met. Over an eighteen-month period, PRITECH helped to develop a national ORS marketing plan (involving seven ORS manufacturers) that identified key issues for harnessing both government and private sector resources in a national CDD effort. PRITECH forged a partnership between the government and the private sector that created incentives for outreach distribution and synergistic advertising efforts. The government agreed to accelerate generic ORS advertising, while the companies, through promotion of their own brands, capitalized on the existing awareness and translated it into product sales. PRITECH stimulated

ORS producers to increase their marketing efforts by upgrading their marketing and selling skills through training workshops. It provided individual technical assistance to the partner companies, helping each one develop a specific marketing plan and a promotion campaign according to its resources.[5]

Zambia. ORS supply, including local ORS production and imported donations, was insufficient to meet annual demand, which was estimated at 8 million packets. In 1991, a local subsidiary of Cadbury-Schweppes, a beverage company with a wide distribution network, produced and launched Oresa, an orange-flavored brand of ORS. Being unfamiliar with marketing health products, the company requested and received assistance from PRITECH on how best to utilize its nationwide consumer goods distribution network to market ORS packets effectively. PRITECH helped develop an appropriate marketing plan and identified the need to implement good manufacturing practices and quality control standards.[6]

Regional Approach

Because the market structure of individual Asian countries was similar but progress in ORS marketing across the region was uneven, PRITECH conducted a regional workshop for selected ORS manufacturers in Asia called "Expanding ORS Marketing to New Horizons." The conference, which was the first international ORS marketing workshop of its kind, brought together senior executives from Asian pharmaceutical companies that produce ORS to discuss current issues and new developments in ORS marketing. Marketing executives from sixteen companies from India, Indonesia, Pakistan, the Philippines, Sri Lanka, and Thailand, representing 15 percent of estimated worldwide ORS production, attended the workshop.

The workshop's objective was to exchange ideas and experiences on new strategies aimed at expanding ORS beyond the usual urban areas. The participants made the most of this unique opportunity by discussing genuine problems, experiences, and ideas with their corporate peers. Many acquired new skills and techniques such as development of rural marketing strategies, while others fine-tuned their existing marketing plans and strategies. Other participants came away assured that their marketing strategies were correct. The participants left the

meeting with renewed enthusiasm and a commitment to increase the use of oral rehydration therapy through improved marketing of ORS.[7]

Impact

Sustainability

The principal benefit of PRITECH's social marketing approach is that the commercial sector activities undertaken will be self-sustainable in the future. PRITECH has not subsidized any product costs or promotion costs except in rare specific cases where initial co-funding is appropriate. The project stimulated companies to invest in new or expanded ORS marketing efforts using their own resources, harnessing their existing marketing and sales capabilities, and reaping the benefits of increased sales. PRITECH's approach has aimed at identifying market opportunities and developing strategies jointly with the companies to exploit these opportunities in the most cost-effective way possible according to each company's resources. The momentum generated by PRITECH is maintained by individual companies and fueled by continued interest from the major donor agencies.

Promotion of ORT, Rather than ORS Alone

Since the PRITECH commercial sector initiative began, the trend toward treating diarrhea with oral rehydration therapy has accelerated in many countries where PRITECH has worked. The companies that have collaborated with PRITECH now promote the correct home treatment for diarrhea, including continued feeding and breastfeeding, instead of just their ORS brand. Often their promotion also includes preventive measures such as hygiene practices and continued breastfeeding.

Easing of Regulatory Constraints

In countries where ORS distribution was limited by regulations to pharmacies only, PRITECH lobbied the drug regulatory authority to remove the product from the restrictive drug list. ORS can now be found in grocery shops in many rural areas where there is no pharmacy.

PRITECH also acted to eliminate disincentives for ORS manufacturing by requesting a tax exemption on

imported ingredients and packaging material from the government finance authorities. This exemption allowed the ORS manufacturers to produce at a lesser cost, thus freeing additional funds for distribution and promotion expenses.

In addition, PRITECH worked closely with national CDD programs to restrict the availability and use of antidiarrheal drugs, especially for pediatric use. Antidiarrheal drugs are useless for treating most childhood diarrhea and can be dangerous as well. Many countries have banned the use of these drugs in government health facilities; some have also extended the ban to sales by the commercial sector.

Expanding ORS Availability through Alternative Distribution Channels

Most ORS manufacturers are pharmaceutical companies used to distributing their drugs through pharmacies. However, pharmacies are seldom located in rural areas, where the need for ORS is considerable. PRITECH has been working with current manufacturers to broaden their distribution networks and to identify additional distribution systems that increase the availability of ORS through a wide range of retail outlets. In some instances, PRITECH acted as a broker between an ORS manufacturer and a consumer goods company to foster a partnership aimed at broadening the distribution and thus the availability of ORS to those who need it.

Lessons Learned

We need to enlist the commercial sector.

The commercial sector is an established force in health care services. Increasingly, with the privatization trend as a means to alleviate the burden from the public sector, the commercial sector is assuming a larger share of health care delivery.

The commercial sector needs guidance.

If left alone, the commercial sector could potentially conflict with the public health policy. Even among well-intentioned ORS producers, promotion of a commercial ORS brand was often incorrect, promoting conflicting practices. Examples abound of ORS promotional material that advised the withdrawal of food during diarrhea,

recommended use of specific infant formulas and bottle-feeding, or legitimized the use of antidiarrheals through copromotion with ORS.

Private sector involvement can take many shapes.

With appropriate guidance, the private sector can be involved not only in marketing of products, but also in health education and promotion of preventive measures.

We can motivate the commercial sector through different means.

There are several ways to motivate commercial companies to get involved in controlling diarrheal disease. Although profit is a major motivating factor, it is not the only one. Enhancing the company image is another powerful motivation, especially with well-established companies. Marketing and helping disseminate a life-saving product for children such as ORS reflects well on the company image. Many decisionmakers are increasingly sensitive to the social environment and want to play the role of good corporate citizens in their communities. Recognition of these good deeds by international organizations or associations can reinforce such behaviors.

A catalyst such as PRITECH is necessary.

To leverage the strengths of the current and potential players, a catalyst, understanding the systems and motivation of each, is needed to sensitize, guide, steer, and mobilize the different resources in a synergistic way. PRITECH has found that a contributing factor for success in mobilizing the commercial sector is the presence of a motivated resident advisor who can provide follow-up to short-term technical assistance and keep the targeted companies interested.

We should ensure the support of opinion leaders and other influentials.

The support of leading physicians and national medical and pediatric associations can be invaluable in encouraging physicians to prescribe ORS.

The image of ORS must be upgraded.

Identification of ORS as a public health product has hindered commercialization. Because of the way in which ORS was introduced to most developing countries, ORS quickly became identified as a public sector product

by the commercial pharmaceutical market. Prospective manufacturers were given exact specifications by the ministry of health or the donor organizations for producing ORS. They then bid on tenders to produce the amounts of ORS needed to operate government programs. Many firms that produced ORS in the developing world therefore did not have the same product control over ORS as they would over a product in their regular product line. Essentially, marketing and distribution decisions for ORS rested in the hands of the public sector. Attempts to mold the image of ORS in the minds of consumers through the mass media also lay in the domain of the public sector.

Competition from antidiarrheal drugs should be addressed.

Current market profiles indicate that commercial ORS faces stiff competition from antidiarrheals, antibiotics, motility inhibitors, and intestinal adsorbents. Many of these products hold leading positions within the marketplaces of developing countries.

Most prescriptions for diarrhea cases include at least one antidiarrheal and one antibacterial. Some prescriptions also include ORS, but few consist only of ORS. When they write prescriptions for diarrhea, private health care professionals may well be influenced by product image (the more medicinal and technically advanced the better), and by their own perceptions of what patients expect (specialized drugs and stopping the diarrhea). Regulatory measures restricting the use of antidiarrheals in children should go in tandem with an educational effort on the benefits of ORT.

In addition, antibiotics and antidiarrheals are commonly sold at a retail price level considerably higher than that of ORS, but which consumers seem willing to pay. The potential profit margin differential between antidiarrheals and ORS favors the former. Another advantage antidiarrheals enjoy is the control and flexibility that manufacturers have in deciding the course of product life. The formulation, package design, brand name, and product image are all variables over which the manufacturers can exercise control. Greater freedom to respond flexibly to market forces is valued by commercial firms.

Companies should not be denied the use of their marketing tools for ORS.

In a competitive environment, companies thrive by identifying a market segment and then increasing their market share in this segment. This technique is called segmentation and targeting. A company can choose to compete in one or in several segments, basing its decision on its own resources and on the market needs. Once the segments have been targeted, the company allocates its resources to the four major elements of the marketing mix: product, price, place, and promotion (the four "P"s), balancing each ingredient according to the market response. ORS should benefit from the application of these marketing tools, if it is to stand any chance of success, and not be controlled in its presentation, price, distribution, and promotion.

Companies should be allowed to differentiate their products.

This is particularly true for over-the-counter pharmaceuticals in which some technical edge (such as the classic "new and improved" claim) can be used to advantage over the competition and win the allegiance of the consumer. The standard, low-tech image that ORS has acquired hampers the ability of commercial ORS suppliers to employ this differential marketing technique. To differentiate their ORS brand and make it more attractive, some manufacturers of commercial ORS have added color and flavorings to the ORS ingredients. Others have toyed with the size, packaging, or presentation form. However, very few have had any coherent product strategy.

The continuing low retail price allowed for commercial ORS constitutes a real marketing constraint.

Conventional marketing guidelines for setting prices for consumer products suggest that prices should do more than just cover production and packaging costs. In addition, price-setting must take into account the price of competing products as well as what price levels may do to product image in the minds of consumers (the higher the price, the better the quality; the lower the price, the lower the quality). Price is often perceived by health planners to be a barrier to ORS use by the poor; thus, price controls serve to keep ORS inexpensive.

Consequently, the greatest potential for making ORS commercially viable in this low-profit environment is to achieve high-volume unit sales. Achieving such high-volume sales is not likely in many developing countries if retail sales are limited to pharmacies and drug seller outlets. Higher volume unit sales might be possible if consumer ORS were distributed and made available as an over-the-counter product in consumer goods shops that sell common, everyday products like matches, soap, or aspirin.

One element of consumer demand for diarrheal products is the desire of caretakers to stop or shorten the diarrheal episode in children.

