

# Child Survival

A Fifth  
Report to  
Congress on  
the USAID  
Program



U.S. Agency for  
International  
Development  
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# Child Survival

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## A Fifth Report to Congress on the USAID Program 1990



Cover Photo: U.S. Agency for  
International Development

I am pleased to submit the fifth report to Congress on the Agency for International Development's (A.I.D.) program to promote child survival in the developing countries of the world. A.I.D. is justifiably proud of its record of leadership and contributions to this worthy goal. The past four years have been years of growth, cooperative action and accomplishment.

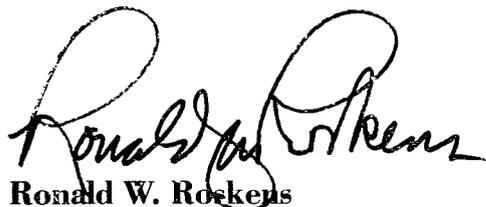
A.I.D.'s support for child survival was nearly doubled in Fiscal Year 1985 with a special appropriation of \$85 million. This past year, A.I.D. provided more than \$200 million for programs directed to enhance the prospects for the health and survival of the young in 60 countries across the globe.

Child survival has also been a program characterized by cooperative action. This year's report pays special tribute to the contributions of the private sector. The additional energies, creativity and resources brought to this program by the active participation of private voluntary organizations as well as the for-profit sector have been critical to its success. But cooperation has been a hallmark of the program across the board. This has truly been an alliance for children, with countries, communities, donors and organizations working together toward a common purpose.

As a result of this grand alliance, it is estimated that the lives of over three million children are now being saved each year because of just two elements of this worldwide effort: vaccination against the common diseases of childhood and treatment of diarrheal disease. In just a few brief years, the number of infants being vaccinated has increased markedly; today six out of ten are fully vaccinated when they reach their first birthday. Worldwide use of oral rehydration therapy to prevent dehydration due to diarrhea has doubled and more than 60 percent of the world's children now have access to this life-saving therapy.

Despite all of these efforts, our job is not yet complete. The burden of unnecessary infant and child death still weighs heavily on the families and economies of the developing world. A.I.D. is committed to continuing its contribution to this vital program.

The events of the past year have shown us that none of us can predict the shape of the future. However, we can contribute to the health of that future. With your continued support, A.I.D. is committed to do its part.



Ronald W. Rockens

Administrator

U.S. Agency for International Development

April 1990

In Fiscal Year 1989, the U.S. Agency for International Development (USAID) expanded its efforts in a global push to improve the health and survival of the children of the developing world.

USAID has committed a total of U.S. \$848 million for child survival efforts in over 60 countries from FY 1985 through FY 1989. USAID's strategy has been straightforward –

- Focus on inexpensive, proven technologies to improve infant and child health, such as:
  - immunization against childhood diseases;
  - oral rehydration therapy (ORT) to prevent death from diarrhea;
  - a focused nutrition program emphasizing breastfeeding and proper infant and child feeding; and
  - reduction of high risk births.
- Country-specific strategies.
- Involvement of the voluntary and for-profit private sector in the delivery of services and the production and distribution of commodities.
- Cooperation on the global and country levels with other governments, donors and organizations, including UNICEF and the World Health Organization and U.S. technical expertise to support country programs.
- Linkage of service delivery with research and evaluation.

Substantial progress is being made as a result of these combined efforts –

- On a global level, an estimated three million lives are being saved each year because of immunization and treatment of diarrheal diseases:
  - six out of 10 children worldwide are now fully vaccinated by their first birthday, up from only one to two out of 10 at the beginning of this decade;
  - the use of ORT, virtually nil in 1980, has risen from 18 percent of cases in 1985 to more than a third in 1988, nearing USAID's goal of 45 percent use;
  - increases in many countries are even more dramatic – for example, since 1985 coverage with measles vaccine has increased from:
    - 15 to 64 percent in Indonesia (1988 to 1989)
    - 21 to 63 percent in Haiti (1988)
    - 23 to 84 percent in Pakistan (1988)
  - more than 45 percent of diarrheal diseases cases are now being treated with ORT in Egypt, Honduras, Pakistan and Kenya.

USAID has placed special emphasis on the private sector – both voluntary and for-profit – in its Child Survival Strategy –

- Private Voluntary Organizations (PVOs) have played a special role in this program, for example:
  - Save the Children reaching poor urban dwellers in Jakarta, Indonesia;
  - CARE increasing rates of ORT use in targeted areas in the Sudan three times national averages;

- PATH developing new technologies for use in immunization programs;
  - Rotary International volunteers giving support worldwide to polio and other vaccination programs; and
  - one hundred twenty U.S. and local PVOs cooperating in Haiti to cover one-half the country with child survival services.
- USAID has provided U.S. \$178 million to U.S. and local PVOs to support child survival activities in at least 48 countries.
  - Approximately U.S. \$87 million of this amount has been administered through a competitive Child Survival Grants program begun in FY 1985 by USAID's Bureau for Food for Peace and Voluntary Assistance.
  - The for-profit sector is also participating actively in many countries. USAID has placed particular emphasis on:
    - training private practitioners;
    - involvement of professional associations, such as the American Medical Association and medical societies in Egypt, India, Indonesia, the Philippines and Thailand;
    - production and distribution of commodities, especially oral rehydration salts; and
    - private financing of health services.

Monitoring, evaluation and related data collection efforts are helping to guide and refine USAID's child survival program –

- Sixty nationwide Demographic and Health Surveys.
- Smaller scale coverage surveys.
- A series of country-level impact evaluations, beginning with Egypt and Indonesia in FY 1989.
- Project level evaluations.
- Special studies of impact and related topics.

Despite impressive gains, the job of ensuring child survival is not yet complete –

- Four million children still die each year from the effects of diarrheal disease.
- Three million still die each year from childhood diseases preventable by vaccination.
- Three million children start life with needless disability.
- Exclusive breastfeeding, which protects the infant in many ways, is actually declining.
- Malaria, pneumonia, perinatal death and AIDS are becoming more significant, especially as death from other causes decline.

USAID is committed to continued efforts to promote the health and survival of the children of the developing world.



**F**our years ago, the U.S. Agency for International Development dramatically expanded its efforts and joined a global push to improve the prospects for survival for the children of the developing world. In Fiscal Year 1985, building on a history of commitment and experience with primary health care programs and working with cooperating governments, other donors and private organizations, the Agency launched a child survival program to reduce rates of mortality in developing countries by extending the use of simple, known but under-used technologies.

USAID's strategy has been straightforward:

- To focus on a limited, manageable mix of proven technologies that promote real health benefits to infants and children— immunization against common childhood diseases; oral rehydration therapy to prevent death from dehydrating diarrhea; a focused nutrition program; and reduction of high risk births;

- To focus on country-specific strategies and concentrate on countries with the highest levels of infant and child morbidity and mortality;

- To involve the private sector, both voluntary and for-profit, in the delivery of services and commodities and in efforts to sustain programs;

- To cooperate on both the global and country levels with other governments, organizations and institutions with common goals;

- To provide the best of U.S. technical assistance to support country programs; and

- To link service delivery with research and evaluation efforts.

USAID has made a substantial commitment to this strategy. Since FY 1985, a total of U.S. \$848 million from various funding accounts has supported child survival efforts in over 60 countries, with U.S. \$203 million committed in Fiscal Year 1989 alone. This past year, U.S. \$44 million and U.S. \$43 million, nearly half of the total child survival funds, have been devoted to immunization and diarrheal disease control, respectively. Another 15 percent has supported nutrition activities, including promotion of breastfeeding and improved weaning practices, growth monitoring and vitamin A activities. Support specifically for breastfeeding approximated U.S. \$4 million dollars in Fiscal Year 1989 and an additional U.S. \$18.5 million of these child survival monies has been devoted to preventing high risk births. These two amounts are complemented by the Agency's significant population and family planning program, which also bestows important health benefits on mothers and their children. The remain-

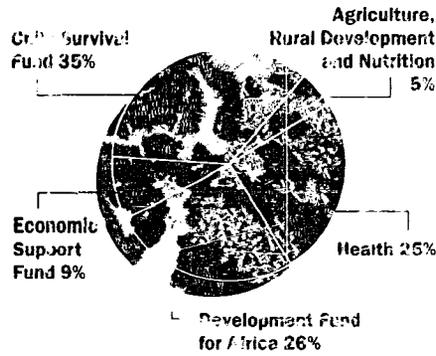


CARE/Rudolph von Bernuth

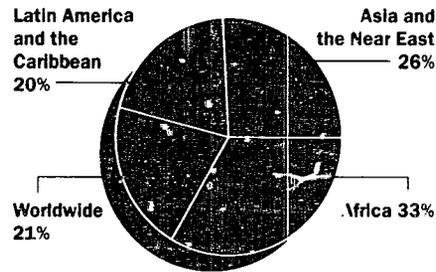
ing child survival dollars, some 33 percent, have been applied to other diseases and problems identified as important on the country level, such as pneumonia, malaria and water supply and sanitation. The bulk of child survival funds is targeted to 22 emphasis countries, which collectively account for approximately two-thirds of infant and child deaths in the developing world (see Fact Sheets in the regional sections).

**USAID Funding  
for Child Survival  
Fiscal Year 1989**

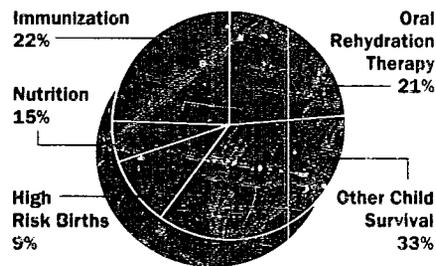
**Total Funding \$23,347,000**



**Funding by Regional Distribution**



**Funding by Intervention**



Now, at the conclusion of four years of program activity it is time to begin to take stock. This report describes what has been accomplished to date and what the Agency is doing to assess the program and its lessons. The report also focuses on the critical contribution that the private sector is making toward the accomplishment of the many child survival goals.

**Notable Achievements**

There are many measures of what is taking place. On a global level, the United Nations Children's Fund (UNICEF) estimates that the lives of over three million children are now being saved each year because of just two elements of this worldwide effort: vaccination against measles, polio and other diseases of childhood, and treatment of diarrheal disease. Reflecting the international goal of universal childhood immunization, defined as 80 percent coverage with six key vaccines, the number of infants vaccinated each year has approximately doubled in the last four years. Six out of 10 children worldwide are now fully vaccinated when they reach their first birthday. Impressive progress has also been made toward reaching the global goal of use of oral rehydration therapy (ORT) in 45 percent of diarrheal cases. Worldwide use of ORT rose from 18 percent in 1985 to 34 percent in 1988. Nearly 60 percent of the world's children now have access to oral rehydration salts, bringing the goal of universal access to this life-saving technology closer to realization.

While impressive, these global numbers fail to dramatize the progress being made on the country level toward goals countries themselves have set: in Guatemala, Honduras, Kenya and Indonesia, infant mortality has fallen below 75 deaths per thousand live births. Coverage with measles vaccine has soared in Indonesia – from 15 percent of infants in 1985 to 64 percent in 1988-89. Between 1985 and 1988, measles coverage increased from 21 percent to 63 percent in Haiti and from 23 percent to 84 percent in Pakistan. More than 45 percent of diarrheal disease cases are now being treated with oral rehydration therapy in Egypt, Honduras, Pakistan and Kenya. Country after country is achieving the targets it has set: even countries with the longest way to go have achieved impressive progress, and most are likely to meet the ambitious international goals in the coming years.

More important than meeting targets in a single year, however, has been the progress in building effective programs so that countries can meet the future needs of their children on a continuing basis – with decreasing levels of external assistance. And indeed, there are indications that strong, self-supporting programs are being developed. Fifty-eight countries now produce oral rehydration salts locally – a critical step in the effort to make diarrheal

disease control programs self-sustaining. A number of countries are working to move diarrheal disease control, breastfeeding and other child survival technologies into the mainstream of medical education through changes in curriculum and training – another important step toward institutionalizing and sustaining child survival programs. And efforts are underway in several countries to find ways, such as user fees, to generate additional resources for child survival activities.

### Learning From Experience

With all of these efforts in so many countries, what has been learned so far? USAID is learning that its strategy for child survival is having a major impact. It is also evident, however, that refinements are needed to meet changing conditions and new problems.

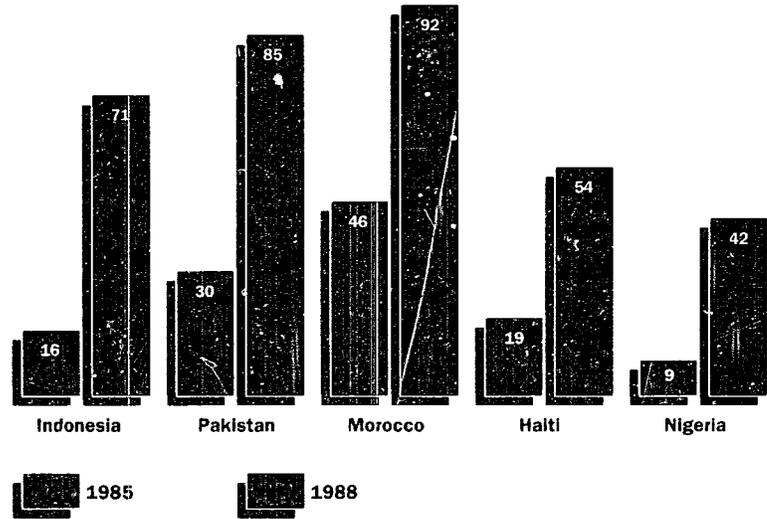
There is growing confirmation that a focused approach on selected interventions is effective in reducing mortality levels. Studies from Zaire, Haiti, Bangladesh and elsewhere are beginning to confirm that child survival programs are indeed reducing mortality. The evidence on the impact of measles and tetanus vaccination on overall mortality is especially strong, reinforcing the need to pay increased attention to these antigens. At the same time, there is also evidence that more attention to the quality of services, not merely their expansion, is needed. Where services have been delivered vertically, it is becoming important to find ways to integrate them, at least at the community level. In addition, as programs have matured, the urgency of interventions for other diseases such as malaria and pneumonia has become more apparent.

Certainly, the importance, if not the necessity, of country-specific strategies has been reaffirmed. Despite the uniformity of child survival programs driven by global patterns of disease and available technologies, countries have developed very different approaches to child survival that reflect their particular pattern of mortality as well as their resources and policies. In Haiti, a coalition of U.S. and local private voluntary organizations deliver services to nearly half of the country; in Egypt, private physicians and pharmacists complement the government's role. In Malawi, malaria has been a central focus; in Nepal, the treatment of pneumonia. In Pakistan, a campaign strategy has been used to increase immunization coverage; in Indonesia, immunization

### Proving It Is Possible

#### Impressive Changes in DPT III Vaccination Coverage

Percent vaccinated by 12 months of age



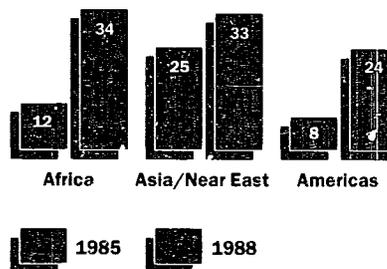
### Preventing Deaths Due to Dehydration

#### Regional ORT Use Rates: Child Survival Emphasis Countries

Percent of episodes treated



45% Use Rate



has been expanded through community-level health posts that began with the family planning program. Country-specific strategies have

## **U.S. Private Voluntary Organizations**

### **Participating in USAID's Child Survival Program**

<b>Adventist Development and Relief Agency</b>	<b>International Medical Corps</b>
<b>African Medical and Research Foundation</b>	<b>La Leche League International</b>
<b>Africare</b>	<b>Medical Assistance Program International</b>
<b>Aga Khan Foundation/USA</b>	<b>Minnesota International Health Volunteers</b>
<b>Americarc's Foundation</b>	<b>National Council for International Health</b>
<b>Andean Rural Health Care</b>	<b>Partners of the Americas</b>
<b>CARE</b>	<b>Pathfinder Fund</b>
<b>Catholic Relief Services</b>	<b>Planning Assistance</b>
<b>Coordination in Development, Inc. (Codel)</b>	<b>Population Services International</b>
<b>Esperança, Inc.</b>	<b>Private Agencies Collaborating Together</b>
<b>Experiment in International Living</b>	<b>Program for Appropriate Technology in Health</b>
<b>Eye Care International</b>	<b>Project Concern International</b>
<b>Food for the Hungry International</b>	<b>Project HOPE</b>
<b>Foster Parents Plan</b>	<b>Rotary International</b>
<b>Foundation for Peoples of the South Pacific</b>	<b>Salvation Army World Service Organization</b>
<b>Freedom From Hunger Foundation</b>	<b>Save the Children Federation</b>
<b>Hadassah/USA</b>	<b>Seton Institute for International Development</b>
<b>Helen Keller International</b>	<b>World Relief Corporation</b>
<b>International Child Care, Inc.</b>	<b>World Vision Relief and Development</b>
<b>International Eye Foundation</b>	

and contributions of many organizations, especially UNICEF, the World Health Organization (WHO), bilateral donors, such as Italy and Canada, and many others. There is little question that this alliance for child survival has meant faster progress and, in many countries where coordination has been good, greater efficiency. USAID has joined forces with the Pan American Health Organization to strengthen immunization in Latin America and the Caribbean in support of a program that is on the verge of eradicating polio from the Western hemisphere. UNICEF, WHO and USAID are cooperating to develop new immunization technologies and accelerate their production and availability to field programs. On the country level, too, coordination among donors and host governments is resulting in far more efficient efforts.