Suppliers of commercial antidiarrheal products try, in part, to meet that consumer demand. Indeed, stopping diarrhea is a major criterion of consumers in their assessment of the efficacy of diarrheal products. To date, ORS has been unable to meet this aspect of consumer demand. Attempts have been made to convince consumers that ORS is effective and that they should not expect diarrhea episodes to be shortened. Nevertheless, the consumer demand to stop or shorten diarrheal episodes appears to remain a significant unsatisfied need in many developing as well as developed countries. There is a need for product development and research where the public and private sectors can collaborate, for instance by accelerating the research on cereal-based ORS and on other treatment alternatives that have the potential for satisfying this demand.

Notes:
[1] ORT consists of fluid replacement, continued breastfeeding, and feeding.
[2] World Health Organi-zation, "Programme for Control of Diarrhoeal Diseases Eighth Programme Report, 1990-1991," Geneva: WHO, 1992.
[3] Communication and Marketing for Child Survival, a project sponsored by A.I.D., managed by the Academy for Educational Development.
[4] Lucia Ferraz-Tabor, "Mobilizing the Private Sector for Public Health in Indonesia," in this volume.
[5] See Lucia Ferraz-Tabor and William Jansen II, *Forging New Partner-ships: PRITECH's Pakistan Experience*, Arlington,VA, Management Sciences for Health, PRITECH Project, 1991.
[6] See Paul J. Freund, "The Commercialization of ORS in Zambia: Problems, Progress, and Prospects," in this volume.
[7] See Camille Saade and Holly Tucker, *Beyond Pharmacies: New Perspectives in ORS Marketing*, Arlington, VA, Management Sciences for Health, PRITECH Project, 1993.

MOBILIZING THE PRIVATE SECTOR FOR PUBLIC HEALTH IN INDONESIA

By Lucia Ferraz-Tabor

Despite progress made by the national control of diarrheal disease (CDD) program, diarrhea still accounts for about 130,000 deaths of children under five each year in Indonesia.[1] The potential of the private sector, particularly commercial companies, to reduce these deaths has been relatively untapped to date. Sales of oral rehydration salts (ORS) are low compared to those of harmful antidiarrheal drugs, and access to ORS through commercial sales outlets is limited.

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In collaboration with the Indonesian Ministry of Health and USAID/Jakarta, the PRITECH Project developed a program to tap the potential of Indonesia's dynamic commercial sector. The program was designed to complement the government's efforts to reduce childhood mortality and morbidity due to diarrhea by developing and implementing a sustainable approach through the commercial sector.

PRITECH wanted to make the private sector activities as self-sufficient as possible, by motivating commercial firms to invest the bulk of all capital required for the commercialization of ORS. Self-sufficiency would optimize the chances for post-program continuation and minimize the possibility of fostering donor dependence. The project also intended to develop a replicable approach for maximizing the role of the private sector in diarrheal disease control and other public health programs in more advanced developing countries like Indonesia.

Lack of Commercial Sector Promotion of ORS

Since 1980, Indonesia's CDD program has distributed ORS and accompanying promotional and educational messages through its provincial health departments. By 1991, ORS was well known among Indonesians, but commercial sales of the product were very low. While ORS was available through public health centers, over 30 percent of the ORS available in the public sector was purchased by UNICEF, which plans to stop providing ORS nationwide in Indonesia in 1994. Thus, the public supply of ORS will be reduced, which, coupled with the lack of commercially available ORS, will have a negative impact on the treatment of diarrhea in the

home. Low sales were due to several factors: the lack of ORS promotion by its producers, unavailability of ORS in retail shops, and the negative image of ORS on the part of the public.

Supply Factors

Prior to the collaborative effort among the commercial sector, the government, and PRITECH, pharmaceutical companies had been very effective in promoting other products (some of them potentially harmful, such as antidiarrheal drugs and infant formula) but did not put any resources or effort into the promotion of ORS. Producers did not allocate funds for promotion of ORS nor did they detail—that is, have their salespeople explain the use and importance of—ORS to physicians or other dispensers. Most ORS producers interviewed by this writer prior to the initiation of PRITECH's effort stated that ORS was a "low-tech" product for low-income people. They did not believe that ORS was worthy of investment of money, energy, or time because "ORS is the responsibility of the government, not a commercial product."

Although there were twenty-seven companies licensed to produce ORS, only seven companies actually produced it. Commercial sales of ORS were estimated to be about 1,050,000 packets annually; however, more than two-thirds of commercial production was sold to the government or UNICEF. Companies believed that there was no commercial market for ORS and that the government alone could meet the public need for it. Overall, ORS represented a small percentage of sales by the companies producing it: under 5 percent and, in most cases, less than 1 percent of their total sales. Thus, ORS was one of the lowest priority products for the existing producers.

In general, ORS producers were not promoting ORS, except on rare occasions; a few producers, for instance, detailed ORS in limited areas during cholera outbreaks. The very few promotional materials some producers had were either old, of very limited availability, unused, or limited to promoting the company's ORS brand. No ORS producer used printed or point-of-sale materials to promote ORS.

In addition, ORS producers did not promote breastfeeding and feeding with ORS, which are critical elements in the correct treatment of diarrhea. This omission rep-

resented a missed opportunity to disseminate information about correct case management to physicians and parents.

Although ORS is a general public drug, meaning that it could be sold in all sales outlets, it was actually available almost exclusively in pharmaceutical outlets. A retail survey showed that only 7 percent of small shops sold ORS.[2] Yet most Indonesians purchased goods from these small shops. Thus, access to this life-saving product was limited to a very small segment of the population. On the other hand, antidiarrheal drugs and antibiotics sold well and seemed to be easily available even in small shops, despite the fact that they cost more than ORS and, in some cases, were supposed to be sold by prescription only.

Demand Factors

As in most countries, ORS in Indonesia is positioned as a low-cost, low-tech product for low-income people—a market positioning that may have defeated any efforts to promote it. This "only-for-the-poor" and "just-sugar-salt" image seemed to undermine potential interest in ORS. In consequence, pharmaceutical companies manufactured ORS mostly for government tender, few physicians prescribed it, and few parents bought it. Data on drug prescriptions and use showed that antidiarrheal drugs and antibiotics were prescribed and used far more frequently than ORS. Parents did spend money to treat their children with diarrhea—but little for ORS.

The low-income positioning also resulted in very few upper-class mothers using ORS.[3] And because the poorer classes want the best for their children and associate "the best" with products purchased by the upper classes, the poor families may have been discouraged from using ORS. Finally, the low-income positioning may also explain the lack of "clout" of ORS with physicians, who seldom prescribed it.

Raising Interest in ORS

The results from the situation analysis highlighted areas for improvement, as well as conditions for effective change.

Conditions for Change

Before deciding to collaborate with the commercial sector, PRITECH determined that the necessary conditions for change were present. These conditions included the size of the potential ORS market, adequate demand, and adequate production capacity.

Potential market for ORS

In Indonesia, there is a potentially enormous market for ORS. According to government data, the incidence of diarrhea ranges between 120 and 360 cases per 1,000 people per year, and 60 to 70 percent of cases occur among children under age five, who have an average of two diarrhea episodes per year. The theoretical market for ORS could be as large as 197 million liters of ORS, or 985 million packets (200 ml).

In addition, the government had recently banned all antimotility and most antidiarrheal drugs, leaving a vacuum in the market. If the ORS producers worked quickly enough, they could take advantage of the vacuum by positioning oral rehydration treatment as the first-line treatment for children with diarrhea.

UNICEF's withdrawal from tendering ORS for the government would also increase the potential commercial market for ORS.

Demand

Awareness of Oralit, the public-sector brand of ORS, seemed to be very high. The national survey conducted by the Ministry of Health in 1990 showed 80 percent awareness.[4] A recent survey in Jakarta showed even higher awareness: 97 percent of all classes and 100 percent of the highest income classes had heard of ORS.[5] Actual use in the community, however, was substantially lower. According to the national survey, the percentage of those who had ever used ORS ranged from 16 percent in the less-developed provinces to 25 percent in the most developed provinces, with an average of 20 percent. The Jakarta survey showed higher use rates: 65 percent of those surveyed said they had used ORS. The lowest use rates were for mothers in the wealthiest income group, of whom only 30 percent had ever used ORS, followed by the poorest group, with 50 percent. About 70 percent of all other classes used ORS.

A survey of shopkeepers in retail shops, drugstores, and pharmacies in Jakarta was also conducted.[6] Although most shopkeepers recommended drugs rather than ORS for diarrhea in general, when the question was narrowed to children with diarrhea, over 90 percent mentioned ORS, compared with about 55 percent who mentioned drugs. However, qualitative research by researchers, posing as mothers who actually asked for recommendations for diarrhea for their children, showed much higher recommendations of antidiarrheal drugs and antibiotics. At any rate, 95 percent of shopkeepers stated that ORS was a popular product. This figure indicates that there was at least some demand for ORS that had not been met, probably because it was not available in outlets most frequently used by consumers.

Adequate production capacity

Indonesia has a thriving commercial sector that successfully reaches a large portion of the population with consumer products and traditional and prescription medicines. There was enough production capacity in the country—over 70 percent of it in the commercial sector—to meet the potential demand for ORS.

Previous collaborative efforts

By 1992, the national CDD program had already conducted social marketing campaigns for ORS, in one case in collaboration with P.T. Pharos, an ORS producer. These efforts demonstrated that the private sector was willing to participate and could be enlisted to contribute to social campaigns in Indonesia. For instance, a USAID project with the Ministry of Health used social marketing to increase access to ORS in demonstration areas in West Java. This project combined a massive generic mass media campaign with interpersonal efforts by government health teams and a commercial ORS producer. UNICEF had also conducted distribution efforts, although they did not include commercial companies.

Recent efforts to stimulate the demand for ORS included a mass media campaign about oral rehydration therapy conducted by the Indonesian advertising council and the Program for Appropiate Technology in Health in collaboration with the private sector. In this campaign, advertising agencies developed television spots, market research companies pretested them, and television and

radio stations contributed free air time. PRITECH saw the potential of continuing and increasing this effort.

Areas for Improvement

Expanding distribution

Most ORS producers had one or more distributors, who limited their distribution to pharmacies, rendering ORS difficult to obtain in retail stores. Several factors contributed to the lack of availability of ORS outside pharmacies. First, small shops often obtained drugs such as ORS from drugstores, instead of from wholesalers, which may make the product more expensive. Adding to the lack of interest in ORS, the length of the distribution pipeline made it difficult for companies to monitor product distribution. Thus, they could not answer questions about the type, number, or locations of outlets where their ORS was distributed.

The low availability of ORS in retail outlets and the high awareness of the product as well as the statement by shopkeepers that ORS was a popular product, supported the hypothesis that the lack of availability of ORS was a key factor in the low rates of ORS use. PRITECH used this information to motivate ORS producers to broaden their distribution networks.

Promoting correct case management of diarrhea

Improving the quality of care of children with diarrhea was even more important than making ORS accessible to parents who needed it. To date, the most effective continuing drug education of physicians had come from the detailers of drug companies who introduced and explained to doctors how to use their products. Thus, one of the most cost-effective approaches to improve case management was to convince ORS producers to include messages about breastfeeding and feeding when detailing their brand of ORS.

To accomplish this, PRITECH summarized research that showed that, when given with breastmilk or food (particularly starches), ORS reduced stool output more than any drug currently in the market. The research findings stimulated ORS producers to explore the possibility of positioning ORS with breast milk and food.

To expand the distribution of ORS and promote the case management of diarrhea, PRITECH developed a program to work with commercial companies to:

- Increase ORS production and sales by the commercial sector, broadening distribution of ORS from mostly pharmaceutical to consumer outlets;
- Motivate ORS producers and marketers to promote breastfeeding and food along with ORS; and
- Promote at least one preventive strategy, such as handwashing, through the commercial sector.

Coordination with Commercial Companies

PRITECH approached commercial companies with the ORS survey research, to convince them of the opportunities and benefits offered by the ORS market. The project emphasized the substantial gap between awareness and use, which could be turned into demand. PRITECH also emphasized ORS distribution as one of the key areas in which to concentrate.

PRITECH acted as a catalyst for helping private companies begin promotion. Specific activities undertaken by PRITECH included:

- Promoting interaction among private sector companies and groups and between public and private sectors through meetings, seminars, workshops and frequent informal contacts.
- Maintaining a continual flow of information to keep all ORS producers updated on relevant technical and marketing information.
- Disseminating results of market research to the private sector to provide information that enabled ORS marketers to refine, improve, or change marketing approaches.
- Initiating and facilitating working relationships between professional associations—particularly the medical association—and ORS and soap producers and marketers.
- Working with interested companies to develop a generic plan for marketing ORS in Indonesia, including promotion of oral rehydration therapy.
- Providing technical assistance to producers and marketers with brand-specific marketing plans and pro-

motion of ORS and other products related to diarrhea, such as soaps for handwashing.

- Mobilizing private sector resources to support promotion of the government's key objectives for the CDD program, particularly oral rehydration therapy and preventive measures (such as handwashing and breastfeeding). This effort built upon the existing collaborative effort between the Ministry of Health and local or international nongovernmental organizations.

Marketing Workshops

The first, and perhaps most important, activity of the project was a joint seminar with the Indonesian drug regulatory agency and the Ministry of Health. A positive relationship with the drug regulatory agency is one of the highest priorities of the pharmaceutical industry. In addition, the national CDD program manager urged ORS producers to join the national effort.

In July 1992, PRITECH/Washington held a marketing conference for Asian ORS producers in Singapore, which several Indonesian firms attended.[7] The conference, which was the first international ORS marketing workshop of its kind, brought together senior executives from Asian pharmaceutical companies that produce ORS to discuss current issues and new developments in ORS marketing. It provided a forum for the cross-fertilization of marketing ideas among the participating companies. Several companies presented successful marketing strategies they had used for reaching rural populations, traditionally the hardest population to reach with ORS. Others displayed innovative ORS advertising materials aimed at physicians, pharmacists, shopkeepers, and consumers.

Participants learned from each other's experiences that ORS can be a profitable product, and that it is desirable to work in partnership with the government and nonprofit sectors to promote public health objectives.

Later that month, PRITECH/Indonesia conducted an Advanced Marketing Workshop for ORS producers in Indonesia. The purpose of the workshop was to enhance the capabilities of ORS producers to increase ORS production, broaden distribution, and promote oral rehydration therapy. Participants included marketing directors of several ORS manufacturing firms, as well as

representatives from the drug regulatory agency, the national CDD program, WHO, and UNICEF.

The workshop began with a series of presentations that updated the participating companies on current diarrhea treatment guidelines and the activities of the government and major donors in promoting oral rehydration therapy. The workshop's highlight, however, consisted of a participatory exercise in which the participants developed a strategic marketing plan for ORS in a simulated case study emulating the market situation in Indonesia. Samples of marketing materials from other countries were also available to provide examples of proven techniques that the Indonesians could try.

By the end of the workshops, participants appeared to agree that the ORS market held considerable promise for their companies and were motivated to increase ORS marketing activity. In addition, the workshop offered the companies the opportunity to network with each other, the government, and other agencies and to explore ways of complementing the government's CDD efforts.

Collaboration with the Indonesian Medical Association

Most doctors in Indonesia belong to the Indonesian medical association, which is, next to detailing, the only vehicle for reaching private practitioners nationwide in Indonesia. The association has chapters thoughout Indonesia that meet once a month. It also sponsors seminars and training for its members for which participants are given credits. Early in the program, PRITECH obtained the commitment of the association to add management of diarrhea to its training programs. The association also agreed to collaborate with PRITECH and several other private sector groups on a generic handwashing campaign. Other planned activities include development of a training video and module on diarrheal disease treatment to be used by the association's chapters, circulation of posters and desk reference materials for physicians through the association's publication, and publication of *Dialogue on Diarrhoea* with partial funding by commercial firms and PRITECH.

Handwashing campaign poster.

HANDWASHING CAMPAIGN

PRITECH initiated a collaborative effort to promote handwashing with Unilever (Indonesia's major soap producer), Lintas Advertising Agency, the Indonesian medical association, and the advertising council. To convince Unilever to promote soap for handwashing, the PRITECH field representative offered international studies and local market research demonstrating that washing hands with soap could reduce the incidence of diarrhea by as much as 30 percent. The local market research showed that 90 percent washed hands with soap after eating, but fewer than 10 percent used soap before eating. With a 50 percent share of the soap market in Indonesia, Unilever had much to gain financially from sponsoring a generic handwashing campaign aimed at increasing the use of soap. PRITECH's role was to initiate the effort and to serve as a member of the team that developed the campaign.

The handwashing campaign, funded by Unilever, is underway. A corporate advertisement about Lifebuoy soap for handwashing is being telecast and paid for by Unilever. In addition, a public service announcement about handwashing to prevent diarrhea was telecast in May 1993. The advertising council has obtained free media placement on the three television stations.

A handwashing poster for school children developed in collaboration with the Indonesian medical association was distributed to schools throughout Indonesia and is being used as part of a health education effort in 1,000 schools in Jakarta by a local foundation, the Yayasan Kusuma Buana. A poster for physicians was distributed by the medical association to its members through its chapters. Radio spots are expected to be broadcast in mid-1993.

Impact of the Program

Although the program began just one year ago, PRITECH has seen the short-term effects, including increased ORS sales and sustainable collaboration among local institutions. For the first time, the Indonesian CDD annual plan includes commercial sector activities. PRITECH has successfully obtained support for private—including commercial—sector activities from three key departments within the Ministry of Health: the national CDD program, the drug regulatory agency, and the community health education unit. All three have supported and participated in the PRITECH-initiated activities. PRITECH is perceived as a resource by relevant departments within the Ministry of Health, which have requested PRITECH's collaboration in numerous activities.

Most of the efforts focused on motivating ORS and soap producers to use their own resources to promote ORS, breastfeeding and food, and soap for handwashing to prevent diseases, particularly diarrhea. PRITECH's work with commercial companies also shows encouraging results. Thus far, several ORS producers have begun to increase or show willingness to allocate additional resources to ORS production, distribution, or promotion. Although PRITECH cannot claim that sales increases are solely due to the PRITECH effort, sales of ORS have shown an increase. Unit (standard 200 ml) sales increased by 20 percent, from 6,926,300 packets in 1991 to 8,285,200 in 1992. Values increased by 26 percent, from 1,244,700 to 1,565,900 rupiahs. The market share of ORS in the diarrheal drug market also increased from 9 percent in 1991 to 12 percent in 1992.

In addition, several ORS producers have agreed to promote ORS along with breast milk and food, and two—Abbott and P.T. Pharos—have begun promotion with key messages developed by PRITECH. Also, PRITECH formed a private sector partnership to develop and sponsor the handwashing campaign.

Another critical component of the PRITECH effort was an increase in the generic promotion of oral rehydration therapy and handwashing. This was one of the best ways of convincing ORS and soap producers to invest in brand-specific promotion. Once producers realized that generic promotion would increase general demand for a product, they were more likely to increase efforts to promote their own brands.

However, it was the Ministry of Health that brought these groups together. During a national meeting to discuss the national CDD plan, the head of the contagious diseases unit of the Ministry of Health (under which diarrheal disease falls) suggested that PRITECH initiate a multi-sectoral group, including the commercial sector, to work on diarrheal diseases. ORS producers participating in a commercial sector marketing seminar had made a similar suggestion. Thus, with governmental and private sector support, PRITECH started the group.

UNICEF thought of a name for the group: *Kelompok Kerjasama untuk Promosi Anak Sehat* (Working Group for Promotion of Child Health). Members include representatives of the government, private and commercial firms, nongovernmental organizations, and international agencies. During the first meeting, participants made presentations of their activities related to diarrheal diseases. They focused on sharing information about who is doing what and providing a forum for government/private sector interaction. The group has formed subgroups to work on various activities.

Lessons Learned

The PRITECH strategy of enlisting the commercial sector to promote ORS was tested and implemented in Pakistan.[8] PRITECH's experience in developing this approach in Pakistan and replicating it in Indonesia leads to the following conclusions.

It would be possible to replicate this model successfully in countries where the following conditions are met:

- Existence of an active commercial sector,
- A competitive environment consisting of multiple ORS producers,
- Presence of commercial soap producers,
- Fairly high public awareness of ORS (at least 50 percent),
- Insufficient government supplies of ORS, leading to the need to find alternative methods of obtaining and distributing ORS.