USAID has marshalled U.S. technical expertise through a variety of agreements to support child survival programs. Projects developed by USAID/Washington have provided technical assistance and both stimulated cross-fertilization between country programs and contributed to a remarkable degree of innovative programming in such areas as communications (HEALTHCOM), production of key commodities (Project SUPPORT), immunization (REACH), survey research (Demographic and Health Surveys) and operations research (PRICOR). Through the U.S. Centers for Disease Control (CDC), the Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD) project provides technical support and training in immunization, diarrheal disease control and malaria treatment to 12 African nations. The Technical Advisors for AIDS and Child Survival program has permitted USAID to tap the U.S. Public Health Service and U.S. universities for long-term advisors, now placed in 10 countries and technical offices in Washington. USAID has also worked with the Peace Corps: last year, nearly 300 volunteers worked in a variety of health and child survival projects in countries such as Ghana, Morocco, Yemen and Zaire.

Problem-solving research and evaluation are helping to strengthen service delivery as well as to develop and test new technologies and approaches. Many universities, other government agencies and private organizations are playing key roles. Johns Hopkins University is helping to refine evaluation techniques for child survival programs. Cornell, Johns

also permitted programs to build on past investments in primary health care. The flexibility to adapt a global strategy to local conditions has been critical to the success of the child survival program.

In catalyzing private sector involvement in child survival programs in many countries, USAID is expanding the resources and energies available to deliver and sustain services. Chapter Three highlights the contributions of both the voluntary and for-profit sectors to the success of these programs. The additional resources brought to bear by private and community involvement have almost certainly helped these programs to thrive despite the economic reverses faced by so many countries in recent years.

From the beginning, child survival programs have benefited from the commitments

Hopkins and Harvard Universities are testing the impact of vitamin A on the reduction of death and disease among children. Research results are having a rapid impact on programs: within months of its completion, for example, USAID-supported research showing that improved strains of measles vaccine could be effective on children as young as six months of age led to a change in global immunization policy. This change in policy will protect younger infants in countries where measles is endemic.

### **A Job Not Complete**

Despite all of these efforts and impressive gains, there is ample evidence that the job is not yet complete. The burden of infant and child death still weighs heavily on the families and economies of the developing world. Each year, four million children still suffer and die from the effects of diarrheal disease. In some countries, children average seven episodes of diarrhea annually, with each bout leaving the child a little weaker, a little thinner, a little less able to recover the next time. Common diseases such as polio, tetanus and measles – readily preventable by immunization – still take an enormous toll on the world's youngest citizens: nearly three million die each year and an estimated three million needlessly start life with a permanent disability. There have also been new challenges and setbacks. New evidence indicates, for example, that exclusive breastfeeding, which contributes so much to the nutrition and health of infants and, through its contraceptive effects, to the health of mothers, is actually declining. The rapid population growth of recent decades has created larger cohorts of young mothers in need of child spacing information and services. There is growing concern about the detrimental effects of malaria, pneumonia and malnutrition on the health and survival of children. And, in some countries, AIDS threatens to reduce gains hard-won by child survival programs.

Nor can one be confident that programs can yet be sustained. A hard test of even long-standing programs, the sustainability of child survival programs – a concern for USAID from the beginning – is not yet assured. Substantial progress has been made, however (see Fourth Report to Congress on USAID's Child Survival Program, "Sustaining Results"), especially in the growth of knowledge

### **U.S. Universities**

#### **Participating in USAID's Health and Child Survival Programs**

<b>Atlanta University</b>	<b>Tennessee State University</b>
<b>Boston University</b>	<b>Texas Southern University</b>
<b>Case Western University</b>	<b>Tufts University</b>
<b>Charles R. Drew University</b>	<b>Tuiane University</b>
<b>Georgetown University</b>	<b>Tuskegee University</b>
<b>Harvard University</b>	<b>Uniform Services University of the Health Sciences</b>
<b>Howard University</b>	<b>University of Arizona</b>
<b>Jackson State University</b>	<b>University of California at Berkeley</b>
<b>Johns Hopkins University</b>	<b>University of California at Los Angeles</b>
<b>Kansas University</b>	<b>University of California at San Francisco</b>
<b>Lincoln University</b>	<b>University of the District of Columbia</b>
<b>Meharry Medical College</b>	<b>University of Hawaii</b>
<b>Morehouse College of Medicine</b>	<b>University of Illinois</b>
<b>Morgan State University</b>	<b>University of Maryland</b>
<b>Morris Brown University</b>	<b>University of Michigan</b>
<b>New York University</b>	<b>University of Missouri</b>
<b>Philander Smith College</b>	<b>University of North Carolina at Chapel Hill</b>
<b>Purdue University</b>	<b>University of Pennsylvania</b>
<b>Rockefeller University</b>	<b>University of Southern California</b>
<b>Rutgers University</b>	<b>University of South Carolina</b>
<b>San Diego State University</b>	
<b>Southern University</b>	
<b>Stanford University</b>	
<b>State University of New York</b>	

and demand on the part of the families and the capacity of both the public and private sectors to provide services. Even in some of the world's poorest countries, such as Burkina Faso, data show that not only has it been possible to introduce fees sufficient to cover almost all of the costs of a well functioning dispensary, but that use actually increased when revenues raised ensured that stocks of essential drugs were uninterrupted and services improved. However, despite progress, families and governments still spend untold millions of dollars on treating diseases that could have been prevented or using treatments that have little effect. And, there is growing concern that the problem of financing the health sector as a whole could, in many countries, overwhelm commitments needed to finance the relatively modest costs of sustaining child survival programs.

## Increasing Protection

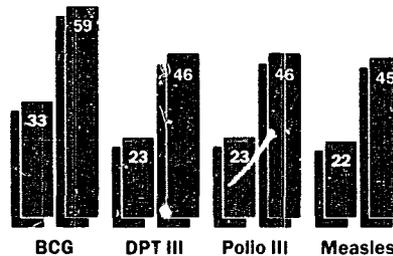
### Vaccination Coverage: Child Survival Emphasis Countries

#### Africa

Percent vaccinated by 12 months of age

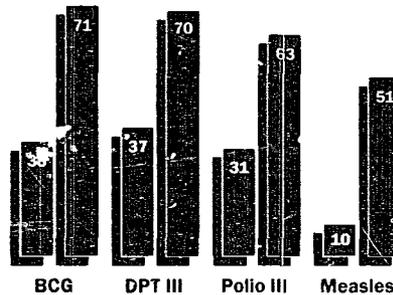


80% Coverage



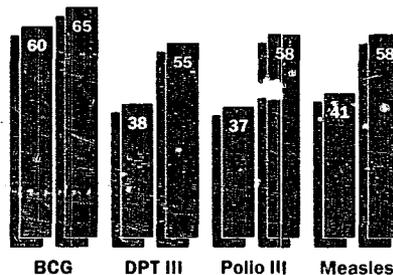
#### Asia/Near East Region

Percent vaccinated by 12 months of age



#### Americas Region

Percent vaccinated by 12 months of age



1985 1988

## Broader Impacts

Because many of the measures of progress of child survival projects have been quantitative, it is easy to miss the human dimension. But it is this element that is the essence of the program and its impact. This is, after all, a program about children, families and their future. It is also easy to forget, because it is focused "only on children," that the program has broader impacts. But some of the most exciting reports from the field take this broader view. A report from Indonesia describes how community networks established for immunization have been used to launch a program to prevent dengue fever, which affects adults as well as children. A report from Bolivia tells of private voluntary organizations adding community water supply to child survival projects. In Jamaica, a technician computerized immunization statistics and then extended his effort to strengthen the entire health information system for the ministry of health.

Some of the unexpected impacts that are being reported from various countries are those that affect women, both as mothers and as health workers. From numerous countries, programs report that child survival activities are helping women assume positions of leadership. In Mali, CARE reports that village women themselves, not project representatives, are communicating child survival messages through skits and role playing, and that women leaders have emerged in each village in the project area capable of educating other village women on child survival strategies. In Nigeria, 116 women trained by an Africare child survival project to be village health workers have become respected community leaders and important promoters of preventive measures to improve child survival and community health.

From Bangladesh, come two reports of projects that have improved the situation of some of the world's poorest women. The Urban Volunteers Project trains destitute and abandoned women in Dhaka, the nation's capital, to be community health workers. Thus far, some 1,500 poor, illiterate women have been trained and currently serve approximately 80,000 families in the slums where they reside. These women are not paid for their services in cash, but as a result of their work, they have gone from being one of the most deprived groups in Bangladesh to respected sources of health information and care. Said

one health worker during an interview in the Bangladesh press. "Before, my neighbors would not talk to me, they shunned me. Now when I visit, they welcome me and spread a mat." Along with enhanced self-esteem and social status, the volunteers gain income-generating skills and receive literacy training. In the rural Matlab area, a recent evaluation has documented that the status of female community health workers has changed tremendously. Today respected as family planning and health professionals and as social leaders, their position is all the more impressive given that when the program began, a decade ago, these same health workers were considered agents of evil for venturing outside the traditional female realm of the home for work. The health workers' perseverance, strict code of conduct and eagerness to prove themselves useful to the community, along with strong project support, has paid off. They have not only enhanced their own influence and standing, they also serve as role models for other women in the community, encouraging increased education for girls and making it acceptable for women to work outside of their home.

While child survival and other health care interventions bestow prestige and engender confidence, other factors influence women's use of child survival interventions: if programs are going to be successful, they must address these factors. As a Nigerian physician has noted, decisions by individual families on child survival services are made "in the context of competing demands on the resources of time, energy, knowledge and money within the household." Women's triple workload – household chores, income generation and child care – is too often overlooked by programs seeking to persuade mothers to use child survival technologies. These constraints may play a significant role in deterring women, especially very poor women, from using child survival technologies.

A study of 80 women living in the urban slums of Dhaka, Bangladesh, for example, found that mothers who had to struggle every day simply to survive had little time or energy left for planning ahead and taking a child to a clinic for vaccinations. Women who were better off economically, on the other hand, perceived that they had more control over their lives and considered immunization important enough to take a day off of work if necessary to accompany their child to the clinic.

Greater understanding of women's time



U.S. Agency for International Development/Alic Haaland

demands and active collaboration with mothers to find solutions can make projects responsive to all women, including the most economically marginal and isolated. Outreach to individual homes, setting of clinic hours to accommodate women's work schedules and efforts to work cooperatively with employers are needed to further the impact of child survival and equity in availability of services.

Finally, because child survival is directed at the young, it is sometimes hard to see the relationship of these programs to the working age population. Next year, however, the first "children of the child survival revolution" will enter school.



**I**t is early on a weekday in the developing world. A mother walks with her two daughters, her three-year old clinging to her hand, the four-month-old baby asleep, wrapped tight to her back with a colorful length of fabric. They are making their way to the local health clinic, a 30-minute walk on a dry day, one hour when the water is high and the roads are deep with mud. She must go quickly, as there may be many other mothers with their children there, some to see the doctor, others, like herself, to get their children immunized and weighed.

As they enter the clinic, a glance around at the few mothers and children in the waiting area tells her that she will not have to wait long. The baby awakens and cries briefly before suckling at her mother's breast. She exchanges greetings with some of the women and produces her daughters' health cards, which have been safely tucked away in a fold of her dress. Though she cannot understand all of the words written on the cards, she is proud of the row of "Xs" placed there by the health worker, indicating that her children have been getting life-saving vaccinations. Today, her infant will be weighed and get her second doses of vaccine for diphtheria, pertussis and tetanus and for polio. Knowing that she took extra care to feed her older daughter when she had diarrhea, the mother is confident that the scales will show that the child is also growing well. The mother asks the health worker for some packets of oral rehydration salts so she won't have to make a trip to the clinic if her daughters get diarrhea during the upcoming rainy season. She remembers a neighbor feeding her baby son oral rehydration salts when he had diarrhea. It made such a difference! And, oh yes, she must also ask the health worker about going back on birth control pills next month. There is so much to remember . . .

This scenario describes many of the things that child survival projects aim to achieve – regular use of effective technologies to keep children alive, well fed and healthy, accessible health clinics staffed with trained health workers, adequate supplies and community validation of the need to use health services.

Some developing countries are well on their way to realizing these goals, but many countries (and on a more provincial level, scores of towns and villages and urban slums) are far from achieving them. There remain millions of young children whose health and journey through the first five years of life may be compromised by serious illness or cut short by death. And even for those countries that have



American Public Health Association

built a strong foundation for child survival, there is a need to strengthen and sustain the underlying institutions to ensure their continued existence in the coming years.

The immediate causes of death and disability among infants and young children are clear: diarrheal diseases, vaccine-preventable diseases such as measles, polio and neonatal tetanus and other diseases such as malaria, pneumonia, other respiratory infections and, now, AIDS. But there is an undercurrent below these killers – malnutrition, frequent, high risk pregnancies, lack of education and pervasive and, in some cases, worsening poverty – that keeps good health out of reach of too many of the world's families and the next generation they are nurturing.

There will always be a debate as to where and how to best intervene in this process.

## **Vaccine-Preventable Toll** Six Diseases Targeted by USAID's Child Survival Program

### **Measles**

As the cause of approximately one and one-half million infant and child deaths a year, measles is the leading single killer among vaccine-preventable diseases and an important contributor to malnutrition and subsequent deaths from other causes, particularly diarrheal diseases and pneumonia.

### **Neonatal Tetanus**

Tetanus occurring in the first month of life as a result of unsanitary practices surrounding childbirth is almost always fatal, killing nearly 775,000 infants a year. Vaccination of expectant mothers protects the infant against this disease. If women are vaccinated either during pregnancy or before, their infant is protected.

### **Pertussis (Whooping Cough)**

An acute, highly contagious infection of the respiratory tract, this disease claims the lives of over 500,000 children each year and predisposes survivors to other diseases. Immunization against pertussis is achieved by completing the three-dose schedule of combined diphtheria, pertussis and tetanus (DPT) vaccine before an infant reaches 15 weeks of age.

### **Poliomyelitis**

Despite sharp declines in the number of cases and the virtual elimination in the Americas, polio still leaves over 200,000 children with life-long handicaps. Three doses of polio vaccine are required for complete protection.

### **Diphtheria**

This contagious disease infecting the tonsils and mucous membranes of the throat can lead to heart failure and inability to breathe within two weeks after onset of symptoms.

### **Tuberculosis (TB)**

Long associated with poverty and crowded and unsanitary conditions, its importance is growing as a secondary infection associated with AIDS.

USAID has focused its efforts in the health sector on promoting a limited number of proven interventions on a broad scale. Others have argued for a more comprehensive approach that would necessarily be realized more gradually. Still others stress the need for education and economic growth, which, in the long run, may permit families to obtain the health care they desire. Of course, there is no single answer. But the experience of the last decade has shown that with child survival programs it is possible to make dramatic improvements in the prospects for the survival and health of the young.

## **Vaccine-Preventable Diseases**

Through the efforts of the global partnership in health and child survival, there has been definitive, rapid movement towards increasing vaccination coverage among children in developing countries in all regions of the world. In the early 1980s, when WHO's Expanded Program on Immunization (EPI) was just beginning, vaccines were reaching only 10 percent to 20 percent of the developing world's children. Today, through a massive global coalition that links countries, communities, donors and citizens, immunization coverage in the developing world has been lifted to more than 60 percent. Sixty-seven percent of children reaching their first birthday in developing countries are now fully vaccinated against diphtheria, pertussis, tetanus and polio. 74 percent are protected against tuberculosis and 60 percent are vaccinated against measles. Thirty percent of women are vaccinated against tetanus, protecting children born to them against neonatal tetanus associated with unsanitary births. At these levels, WHO estimates that immunization prevents 2.2 million child deaths each year from measles, neonatal tetanus and whooping cough and 360,000 cases of polio.

Significant progress is reported in many countries. By March 1990, Costa Rica, Egypt, Zambia and Pakistan were among the eleven USAID-assisted countries that had attained the 80 percent target immunization coverage rates for the six major vaccine-preventable diseases, a goal adopted by many heads of state. Many other countries have attained 80 percent coverage against at least one of the childhood diseases and many more are on the threshold of doing so. With the importance of immunization clear to countries everywhere,

it can be said with reasonable assurance that the majority of countries will hit universal immunization goals by 1995. And, in those that fall short, the causes will be well understood.

The objective of immunization programs, of course, is not vaccination per se, but disease control and, in the case of some diseases, eventual eradication. Already, the impact of widespread vaccination coverage is evident in the reduced numbers of disease cases – notably in the tremendous reduction of polio cases throughout the world. Indeed, in the Americas, polio is on the threshold of eradication. The number of cases in Latin America and the Caribbean nations decreased 87 percent between 1980 and 1988, from 2,700 cases to 344 cases. Only 143 cases were confirmed in 1989, and no cases of polio had been confirmed in any of these countries during the first two months of 1990.