For the model to work, the following groups must be involved from the beginning:

The government. The critical importance of government involvement cannot be overemphasized. Perhaps

PRITECH's most important role has been that of liaison between the government and commercial sectors. The contribution PRITECH made was the linkage, coordination, and opening of dialogue between the government and commercial sectors. Commercial companies depend on the government to a large extent; the government can make or break a pharmaceutical company through regulations. The most important part of the government as far as the pharmaceutical industry is concerned is the drug regulatory agency. It is critical to involve the drug agency from the beginning of the effort.

Commercial firms are also interested in supporting the CDD and health education divisions of the government, which are in charge of policy and communication, including the mass media. The government must be highly involved initially and gradually decrease its involvement as the commercial sector interest and commitment increases. Government commitment to commercial sector involvement in ORS production, distribution, and promotion increases the support of the commercial sector and ensures supportive policies and regulations, including those that will ultimately reduce government involvement in ORS purchase and distribution.

Medical and pediatric associations. Pharmaceutical companies are usually willing to invest a lot of time, money, and effort to please these groups. If the medical association in the country emphatically endorses oral rehydration therapy, calls on producers to detail ORS to physicians, and collaborates in meetings and seminars, pharmaceutical companies will have a strong incentive to promote ORS.

The World Health Organization and UNICEF. WHO and UNICEF support is very important to the success of ORS commercial efforts. Strong support for ORS by highly respected organizations such as WHO and UNICEF motivate a company to produce and market ORS as well.

Groups that can promote oral rehydration therapy. Well-developed and appealing generic, particularly mass media, promotion of oral rehydration therapy by the communication or health education department of the government, UNICEF, advertising associations, or similar groups, can motivate ORS producers to invest in ORS promotion efforts. It is easier to convert existing awareness into demand for the product than to start from scratch.

Opinion leaders in the medical community. Support and prescription by leading physicians are very important and should not be neglected. Often health promoters in the public sector miss an opportunity by bypassing the doctor and going directly to the community. All drugs that are household drugs (such as aspirin) were, and often still are, widely prescribed by physicians. It is through prescriptions that drugs acquire credibility with physicians, pharmacists, shopkeepers, and consumers.

The image of ORS must be improved.

If ORS is to become attractive to the commercial sector and to consumers, its image needs to be changed. In most countries ORS has been positioned as sugar-salt powder, a low-tech home medicine, most often used by poor village mothers to treat malnourished, dehydrated babies. ORS should be positioned as a modern, scientific, and doctor-recommended drug.

The work of the public and commercial sectors can be complementary.

The best government-sponsored public health campaigns are developed by advertising and marketing agencies under contract with the government and by nonprofit groups such as advertising councils. ORS producers can be convinced that it is in their best interest to promote ORS correctly along with breast milk and food. The advantage of the commercial sector is that it can reach segments that the government cannot reach.

As countries develop, the role of governments becomes one of managing resources to accomplish public health objectives in the most efficient manner. Most health care costs such as ORS, can be borne by members of society who can afford them. Government is then left with the task and obligation of dispensing free health care, including ORS, to the poorest segment of the population.

Notes:
[1] Data from Departmen Kesematan, P2M.
[2] Survey Research Indonesia data.
[3] Survey Research Indonesia data.
[4] Data from Departmen Kesehatan, P2M.
[5] Survey Research Indonesia data.
[6] Survey Research Indonesia data for PATH.
[7] Camille Saade and Holly Tucker, *Beyond Pharmacies: New Perspectives in ORS Marketing*, Management Sciences for Health PRITECH Project, 1993.
[8] For more information about PRITECH's Pakistan efforts, see Lucia Ferraz-Tabor and William H. Jansen II, *Forging New Partnerships: PRITECH's Pakistan Experience*, Arlington, VA, Management Sciences for Health PRITECH Project, 1991.

COMMERCIALIZATION OF ORS IN ZAMBIA: PROBLEMS, PROGRESS, AND PROSPECTS

by Paul J. Freund

Paul J. Freund is the Zambia Country representative.

The Zambian national control of diarrheal diseases (CDD) program began in 1986 with the appointment of a CDD program manager, deputy program manager, CDD secretariat, and establishment of a National CDD Coordinating Committee. PRITECH also began involvement in Zambia in 1986 with the appointment of a full-time representative. The range of CDD program activities includes policy, planning, training, supervision, educational materials and social mobilization, production and distribution of oral rehydration salts, program monitoring and evaluation, and program integration.

Significant progress has been made in each of the major CDD program components in spite of severe economic constraints, shortages of personnel, lack of transport, drought, and epidemics of cholera and dysentery.

Since the beginning of the CDD program, provision of oral rehydration salts (ORS) and promotion of oral rehydration therapy have been high-priority goals. In 1986, the Ministry of Health made an important policy decision by banning the use of antidiarrheals in the public health sector. However, antidiarrheals are still available from retail chemists and compete with ORS. At the same time, the CDD program began intensive efforts to increase awareness of ORS and oral rehydration therapy through production of educational materials, radio and television spots, and popular theater performances. An extensive training program to improve case management of diarrhea was also developed. In 1989, the CDD program identified the establishment of oral rehydration corners[1] in all health centers throughout the country as a priority. Since that time kits for oral rehydration therapy corners have been distributed, and training activities continued. Given these priorities and goals it is crucial that ORS always be available and widely distributed.

Although it is likely that user fees and community financing schemes will be implemented under the new government's health policy reforms, ORS will probably continue to be distributed free of charge to the public sector. Even if cost-recovery mechanisms are implemented, however, the government will have to explore as many alternatives as possible to ensure the effective distribution of drugs and delivery of services. One such alterna-

tive is the encouragement of private sector enterprises to become involved in the manufacture of essential drugs, including ORS.

The Need for a Sustained Supply of ORS

The availability and effective distribution of ORS is an essential component of any CDD program. In order for other CDD intervention efforts to have maximum impact, ORS must be readily available without stockouts. However, ORS availability and distribution remain problematic issues in the Zambia CDD program. There are two main problems: first, the supply of ORS is insufficient; second, it is not sustainable.

Demand

The estimated theoretical annual demand for ORS is 8.1 million packets based on results of the 1986 national CDD baseline survey, which found that the number of episodes of diarrhea was 5.1 per child under age five (multiplied by 1.6 million children under age five). This figure assumes a negligible use of sugar-salt solution, a steady diarrhea incidence rate, and only one packet per episode, rather than the recommended two packets per child per episode.

The current use rate per month is 200 packets in rural health centers, 300 to 500 in urban clinics, 1,000 in district hospitals, and 5,000 in central or specialty hospitals. Use by community health workers has been very low—50 packets a month—due to insufficient supplies at rural health centers, which supply community health workers.

Supply

There are several sources of ORS in Zambia, including outside donors, parastatal companies, and nongovernmental organizations. The most important source has been outside donors. UNICEF has supplied an average of 500,000 packets a year of ORS since 1984 and has gradually increased supplies to 750,000 to meet cholera epidemic needs and drought-affected area requirements. In addition, since 1985, the Swedish and Dutch governments have been supplying ORS in essential drug kits to all forty-five rural districts in Zambia, which provides

approximately 55 percent of Zambia's total essential drug requirement.

The second source of ORS supply comes from a parastatal company, General Pharmaceuticals Limited, established in 1985. General Pharmaceuticals produces the *Madzi-a-Moyo* brand of ORS and intravenous fluids for the Ministry of Health. The company has had numerous production problems occasioned by a lack of foreign exchange to purchase raw materials. UNICEF and PRITECH have provided free raw materials to General Pharmaceuticals, as well as packaging materials and advertising support. The company's production capacity has been low, averaging 1 million packets per year. In addition, even with donated raw materials the ex-factory price per packet was higher than imported supplies. General Pharmaceuticals is currently up for sale as part of the new government's privatization policy and may well be sold to a private pharmaceutical firm.

Medical Stores Limited is a parastatal that purchases, stores, and distributes drugs for the Ministry of Health. It is a modern, efficient operation with sufficient transport available to ensure adequate distribution of drugs. Medical Stores has purchased ORS from General Pharmaceuticals when a competitive price has been agreed upon; however, due to the higher cost of *Madzi-a-Moyo*, Medical Stores has tended to rely on imported supplies. Because the essential drugs program covers the rural districts, Medical Stores only provides for the urban line-of-rail towns and cities, including district hospitals, provincial and central hospitals, and the University Teaching Hospital in Lusaka. Medical Stores also distributes drug kits that contain ORS to urban clinics and district hospitals, albeit in far fewer quantities than the required amounts.

Smaller amounts of ORS available to the public sector come from such sources as the Red Cross, Lutheran World Federation, the Jaycees, the Young Women's Christian Association, and donations from various church-mission organizations. The total amount from these sources averages less than half a million packets annually.

Encouraging Private ORS Producers

Because of the difficulties experienced by public sector suppliers and the impending termination of donor-

supported projects, it is important that the private sector play a larger role in ORS supply and distribution. The prospects for private sector production are good, given the new government's privatization policy; three private companies have recently entered or plan to enter the ORS market.

The first private sector company to make ORS in Zambia was Interchem, which produced a one-liter foil packet in 1987. Interchem production was low, averaging 300,000 packets per year, and was largely sold to the copper mine-operated hospitals and retail chemists. Interchem received technical support from the Program for Appropriate Technology in Health to help develop marketing and promotional materials and was geared to launch a campaign for ORS when its production equipment broke down in 1989. Since that time, Interchem has been attempting to repair the equipment without success. However, the company has recently received approval from its board of directors to purchase new equipment, and plans to resume ORS production later in 1993.

Oresa promotional poster.

A second company is Cadbury Schweppes, a soft drink manufacturer that operates under franchise from Cadbury London. Cadbury's involvement in ORS came about through a personal experience of the general manager, whose own daughter had a bout of diarrhea. The daughter had been offered *Madzi-a-Moyo* ORS and had refused to drink it until orange juice was added. The experience led the general manager to pursue the idea of producing an orange-flavored ORS. He had been trained as a chemist and believed that the company had the technical capacity to produce ORS using existing equipment. He therefore had discussions with the director of Pharmaceutical Services and the chairman of the Food and Drugs Board regarding the formulation. The Food and Drugs Board initially had reservations regarding the flavoring but eventually approved the ORS as a general sale product that can be sold in non-pharmacy outlets. The

general manager had also contacted pediatricians at the University Teaching Hospital to carry out an acceptability study of the product by children with diarrhea attending the diarrhea training unit.

Cadbury Schweppes decided to call its new ORS "Oresa." The 250 ml packet size conformed to the recommended World Health Organization (WHO) formulation, with the addition of orange flavoring and coloring. The company developed a logo and some advertising materials, mostly posters and banners. Up until the time the product appeared on the market, neither the national CDD program nor PRITECH was directly involved. However, as soon as Oresa appeared in retail pharmacies, the PRITECH representative notified the CDD program manager and contacted Cadbury Schweppes.

The CDD program expressed concern over the 250 ml packet size, which might present confusion as to proper mixing because the CDD program was promoting one-liter packets. There was also the concern that users would purchase only one or two packets (500 ml) believing it would be sufficient for treatment.

The issue of orange flavoring was discussed in a meeting with the CDD program, WHO, PRITECH, and UNICEF, who agreed that it did not compromise program policy as long the WHO-recommended formula ingredients were used. The PRITECH representative then discussed the Oresa possibilities with the assistant director of medical services and the permanent secretary in the Ministry of Health. Both agreed that Oresa had advantages in that it used mostly locally available ingredients (sodium chloride, sucrose, and sodium bicarbonate), which would conserve foreign exchange. They also liked the idea of the wide distribution network available to Cadbury, which would make ORS more available in remote areas.

Cadbury continued discussions with the Ministry of Health and decided to ask the minister of state for health to launch the product officially in September 1991. The launching took place and was well attended by the Ministry of Health, private physicians, pharmacists, WHO, UNICEF, and PRITECH.

In October, the PRITECH representative suggested to Cadbury the possibility of using social marketing experts to assist Cadbury in assessing the current market, to determine the market potential and outline a marketing campaign.

In January 1992, two PRITECH marketing specialists arrived in Zambia to assist Cadbury's staff to develop a marketing plan. They discussed the possibilities regarding Cadbury's resources and suggested strategies for promotion of the product. However, they also raised concerns about the production and quality control procedures of Oresa. They recommended independent testing to verify the quality of the product. In addition, they visited other private pharmaceutical companies to discuss their plans for ORS production.

In April, PRITECH received the quality test results of a sample of Oresa packets sent for testing. Unfortunately, six of the eight packets tested failed the quality control test. The results indicated that there was a problem both in terms of mixing (composition) and filling (weight). Although the packets were not dangerous or toxic, there was a serious quality control problem that required immediate action. The results of the tests were shared with the Cadbury general manager and managing director by the PRITECH representative, and both managers agreed to look at the matter seriously and take steps to rectify the problem. The managing director agreed that further production should stop. A survey of available stock in retail pharmacies revealed that most of the Oresa packets had already been sold. The recommendations discussed with the managing director included the purchase of new mixing and dispensing equipment, batch numbering, quarantining of manufactured stock with sample testing, monitoring of the production process, and a clean environment. The possibility of using the well-equipped Medical Stores laboratory for quality control was also discussed.

Cadbury's management was generally appreciative of the technical advice in spite of the results and was serious about implementing the necessary changes. The managing director had already obtained a stamping machine for batch numbering and had obtained brochures on new mixing and filling machines. Moreover, he suggested that the ORS operation be relocated at Cadbury's Copperbelt plant where more space was available.

While the initial enthusiasm for Cadbury's involvement in ORS manufacture has been dampened by the poor quality control results, the technical problems can be solved. If Cadbury can provide a new manufacturing area with new machines, close monitoring, good quality control, and training of workers then they should be encour-

aged to continue. The problems that they have experienced have come about because they did not seek technical advice before beginning production and had no previous experience in manufacturing a pharmaceutical product.

Clearly, Cadbury saw a market need for a flavored ORS. And judging by the 200,000 packets they sold in the first few months of marketing, there is a sizeable market potential among retailers, private physicians, and health facilities operated by mines. However, if Cadbury is serious about marketing ORS, they will have to abide by good manufacturing practices and institute strict quality control procedures.

Gamma, another private pharmaceutical company that currently manufactures a wide range of products, plans to begin producing a one-liter orange-flavored ORS in early 1993. The company is constructing new state-of-the-art buildings on its Copperbelt-based facility and has already placed orders for the ORS equipment. Gamma has well-equipped laboratories and the necessary experience and personnel to ensure a high-quality product. The company already sells pharmaceuticals to the mines and private physicians throughout the country, as well as exporting to neighboring countries.

Impact

Encouragement of private sector initiatives is a recent development in Zambia, beginning with the advent of a new government in October 1991. The avowed policy of the Movement for Multi Party Democracy was to liberalize the economy, privatize parastatal companies, and allow free market forces to reign. Although it is too early to judge the impact of these changes the government has moved quickly to remove all impediments to investment. In the health sector, the Ministry of Health has liberalized drug tender procedures, allowing Interchem to bid for and win an open tender to supply community health worker kits (including ORS). The removal of restrictive drug import regulations and the 100 percent foreign exchange retention scheme has encouraged local pharmaceutical firms to begin manufacturing more drugs. Moreover, the more open, competitive, and enabling environment has led to more advertising by private sector companies.

Another measure of impact is the consumer demand of Oresa during the time that it was on the market. This demand has kept other producers' interest in ORS pro-

duction alive. Interchem and Gamma have both purchased ORS equipment and plan production by mid-1993.

Finally, the experience with Cadbury has meant that the CDD program will play a more active role in collaborating with the private sector.

Lessons Learned

The experience with General Pharmaceuticals has demonstrated the importance of having a CDD program in place that is actively promoting ORS before establishing local production.

The issue of the standardized 750 ml size versus one-liter size packet has created serious problems for the CDD program since 1986. A recent household case management survey found that 30 percent of the errors in mixing ORS were due to mixing a one-liter packet in a 750 ml bottle.

The decision to produce 750 ml packets was based on inadequate research before a CDD program was in place.

There is a potential market for other ORS products in Zambia.

Sales of the flavored, higher-priced Cadbury Schweppes ORS demonstrate this potential. Even in countries where people have little disposable income, a market exists for a variety of ORS products.

Actual and potential private sector producers should be assisted with technical advice and marketing to ensure that messages to consumers are consistent with CDD program goals.

The CDD program staff now regularly monitors the activities of potential producers, such as Gamma and Interchem, to offer technical assistance. These evaluations are discussed at essential drug task force meetings.

A food manufacturing firm may be able to distribute and promote a pharmaceutical product like ORS, but may not be appropriate to produce such a product.

Despite the advantages Cadbury Schweppes may enjoy in terms of wide distribution network and advertising, it is not simply a matter of adapting or converting a food production line to ORS. If food manufacturers wish to produce ORS, they need to provide a clean envi-

ronment, follow good manufacturing practices, and institute strict quality control procedures.

One of the dangers of a more liberalized economy and import regulations is the importation of useless and irrational drugs, including antidiarrheals.

The Ministry of Health is concerned with the quality of drugs imported and has set up testing procedures for these drugs. The number of local manufacturers has increased and there are already new antidiarrheal mixtures appearing in retail shops. This situation should be monitored closely. The CDD program has plans to work with the National Pharmaceutical Association and the Zambia Pediatric Association to eliminate or restrict antidiarrheals from the market.

Future Prospects

The prospects for continued private sector involvement in ORS are promising, given the present government's steps to liberalize tender procedures and other restrictive legislation. The potential market for private sector producers is also good, particularly if they follow good manufacturing practices and implement strict quality control procedures that will enable them to sell to the public sector as well. Encouraging private sector producers will reduce the drain on scarce foreign exchange for imported drugs. Private producers also have budgets that allow for the promotion and advertising of their products, a luxury that the public sector does not enjoy. Private sector promotion of ORS should benefit the CDD program, which depends on the widespread awareness and promotion of ORS.

At the same time, the CDD program will continue to find ways to improve ORS distribution in the public health system. The program will explore alternative distribution networks and expand the range of ORS providers through improving supply to community health workers and using traditional healers to promote oral rehydration therapy and ORS.

The new emphasis on the private sector in Zambia presents challenging and exciting possibilities for the CDD program.

Notes:
[1]An oral rehydration corner is a special area in a health facility that is arranged for providing oral rehydration therapy. A conveniently located and adequately equipped corner will help staff to manage dehydrated cases more easily.

THE PRITECH-PROCOSI COLLABORATION: WORKING WITH A PVO CONSORTIUM IN BOLIVIA

Ana Maria Aguilar and Peter L. Spain

In August 1985, PRITECH initiated activities in Bolivia. The PRITECH mandate was to provide technical assistance to a nationwide child survival education project implemented by a national private voluntary organization (PVO)—Caritas Boliviana. The joint A.I.D./Washington and USAID/La Paz project aimed to reduce infant and child mortality by introducing oral rehydration therapy and child-growth monitoring to the members of 1,800 rural mothers' clubs.

Ana Maria Aguilar is the Bolivia Country Representative, and Peter L. Spain was a Senior Operations Officer.

The PRITECH team in Bolivia provided technical assistance to Caritas Boliviana and assumed additional implementation and funding responsibilities. In 1988, the final year of the PRITECH I Project, PRITECH expanded activities by providing technical support to a variety of USAID-funded international PVOs with child survival projects.

The PROCOSI logo

Coincident with the conclusion of the original PRITECH commitments to Caritas Boliviana in 1988, USAID/La Paz established a coordinating group for A.I.D.-funded PVOs working in child survival programs in Bolivia. The purpose of this consortium was to avoid duplication of services and to make the greatest use of all resources available to child survival PVOs.

As a way to build on the gains that PRITECH had made up to 1988 and as a way to channel resources to the new consortium, PRITECH offered to provide the services of our experienced Bolivian staff to the group. The PRITECH library and librarian had already been incorporated into the consortium, with all costs covered by the consortium. PRITECH then proposed that Doctora Ana Maria Aguilar, its Bolivian technical medical consultant, and Licenciada Susana Barrera, its Bolivian educational consultant, join the consortium as technical resource persons, but employed with PRITECH funds. This arrangement allowed the previous PRITECH investment in Bolivia to be carried forward with even broader impact than was possible working with one PVO alone (Caritas Boliviana) and fit in effectively with the new consortium to support child survival activities more widely in Bolivia. The consortium was also to be coordinating its efforts with those of the Ministry of Health.