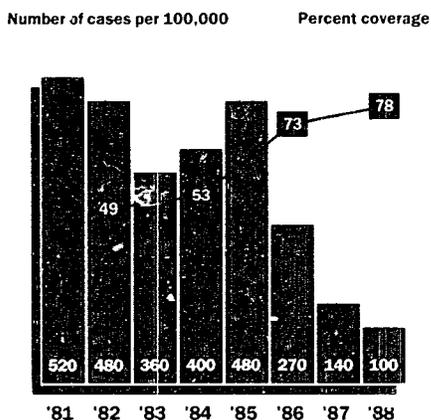
The impact of these programs is not limited to the prevention of death and disease, but also includes substantial cost savings. Cost-benefit analyses suggest that it is substantially less expensive to prevent childhood diseases than it is to treat them. A study in Indonesia estimated that the cost of preventing tuberculosis, diphtheria, whooping cough and tetanus by vaccination is one-third the cost of treating these diseases. In Cote d'Ivoire, one estimate yielded an 11:1 benefits-cost ratio for measles vaccination. Moreover, investment in immunization not only protects against specific diseases, it also helps to reduce the toll of other illnesses, such as diarrhea and respiratory infections, and the consequences of malnutrition.

USAID is deeply committed to global immunization efforts. Since the expansion of its support for child survival in 1985, USAID has committed some U.S. \$214 million to aid in the building and delivery of immunization programs worldwide, including over U.S. \$44 million in FY 1989 for programs in 45 countries. Each year, over 20 percent of the total monies allocated for child survival activities are for immunization. And justifiably so. In the developing world, over 2.8 million children still die every year from only six vaccine-preventable diseases (see box on left).

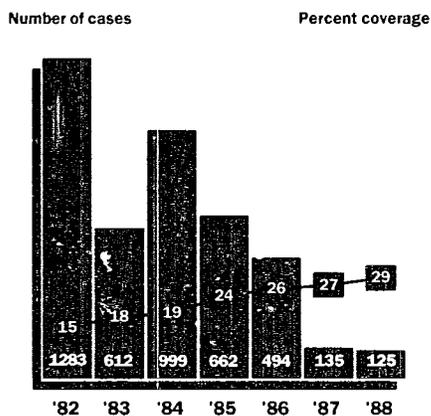
Through major bilateral agreements in countries like Pakistan, India and Indonesia, the funding of the Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD) project supporting immunization activities in 12 African countries and the accelerated immunization

## The Impact of Vaccination Reported Cases of Disease Fall

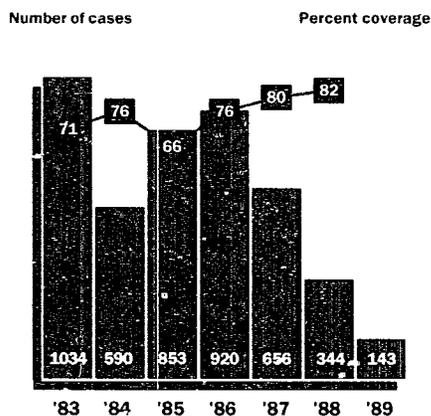
### Measles in Lesotho



### Neonatal Tetanus in Indonesia



### Polio in Latin America/Caribbean



■ Number of Cases    ■ Percent of Vaccine Coverage

## Mobilizing Volunteers for Child Survival

**M**any private voluntary organizations (PVOs) use volunteers to carry out USAID-funded child survival projects. In Guatemala, Project Concern International trains volunteers to assist with maternal and child health programs. World Vision Relief and Development is training community volunteers in Bangladesh to assist with immunization and vitamin A projects.

In 1987, USAID entered into a cost-sharing cooperative agreement with Rotary International, an organization with a remarkable ability to mobilize and train large numbers of volunteers. The Agency pledged U.S. \$6 million to support Rotary's PolioPlus Campaign, and in return, Rotary promised to raise U.S. \$78 million among American Rotarians. By the end of 1989, American Rotarians had raised U.S. \$94 million for the campaign; Rotarians in other countries raised an additional U.S. \$103 million. The USAID funds were used for model PolioPlus programs in Nigeria and India, two of the world's most populous countries. India, alone, accounts for over 50 percent of the world's polio cases.

Social mobilization is the key to the PolioPlus programs in Nigeria, India and 88 other developing countries. In each country, an army of volunteers, mostly Rotarians, is recruited and trained in immunization tasks, such as baby tracking, health education and record keeping. The volunteers work with political and health leaders to organize and conduct immunization drives.

The Rotary PolioPlus volunteer network is solidly built, with directors at the national and state levels and a PolioPlus committee in each club. The volunteers are trained in community-level workshops. Supervision and signed volunteer identification cards help to ensure volunteer commitment to the project.

India and Nigeria would be hard-pressed to pay for the tens of thousands of volunteers assisting with their PolioPlus immunization programs. This kind of large-scale public health enterprise is quite difficult in the developing world without an effective volunteer component, and USAID is pleased to be associated with the social mobilization model developed by Rotary International.

Of course, sustainability is an important issue in the use of volunteer-based programs. What happens when volunteers lose interest or decide they want to be paid? Several PVOs, including Rotary International, are searching for ways to sustain volunteer commitment and to develop ongoing community support for projects that begin as volunteer-based efforts. Increasingly, mechanisms to sustain volunteer participation are being built into projects from the beginning.

initiative in Latin America and the Caribbean, the Agency has been instrumental in helping countries make great strides in increasing immunization coverage. In most instances, USAID-assisted projects at the country level support the national Expanded Program on Immunization run by the ministry of health; projects help countries establish specific coverage targets, plan programs, procure and deliver vaccines, strengthen logistics systems, train health workers and test and introduce new technologies. Additionally, countries can have their unique problems addressed by a cadre of experts through the Agency's U.S.-

based technical support projects such as REACH (Resources for Child Health).

## Program Strategies

While "a shot in the arm" clearly describes the goal of immunization programs, its simplicity does not capture the complex, multi-layered process that drives this intervention or the positive social and economic effects it helps bring about through disease control. To deliver this simple and highly effective technology, strong political commitment, financing, planning and management systems, supervision and logistical support are all required. These factors, coupled with the diverse cultures and difficult geography of many USAID-assisted countries, present a formidable challenge to the effort to prevent disease and ensure that cohort after cohort of children is fully immunized. So the challenge is really two-fold: reducing the morbidity and mortality due to these diseases while simultaneously building the internal capacities of countries to sustain independently the efforts and achievements gained through the financial support and technical expertise provided by a number of external donors.

Immunization programs have adopted a variety of approaches to deliver and expand vaccination coverage. Some rely exclusively on fixed facilities to provide services. Honduras' Health Sector project, for example, has helped the country attain high levels of coverage for the six vaccine-preventable childhood diseases primarily through a nationwide network of fixed health centers. Currently, 85 percent of children by 12 months of age are protected against tuberculosis; approximately 75 percent are vaccinated against measles, diphtheria, pertussis and tetanus and 70 percent are protected from polio.

Often, programs must use a combination of fixed health centers and mobile teams to provide continued coverage to large, stable population clusters and also to reach the more dispersed persons in the project area. In Bolivia, Foster Parents Plan uses this approach to assist the ministry of health in delivering immunizations to the nearly 21,000 children under age five in the Chuzuisaca Department. A USAID-funded CARE project in the Sudan has also had considerable success in immunizing children through a combination of static sites and mobile teams, despite continued civil strife and a highly dispersed population. In countries with especially difficult ter-

rain, ingenious means of service delivery have been devised. In Haiti, mobile vaccinators use horse and mule teams and motorcycles to carry vaccine cold storage boxes and injection supplies to secluded settlements far from fixed health facilities.

Some countries have raised immunization coverage through a series of national campaigns. However, rapid declines in coverage in the wake of campaigns in some countries are reminders that programs must leave in place a structure or the resources to provide vaccinations on a regular basis to ensure continued levels. In Senegal, for example, an intensive national campaign in early 1987 increased coverage rates for BCG (to prevent tuberculosis) and measles considerably, but these rates fell to just above pre-campaign levels only six months later. A second national mobilization in December 1988 increased rates once again, but preliminary data suggest that rates may be dropping once more.

Nigeria, on the other hand, has taken steps to sustain the gains achieved through three national immunization days conducted by the government between March and May 1988. A coverage survey in November 1988 showed that the percentage of fully immunized children 12 to 23 months of age had increased from 20 percent to 38 percent. By antigen, coverage was 72 percent for BCG, 58 percent for DPT3, 57 percent for Polio3 and 59 percent for measles. Nigeria subsequently created 4,000 additional health units throughout the country from which to deliver services more effectively and at a lesser cost. Also, individual states have begun to implement their own state-wide immunization days, modeled after the national approach, although economic constraints are forcing many states to formulate alternative, less expensive means of sustaining immunization coverage.

Many countries have enlisted the assistance of their national leaders in the effort to increase the demand for vaccinations and to promote immunization campaigns. The involvement of His Majesty Hassan II of Morocco and his daughter, Her Royal Highness Lalla Meriem, helped ensure successful mobilization for several national immunization days in their country. Convinced of the importance of vaccinations, His Majesty Hassan II spearheaded a vaccination campaign in October 1989 that included four neighboring countries and extended Morocco's technical and management proficiency and experience of conduct-

ing its own successful vaccination campaigns to its neighbors.

Programs have also used innovative community activities to promote immunization. A ministry of education program in Senegal, for example, links newborns with middle school children who follow their "adopted babies" through the vaccination schedule. Through this program it is hoped that not only will the babies be more likely to complete their vaccination series, but that also a whole generation of school children will learn the importance of immunization.

### **New Challenges**

The challenge of institutionalizing the commitment and securing the financing so that each future cohort of children is vaccinated must now be faced head-on. Many countries have significantly raised coverage rates over the last four years, illustrating that political, community and grassroots support for immunization programs has been well established. But the slope of vaccination coverage rates shows that, in relative terms, it is easier to move from 20 percent to 60 percent coverage than it is to move from 60 percent to 80 percent or more. Elimination of missed opportunities, closer attention to social and qualitative factors and improved logistics will be important factors in the climb to 80 percent coverage.

### **Missed Opportunities**

It is global policy of immunization programs that vaccinations be available to every eligible infant, child and woman of childbearing age at every contact they have with any level of a country's health system. Failure to immunize a child or woman whose immunization status is not current and who has no health contraindications is considered a missed opportunity. A growing mass of data indicates that missed opportunities contribute greatly to the low overall vaccination coverage in many countries. A recent survey of 60 health care facilities in Honduras found that opportunities were missed during 45 percent of clinic visits. Sixty percent of the health personnel surveyed withheld vaccinations from children who had a fever or diarrhea, a common practice but one discouraged by guidelines that recommend that the benefits of vaccinating an ill child far outweigh any health risks involved.

In a study at 26 acute care clinics in the major urban areas of Pakistan, 76 percent of children ages three to 23 months were eligible

for and in need of at least one further vaccination, but only seven percent of them actually received the needed dose. According to the parents surveyed, health workers refused to give the vaccine because the child had a minor illness, such as diarrhea, cough or cold or a fever, or was malnourished.

Continuing education of health workers is imperative to reduce the number of missed opportunities. However, many health workers have been taught not to vaccinate children who are undernourished or suffering from low-grade fever, diarrhea or mild respiratory infections; vaccination schedules may be miscalculated, vaccination cards may have been filled out inaccurately or a health worker may be reluctant to open a new vial of vaccine for just one child. New WHO guidelines urge health workers to use every opportunity to immunize eligible children and women, especially those attending the clinic for curative care. In addition, health workers must instill in parents the conviction that vaccinations are safe and important for their child's good health. Constant and well-targeted public information on vaccinations and where to get them and improved quality of services are also necessary to keep demand high.

### **The Reasons for Non-Participation**

In general, having the technology in place and accessible is not, by itself, enough to raise immunization coverage rates. Demand for the services must be created and sustained, so that in time, seeking these vaccines become integrated into a community's structure. While this is well understood by the international health community, a deeper analysis of factors that affect demand and sustainability at the provincial and community level has become necessary. In 1989, USAID paid increased attention to assessing the real reasons for the failure of some parents to seek protection for their children.

The Agency sought, for example, to determine why coverage rates for tetanus toxoid, the vaccine administered to pregnant women to protect their newborns from neonatal tetanus, have seriously lagged behind those for the other vaccine-preventable diseases. Neonatal tetanus is responsible for an estimated 775,000 infant deaths each year, and while many countries, including Indonesia, are now placing increased emphasis on vaccinating women, estimates put coverage in developing countries at only 30 percent. A shift in the

global recommendations for tetanus toxoid vaccination to include all women of childbearing age, not just pregnant women, should help to significantly reduce the incidence of neonatal tetanus and deaths from this disease. Concomitantly, a more robust understanding of the ethnographic factors facilitating or inhibiting a woman from beginning and completing her series of tetanus toxoid vaccinations is needed.

A 1988 study sponsored by USAID assessed some of the cultural perceptions of neonatal tetanus and the tetanus toxoid vaccine among three distinct cultural groups in Bolivia. Conducted by REACH, the study found that women of all three groups fear negative consequences from tetanus toxoid vaccinations. There is widespread suspicion, for example, that tetanus injections cause sterility, and in one area, a well-known "curandera" or traditional healer attributes her son's muteness to a vaccination. Folk beliefs, too, play an important role in acceptance of tetanus vaccination. Two of the cultural groups believe that wind, fright and bewitchment cause tetanus.

Studies that delve into socio-cultural factors can contribute significantly to the design of interventions to increase coverage for tetanus as well as the other antigens; they can help health workers develop more effective health messages and highlight fundamental gaps in health education that need to be filled, such as information on what tetanus is and how babies get it. These studies also identify individuals within the community upon whom people rely for information about tetanus. Mobilizing these individuals to support immunization efforts can go far in reducing disease incidence in communities.

A study in Togo sought to assess some of the socio-behavioral barriers as to why parents do not complete vaccination schedules for their children. Mothers of children under age five in nine villages were interviewed about their practices and social and cultural norms relating to preventing and treating the six vaccine-preventable diseases, in an effort to identify mothers' experiences with health services that facilitated or inhibited their acceptance of childhood immunization. One important barrier to which mothers attributed their failure to complete the full immunization series was a lack of information as to when to return to the clinic for the next dose of vaccine. Although the return date is written on a vaccination card, it is not a sufficient



Training and logistics are key to a successful and sustained immunization program. Here, participants at a logistics management workshop in Cote d'Ivoire learn about sterilizing equipment.

reminder. As one mother explained, "To know the date of next vaccination, you must count the weeks or days between markets, or ask other women who had their children vaccinated at the same time as your children were." Admonition by health workers for failure to bring the vaccination card was also a major inhibiting factor. Mothers offered recommendations to help increase the likelihood they would return for all the vaccinations. One suggested, "Have the chief send the towncrier to remind us several times – the day before the vaccination [and] three or four days in advance." Others recommended that neighborhood meetings be held where women who have had their children vaccinated would tell other women about what they learned and experienced at the clinic.

### Quality of Services

Attainment of desired coverage levels is only one step on the way to sustainable, effective immunization programs. The quality of services, measurable, for example, by the level of missed opportunities for immunization or by the use of a sterile needle and sterile syringe for each injection, can have a strong impact on a program's effectiveness. There is evidence that such qualitative factors are improving in USAID-assisted countries. Data from the Africa Child Survival Initiative – Com-

batting Childhood Communicable Diseases project show that the use of a sterile syringe for each injection increased from 50 percent in 1985 to 90 percent in 1989. Analyses by PRICOR found that immunizations were generally the best performed of the child survival activities. In a low income, urban area of Lima, Peru, health workers performed important steps in proper immunization such as maintaining sterility and cold chain and technical skill with over 80 percent accuracy. In study areas in Pakistan and the Philippines, nearly 90 percent of vaccinations were carried out with proper sterile technique.

### Improved Logistics

Refining the continuous delivery of supplies and equipment to even remote sites clearly is essential to delivering vaccinations. Vaccines are heat sensitive and lose their potency if they are not stored at sufficiently cool temperatures. The cold chain – the system of procedures, equipment and transportation designed to keep vaccines refrigerated and effective – is therefore perhaps the most critical logistical component.

Instituting and maintaining a cold chain often summons the most creative energies of program managers. Working with local merchants, the village chief and community members who had refrigerators, an Adventist



Rotary International

The endorsement of national leaders can be effective in increasing demand for immunizations. Above, Her Royal Highness Princess Lalla Meriem of Morocco, delivers a dose of polio vaccine during her country's national immunization day.

Development and Relief Agency project in Indonesia effectively overcame a "short" cold chain. Required to deliver vaccines to villages two days from the local health center where vaccines were stored, project managers had been unable to keep the vaccines adequately cold for more than 24 hours. By using ice from refrigerators in villages between the local health center and the target villages, health workers could easily replenish the ice in cold boxes for the continued journey to the remote communities.

Since November 1988, the REACH project has assisted the Haitian government with a training course to improve its cold chain in preparation for national immunization days. Although it was difficult initially to generate widespread interest in the training, a new commitment to the overall improvement of the cold chain system with improved supervision and temperature monitoring resulting from the training, has been generated. Haiti's national coordinator for EPI has added a course in cold chain management to the curriculum of medical students, and the Haitian association of private pediatricians has adopted the ministry of health norms for vaccine management, storage and transport in training courses for its members.