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Thus from 1988 to 1991, PRITECH provided technical assistance to the consortium of A.I.D.-funded PVOs working in health in Bolivia. This consortium was called the Programa de Coordinacion en Supervivencia Infantil (PROCOSI), and members included CARE, Project Concern, Save the Children, Andean Rural Health Care, Meals for Millions, Caritas Boliviana, Freedom from Hunger, Catholic Relief Services, Plan International, and Project Esperanza. Because of the constraints within the Ministry of Health in Bolivia, PVOs play an important role in the delivery of health services, in many areas not just supplementing Ministry of Health efforts but taking on the principal burden of health care delivery.

The Need for Assistance in Diarrheal Disease Control

PRITECH's goals were:

- To assist PROCOSI in developing activities and materials that would better coordinate the child survival programs of its various PVO members and enhance the technical appropriateness and effectiveness of the members;
- To assist individual PVO members of PROCOSI to develop effective and comprehensive child survival programs and activities, particularly in the area of diarrheal disease control; and to assist PROCOSI and its members to make of their child survival activities and materials consistent with those of the Ministry of Health;
- To support limited but focused research of village women by PVOs to increase the understanding of the reasons that deter women from adopting recommended practices for the control of diarrheal disease. We were especially interested in learning how to close the knowledge and practices gap—the failure of mothers who know about recommended diarrheal disease control practices to adopt those practices.

PRITECH also proposed to make available to PROCOSI up to three months of external technical assistance annually. The consortium was encouraged to make requests for assistance through USAID/La Paz.

Thus, Dra. Aguilar and Lic. Barrera became part of the PROCOSI executive secretariat. As a pediatrician, Dra. Aguilar provided guidance to PVO members on all aspects of child survival, while putting emphasis on diarrheal disease control. Lic. Barrera, a communicator and

educator, worked with PVO members on the development of educational materials, ensuring their technical quality through collaboration with the PRITECH pediatrician and ensuring that all materials were developed on the basis of community research and pretesting. A key role of the communicator was to standardize messages, so that mothers would not be confused by variations in message content among member PVOs. Both PRITECH professionals provided technical review of requests for subgrants that came from members to the consortium.

At the outset of the PRITECH–PROCOSI collaboration, Dra. Aguilar completed a review of all of the PVOs' diarrheal disease activities. She found that all had diarrheal disease control among their priorities, and all were committed to the norms published by the government (conforming with the guidelines of the World Health Organization). But, in fact, applied programs were scarce, few people were trained in proper case management, and little had been done to train health workers or to communicate with mothers. Medical recordkeeping was also weak. A few PVOs had rehydration units, the best of which were run by Plan International in the city of Sucre, where about thirty units were in operation.

In sum, the PVOs were committed to the control of diarrheal disease, but in practice had few robust activities and limited vision for this priority. They were doing some things in diarrheal disease control, but for the most part their efforts were weak and constrained by lack of trained staff. They worked in an integrated fashion, uniting efforts on several child survival interventions, but with little technical guidance. The review recommended a workshop to identify and shore up weak areas of diarrheal control programs.

Providing a Vision

PRITECH has given PROCOSI a comprehensive capacity in relation to diarrhea control activities. Using PRITECH technical assistance, PROCOSI has been able to offer its members support in training, supervision, information services, and the development of educational materials.

Training activities were the most needed and the most numerous, and comprised the concrete implementation of national and World Health Organization poli-

Box 1. PROCOSI Training Activities Assisted by PRITECH

- A diarrhea training module for field promoters, in collaboration with CARE.
- A seminar to review the technical aspects of child survival with all the PVOs.
- On-site training for PVO staff about case management of diarrhea.
- A course to retrain Caritas Boliviana field staff and mothers' clubs about diarrhea, with emphasis on areas of difficulty in comprehension and practice.
- A follow-up plan for five dioceses, to support and reinforce the field staff in their use of educational material, in collaboration with Caritas Boliviana.
- Training and retraining courses in child survival, for nurse's aides and rural health promoters, in collaboration with the Oruro Health District and Project Concern.
- Courses in integrated child health at the La Paz Children's Hospital.
- A venture into formal education with Save the Children, in the schools of Inquisivi Province, to validate a health curriculum on diarrhea management and prevention.
- A retraining course for nurse's aids on feeding during and after diarrhea, in Villamontes-Yacuita, with Project Esperanza.

cies for diarrhea control. These activities are described in Box 1.

Training without subsequent supervision can quickly lose its impact. PRITECH's medical consultant worked from within PROCOSI to strengthen field supervision and to ensure that training marked the beginning of a relationship with a supervisor. This included regular technical supervision of PROCOSI projects, workshop follow-up, and field visits specifically directed to members' diarrhea programs.

The educational materials component of diarrhea training was the full-time concern of PRITECH's educational consultant, beginning with a workshop on the production of educational materials about diarrhea. Held in Santa Cruz, with participation by staff from three health districts, six diocesan Caritas Boliviana offices, Project Esperanza, and the Andean Rural Health Care, the workshop produced two games and a thirteen-page flipchart. Subsequent products included a redesigned user's guide for the Caritas Boliviana diarrheal control flipchart; implementation of the educational material "Windows of Health" (messages about oral rehydration therapy and diarrhea prevention), in concert with the growth monitoring program of the Ministry of Health; and development and testing of a new "Road to Health" card with CARE. As part of the educational radio project of Project Esperanza, PRITECH developed diarrheal control messages for radio dramas and produced other broadcasts in support of child survival.

The PROCOSI Documentation Center, while not staffed by PRITECH consultants, represents the institutionalization of an earlier PRITECH initiative; the center's activities have become a major part of PROCOSI's services to its members and to other organizations working in

child survival. Some of the center's activities are presented in Box 2.

Dra. Aguilar continued her active participation in COTALMA, the core breastfeeding group, whose members were sent for training by A.I.D. to Wellstart (San Diego) in 1988. COTALMA's members include influential staff members within major Bolivian hospitals as well as the Ministry of Health. Using this background and calling upon her COTALMA colleagues, Dra. Aguilar was able to carry out various activities with the PVOs about breastfeeding, emphasizing its role in preventing diarrhea.

In addition, as an example of the links that PRITECH has been able to maintain throughout the Bolivian health community, Dra. Aguilar—in collaboration with the bilateral community, child health projects, and with the support and guidance of the PRITECH technical unit—has undertaken a study of persistent diarrhea among children presenting with diarrhea at the La Paz Children's Hospital. Further, Lic. Barrera collaborated with the A.I.D. Nutrition Communication Project on the production of a video, called ¡Communiquemonos ya!,[1] for training community health workers on how to counsel mothers during growth monitoring sessions. This video followed a simple theme, based on *Talking to Mothers about Diarrhea*,[2] but very much needed to animate these frequent but often frustrating encounters by mothers with the health system.

Discussions were held with the Ministry of Education for an intervention with children through the formal education system. That effort was found to be a duplication of work being done through the radio education project, which incorporates correct diarrhea information into the school curriculum.

In addition to the activities listed above, many other calls on PRITECH were made for services, including collaboration on a video on acute respiratory infections; training workshops in communication methods for the PVOs; the development of a flyer, video, and manual on

Box 2. **PROCOSI Documentation Center Activities**

- Published annotated bibliographies of the consortium's library holdings, dealing with diarrhea, breastfeeding, and immunizations. A second volume on diarrhea was also published.
- Distributed a bibliography and documents sent from PRITECH's Information Center to the PVOs and other interested parties. The PROCOSI Documentation Center likens its role within Bolivia to the role of the PRITECH Information Center globally.
- Published, with Caritas Boliviana, the educational material needed for the Proyecto Mejoramiento Infantil. (PRITECH also assisted this project during PRITECH's first phase in Bolivia.)

Chagas disease; and the supervision of other materials production for the PVOs.

During PRITECH's work with PROCOSI, several developments warrant mention:

- The executive secretary of PROCOSI resigned following an outside evaluation of the consortium that was extremely critical of its management and accounting. A new executive secretary, hired shortly thereafter, stayed on for two years, but was also dismissed. Finally, a third executive secretary was installed. All this was indicative of the growing pains of an organization like PROCOSI, an amalgam involving many independent agencies that are learning to work together.
- The Ministry of Health and the La Paz Children's Hospital have occasionally sought assistance from the PRITECH physician. The job description, approved at the start by all parties, was flexible enough to respond to limited requests and, indeed, recognized the value of links between the PVOs and the public sector. PRITECH's role as a link among institutions has earned lasting respect.
- The individual PVOs have not developed strong diarrhea-focused programs; rather, like the Ministry of Health, their emphasis has been on integrated programs, touching on several aspects of child survival. Within this context, however, PRITECH still has been able to contribute.

In 1990, an A.I.D. evaluation was carried out to review PROCOSI because its initial funding was coming to an end. The first operational program grant was to expire at the end of July 1991, and A.I.D. needed guidance on whether PROCOSI should be continued. The evaluators gave high marks to the technical inputs by PROCOSI, including the PRITECH staff, calling them "skillful, qualified employees." But the evaluation cited many major elements of PROCOSI for modification, and recommended that the technical assistance provided by PRITECH be funded directly by PROCOSI under its anticipated new grant from USAID. The evaluators concluded that the differences in salaries and benefits between PROCOSI and PRITECH/Bolivia staff were disruptive and needed to be eliminated.

The implication of this recommendation was that PRITECH would no longer provide technical assistance to PROCOSI. PROCOSI made direct offers of employment to

both advisers, asking them to become PROCOSI staff by October 1991, or to conclude their service to PROCOSI. The communication adviser chose to stay on, while the pediatrician chose to conclude her PROCOSI work. However, Dra. Aguilar remained with PRITECH, providing technical assistance to the Ministry of Health (especially for its cholera program) and other institutions.

PRITECH's Susana Barrera and Caritas Boliviana's Cornelio Ballesteros participate in a conference on health education in the Americas.

Exemplary of PRITECH's respected role within PROCOSI and among the PVOs was the request that Lic. Barrera be one of the evaluators on the team from Catholic Relief Services that evaluated the Caritas Mejoramiento Infantil Project in the *altiplano* and valley regions of the country. This project was carried on with PRITECH technical assistance, and there had at times been strains between Caritas Boliviana and PRITECH. But the two technical PRITECH staff have earned the respect of the PVOs with their seriousness, professionalism, and perseverance.

Impact of PRITECH Assistance

Although they were physically within the PROCOSI offices and formal members of the PROCOSI staff, the PRITECH technical staff also represented a link with the Ministry of Health programs, based on previous and ongoing relationships with those programs. As the technical resource within PROCOSI, PRITECH was able to ensure technical quality control and to diffuse the experience of individual PVOs among their colleagues; PVOs have been traditionally quite independent, without regular interchange on technical matters.

The public-private links for which PRITECH is largely responsible in the Bolivian health sector are very unusual and very desirable to maintain. In a resource-poor country like Bolivia, such collaboration means that the resources that are available will be used according to standard policies and that duplication and turf battles between the public and private sectors will be minimal.

Apart from its technical input, PRITECH represented a way for the PROCOSI members to relate to each other technically and to relate to the Ministry of Health both technically and operationally.

Recognizing the reality of the integrated programs in Bolivia and the reality of the diarrhea focus of the PRITECH contract, PRITECH/Washington urged Dra. Aguilar and Lic. Barrera to involve themselves in substantive diarrheal activities each month and report those activities in detail. At the same time, PRITECH urged them to contribute in other child survival areas as they could, to promote the integral programs of which they are a part.

Lessons Learned

PRITECH found that the PVO consortium was a useful vehicle for its technical assistance.

The growing pains of the organization, documented in the evaluation, are being dealt with, and the awarding of the second operational program grant represents USAID's endorsement of the progress to date. The desire to standardize staffing, thereby eliminating PRITECH's technical assistance role, may be the best for PROCOSI in the long run, if they can maintain in-house technical ability.

Because of prior links established by PRITECH staff with the Ministry of Health and other health agencies, the PRITECH connection within PROCOSI gave PROCOSI entree among these groups as well. The non-PROCOSI status of the PRITECH team allowed them greater flexibility in dealing with these other groups, to the advantage of all parties.

It should not be assumed that PVOs want international technical assistance.

PRITECH had budgeted $120,000 for additional outside technical assistance. PROCOSI's members did not make use of outside technical assistance; at least, none of them made any call on the budgeted funds. Perhaps because this assistance would have come from outside the country, the PVO directors felt uncomfortable with spending for international assistance (even though it was not their money); they tend to be more grassroots-oriented and relate less to international consultants. As a result, the money for technical assistance went unspent.

Decisionmaking in a consortium can be slow and difficult.

As an organization, PROCOSI was slow to make decisions or to communicate with outside institutions such as PRITECH. PROCOSI let its first executive secretary go because he acted too independently, in the view of the executive committee. Therefore, the second secretary was reluctant to speak for the group—as indeed, he was not authorized to do—and the group found it difficult to develop consensus promptly, if at all. With ten members, each with a tradition of independence, decisionmaking was a very deliberate process.

While working among the ten members of the consortium had its complexity, it has since been observed that status as PRITECH employees actually afforded greater flexibility than did PROCOSI staff status.

Notes:

[1] A booklet about the development of this training video is available from the Academy for Educational Development Nutrition Communication Project, 1255 23rd Street NW, Washington, DC 20037.

[2] *Talking to Mothers about Diarrhea* is a booklet written by PRITECH for health workers. Its purpose is to guide health workers to become effective communicators when dealing with mothers and their children in a clinical setting, in recognition of the unique opportunity for teaching that this encounter affords and the widespread miscommunication that actually does occur in many, if not most, clinical settings. *Talking to Mothers about Diarrhea* is available in Spanish and English from the PRITECH Information Center, the Pan American Health Organization's Special Programme for Maternal and Child Health and Population, and the World Health Organization's Programme for Control of Diarrhoeal Diseases.

COLLABORATING WITH NONGOVERNMENTAL ORGANIZATIONS IN KENYA

Karen E. Blyth is currently the Madagascar Country Representative and was the Kenya Country Representative.

In Kenya, few caretakers know about the importance of early home treatment of diarrhea. Diarrheal diseases continue to be a leading cause of childhood morbidity and mortality. The principal role of the national control of diarrheal disease (CDD) program in the Ministry of Health is to support the public sector through government health facilities and outreach activities. The public sector, however, has never possessed the resources necessary to reach all caretakers. Therefore, CDD programs will have limited access to the total population in Kenya—and limited impact on morbidity and mortality—as long as their activities target only public health sector services.

In Kenya, over 40 percent of health care is provided by nongovernmental organizations, or NGOs. Yet they have only indirectly benefited from donor assistance in the control of diarrheal diseases. Although some NGO health care workers have completed training programs on diarrhea management, the majority of the NGO and mission (or church-based) hospital staff have not been trained in good clinical case management.

The NGO health care community needs to update its knowledge of and practices for the prevention and management of diarrheal diseases at all staff levels. NGO and mission hospital workers need to be trained in diarrhea management to improve their hospital practices. Very few mission hospitals have established oral rehydration corners[1] in their maternal and child out-patient clinics or in their pediatric wards. NGO and mission hospitals often have crowded pediatric wards where health workers tend to use intravenous therapy for dehydrated patients even when it is not necessary. Many NGO hospital providers need skills on how to better advise caretakers about home case management. The NGO health care community also has a wide network of community health care workers who would benefit from skills training in oral rehydration therapy.

The Kenya Catholic Secretariat (KCS) and the Christian Association of Kenya (CHAK), the two largest NGO health care providers, together provide 75 percent of NGO health care services. A third NGO, Aga Khan Health Services, has played a leading role in community-based

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health care projects in Mombasa and Kisumu, where diarrhea remains a leading cause of childhood morbidity and mortality. In 1992, PRITECH/Kenya approached these three major NGOs to discuss ways to collaborate in order to improve diarrhea management in their health facilities and home case management in their communities.

Developing a Strategy for NGOs

PRITECH's overall strategy for Kenya aims to develop additional channels to promote improved diarrhea management in health care facilities and in the home. Strengthening the CDD capabilities of NGOs accomplishes this aim, while building on the existing commitment of community-based NGOs to prevent diarrhea and to promote home case management in their communities. This effort, in turn, complements and reinforces achievements in the public health sector.

Phase I: Raising Awareness

In March 1992, PRITECH, in collaboration with the Centre for Development and Population Activities (CEDPA),[2] sponsored a regional workshop entitled "Extending CDD Services through Community-based NGOs" in Nairobi. More than twenty-five participants from twelve NGOs in eight Anglophone African countries attended, including KCS, CHAK, and Aga Khan Health Services from Kenya. The workshop generated tremendous interest and heightened recognition that diarrheal diseases are still a leading cause of high childhood morbidity and mortality rates in Africa.

Goals of the PRITECH NGO Initiative

- Enable a cadre of diarrheal disease trainers within the NGO or church health community in Kenya to carry out good diarrhea clinical case management and community outreach training for health workers.
- Train 10 to 15 percent of NGO mission hospital health workers in four provinces in good clinical case management of diarrheal diseases to improve their hospital diarrhea management practices.
- Train twenty community outreach health professionals from the NGO or church community in the areas of home case management and prevention of diarrheal diseases in order to educate child caretakers in their rural communities.

Phase II: Designing the NGO Initiative

After the workshop, PRITECH/Kenya began working with the Kenyan workshop participants from KCS, CHAK, and Aga Khan Health Services in the development

of the NGO initiative. Together they developed a diarrhea management training strategy for the hospital staff of KCS and CHAK (discussed below). They also developed a community outreach strategy for home case management and the prevention of diarrhea. The Aga Khan Health Services wrote a proposal entitled "Improving Diarrhea Home Case Management," which was subsequently funded by CEDPA. The purpose of the Aga Khan Health Services proposal was to pilot-test a home case management educational strategy within Aga Khan's Primary Health Care Project in Mombasa.

In addition, PRITECH/Kenya contacted the Mission for Essential Drugs (MEDS), which supplies mission hospitals with essential drugs. Until 1991, MEDS did not have oral rehydration salts on its essential drug list but would deliver oral rehydration salts to mission hospitals only when specially ordered. Most mission hospitals were making their own oral rehydration solution and promoting sugar-salt solution for home treatment. They were not maintaining a stock of packets of oral rehydration salts for discharged patients, who may have needed to continue the treatment at home. PRITECH believed that if MEDS were persuaded to supply oral rehydration salts routinely to mission hospitals, then the hospitals would be much more likely to keep rehydration salts in stock and dispense them more liberally.

Phase III: Creating a Project Plan

PRITECH/Kenya created a project plan for the NGO initiative. Due to a shortfall of PRITECH funds in 1992, the original project plan was modified and jointly funded by PRITECH, UNICEF/Kenya, and CEDPA. The World Health Organization (WHO) supplied materials for the training programs. The NGO initiative builds upon the expertise and resources of the Ministry of Health's CDD program, which will help the NGO health care community upgrade their diarrhea management practices.

The plan outlined several strategies to reach the project goals:

- Modify the public sector's diarrhea clinical management training to meet the needs of the NGO and mission hospitals.
- Train a core cadre of NGO and mission hospital workers in diarrhea management, home case management, and the prevention of diarrheal diseases.

- Train approximately eighty NGO and mission health personnel in clinical management of diarrheal diseases, using existing public sector oral rehydration training units or provincial diarrheal training units.
- Identify four NGO health facilities with sufficient resources to build and staff their own diarrhea training units for training staff in the future.
- Develop a simple health facility monitoring tool that the NGO and mission trainers and supervisors could use to monitor progress in improved case management.
- Train approximately twenty hospital and community outreach workers in home case management and prevention of diarrhea.

Implementing the NGO Initiative

The strategies resulted in a host of activities. As of December 1992, some of the activities had already been implemented, while others were in the planning stage.

Revision of the National Training Program

Prior to beginning the NGO CDD initiative, it was important to address the key recommendations from recent evaluations of the national CDD program's training courses.[3] As the national CDD training team was in charge of conducting the diarrhea management training courses for the NGO health care community, it was essential to upgrade their skills as course facilitators. The national CDD program requested assistance from WHO/Geneva to enhance the program's training strategy and benefit the NGO health care community.