A survey of 4,051 health facilities throughout Peru sought to document the types and condition of cold chain equipment and logistical and technical problems associated with the use of equipment or fuels. The survey found that health facilities located in densely populated areas or hot climates were less likely to have the necessary cold chain equipment than facilities serving small populations and operating in colder climates. Some 2,670 refrigerators were found in the health facilities, of which 81 percent were in proper working condition. Nearly all of the 492 non-functioning refrigerators were kerosene powered. Ninety-one percent of the health facilities did not have enough ice packs, and 30 percent had no vaccine carrier boxes to transport vaccines—even though all of the surveyed facilities have outreach activities to deliver vaccines. The survey resulted in a national plan of action, which documents the problems and offers solutions and also provides realistic cost analyses of maintaining an effective cold chain. Similar studies have recently been completed in Bolivia and Guatemala. Ecuador is currently conducting its cold chain survey.

Cold chain maintenance and other issues were the focus of an immunization logistics management conference in Abidjan, Côte d'Ivoire, which brought together national immunization logistics personnel from 10 Francophone African nations, Madagascar and Haiti. Organized by REACH and the Organisation de Coordination et de Coopération pour la lutte contre les Grandes Endémies (a West African health organization), the five-day conference also included representatives of private voluntary organizations and other organizations working in immunization, as well as cold chain equipment manufacturers and vehicle distributors. Topics of discussion included vehicle maintenance, cost effectiveness studies, improved training and supervision of personnel and better management and distribution of supplies. The first of its kind, the conference was instrumental in disseminating lessons learned and improving cooperation between key logistics players.

With assistance from the ACSI-CCCD project, the Central African Republic has effectively established and integrated a management system for needles and syringes, kerosene, spare parts and cold chain equipment into the ministry of health. Such an effort will help sustain immunization expansion in the country.

### Data Collection to Improve Coverage

Country-level data collection programs that can feed information on coverage and disease incidence back to ministries of health and program managers allow policymakers to pinpoint where strategies need to be changed to ensure the greatest coverage at all times. Such systems can also detect isolated outbreaks of diseases, especially those not regularly covered by immunization programs, like yellow fever and meningitis, enabling governments to dispatch vaccines or special teams to the affected population. Computerized EPI Information Systems (CEIS) are currently in place in 26 countries. Used to compile, analyze and report information to all levels of immunization programs, CEIS provides coverage rates, number of disease cases and information on training and vaccine quality and source. In addition to providing key information for country nationals, the system also facilitates the production of reports for the World Health Organization.

COSAS (Coverage Survey Analysis System) helps countries to analyze the data collected from vaccination coverage surveys. Through the collaborative efforts of WHO and REACH, COSAS has been used in Haiti, Mali, Turkey, the Philippines, Nigeria and Madagascar. The system is a planning tool for service delivery and can help measure missed opportunities, the age of children when they received vaccinations and coverage levels for each vaccine dose.

### New Technology

Despite their success, current immunization technologies pose many constraints. In an ideal world, complete immunization could be accomplished shortly after birth with a single oral dose of a "cocktail" of vaccines that are heat stable. While this is still a dream, there are many significant advances in both vaccines and the technologies that are used to deliver them.

Currently, a number of new technologies are in advanced stages of development and testing, from inexpensive ways to detect breaks in the cold chain to several approaches to making disposable syringes used in many immunization programs non-reusable. Prompted by a desire to prevent any transmission of disease, USAID, through the HealthTech project is supporting the development of three new syringes: a non-reusable syringe by Johns Hopkins University that contains a device



Save the Children Federation

Vaccinating women against tetanus can greatly reduce infant deaths from neonatal tetanus. Left, a health worker in Bolivia carefully delivers a tetanus vaccination.

that swells and permanently blocks the needle after one use; a single pre-filled injection device which collapses upon use; and a second, non-reusable syringe. This syringe contains a small metal clip that locks the plunger at the base of the syringe after it has been used. To ensure that such technologies and others are rapidly available to developing country programs, UNICEF and USAID developed a Technology Introduction Panel in 1989 to cut through any unnecessary red tape that might slow their widescale adoption.

New vaccines hold further promise. In its Fourth Report to Congress on the Child Survival Program, USAID reported on field studies in Haiti and Mexico of a new strain of measles vaccine called Edmonston-Zagreb

(E-Z). The studies showed E-Z vaccine was effective in infants as young as six months, whereas other strains of the measles vaccine do not provide adequate protection until nine months of age due to the presence of maternal antibodies. Based on these findings and those from several smaller scale studies, WHO has issued new guidelines recommending early immunization with E-Z vaccine where measles is endemic.

In the coming years, USAID plans tests of other promising vaccines, including a vaccine against pneumococcal pneumonia, one of the most common causes of deaths from respiratory infections in children, and others that will lower costs, ease delivery and expand the impact of immunization programs.

### **Controlling Diarrheal Diseases**

**I**n markets, work sites and community halls and along busy roadsides in Lusaka, Zambia, popular theatre groups promote oral rehydration therapy (ORT) for children to prevent life-threatening dehydration that can be caused by severe diarrhea. Sponsored by Zambia's national diarrheal disease control program, the plays show audiences how to use Madzi-a-Moyo or "water of life," the locally produced oral rehydration salts (ORS), to prevent dehydration and explain the importance of continued feeding and fluid intake during diarrhea episodes. An estimated 100,000 people have seen the plays, which have been so effective in providing information about ORT that other groups in Zambia have begun using theatre to publicize messages on a wide variety of health topics.

Using live theatre is one of the many creative, cost-effective ways that USAID is helping developing countries promote the use of oral rehydration therapy, which in the last decade has become the leading tool in an international initiative to control the ravaging effects of diarrhea and the dehydration that can accompany it. Universal availability of ORT is one of the principal goals of the child survival program. Since 1985, USAID has allocated U.S. \$198 million for diarrheal disease control, including nearly U.S. \$43 million in FY 1989 to support diarrheal disease control activities in 50 countries.

Diarrhea is a common symptom of a large number of diseases. It affects children throughout the world, but hits hardest in developing

countries. WHO estimates that children in the developing world suffer more than one billion episodes of diarrhea each year; 60 to 70 percent are acute cases, characterized by watery stools often accompanied by vomiting and fever. In some cases, the loss of fluids and imbalances in essential chemicals is so severe that the child dies in a matter of hours. Diarrheal diseases are the leading killer of children under age five; an estimated four million children die each year of diarrheal diseases, brought on by the parasites, viruses and bacteria that thrive in unsanitary environments and exacerbated by poor nutrition, respiratory infections and other diseases.

Until the late 1960s, drugs and intravenous fluids were the accepted treatment for dehydration due to diarrhea. Requiring modern medical facilities, equipment, supplies and skilled personnel, all in short supply in developing countries, this therapy was expensive and inaccessible to most Third World children. USAID was at the forefront of efforts to develop a simple, affordable technology to treat diarrheal dehydration that could be made widely available, even to the most remote areas of developing countries. USAID support for research conducted at what is known today as the International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B) contributed to the discovery that a simple solution of essential salts, glucose and water, together with bicarbonate or trisodium citrate, can reverse dehydration within a few hours. Furthermore, the solution could be made from inexpensive ingredients and given orally to children by their mothers or by health workers with limited training. Today, oral rehydration salts are available in pre-measured packets worldwide. Rehydration solutions can also be made from ingredients found in all but some of the poorest households — water, sugar and salt.

While oral rehydration prevents dehydration in almost all cases and can prevent as many as 65 percent of all deaths due to diarrheal disease, it does not prevent repeated episodes of diarrhea that can leave children seriously malnourished, nor is it adequate treatment for some types of diarrhea. Therefore, USAID has adopted a three-pronged approach to controlling diarrheal disease: use of oral solutions to prevent or reverse dehydration during diarrhea episodes; continued feeding, especially breastfeeding for infants and toddlers, during bouts of diarrhea and

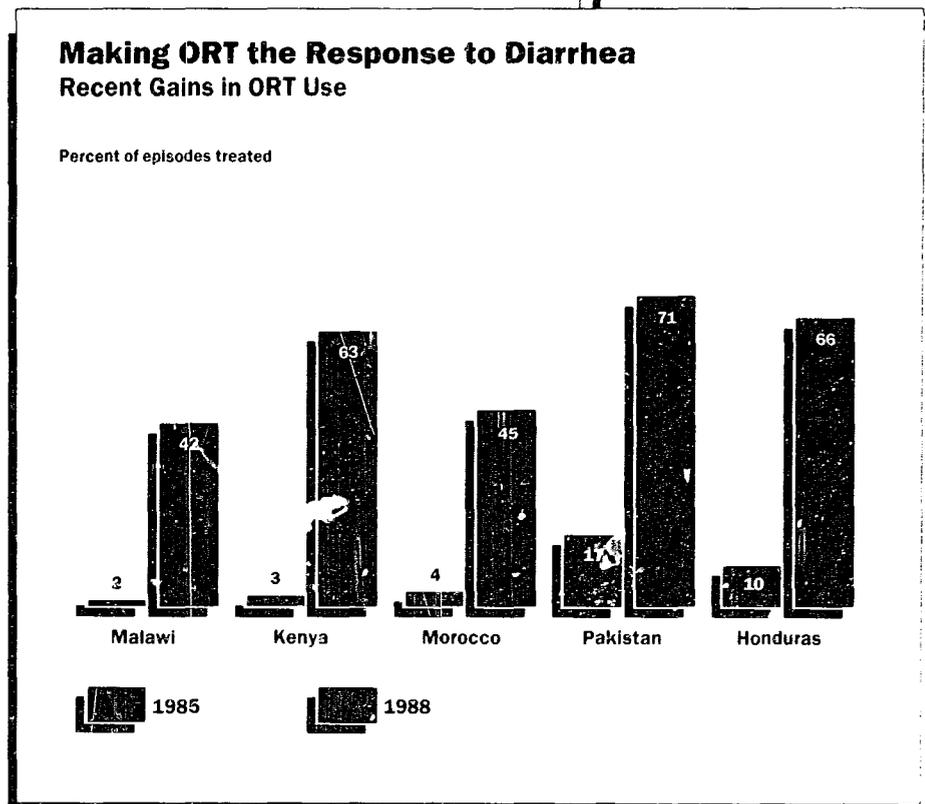
increased feeding during and after diarrhea; and quick referral of serious cases to appropriate medical facilities. Because ORT is a remedy, not a solution to the basic causes of diarrheal disease, the Agency also provides support for diarrhea prevention through efforts to promote exclusive breastfeeding, clean sources of water and adequate sanitation and personal hygiene education, and it backs efforts to test new vaccines, particularly against cholera, the most severe form of diarrheal disease, and rotavirus, the most common form of diarrhea.

### Global and Country-Specific Progress

In 1980, few children in the developing world were able to obtain appropriate treatment for diarrheal disease, and there were virtually no programs, either worldwide or national in scope, aimed specifically at controlling diarrheal disease. Dramatic progress has been made in the intervening decade: almost 60 percent of children in the Third World now have access to oral rehydration salts and about 34 percent of diarrhea cases are treated with ORT. Currently, 110 countries have diarrheal disease control programs. Many of these programs have been in operation for several years and have already achieved significant increases in knowledge and use of oral rehydration therapy as well as in local production and distribution of oral rehydration salts.

Although specific approaches vary from country to country, programs show many common features. Mothers and other caregivers need to know that dehydration accompanying diarrhea is harmful and can be treated in the home. To be persuasive, messages promoting oral rehydration therapy must be culturally relevant, based on local beliefs and practices. Health workers need to be enlisted to spread the word on ORT and to offer quality services and guidance on diarrhea treatment. Local production of oral rehydration salts and convenient sales and distribution outlets need to be encouraged to ensure steady and adequate supplies of ORS. Finally, ongoing research is needed to understand ways in which diarrheal disease control efforts can be more effective.

The diarrheal disease control program in Honduras provides a good example of how a comprehensive program can achieve impressive gains. Through an effective social mar-



keting campaign, use of ORT in Honduras, according to WHO estimates, increased from 10 percent in 1985 to 66 percent in 1988, and LITROSOL, the locally produced oral rehydration salts, has become part of the Honduran culture. Ninety-eight percent of mothers know about ORS, and 84 percent have used it to treat diarrhea-related dehydration. HEALTHCOM, a project of the Academy for Educational Development, has provided important assistance to the Honduras program and, to solidify these gains and to increase support for ORT among health workers, is encouraging the national Faculty of Medicine to develop a community education component on oral rehydration therapy for its curriculum. Egypt's comprehensive diarrheal disease control effort has also been highly successful: diarrheal-related mortality among Egyptian children under five has declined by more than 50 percent since 1983.

Other countries are also recording notable progress. In Peru, Malawi and Ecuador, hospitals report that diarrhea wards have closed and that fewer cases of dehydration are treated in health facilities. Not only is this evidence of the impact of improved treatment, but the cost savings to facilities for such changes in treatment patterns are considerable as well. Similarly, in 1989, the U.S. Cen-

Pre-measured packets of oral rehydration salts are now produced by 58 developing countries. Here, a trained healthworker helps a mother feed her child the life-saving solution.



Freedom from Hunger Foundation/Carolyn Watson

ters for Disease Control, the lead organization in the Africa Child Survival Initiative – Combatting Childhood Communicable Diseases project, noted that as peripheral health facilities have developed their capacity and confidence to use ORT, hospitalization to treat diarrhea has declined: in Lesotho, the number of diarrhea cases treated in six hospitals declined by one third in one year, between 1987 and 1988.

### **Increasing Knowledge of ORT**

As the principle caregivers to children, families, and especially mothers, are on the front line in the effort to effectively treat diarrheal dehydration. Yet, because diarrhea is so pervasive and accepted as a natural condition of childhood, many women in developing countries do not perceive diarrhea or even dehydration as dangerous. Teaching mothers to recognize the signs of dehydrating diarrhea and to prepare and use oral rehydration salts correctly to treat dehydration is a principal objective of USAID's diarrheal disease control activities. Programs are reaching out to the most remote and underserved areas to provide critical information about oral rehydration therapy. In the village of Punial, in the mountainous northern region of Pakistan, women gather at the Aga Khan Health

Center to learn how to recognize the signs of dehydration and to prepare solutions from both packets and homemade ingredients. In a remote area of Kajiado District in Kenya, where the World Vision Relief and Development project is teaching mothers about ORT, 83 percent of the mothers in the area now know about ORT. Moreover, these Kenyan mothers intervene in cases of diarrhea and have shown they can effectively practice what they have learned – prompting local health officials to cite the project as a model for others.

Studies have shown that mothers are more willing to try oral rehydration therapy if it is promoted in ways that are compatible with prevailing cultural beliefs and practices. Projects from Bangladesh to Bolivia are using small group discussions, or focus groups, to gather information about local customs and knowledge about diarrheal disease in order to fashion culturally appropriate messages promoting ORT. In Cameroon, PRITECH found that most cases of diarrhea are first treated at home with teas, baths and purges; oral rehydration solutions are virtually unknown. Mothers turn to modern medical facilities most often when traditional healers and other remedies have failed and the case has become severe. Based on this information, the national diarrheal disease control program will de-

velop a strategy for reaching mothers through targeted messages urging them to seek medical care sooner in cases of serious diarrhea and to make oral rehydration therapy their preferred method of home treatment.

### **Reaching Health Workers**

Support for oral rehydration therapy among health workers is essential if it is to be widely adopted in developing countries. A health worker's knowledge of and enthusiasm for ORT can have a powerful influence on the practices of an entire community. As health workers are often a mother's first contact point with the health system, USAID devotes considerable resources to building support for ORT among health workers through training and supervision.

In 1989, 145 USAID-supported projects in 42 countries provided training for health workers in diarrheal disease control. One, a pilot program in Burkina Faso, used a "tiered" approach to create diarrheal disease control training teams from the national to the local level. The project's impact has been reinforced by use of the training teams by UNICEF, private voluntary organizations and other donor agencies to strengthen skills among additional service providers.

To date, most training efforts have focused on in-service training. While this remains an essential activity, more training resources are being directed upstream towards pre-service instruction in medical and other schools to garner lasting support for oral rehydration therapy among health workers. Moving training on the correct case management of diarrhea into the mainstream of medical education will help to solidify a country's long-term commitment to ORT and other disease control activities. The PRITECH project has initiated essential, basic activities for such education. In collaboration with WHO, PRITECH has developed a package of materials on diarrheal disease control for medical schools; these include an instructor's guide, a textbook, reference materials and a bank of examination questions. Refinement of these materials continues in the Philippines and Indonesia and parts of the training materials have been used for in-service training in Pakistan.

Working with government health officials in Pakistan, PRITECH has also helped to establish diarrheal training units in the 10 largest pediatric wards of teaching hospitals. These units have drawn attention to needed

improvements in the pediatric component of medical education. Since the training units were introduced, diarrhea treatment and education of mothers has improved. Nurses play an important role in virtually all health services provided to mothers and children, either as direct caregivers or as supervisors and trainers. NurseCare, a new USAID project developed by the Medex Group of the University of Hawaii Medical School, plans to help bring nursing education into the mainstream of child survival activities, including diarrheal disease control.