WHO trained the Ministry facilitators, coordinated a national training-of-trainers course on clinical management of diarrheal diseases, and assisted the national CDD program to revise the three-day operational course into a five-day diarrhea management course. The training-of-trainers course was for Ministry personnel from four provinces who: (1) were physicians, clinical officers, or nurse or matrons; (2) were experienced in treating diarrhea patients, including both dehydrated and complicated cases; (3) had previously attended a clinical management course sponsored by the national CDD program; and (4) had past training experience or a strong desire to be a trainer.

In collaboration with PRITECH and WHO, the national CDD program organized the second national training-of-trainers course on clinical management of diarrheal diseases, which followed WHO standard procedures.[4] During the last day of the course, the participants prepared a draft plan of action and training schedule for training activities in their respective districts. As a result of the facilitators' briefing and training course, a sample agenda for a five-day diarrhea management course was developed, which will be sent as a guide to all Ministry of Health district trainers. It will also be sent to prospective NGO hospital CDD trainers.

The greatest benefit gained from WHO's training of facilitators was that the national CDD training team was even better prepared to conduct future Ministry of Health and NGO diarrhea management training-of-trainers courses.

NGO Training Needs Assessment

A first step in the NGO initiative was for the national CDD program to assess the current NGO hospital and outreach diarrhea management practices before a training strategy could be developed. A CDD health facility monitoring tool was used to assess current hospital diarrhea management practices in order to highlight problem areas in the training programs. The monitoring tool could also be used as an internal self-assessment tool by NGO staff.

Because of CHAK's busy schedule, PRITECH began by first working with KCS in 1992 and followed with CHAK in 1993. A core staff comprised of members from the national CDD program, PRITECH, and KCS therefore carried out a CDD training needs assessment in western Kenya in August 1992. The objectives of the training assessment were to:

- Assess the knowledge, attitudes, and practices in diarrhea management of the NGO hospitals and the community outreach programs,
- Identify one NGO facility per province that could be developed as a future diarrhea training unit for clinical management training,
- Identify from these facilities potential participants for NGO diarrheal management training-of-trainers courses. These participants would then serve as future

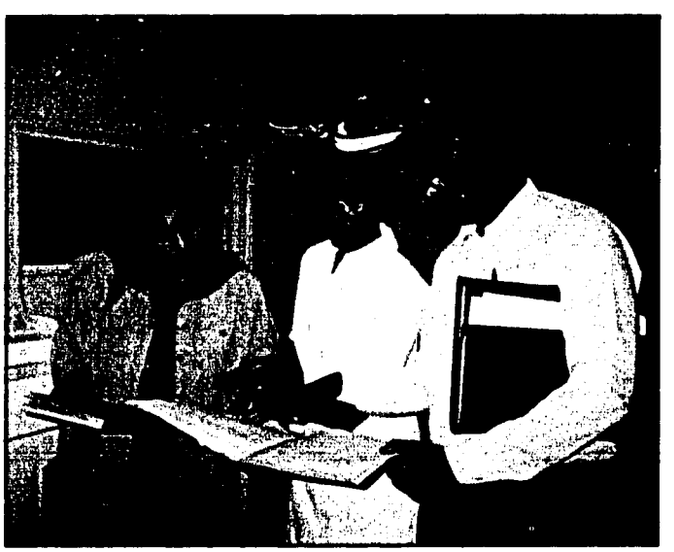
trainers at their hospitals to ensure good hospital diarrhea management practices.

Training of NGO Trainers

Following a hospital assessment of the mission hospitals, training-of-trainers workshops on diarrhea management were planned. The goal of the workshops was to develop a cadre of CDD trainers, within the mission community, who would be capable of carrying out good CDD clinical case management training for health workers at their respective hospitals. The projected outcome of the workshop would be the establishment of oral rehydration corners, good diarrhea management practices, and adequate counseling to mothers on home case management. The five-day workshop curriculum used WHO's diarrhea management training-of-trainers course and was facilitated by the staff of the national CDD program.

Supervisory Follow-up Visits

The health facility monitoring tool that was used by the national CDD program to assess mission hospital and outreach diarrhea management practices was also used by the national CDD program and NGO supervisory staff



CDD program staff meet with the nurse-in-charge of the Misikhu Catholic Mission Hospital.

to monitor the progress of each mission hospital in improved case management. Supervisory visits took place from two to three months after the training-of-trainers workshops. A full day was spent by the supervisory team with each mission hospital and their respective staffs, visiting their newly established oral rehydration corners, and monitoring and strengthening improvements made in case management. Problems experienced by mission staff were discussed together with the national CDD program team.

This was an essential step in the process. Following the first monitoring and supervisory visit, routine follow-up is essential to motivate mission hospital staff who are faced with erratic supply of oral rehydration salts, overcrowding in pediatric wards, and colleagues who are reluctant to accept updated case management practices.

Clinical Management Training Workshops

The NGO trainers, once trained, plan to deliver clinical case management workshops to their hospital staff through 1993. Primary outcomes from this inservice hospital clinical management training will be improved hospital diarrhea management practices and the establishment of an oral rehydration unit at the maternal and child clinic or the pediatric ward. The NGO trainers are identifying government hospital facilities where oral rehydration units are already in place, to be used for case management practicums in the NGO trainings.

Community Outreach and Prevention Workshop

CEDPA, through PRITECH, is supporting and monitoring the Aga Khan Health Mombasa Primary Health Care Project to improve diarrhea home case management in Mtaa Location, Kwale District. The goal of this operations research project is to reduce diarrhea morbidity and mortality in Mtaa through a community-based health education program that promotes the three primary messages of home case management of diarrhea: give more fluids, increase feeding, and refer the child to a health center if the child is still sick.

The study aims for two main outcomes. First, the study plans to increase the proportion of mothers and

caretakers who are capable of practicing home case management of diarrhea. The second objective is to increase the number of health workers in Mtaa with skills to counsel caretakers of children with diarrhea to reduce the morbidity and mortality rates due to diarrhea in Mtaa.

Impact of the NGO Initiative

As the NGO initiative is only in its infancy stage, it is premature to draw conclusive statements regarding the impact of the solution to the problem addressed.

One notable improvement, however, has been the decision, made in 1992, by the MEDS to include oral rehydration salts on their essential drug list. MEDS is also requesting a significantly greater stock supply from UNICEF. This indicates that NGO and mission hospitals are convinced that they should maintain a steady supply of oral rehydration salts packets for out-patient home management use.

Another achievement has been greater understanding on the part of the NGO health care community as to why the Ministry's national program does not recommend that health care institutions promote sugar-salt solution. Inaccurate measurements and poor mixing techniques have resulted in unacceptably high failure rates for sugar-salt solution preparation.

The NGO mission hospital staff has also shown commitment and eagerness to review their current hospital practices of diarrhea management and seeks help in making recommended improvements in order to reach WHO standards. NGO hospitals are not only committed to serving their populations with the best possible services, but are actively seeking mechanisms and practices that will reduce their overall operational and management costs in this inflationary period in Kenya.

Oral rehydration corners are now established and operating at the majority of NGO mission hospitals that participated in the NGO training of trainers. Some NGO mission hospital staffs reduced patient caseloads in pediatric wards in a three-month period after establishing oral rehydration corners.

As a result of the PRITECH NGO initiative, mission hospitals and community outreach projects have redoubled their efforts to reduce the morbidity and mortality rates of diarrhea in children under age five.

Collaborative efforts can raise health worker and caretaker knowledge of case management of diarrhea.

Because PRITECH/Kenya was restricted to working with the public sector until the last year of the project, the opportunity to work with the NGO health care community was almost lost. This active network of health services reaches an important proportion of the population and is an important channel to reaching health workers and patients. PRITECH would have had much greater impact on diarrhea management had it begun collaborating with NGOs in 1987 when it began operating in Kenya. Similarly, the NGO health care community would have greatly benefited from a longer span of collaboration with PRITECH.

Unfortunately, PRITECH/Kenya missed an important opportunity to work with NGO community outreach networks in raising the knowledge of rural parents and caretakers. More emphasis must be given to the dissemination of important messages regarding prevention and home case management of diarrhea in the future. Donors need to implement strategies that will reach rural communities more effectively to raise knowledge and improve practices about oral rehydration therapy.

NGOs must be carefully chosen.

PRITECH used the following guidelines in selecting the NGOs that would participate in the NGO program: (1) ability to meet PRITECH objectives, (2) eagerness of the NGO to update information, and (3) potential for sustainability.

NGOs can be easier to work with than public programs.

Mission hospitals in Kenya attract staff who are extemely dedicated and share a common goal of serving their communities. They are better staffed, better equipped, and use more creative ways than government hospitals to sustain activities and seek financial support. NGOs can be easier to work with as their bureaucracy is less cumbersome. Furthermore, they are more flexible, and they are skillful at sustaining their hospitals in a cost-effective manner.

The skills and expertise of the Ministry of Health's CDD program should be used for training the NGO health care community.

The Ministry is a valuable resource for health personnel trained and skilled in diarrhea case management. These skills need to be disseminated throughout the entire Kenyan health care system, not kept solely within the public health system. This is most important because the Ministry has limited access to the entire Kenyan population. Public health impact will be multiplied if the skills resident within the Ministry are shared with the NGO community and thus to the larger population of Kenya. In 1993 and beyond, the national program, in collaboration with UNICEF and WHO, will ensure that the NGO health care community is provided with high-quality training and updated technical guidance in good diarrhea management practices.

Supervision and monitoring of trained staff must be included in the implementation plan.

Routine monitoring and supervisory visits by the national CDD program and NGO supervisory staff are essential in motivating and problem-solving with the mission hospital staff.

Oral rehydration salts must be available in NGO facilities before establishing a program.

In the case of Kenya, all mission hospitals made their own oral rehydration salts and some hospitals had a supply from donors or purchased through MEDS.

Notes:
[1] An oral rehydration corner is an area of a clinic set aside for treating children with oral rehydration solution and for counseling family members about how to care for their sick child.
[2] CEDPA, a subcontractor the PRITECH Project, is dedicated to improving the managerial skills of developing country professionals in health and population.
[3] See, for example, Scott Endsley and Agma Prins,"Kenya Focused Programme Review, Phase II," Arlington, VA, Management Sciences for Health PRITECH Project, ECP-011-KE, October 1992.
[4] World Health Organization, Guidelines for Conducting Training Courses at Health Centers and Small Hospitals, CDD/SER/90.2 rev.1, Geneva, 1992.