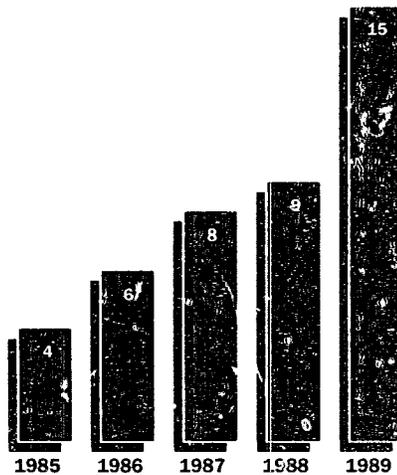
The impact of training activities can be reinforced by focusing attention on the quality of the diarrheal disease control services provided after training and on the supervision health workers receive. A review of health workers' knowledge and practices in Senegal, Mali and Mauritania indicates that while the workers correctly classify and choose the right treatment in most cases of diarrhea, they give mothers little advice on feeding during diarrhea or prevention of diarrhea.

With the use of targeted research, managers are learning to pinpoint weaknesses in ORT programs and to remedy them. In a low-income area of Lima, Peru, only one-fifth of mothers who used ministry of health clinics to obtain ORS packets considered ministry staff their principal source of information about diarrhea. This dichotomy between the clinic's importance as a source of oral rehydration salts but not of information led the PRISM group to examine staff practices. When the staff's guidance to mothers regarding management of diarrhea was observed and analyzed, it was found that mothers were not being given complete messages about oral rehydration therapy. The study enabled clinic supervisors to take quick corrective measures; ministry of health officials were so pleased with the expeditious way in which problems were identified and solved that they are now applying this approach to study other child survival services in one-third of the country's health districts.

In 1989, the PRICOR project also used applied research techniques to assist diarrheal disease control programs in Niger, Pakistan, the Philippines and Senegal to evaluate the quality of care and staff supervision in their respective programs. The evaluations found that the quality of care was often poor and ORT messages inconsistent. Many of the problems that were identified could be remedied

## Expanding ORS Access Pharmacies Selling in Bangladesh

Pharmacies (in thousands) participating in the  
Social Marketing Project



through on-the-spot correction and supervision. In other cases, the study results stimulated a renewed emphasis on supervision and provided officials with a new tool to identify problems and seek solutions.

### ORS Production and Sales

Oral rehydration salts are now produced by 58 developing countries. Together, these countries manufacture three-quarters of the world's supply of oral rehydration salts, compared with 50 percent in 1985. Local ORS production is a critical step in a country's effort to make its diarrheal disease program self-sustaining, and USAID has devoted considerable resources and technical expertise to support this effort in a number of countries, including Ghana, Guatemala and Turkey. After a loan and technical assistance in Ghana helped a local pharmaceutical firm, Danafeo, Ltd., produce and market an oral rehydration solution, private sector sales of ORS have risen steadily, reaching over 121,000 packets per month in 1989.

USAID has also sought to improve distribution of oral rehydration salts within individual countries, and, in fact, the wide availability of ORS packets through health posts, pharmacies, shops and private health care providers is one of the clear successes of the child survival program. In 1989, 24 projects supported the marketing of ORS packets

through commercial outlets or private health care providers. In Indonesia, Helen Keller International is testing distribution of ORS through small shops – an approach that is being closely watched by national policymakers. Interested retailers received training and an initial stock of packets. In 10 months, the 395 participating village retailers sold over 15,000 packets – meeting what was an unmet need for ORS in their communities. Some shop owners are so satisfied with sales that they have begun acting as middlemen, buying packets to sell to other traders as well as directly to mothers.

### Advances in Diarrheal Disease Research

The discovery of oral rehydration therapy, acknowledged as one of the most important medical advances of this century, not only made possible the global program of diarrheal disease control but also stimulated a program of multi-disciplinary research that has paralleled field programs. The results have been wide-ranging and significant: the recognition of the crucial role of feeding during and after diarrhea; the identification of persistent and bloody diarrhea as important causes of diarrhea mortality; the complexity of applying "simple" technology to diverse cultural settings and the potential of communications to change health behaviors. USAID has made major contributions to diarrheal disease research over the last decade that have demonstrated how essential research efforts in areas as diverse as communications, operations and nutrition research help move a basic discovery such as ORT from the laboratory through hospital wards to large-scale application in the field. Today, with a better understanding of both diarrhea and issues in field programs, researchers are paying increased attention to a new generation of issues.

Recognition that oral rehydration therapy restores lost fluids but does little to lessen the severity or duration of diarrhea or its nutritional impact has led to research on new formulations for solutions and for approaches to feeding during and after diarrhea. The Dietary Management of Diarrhea project collaborated with research institutes and ministries of health in Nigeria and Peru to develop and promote inexpensive weaning foods from local ingredients and taught mothers how to counter the varied adverse nutritional consequences of diarrhea.

Various projects are assessing oral rehydration solutions based on foods such as rice, corn and millet mixed with salt. Health experts, scientists and representatives of donor organizations and the commercial food industry met in Karachi in November 1989 to review recent trials of food-based solutions that have shown 25 to 50 percent reductions in both the duration and volume of diarrhea. While these findings are promising, there are a number of issues that must be considered before large-scale policy changes could be adopted, including the efficacy of these solutions in very young children, the requirements of time and energy for home preparation, and the potential for confusion if new messages and case management methods are introduced.

Other research efforts are directed at the diarrhea-related mortality and morbidity that ORT does not prevent – i.e. persistent and bloody diarrheas that are growing in relative importance as the effects of watery diarrhea are brought under control. Research efforts at the International Center for Diarrheal Disease Research in Bangladesh and by the Harvard-led consortium carrying out the Applied Diarrheal Disease Research project are turning their attention to preventive strategies, from vaccines to hand-washing, as well as to new strategies for case management.

## Breastfeeding: A Critical Role

**B**reastfeeding is a cornerstone of child survival. In fact, exclusive breastfeeding during the first 4-6 months of a child's life is probably the single most cost-effective child survival intervention available. Exclusively breastfed infants are two and a half times less likely to become ill, and almost two times less likely to die than infants who are not breastfed. It is conservatively estimated that the lives of more than one million infants could be saved each year if all babies were breastfed exclusively in the first 4-6 months of life.

Beyond this direct impact on child survival, breastfeeding plays a critical role in each of the major interventions of the child survival program – nutrition, diarrheal disease control, immunization and child spacing:

- Breastfeeding is critical to an infant's nutritional status. Indeed, breast milk is a "perfect food" in that it provides all the nutrients an infant needs up to 4-6 months of age. No breast milk substitute has the nutritional value of human breast milk. Even after the



World Vision Relief and Development

introduction of complementary foods, breast milk is an invaluable source of calories, high-quality protein and micronutrients well into a child's second year of life.

- Breastfeeding reduces the risk that a child will get diarrhea and continued breastfeeding during diarrhea, in combination with oral rehydration salts, reduces the likelihood of dehydration and malnutrition. Exclusively breastfed infants are 25 times less likely to die of diarrhea-related causes during the first six months of life than are those fed breast milk substitutes.

- Breast milk provides immunity from many common infectious agents until children are old enough to be fully immunized by vaccination. Both colostrum (the first milk) and breast milk contain substances that protect infants against measles, diarrheal diseases, acute respiratory infections and otitis media (ear infections). Recent research shows that colostrum also enhances an infant's immune response to the tuberculosis vaccine given at the time of birth.

- By delaying the return of ovulation, exclusive breastfeeding acts as a natural contraceptive, reducing the likelihood of a short birth interval, which poses serious health risks to the newborn as well as to its mother. Thus,

Oral rehydration solutions can be made from ingredients found in most homes – water, sugar and salt. Above, a mother mixes a solution for her baby.



Wellburt

**"Rooming in" keeps a newborn with the mother to ensure the baby is fed only breastmilk. Trained hospital staff instruct and encourage mothers in proper breastfeeding.**

promotion of breastfeeding is central to USAID's efforts to improve child survival by preventing high risk births.

Despite these benefits, data collected by the Demographic and Health Surveys project strongly suggest that both the incidence and duration of breastfeeding, especially exclusive breastfeeding, which brings the greatest benefits, are declining. In Mali, Senegal and Thailand, exclusive breastfeeding at birth is practiced by less than 20 percent of mothers. Approximately 40 percent of mothers breastfeed exclusively at birth in Ecuador, Peru and Colombia, but the proportion who continue to do so rapidly declines. In Colombia, Ecuador, Peru and Thailand, nearly 50 percent or more of all children under three months of age receive supplemental foods.

USAID currently supports 133 projects in 49 countries that promote breastfeeding during diarrhea, for nutrition or for child spacing. Because of the enormous potential of breast-

feeding to advance child survival, USAID is developing a specific strategy to guide the expansion of the Agency's breastfeeding projects and activities.

In the past year, the Agency has reviewed its activities within the major child survival interventions in anticipation of strengthening breastfeeding activities through mass communication and social marketing techniques. It will build on efforts of the last five years to promote and protect breastfeeding through the education of health professionals in proper breastfeeding practices, and begin to support community outreach to women who do not have access to the formal health care system and mother-to-mother support networks designed specifically to help improve breastfeeding practices.

Mothers, as well as health professionals and key government policymakers, are often unaware of the advantages of breastfeeding and do not know how to do it properly. The initiation of breastfeeding, for example, is frequently delayed for several hours or even several days after delivery, during which time the baby is given infant formula or glucose water, among other things. This practice increases the infant's exposure to infectious agents, and in the case of longer delays, deprives the child of the colostrum, which contains unique proteins, vitamins and anti-infective properties. Moreover, few mothers breastfeed exclusively during the first 4-6 months, and often cease breastfeeding altogether once weaning foods are introduced.

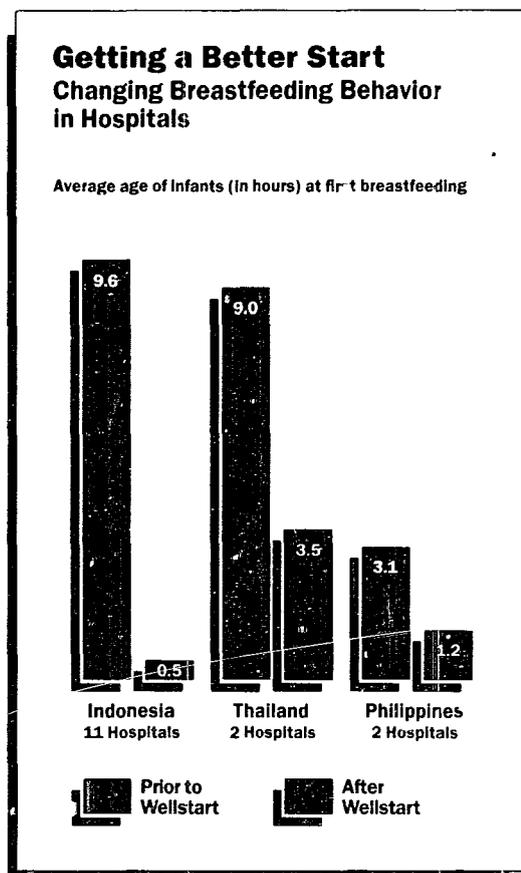
To encourage good breastfeeding practices, programs develop messages tailored to correct specific practices in individual countries. In Jordan, for example, a HEALTHCOM survey revealed that a combination of behavioral and clinical practices undermines the ability and will of women to breastfeed properly. The survey found that 75 percent of Jordanian infants are given teas and other liquids before they are ever breastfed and 28 percent of mothers delay initiation of breastfeeding until the second day. On the basis of this information, HEALTHCOM worked with the Queen Noor Foundation, a private institution endowed by the Royal family, to develop a series of 10 television spots on the "golden rules of breastfeeding." The spots stress the importance of early initiation, exclusive and frequent breastfeeding during the first 4-6 months, appropriate maternal nutrition and continued breastfeeding during the introduc-

tion of complementary weaning foods. In Paraguay, HEALTHCOM assisted the ministry of health and a private advertising agency to produce the country's first television promotional campaign on breastfeeding.

Increasing urbanization and the accompanying breakdown of social support systems, women's growing participation in the labor force and the availability and marketing of breast milk substitutes as the "modern" approach to child feeding have all contributed to the decline in breastfeeding. In urban areas, hospital clinical practices are the principal inhibiting factor. Thus, the San Diego-based Wellstart program targets key health professionals in major teaching hospitals in order to improve hospital practices and to encourage changes in medical and nursing school curricula to reflect appropriate breastfeeding management. Participants, who receive intensive education in lactation management, return to their own institutions to share what they have learned with their colleagues and work to bring about curriculum changes in medical, nursing and other training programs. In some cases, Wellstart graduates have created lactation management education centers and special breastfeeding clinics. In 1989, a core of 41 health care providers received Wellstart training in the U.S. and passed on information and materials to an additional 9,000 doctors and nurses in their home countries through residency training in teaching hospitals, workshops and special courses.

The program has been successful in improving breastfeeding practices and reducing infant mortality and morbidity in hospitals that have implemented lactation management techniques. In 15 hospitals in Indonesia, Thailand and the Philippines where health personnel have received Wellstart training, routine bottle feeding, originally done in 70 percent of the hospitals, stopped entirely and the average time between delivery and initiation of breastfeeding dropped from almost eight hours to a little over one hour. In one hospital in Indonesia, infant mortality due to infections declined 60 percent and infant morbidity from diarrhea dropped 86 percent in the six months after lactation management programs were implemented.

Hospitals have also found that adopting good breastfeeding practices is cost effective, in terms of savings on baby bottles, infant formula, bassinets (good lactation management encourages "rooming in," whereby the baby



stays in the same room within easy reach of its mother rather than in a nursery, where it is likely to receive breast milk substitutes), use of glucose solution for prelacteal feeding and drugs to stimulate postpartum uterine contraction, which occurs naturally with the commencement of breastfeeding.

The Wellstart Program has also been effective in encouraging medical and nursing schools to revise their curricula on breastfeeding. Nearly half of the medical and nursing curricula in the Indonesian hospitals that were recently evaluated now include the program's materials. With USAID's support Georgetown University in Washington, D.C., is working to bring about similar improvements in the curricula of nursing schools in Latin America. The project is also developing and producing information packages on breastfeeding for policymakers.

To provide support for and advice on breastfeeding to mothers who do not deliver in hospitals and to encourage continuation of breastfeeding after leaving the hospital, USAID is supporting community outreach strategies through such groups as La Leche League. In Honduras, for example, the League has formed "Breastfeeding Mother Support Groups," each

conducted by a trained and certified Breast-feeding Advocate to encourage and provide support for proper breastfeeding practices.

### **Reducing High Risk Births**

**W**hen a child is born too soon after the birth of a sibling, its risk of dying before its first birthday increases significantly. Along with a range of available family planning methods, promotion of breastfeeding is central to the Agency's goal of reducing high risk births, because of its influence on ovulation and thus its potential to delay conception of another child.

Other factors also characterize high risk births – being born into a family that already has four or more young children or to a mother who is outside her prime childbearing years. In 1989, some 60 USAID-funded child survival projects in 32 countries sponsored family planning activities directed towards women under 18 years old or over 35 and women with three or more children. As just one example, the Family Planning Support Program in Burkina Faso works to bring information about high risk births and services to women who are too young, too old or with more than three children, living in 15 primarily rural zones. Over the past year, the program targeted students and other youth with posters, brochures, printed dress materials and visits from an amateur theatre troupe, which provoked lively audience discussion about family planning and high risk births. A preliminary evaluation found that the project had been exceptionally successful in developing skilled manpower and strong management and in encouraging movement toward self-sufficiency, a strong indication that the project can be sustained.

But of all the factors related to high risk births, child spacing has the greatest impact on child survival. Indeed, the importance of child spacing has been recognized for decades. West Africans have long used the term "kwa-shiorkor" (or disease of the displaced child) to describe the severe malnutrition brought on by "the influence a child is under when his mother becomes pregnant with her next child." Research suggests that if all births were spaced two years apart, the infant mortality rate would decline by 10 percent. Another five percent reduction could be achieved if childbearing were confined entirely within the ages 20-34, and an additional three percent could be trimmed from the infant mortality rate if

all births after the third were avoided. And, even if the child survives the risks of a close birth interval, the effects on its growth and development can be long-lasting. Recent data show that, even when they reach school age, children born soon after a sibling are smaller and weigh less than children born after more optimal intervals.

Closely spaced births also jeopardize the lives of the previously born child as well as the mother. An older sibling is one and a half times more likely to die if another child is born within two years of his or her birth. And maternal mortality rates could be reduced by as much as 12 percent if childbearing were limited to the prime reproductive ages and all births after the third were avoided.

USAID's strategy to prevent high risk births emphasizes child spacing, primarily through the promotion of breastfeeding and the provision of a full range of modern family planning services to those at highest risk. Exclusive breastfeeding on demand provides 98 percent protection from pregnancy in the first six months after delivery if menses have not returned (although after six months of breastfeeding, its contraceptive effects are reduced and other forms of contraception should also be used). USAID-funded studies in Egypt, Thailand and Pakistan have confirmed the relationship between breastfeeding and the delayed return of fertility. Based on these findings, an international meeting of health scientists held in Bellagio, Italy, in 1988 strongly endorsed breastfeeding as a viable child spacing method and urged that it be included as a part of all maternal and child health programs in developing as well as developed countries.

The consensus reached in Bellagio on the importance of breastfeeding as a child spacing strategy has revitalized interest in promoting breastfeeding. Georgetown University's Natural Family Planning Project is working to increase the acceptability and efficacy of breastfeeding as a child spacing method. Working with the La Leche League, the project is planning to link breastfeeding promotion programs with existing child survival services in Latin America.

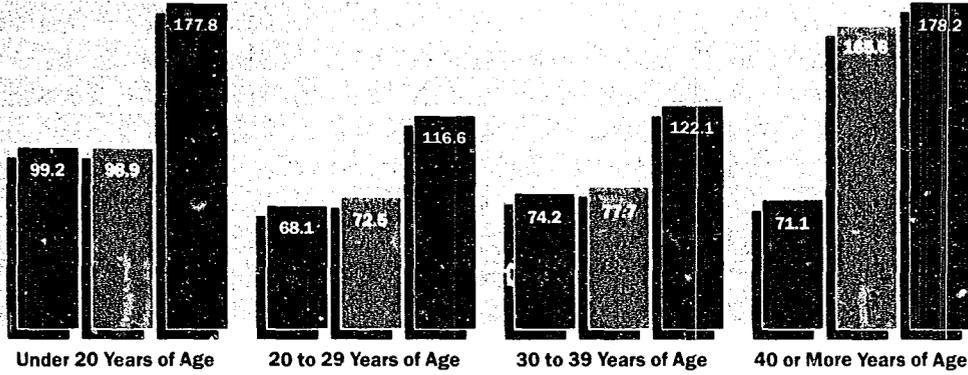
Currently, 44 USAID-funded child survival projects working in 25 countries report that they include activities to promote breastfeeding for the purpose of spacing births. USAID supports the activities of national programs, private voluntary organizations and

## Uneven Odds

### Factors Increasing the Risk of Infant Mortality

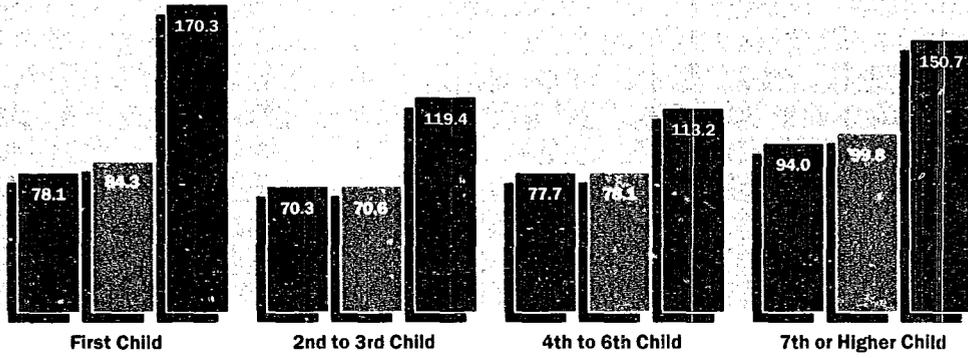
#### Infant Mortality and Age of Mother

Number of deaths per 1,000 live births



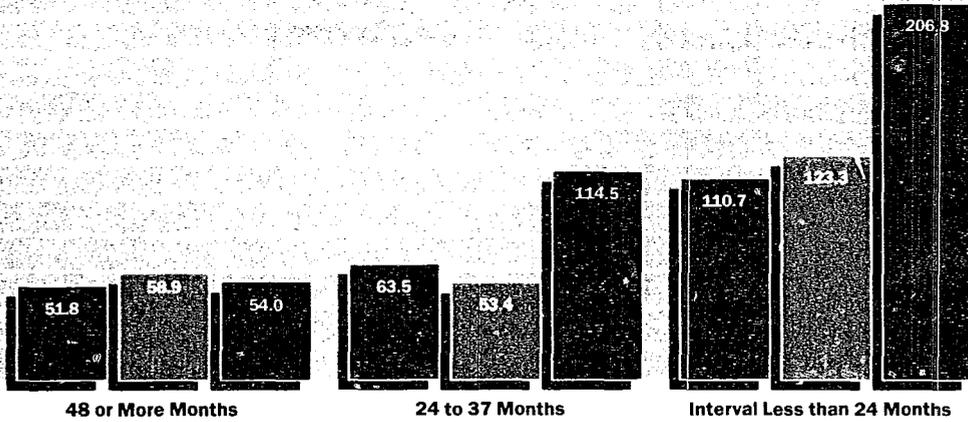
#### Infant Mortality and Birth Order of Child

Number of deaths per 1,000 live births



#### Infant Mortality and Birth Interval

Number of deaths per 1,000 live births



other groups to reduce the number of high risk births by making special efforts to provide family planning services to women with high risk characteristics. Although efforts to provide family planning through the child survival program are dwarfed by the support for family planning services provided through the Agency's population program, the child survival initiative has been successful in bringing services and the unique outreach of private voluntary organizations to high risk birth activities.

USAID-supported private voluntary organizations play a vital role in high risk birth education, especially to remote and underserved communities. In Nigeria, the Imo State Ministry of Health Child Survival Project has successfully introduced village-based counseling on high risk births. Forty-four percent of women who received such counseling from project-supported village health workers were able to name a modern family planning method, compared with only 21 percent of mothers who did not receive the counseling. Moreover, contraceptive prevalence in the project area increased from 14 percent at the time of the project's inception in 1987 to 21 percent in August 1989. Perhaps most important, the project marks the first time village women have had access to peer counseling on child spacing techniques.

The efforts of Save the Children Federation in several countries illustrate the range of effective interventions in child spacing programs. In Indonesia, Save the Children has encouraged contraceptive use through education, outreach and special efforts directed at families with children under age two and those with four or more children. As a result, use of a modern contraceptive method increased nearly 26 percent in just over two years. In Zimbabwe, Save the Children sponsored a team of male motivators to address child spacing issues, since men in that country generally decide family size.

Of course, the Agency's population program, through family planning programs worldwide, also has important health impacts on children. An outstanding bilateral project, the National Family Planning Services Project in Bangladesh, targets child spacing messages and services to young married women with closely spaced births and to women over 40 who have several children. Approximately 30 percent of these women are now using contraception to space or prevent births. USAID

estimates that the country's population growth rate has fallen from 2.8 percent to 2.4 percent – a level previous estimates expected would not be achieved until the year 2005. Similarly, after extensive efforts, the average number of births per woman in Kenya declined from 7.7 in 1984 to 6.7 in 1989, according to the recent Kenyan Demographic and Health Survey. Many women now recognize the benefits of smaller families, and their ideal family size has fallen to 4.4 children from 5.8 in 1984.

### **Maternal Health and Child Survival**

As the previous section makes clear, the health of the mother is inextricably linked to the health and survival of her child. Several factors are contributing to a growing recognition that the maternal side of the equation needs increased attention and a growing commitment by USAID to programs to improve maternal nutrition, health and survival. First, pregnancy-related health problems and deaths are all too common in the developing world. Maternal mortality rates in the developing world are commonly 200 times higher than those in North America and Europe. In large areas of sub-Saharan Africa, a woman's risk of dying from pregnancy-related causes is greater than one in 25 during her life-time, in stark contrast to the life-time risk of one in 15,000 in the United States. In the developing world, the leading causes of maternal mortality are hemorrhage, obstructed labor, eclampsia, infections and complications of illegal abortions. A mother's death during childbirth usually leads to her infant's death as well: in Bangladesh, a motherless child has a five percent chance of surviving just one year.

In addition, pregnant women who are undernourished and in poor health are substantially more likely to deliver a low birthweight baby, who is more vulnerable to disease and infection and less able to survive bouts of disease. As control of diarrheal diseases and vaccine-preventable diseases has reduced deaths among infants ages 2 to 12 months, deaths to babies during the first month of life are increasing as a proportion of all infant deaths. About 40 percent of all infant deaths in developing countries occur during the first month of life, known as the neonatal period. These neonatal deaths are often directly related to the mother's health and nutritional status prior to and during pregnancy. Low birthweight, prematurity, tetanus and birth trauma are among the conditions that in many cases

can be prevented with prenatal care, targeted feeding and tetanus immunization for the mother during pregnancy and safe delivery.

Techniques that have proven successful in child survival programs are giving rise to new approaches to improving maternal and neonatal health and nutritional status. Communications and social marketing, immunization of pregnant women with tetanus toxoid through special immunization campaigns, home-based maternal health records, training of traditional birth attendants, prevention and treatment of anemia and provision of food aid for prenatal dietary supplementation are areas where the experience of child survival programs is helping to guide programming in maternal health and nutrition.

In 1988, USAID launched a new, five-year, U.S. \$17.5 million project called "Maternal and Neonatal Health and Nutrition," or MotherCare. Through technical assistance, training, workshops and applied research, MotherCare will seek to improve pregnancy outcome for both the woman and her infant by strengthening and increasing the use of prenatal services, mobilizing community-based action and influencing behaviors affecting health and nutritional status.

There are a number of efforts already underway to assess the nature, magnitude and determinants of maternal and neonatal health problems. The results of 20 USAID-funded research projects in 13 countries on maternal nutrition and health care will be presented in an international meeting later this year. With support from the International Center for Research on Women, researchers looked at different topics, from the effects of breastfeeding and pregnancy on maternal nutrition and health status, to the determinants and utilization of prenatal nutrition and health care. In Indonesia, work is underway on surveys to gather information on prenatal care, maternal morbidity, tetanus immunization coverage, delivery outcomes and health status of the newborn to improve the design of maternal health interventions. The Demographic and Health Surveys project is testing a new way to document the extent of maternal mortality in developing countries, asking women about the survival of their sisters. Studies in Jamaica, Peru and Haiti will examine women's attitudes toward prenatal care and the quality of available services.

Efforts to reduce maternal mortality are also an active component of many child sur-



Pan American Health Organization

vival projects. Assisted by a child survival grant, AMREF has developed a combined mother-child health care card where information on the mother's pregnancy, including her weight gain and other indicators of nutritional status, are recorded. Use of these cards has focused attention on the care given to pregnant women and heightened the project staff's appreciation of the importance of good prenatal care. The cards have also proven to be an effective tool for identifying "at risk" mothers and for providing sustained follow-up care from conception through the postpartum period.

In many developing countries, details of the condition of maternal health services are largely unknown. In Côte d'Ivoire, Family Health International supported a review of 13 public maternity centers and hospitals to strengthen the services offered. The project

## Vitamin A Interventions: Mass Impact in Indonesia

**A**n insufficient intake of vitamin A, a basic nutritional building block, is increasingly recognized as a major threat to child health. Children with diets deficient in vitamin A can develop a variety of visual impairments, the most serious being childhood blindness. Each year, an estimated five to ten million children are affected by vitamin A deficiency, with 250,000 children becoming needlessly blind. Further, although results are still preliminary, USAID-funded studies are contributing to growing evidence of an association between inadequate vitamin A intake and increased risk for childhood disease, especially respiratory infections, and mortality.

To decrease vitamin A deficiency, USAID has created a grants program for private voluntary organizations (PVOs) to establish vitamin A activities either as full-scale projects or as components of broader child survival programs. These include a Save the Children Federation project in Malawi, Freedom from Hunger activities in Honduras and a Helen Keller International program in Indonesia.

Long involved in vitamin A activities in Indonesia and a leading partner in the research linking vitamin A deficiency and child death, Helen Keller International activities illustrate the possible impact of private voluntary organizations in child survival programs.

Helen Keller International's efforts in Indonesia use a diverse approach that builds on policy dialogue with the Indonesian government. The organization trains large numbers of health care providers and village-based health and family welfare workers to distribute vitamin A capsules, conduct food fortification activities and undertakes extensive promotional and social marketing efforts. Vitamin A programs in Indonesia enjoy strong support at both the national and local level.

Helen Keller International staff in Indonesia view themselves as catalysts and technical advisors. With an eye towards long-term sustainability, all vitamin A activities are collaborative efforts between the voluntary organization and the Government of Indonesia. Evidence that the approach worked came when vitamin A was made part of Indonesia's five-year health plan, with a significant commitment of resources for program activities.

Indonesian government agencies, the donor community and others have acknowledged an initial and modest success in the reduction of visual impairment among children due to vitamin A deficiency. In areas with long-term and intensive activities, for example in West and Central Java, provinces with a total population of over 57 million, the presence of detectable corneal problems has been dramatically reduced.

Based on their experience and expertise, Helen Keller International, through USAID-support, is now offering technical assistance to other PVOs involved in vitamin A programs.

found that crowded conditions, lack of essential supplies and equipment and disorder were commonplace and that nearly three women died every week in these facilities of pregnancy-related causes. Health care providers reported that most of these deaths could have been prevented if service conditions had been better. The study results have led to calls for improvements in the quality of prenatal care, revisions of the referral system and promotion of child spacing efforts.

Efforts to strengthen maternal health and nutrition services demonstrate the different approaches that link child survival services with other closely related activities. Bringing the "M" back into the Maternal and Child Health equation will benefit both sides of the equation - mothers and their children.

## Combatting Malnutrition

**I**mproved nutritional status of children is critical to advancing the goals of child survival. More than 1.50 billion children in developing countries are undernourished. These children are far more likely to die of diarrhea, measles and other common infections than children who are well fed. Indeed, malnutrition is believed to be an underlying cause of 60 percent of child deaths in the developing world.

Children become malnourished as the direct result of two phenomena: inadequate food intake, both in quantity and quality, and debilitating disease that inhibits the full absorption and utilization of the nutrients in food that is consumed. The indirect causes of malnutrition are as numerous and complex as those that give rise to the need to focus on child survival itself. Economic deprivation, poor education, natural disasters such as floods and drought and, in some countries, war and civil strife are but some of the secondary factors that contribute to inadequate food consumption and disease.

USAID has long recognized the importance of improved nutrition to reduce infant and child morbidity and mortality, and has long supported agriculture and other programs aimed at improving overall availability of foods and, thus, nutritional status. USAID-assisted child survival projects endeavor to enhance nutritional status through focused efforts to improve infant and child feeding, growth monitoring and promotion interventions to address deficiencies in important micronutrients and supplemental feeding of young children as well as pregnant and lactating mothers through the Public Law 480 food program.

To gain a better understanding of what contributes to effective nutrition programs, USAID in 1989 supported an international conference for nutrition planners in Seoul, Korea. The conference highlighted successful nutrition programs in Tanzania, India, Indonesia, Thailand, Bolivia and Brazil and identified common characteristics that contributed to their success. There are a number of common

factors: commitment on the part of national policymakers; community participation in nutrition activities from their inception; effective training and strong follow-up of health workers at central and field levels; targeting of at-risk populations; good management information systems; and emphasis on making the positive outcomes of the programs self-sustainable.

### **Improved Feeding Practices**

As has already been made clear, breastfeeding is crucial to the nutritional status of infants and young children. Up to four to six months of age, breast milk provides all the nutrients a child needs for normal growth and development. And even after other foods are introduced, breast milk continues to be an important source of nutrients.

Malnutrition is most common, and most severe, in children ages six to 36 months. This is the weaning period, when children need frequent feedings of high-nutrient foods to support normal growth. Often, however, they are weaned with bulky or watery foods that are difficult to digest and lack calories and other important nutrients. The problem is compounded by infrequent feedings – perhaps only once or twice a day on an adult's schedule – and insufficient quantity because of priority food distribution within the household. Furthermore, the food they do receive is often contaminated, which together with the decline in the passive immunity they had received from their mothers' breast milk, contributes to high rates of infectious disease, especially diarrhea. Indeed, diarrhea and malnutrition combine in a vicious cycle in weaning-age children – diarrhea attacks malnourished children longer and more intensely than it does healthy children. If they do not receive proper treatment and feeding during and after the bout, they become increasingly more malnourished with each recurrence. Thus, feeding during and after each episode of diarrhea is critical to prevent further deterioration of the child's weakened condition.

There are a number of approaches to improve feeding habits, from nutrition education and social marketing techniques to production of locally available, nutritious weaning foods. In 1989, 127 USAID-assisted projects in 40 countries reported some activity supporting proper weaning and child feeding practices. Through the centrally funded Weaning Project, the Agency assisted Cameroon, Ghana, Indonesia, Ecuador and Swaziland to assess

local weaning practices in order to develop and test low-cost, nutritionally sound and sustainable solutions to poor weaning habits. After an education campaign in Indonesia, an evaluation showed that knowledge of good feeding practices among mothers and community health workers had increased considerably and that calorie intake and nutritional status of children in the project areas had improved significantly over comparison areas. The Dietary Management of Diarrhea project also addresses appropriate feeding practices during this critical period.

### **Vitamin A and Other Micronutrient Interventions**

Vitamin A deficiency, long known to cause nutritional blindness, remains a serious problem in the developing world. Every year, an estimated 250,000 children needlessly become blind from dietary deficiencies in vitamin A.

In November 1989, the XIII International Vitamin A Consultative Group (IVACG) meeting in Kathmandu brought together some 270 policymakers, programmers and scientists in the health, nutrition, biochemistry, agriculture, horticulture and development fields to explore the latest information on the link between vitamin A and childhood morbidity and mortality and to review techniques for assessing marginal or subclinical vitamin A deficiency. Preliminary results from studies now underway are adding to the evidence that vitamin A deficiency may be linked to pneumonia, measles and other infectious diseases among children. USAID is taking the lead in research on documenting the precise relationship between the deficiency and morbidity and mortality. Preventing and treating vitamin A deficiency may soon emerge as a key activity in support of child survival.

In 1989, USAID began a new vitamin A field support project, and currently supports vitamin A activities in 64 projects in 24 countries. Specific vitamin A grants were awarded to U.S.-based private voluntary organizations to work in 12 countries to combat the effects of vitamin A deficiency. These projects take various approaches: they distribute vitamin A capsules; encourage increased consumption of foods rich in vitamin A through home and community gardening and fortification of widely used foods; and conduct nutrition education. In Indonesia, a Helen Keller International project has expanded the distribution of vitamin A capsules by 25 percent in a dis-

trict of 425,000 persons, and, with the help of radio spots, has overcome mothers' reluctance to feed their children green, leafy vegetables rich in vitamin A. In Bolivia, Save the Children Federation has succeeded in convincing 900 families – 40 percent of the families in its project area – to grow their own vitamin A-rich food, including vegetables that were previously imported. Because of the need to understand local eating habits and overcome children's widespread resistance to eating green, leafy vegetables and other vitamin A-rich foods, technical assistance for communication and social marketing has been provided to vitamin A intervention projects in Indonesia, Bangladesh, the Philippines, Thailand and Mauritania and may become a key component of vitamin A projects.

Iron deficiency is one of the most common nutrition problems in the world: nearly half of preschool children and reproductive-age women in the developing world are anemic. USAID assists projects to distribute iron supplements in 13 countries. In 1989, USAID and the World Health Organization sponsored a workshop on the Control of Maternal Anemia to bring international experts on iron deficiency together to share the most recent information available. Other USAID-supported activities conducted research on iron capsules and networked with private industry on recent research developments. USAID-assisted projects in several countries distribute iodized oil and salt to protect at-risk populations from iodine deficiency.

### **Growth Monitoring and Promotion**

The regular monitoring and recording of children's weight, height and age gives communities and health workers a tool for tracking child well-being and a framework for delivery of services. To be effective, the technical aspects of weighing and recording must be followed up with individual counseling for the mother about her child's health and nutritional status. PRICOR and other projects assessing growth monitoring activities in a number of settings have found that the second step, counseling of mothers, happens too infrequently and needs strengthening in many programs.

Growth monitoring lends itself to community participation. When a survey by the African Medical and Research Foundation revealed that growth monitoring of children in Matinga Village, Kenya, stopped after the children had been immunized, the results were

shared at a community meeting. One-by-one, mothers stood and explained that their heavy work loads, the long distance to the health facility and the large number of children under five in their families impeded their continued use of growth monitoring services offered by the project. The community rallied to find a nearby location and contributed labor and materials to construct a facility where growth monitoring could be offered on a regular basis. Local health workers and traditional birth attendants were given additional training so they could conduct and promote growth monitoring. An unexpected benefit of this process has been the identification of village children under age five who have not been immunized. The experience has been a source of pride for the village: as one resident observed, "We are doing it ourselves."

### **Supplemental Feeding: Reaching Those at Greatest Risk**

Through the Public Law 480 program, child survival projects receive food to be used for supplemental feeding of needy mothers and children. In FY 1989, an estimated 11 million preschool children and pregnant and lactating women received food and health and nutritional services provided by the P.L. 480 program through private voluntary organizations.

In Zaire, the American Organization for Rehabilitation Training provides food supplements as well as growth monitoring, nutrition and health education to approximately 50,000 children under age five and their mothers living in some of Kinshasa's poorest communities. Services are provided through 50 health centers under the local PVO umbrella organization Sante Pour Tous or Health For All; women volunteer groups provide outreach activities.

In India, the Integrated Child Development program provides a comprehensive program of nutrition education, health care and growth monitoring in addition to food supplements. As part of the program, CARE distributes supplementary food to over five million mothers and children. With USAID-assistance, intensive efforts have been made in approximately 4,000 villages in two states over the past five years to improve the training of health workers, the management of information systems and the use of social marketing in nutrition education. CARE also supports oral rehydration therapy, growth monitoring, immunization, respiratory infection control

## Child Survival and Public Law 480

**P**ublic Law 480 is the principal means by which the United States provides food assistance overseas. Increasingly, Public Law 480 programs are using their resources to promote child survival and to deliver vaccinations. In 1989, forty-eight child survival projects around the world reported that they are supported in part by Public Law 480 through direct feeding programs under Title II or local currencies generated through the sale of food under Titles I and III.

According to 1989 reports, twenty-three child survival projects in twelve countries - Indonesia, India, Honduras, Bolivia, Guatemala, Peru, Ecuador, Somalia, Sudan, the Dominican Republic, Kenya and Uganda - are conducting immunization programs and receiving support from the sale of Public Law 480 foods. Last year, these projects reported vaccinating the following numbers of infants: 5.6 million with BCG, 4.8 million with DPT3 and 4.9 million with Polio3. In addition, 4.4 million infants were vaccinated against measles. All 23 of these projects that delivered life-saving vaccinations were supported in part with Public Law 480 funds.

Title II direct feeding programs are used to support child survival projects in a variety of ways. In Peru, where twenty-two percent of children one to two years of age are malnourished, the Adventist Development and Relief Agency is helping the Ministry of Health to build community health centers through Food for Work programs. These health centers also bring a variety of child health services, including vaccinations, to thousands of Peruvian families.

Another project in Peru, Food-Assisted Integrated Development reports that it helps ensure adequate diets through communal meals prepared by groups of women. These activities are accompanied by training in environmental sanitation and food handling.

As part of USAID's project to support India's Integrated Child Development Services program, CARE is reaching 6 million children with corn-soy blend, a specially blended Title II food for young children. Further, studies in India indicate that targeted feeding to undernourished pregnant women substantially increases birthweight and reduces serious malnutrition in the first six months of life. Of note, Catholic Relief Services recently began an innovative targeted feeding program in Gambia for pregnant women using Public Law 480 foods along with nutrition and health education.

CARE's Title II projects in Honduras, Guatemala and the Philippines are developing oral rehydration therapy and growth monitoring components of national supplementary feeding programs. The Maternal and Child Nutrition/Feeding program in Zaire reports that it has reached over 60,000 seriously at-risk children in the poorest communities of Kinshasa with a combination of food, education, immunizations and oral rehydration therapy.

and nutrition on a pilot basis in several states. Recent studies have shown that the program has a positive effect on the birth weight of infants born to participating mothers who are undernourished.

### Respiratory Infections

As deaths due to other child illnesses, especially diarrhea, decline, respiratory infections are becoming the leading cause of death in young children in many countries. Globally, 70 percent of these deaths are due to pneumonia, over two-thirds of which are caused by bacterial infections that are treatable by inexpensive oral antibiotics. An additional 15 to 20 percent of respiratory deaths are a consequence of pertussis and measles, which can be prevented through immunization. Infants,

particularly those younger than six months of age, are at significantly greater risk for dying from such respiratory infections and die sooner than older children, often within three days of the first clinical symptoms. Although the incidence of respiratory infections is similar in developed and developing countries, there is a disproportionate number of deaths from them in developing countries, due to the backdrop of poor health and nutrition and inadequate access to prompt health care. Respiratory infections also contribute to malnutrition, especially if a child has frequent, repeated episodes.

Like diarrhea, most respiratory infections are not serious. The challenge of curbing deaths from respiratory infections stems mostly from the rapidity with which they can



CARE/Rudi Horner

**Child survival programs would be impossible without the commitment of community health workers worldwide who deliver the life-saving technologies to their villages, cities, provinces and country. Above are community health workers from Macina District, Mali.**

kill and difficulties in accurate diagnosis and effective service delivery. Because antibiotics are used to treat these infections, mothers and health workers must be taught to differentiate respiratory infections from simple coughs and colds to avoid misuse of the drugs. The danger here is not only the waste of resources, but development of bacterial resistance to antibiotics.

To build the basis for an effective field program, USAID has supported a number of research activities in recent years. A 12-country study by BOSTID (Board on Science and Technology for International Development of the National Academy of Sciences) has provided valuable data on the epidemiology of risk factors associated with respiratory infections. Pairs of U.S. and developing country researchers undertook community and hospital-based studies in Argentina, Bangladesh, Brazil, Colombia, Guatemala, Kenya, Nigeria, Pakistan, Papua New Guinea, the Philippines, Thailand and Uruguay. The Agency

is also working with a number of U.S. institutions and their counterparts in developing countries to develop and test new and improved vaccines against pneumococcal pneumonia and Hemophilus influenza type b, the major pathogens causing severe respiratory infections. Field trials in The Gambia for both vaccines are currently being planned.

Since 1986, USAID has also supported one of the most comprehensive studies of the management and treatment of acute lower respiratory infections in the remote and mountainous Jumla District in Nepal. Specially trained villagers visited each household in their communities bimonthly, actively seeking out cases of childhood pneumonia and responding to requests from parents to see sick children. They have treated nearly 30,000 confirmed cases of pneumonia with oral antibiotics. The efficacy of this strategy to identify cases of respiratory infections is currently being analyzed; preliminary data suggest that while the in-home treatment protocol was ef-

fective, the health workers could not specifically identify enough cases to have a major impact on mortality.

USAID also learned through the Jumia strategy that rigorous training and supervision of the health workers is paramount to successful case detection and management. Additionally, it is clear that only through educating mothers and other caretakers to recognize the signs of infection and to seek prompt treatment for their children will more cases of pneumonia be detected and treated.

Currently, the Agency is formulating a strategy on respiratory infections, incorporating lessons learned from implementing other child survival interventions and emphasizing active case management to address the problem. The strategy will focus on ways to integrate activities into existing child survival programs and primary health care structures.

As the basis for the development of its strategy, the Agency sponsored a major technical workshop in August 1989 in Washington on respiratory infections to identify the principal biomedical and program issues that need to be addressed. The workshop brought together representatives from WHO and UNICEF as well as experts in epidemiology, treatment, operations research, behavior and economics to discuss major obstacles and to encourage developments in the field.

As the relative significance of respiratory infections as a major cause of infant death increases, USAID-funded health and child survival projects are stepping up efforts to address the problem. In Honduras, Egypt and Jordan, where these infections now account for one-third of all deaths of children under age five, projects are laying the groundwork for curbing pneumonia deaths on a large scale. Because treatment for pneumonia is based on rapid recognition and action by mothers, Honduras, with HEALTHCOM assistance, has developed a communications strategy based on ethnographic and behavioral studies, radio communications, training procedures and incentives for health workers and mothers. In Jordan, the Primary Health Care Nursing Development project is providing training to nurses in community outreach, management and referral of severe cases to hospitals.

## **Malaria**

One of the greatest challenges to the international health community, malaria accounts for a significant proportion of child deaths.

Transmitted by infected *Anopheles* mosquitoes, the fever, chills and malaise symptomatic of malaria can lead to severe anemia, kidney failure and death. Although an infected person is subject to recurrent attacks, the majority of deaths occur as a result of the first. In Africa, where the most severe form of malaria is endemic, conservative estimates put annual child deaths due to the disease at one million, making some 25 percent of all child deaths there due to this parasitic infection. Pregnant women, too, are at increased risk from malaria infections, which may lead to low birthweight babies, miscarriages and other problems.

The risk for children begins soon after six months of age, when maternal immunity against malaria passed to the child during pregnancy and early breastfeeding begins to wane. Children surviving their initial attack of malaria will eventually regain immunity as their own body develops antibodies to the parasite. However, this happens only after frequent, recurrent bouts with the disease, leaving the children weak and susceptible to other child illnesses.

Unfortunately, the options available to the health community for addressing malaria have actually decreased: the parasite causing the disease has proven a formidable foe. Once treatment with the drug chloroquine was effective and widely used to prevent and allay attacks of malaria; now the parasite has become resistant to this drug, forcing countries to scramble for alternative methods for preventing and treating the disease and adding urgency to the search for a vaccine and more effective control. In Africa, this problem is especially alarming. All but five countries of tropical Africa have confirmed chloroquine resistance. New drugs have proven effective, but resistance to these has also been reported. Similarly, mosquitoes have developed resistance to several insecticides, making malaria control through vector reduction difficult. Despite vigorous research programs worldwide, a vaccine to prevent or decrease illness and death from malaria is still years away; therefore, alternative control methods must be applied on a persistent and continuous basis.

Through its Vector Biology and Control project, the Agency is improving malaria control efforts in the developing world by providing technical assistance and training in surveillance, data management, operations research and vector control. In Honduras, working with the Division of Vector Control, the

project recently completed field testing of a bacterium that rapidly kills mosquito larvae but does not harm other organisms. The successful trial demonstrated that the bacterium killed the majority of larvae in the three acre-sized water test plots. The Vector Biology and Control project will now explore with the Honduran government the appropriate role of the bacterium in an integrated malaria control program.

The use of bed nets and curtains treated with insecticide is showing promise in decreasing both new and recurrent malaria infections. A USAID-sponsored study conducted by the U.S. Centers for Disease Control in Uru, Kenya, found that the treated bed nets and curtains decreased the incidence of further infections from the parasite as well as bouts of malarial illness and the number of mosquitoes present in study homes. Findings from other studies of impregnated bed nets, curtains and sheeting conducted in over 20 other countries worldwide further attest to the effectiveness of this control measure.

Other USAID projects have assisted countries in controlling malaria with the most effective technologies available. The Malaria Control II project has helped the Government of Pakistan increase its efforts in malaria case detection and treatment. Through the establishment of nationwide malaria case detection laboratories and specialized training for laboratory staff, more accurate diagnoses of malaria can be made, ensuring that anti-malarial drugs are used only where they will be most effective as well as identifying those areas with the highest endemicity. The regional ACSI-CCCD project is using applied research, strategy development and health worker and public education to promote the limited "best options" available for malaria treatment. Due to increasing resistance of the malaria parasite to chloroquine, malaria treatment policies in all nine malarious African countries served by the project were revised in 1989 to match the changing epidemiology of the disease.

### **Children and HIV Infection**

**A**n increasing number of deaths to infants and children in some developing countries due to perinatal infection with the human immunodeficiency virus (HIV), which causes AIDS, may slow the gains in child survival made thus far. An analysis by USAID's Office of Health estimated the potential over-

all increase in infant and child mortality rates due to HIV infection for three African and two Caribbean nations. In what everyone hopes will be a worst case scenario, current projections suggest that the virus could increase infant mortality in Kampala, Uganda, from five percent to 42 percent over current levels; the death rate for children between one and four years of age could increase anywhere from 13 to 111 percent. For Zambia, the infant mortality rate may increase from three to 22 percentage points, and for Haiti, from two to 15 percentage points.

There are also serious implications for healthy children whose mother or caretaker is infected with the virus. The illnesses indicative of AIDS are extremely debilitating, hindering a parent from properly caring for their children. The problem of children orphaned by the death of both parents due to AIDS – not an uncommon event in highly endemic areas of East Africa – must also be addressed. UNICEF estimates that in 10 countries of East and Central Africa by the year 2000, there will be five million children under 15 years of age whose mothers died from AIDS. In Uganda, an estimated 3,000 to 15,000 such children are already straining the resources available to care for these otherwise healthy children.

### **Water and Sanitation for Child Health**

**A**ccess to a clean water supply and appropriate sanitation can have a significant impact on child illnesses by averting diarrheal illness and other water-related diseases. Meeting a community's basic needs by providing a source of clean water can serve as a bridge to launch the full-range of child survival and health services in their area.

Recently, the Water and Sanitation for Health (WASH) project has focused some of its activities on the natural links between child survival and water and sanitation programs. This past summer, WASH sponsored a workshop to develop strategies for strengthening these linkages. Participants explored ways to integrate existing projects as well as to develop new projects with both strong child survival and water and sanitation components. WASH also provides technical assistance to U.S.-based and local private voluntary organizations, such as CARE and Agua del Pueblo in Guatemala, to broaden the awareness of the complexity of water and sanitation proj-

ects, especially the roles of community participation, health education, training and operation and maintenance.

## Health Services Development

**B**y reviewing each intervention separately (as has been done in this chapter), the reader may be left with the impression that they are delivered separately. In some cases that is true. However, few countries have the resources to run parallel programs and, on the community level, as a rule, it is the same health worker who has responsibility for several if not all of the activities described. Further, there is growing evidence that child survival activities not only can, but are, acting as a foundation upon which integrated services can be built. Starting with a core of selected interventions, targeted to the greatest needs of the community, many programs are showing that a more comprehensive package of services can evolve which reinforce and bolster one another. For example, recent research in Haiti shows that women who are family planning acceptors are significantly more likely to have their children completely vaccinated. In at least two countries, Haiti and Indonesia, models of community-based integrated service packages have been developed, the rally post and posyandu, respectively, and have expanded services rapidly. Immunization programs are looking at how to deliver compatible services, such as vitamin A capsule distribution, along with the vaccinations they currently provide.

At the same time, it is also clear that in many countries there are severe resource constraints and system-wide inefficiencies that constrain performance. As efforts to strengthen public health services have long-term benefits for child survival programs and primary health care, the Agency has initiated some important new activities in this area. In Nigeria, for example, a new project seeks to assist the government in reorienting its health outlays from curative to preventive services and decentralizing budget and administrative control to the local governments. Similar reform efforts are underway in Indonesia and Kenya, where the funding requirements for preventive services are being carefully analyzed. Kenya recently became one of the first African countries to establish a nationwide health sector cost sharing system.

The recent evaluation of child survival

## AIDS: Responding to New Threats to Child Survival

**S**ometimes, international child survival specialists feel like busy firefighters – just as they are putting one fire out, another erupts. Similarly, as smallpox shrank towards a smoldering memory, AIDS seemed to spread like a prairie fire. And sadly, some child survival gains may be lost in certain countries because of the death and disease caused by the AIDS virus.

Despite the difficulty of mounting effective AIDS-control projects in some of the poorer countries of the world, U.S. private voluntary organizations are responding to the challenge. With USAID support, World Vision Relief and Development is developing media messages for HIV/AIDS prevention and support systems for AIDS victims in Zimbabwe and, in neighboring Swaziland, Project Hope is establishing community-based HIV/AIDS information and counseling centers.

Minnesota International Health Volunteers (MIHV), a small U.S. private voluntary organization (PVO), managed to make substantial contributions to HIV/AIDS research and control as an offshoot of a USAID-funded child survival project in Uganda – and did so despite civil war and even loss of personnel due to death from AIDS.

MIHV, in partnership with the Institute of Public Health at Makerere University, began its child survival activities in an area near the capital city of Kampala, Uganda by renovating Kasangati Health Center and restoring a range of primary health care and child survival services. The volunteers and their Ugandan counterparts noted that a number of people coming for treatment were suffering from a condition of physical wasting commonly referred to in Uganda as “slim disease,” a condition later identified as AIDS.

To meet the urgent need for information on the disease, a volunteer physician at the center was assigned to the Department of Pediatrics at Makerere University to assist with AIDS studies. MIHV's early involvement with the treatment and study of “slim disease” became part of the early published literature on AIDS in Uganda. The volunteers also began an AIDS education program.

An important offshoot of the project occurred after two volunteers from the MIHV Uganda project took positions at Case Western Reserve University. Their contacts in Uganda, developed at Kasangati, eventually led to a major International Collaboration on AIDS Research (ICAR) funded by the U.S. National Institutes of Health, one of five such collaborations in the world.

programs in Egypt, for example, found that system-wide problems in public health care facilities, including low salaries, excessive staffing and heavy subsidies, raised the issue of whether child survival interventions would be made more efficient by placing even more emphasis on private sector channels. Thus, activities aimed at health sector reform and strengthened health systems may result in the private sector playing a greater role in the provision of health care services. Increasingly, countries are seeking to find the right balance for a national health delivery system which includes the public, voluntary and for-profit sectors, acting together to provide affordable, quality care with maximum access.



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**D**riven by a recognition that governments cannot and should not do child survival alone, USAID, from the beginning, placed special emphasis on the role of the private sector in its strategies. The need to call on the private sector – both voluntary and for-profit – has only increased as governments have struggled to deal with the economic setbacks of the 1980s and declining public resources for health. That child survival programs have achieved so much during a period of economic stagnation and decline in so many countries is a testament to the commitment of these countries to effectively mobilize both public budgets and additional resources as well as diverse energies from the private sector.

This chapter is devoted to a description of that contribution. From a factory adding oral rehydration salts to its production lines to a voluntary organization working in a remote highland community, the private sector is actively contributing to the success of child survival programs around the globe. This chapter focuses on private voluntary organizations, private health professionals and for-profit groups. Other groups, such as U.S. private universities and consulting firms are also playing important roles and are cited throughout this report; however, their contribution is not covered in detail in this chapter.

### Private Voluntary Organizations

**P**rivate voluntary organizations, or PVOs, have played a major role in stimulating demand and widespread community interest and participation in child survival. The Agency has worked with private voluntary organizations since World War II, when they were active primarily in relief and disaster assistance efforts. Since FY 1985, USAID has provided over U.S. \$178 million to support U.S. and local PVO child survival activities worldwide. These projects were active in 43 countries in FY 1989, with the Agency providing nearly U.S. \$36 million, including U.S. \$20 million from the Child Survival Fund, to U.S. private voluntary organizations for child survival efforts, as well as substantial additional funds for local PVOs. Funds are channeled to these organizations directly through central and regional bureaus and USAID's field missions and indirectly through Agency monies given directly to the host governments.

Approximately one-quarter of FY 1989 funding to U.S.-based voluntary organizations has been administered as a special competitive grants program – known as Child Sur-



Project Concern International

vival Grants – begun in 1985 by the Agency's Bureau for Food for Peace and Voluntary Assistance, Office of Private and Voluntary Cooperation. In FY 1989, projects in 24 countries were supported through this grants program. From the beginning, the program's guidelines have specified that grants go to projects that support the delivery of child survival interventions; increase the technical capacity of, and coordination and collaboration with, host governments and indigenous organizations; have a strong focus on monitoring and evaluation; and make genuine efforts to ensure program sustainability.

## Child Survival in Challenging Environments

**M**any developing countries lack the resources to extend health programs to the hardest-to-reach communities, such as those in the desert areas of Africa. Private voluntary organizations (PVOs), like Africare in the land-locked country of Niger, fill gaps in government child survival services by focusing on distant villages. Harsh conditions make these projects especially difficult to carry out.

Mali, a poor, drought-prone African country with few roads and a skeletal health infrastructure, presents just such a challenge for child survival activities. Undaunted by these conditions, CARE, a U.S.-based PVO, has designed and initiated a highly successful child survival project serving 65 villages in an area known as Macina.

The first challenge to the Macina Child Health Project was a request by the national government that CARE hire Malian nurses as health promoters instead of recruiting and training villagers. A key hurdle was shifting the nurses from a traditional curative orientation to a preventive approach to health care delivery. The nurses absorbed the preventive concepts and strategies quickly and were soon on their way by mini-bike to the farming, pastoral and fishing communities of Macina.

The second major challenge to the project was to empower the people to engage themselves in community health and development projects. This was accomplished by responding to the major expressed need of the villages: clean water. Prior to offering health and child survival services, CARE helped the villagers dig wells to provide regular access to clean water. The nurses worked with community members to be sure the water is chemically treated regularly and that the area around the well is kept free of contamination.

The effort to inspire community-directed solutions to local problems seems to be working. Community members have selected individuals to work with the nurses and "learn what the nurses know" so that villages can be more self-sufficient. At the same time, the nurses have been impressed by the ability of village women to pass educational messages on to others and the leadership abilities of some of the women.

The USAID-funded Macina Child Health Project has been a great success despite environmental, bureaucratic and cultural challenges. Fixed health centers have been strengthened and health promoters work closely with outreach activities. Before, virtually no child health programs existed in the area. Now, there are many. Evidence of project success is seen in the rates for complete vaccination coverage and use of oral rehydration solutions – both rates are much higher in Macina than national averages. Thirty-nine percent of children 12 to 23 months of age are completely vaccinated in Macina; 68 percent of the mothers surveyed used an oral rehydration solution during their child's last episode of diarrhea.

USAID has found that the funds provided to private voluntary organizations can have an exponential effect, rallying resources greater than those initially committed. Following Agency practice, child survival grants to PVOs are matched by private funds raised by these organizations. But beyond the required "match," a number of PVOs have expanded their commitment with additional resources. Foster Parents Plan, for example, is now training country program directors to add a child survival component to all of its

global health activities, whether supported by USAID or not. In matching on a grand scale, Rotary International has raised more than U.S. \$200 million for its Polio Plus program, of which U.S. \$90 million is a match to the U.S. \$6 million five-year USAID grant received in FY 1985.

## Project Approaches

Child survival projects operated by private voluntary organizations often serve a small population, but the services they deliver are frequently directed to highly remote, dispersed or underserved groups of people. In this way these organizations fill a crucial niche – extending the reach of and supplementing existing government health services without burdening a country's evolving, and in many instances still weak, public health care system. In Mali, where it has long been difficult to deliver health services, Foster Parents Plan has vaccinated 89 percent of children 12 to 23 months of age in the dispersed and underdeveloped Banamba District against tuberculosis; 39 percent against diphtheria, pertussis, tetanus and polio; and 54 percent against measles – all in less than two years. Altogether, 25 percent of children in this age group are now fully immunized – compared with fewer than five percent prior to 1988. In addition, in 1989, 29 percent of pregnant women received two doses of tetanus toxoid before delivery – almost a three-fold increase over the 1987 national level. Private voluntary organizations represent a substantial portion of the health infrastructure in many countries worldwide, and in some, like Haiti, for example, these organizations, not the government, deliver the bulk of health services.

In general, PVOs use a number of approaches to expand the delivery of child survival services. Some voluntary organizations focus on delivery of services, often through outreach programs from established PVO health facilities providing services and health promotion activities. The Adventist Development and Relief Agency, which operates the 130-bed Karachi Adventist Hospital, has used a 1987 USAID child survival grant to provide child survival services to the nearly 17,000 children under age five living in the rural areas of Karachi's ever-expanding administrative district. Mobile teams serve dispersed populations living in some 300 villages over a 800-square mile area northeast of Karachi, the capital of Pakistan. Some areas are accessible

## Child Survival in Urban Settings

**W**alking through the urban slums of developing nations, it is evident that threats to child health abound: garbage and human waste are strewn in unpaved streets, thousands of shacks house far too many people, unclean water flows from public taps and, of course, flies and mosquitos flourish. Inadequate health services and a breakdown in traditional support systems increase the likelihood that a child will succumb to diarrhea, malnutrition or a contagious disease.

Several private voluntary organizations are tackling the urban challenge to child survival in the developing world through USAID-funded projects. The African Medical and Research Foundation provides services for children under age five in the slum area of Nairobi, Kenya. In the slums of Tegucigalpa, Honduras, Project Hope makes immunization and other services available to infants and children.

In Duri Utara, an impoverished area of Jakarta, Indonesia, Save the Children Federation has successfully conducted a project that helped families to protect children from diarrheal disease, malnutrition, vaccine-preventable diseases and dengue hemorrhagic fever. This same project has also developed a strong capacity for sustainability through increasing community demand and special training for volunteer community health workers known as "kaders."

By improving the quality of services provided at the Posyandus or local health posts, the project increased community demand. Formerly, each Posyandu was attended by only 20-25 children under age five each month. Basic items such as tables, chairs, forms and scales were scarce. Services were unreliable because staff lacked commitment. Now, each neighborhood Posyandu attracts 80-100 children under age five and five to 10 pregnant women each month. Equipment and supplies are adequately stocked, and vaccinators, midwives and community kaders provide both timely and appropriate services. And as the services of the Posyandu become more in demand, there is an increasing willingness by the community to pay for these vital services.

Evaluators reviewing the Duri Utara project were particularly impressed by the amount of money voluntarily donated by families for a community health insurance fund or Dana Sehat. The Dana Sehat are used to obtain necessary but expensive curative care. In several neighborhoods, interest is strong in having the monies used as health insurance. Community members and kaders have attended seminars on how to manage health insurance and properly account for cash flow.



U.S. Agency for International Development

only by jeep. In addition, the mobile teams must contend with a variety of languages and ethnic groups. Despite this formidable challenge, the Adventist Development and Relief Agency is successfully providing immunizations and oral rehydration therapy to all villages in the target area.

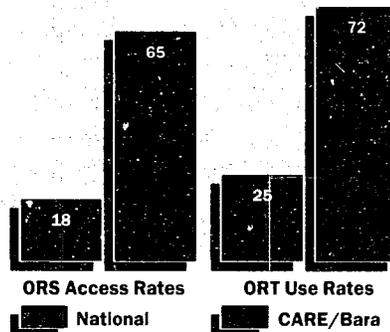
Voluntary organizations are also seeking

ways to meet a growing challenge: reaching those in need in an increasingly urban world. Successful immunization activities of the World Vision Relief and Development project in Dhaka, Bangladesh, led to a joint invitation from the government's director of immunization and Dhaka Metropolitan City officials for the organization to expand its immuniza-

## Child Survival and the PVOs Change Starts at the Local Level

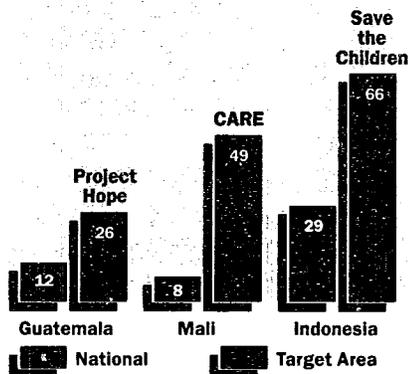
### CARE Records Progress in Sudan

Percent in Sudan national and CARE/Bara district



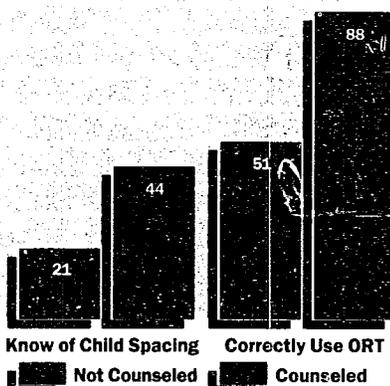
### PVOs Target Neonatal Tetanus

Percent of women vaccinated with tetanus toxoid



### Africare Improves Knowledge

Percent of mothers/women; Imo State, Nigeria



tion activities into previously unserved city areas. Save the Children Federation has been highly effective in extending health services in the Duri Utara slum of Jakarta. Volunteer community health workers carry out the bulk of the project activities, helping to run the posyandus, or community health posts, making home visits and gathering health and demographic data.

Other organizations, such as Rotary International in immunization and Helen Keller International in vitamin A distribution, are working on a truly larger scale, providing training and commodities to reach whole regions or even entire countries.

Many voluntary organizations are engaged in training activities to improve community health practices and access to existing government health services. For instance, in the remote Chaco region of Bolivia, Esperanza, as part of a broader health worker training program, trains community-selected individuals as village health promoters to educate families about oral rehydration therapy, the need to complete their children's immunization schedules and appropriate infant and child feeding practices. The promoters are seen as essential village resources, supported financially or through in-kind donations by their fellow villagers.

A number of private voluntary organizations are strengthening the training of public sector health care providers: Project HOPE, for example, assisted Guatemala's Ministry of Health to provide refresher courses to over 350 government community health workers. Last year alone, PVOs reported training over 160,000 health workers and community members in child survival techniques, with training lasting from several days to three weeks.

In some countries, experienced U.S.-based PVOs are helping local voluntary organizations strengthen their child survival capabilities. In Belize, CARE is using its 25 years of experience to help two young, indigenous voluntary organizations, the Belize Family Life Association and Breast is Best League, to expand their activities nationwide, assisting the fledgling local organizations to build sound management practices. Puentes de Salud, or Bridges for Health, a Peruvian voluntary organization, is coordinating a network and developing the technical abilities of small, grassroots PVOs to deliver child survival services. With USAID funding, Puentes de Salud provides training, technical assistance and an

information resource center to these small organizations operating in the urban centers of Lima, Arequipa and Trujillo. Though individually the reach of these organizations is limited, enlisting their help can ensure that positive health behaviors reach the grassroots level as well as reinforce the focus of the larger country health program, thereby strengthening demand for child survival services.

Other USAID-funded voluntary organizations are developing innovative ways to support field programs. The Program for Appropriate Technology in Health (PATH), for example, works with the hardware of child survival programs, adapting and developing technologies to improve quality of care and to reduce costs. Non-reusable syringes and simple sensors to monitor the vaccine cold chain are examples of its work. PRISMA, another Peruvian PVO, found a gap in technical information in Spanish and as a result launched Niños, a highly regarded quarterly journal that provides child survival information to mid-level health professionals and medical and nursing schools. The four issues published in 1989 focused on child growth and development, family planning, prenatal care and birth and postpartum care. Originally funded by USAID and distributed in Peru, requests for the colorful, informative magazine have now been pouring in from throughout Latin America, and the project now sustains publication by selling 20 percent of each issue.

### **Working With Governments**

An explicit objective of the Child Survival Grants that recipient organizations work to strengthen linkages with ministries of health and local community organizations providing health services has proven a fundamental aspect of voluntary organizations' involvement in child survival. In this way, the Agency can ensure that PVO projects are aligned with a host country government's felt needs and priorities and are building a foundation for sustaining project activities. To establish a pattern of close collaboration and communication, as well as to lay the groundwork for sustainability, private voluntary organizations work with health ministries to formulate the plans for projects, and ministry personnel are commonly included in the organization's training workshops and project evaluations.

A USAID-funded Africare project in Nigeria's Imo State trains village health workers in collaboration with the state ministry of

### **Developing Appropriate Technology for Child Survival**

**U**SAID, through cooperative agreements with the Program for Appropriate Technology in Health (PATH), is supporting the development of child survival technologies that can be easily, accurately and effectively used by all health care workers in developing countries. These projects also encourage collaborative arrangements between the public and private sectors to speed up the development and local production of these technologies.

To improve vaccination efforts in developing countries, PATH has developed several single-use injection devices to reduce any risk of disease transmission resulting from improper use of needles and syringes. SOLOSHOT™, a traditional, disposable plastic syringe that incorporates an auto-destruct feature, is being developed with a major syringe manufacturer. SafeTject™, a pre-filled, single-use device with an attached needle, could be used by health workers having only minimal training.

Another concern in the developing world is to insure that vaccines are not exposed to excessive heat. PATH is developing heat-sensitive markers that can be attached to vaccine vials and cartons. These irreversible, easily-read indicators change color with cumulative heat exposure to indicate if a vaccine has exceeded recommended limits.

Several new technologies relate to pregnancy, delivery and postpartum care. These include inexpensive strips for detecting protein in urine (PATHstrips™), a color-coded scale that detects low-birthweight infants (BIRTHweigh™), and a solar-powered electronic scale for weighing pregnant women and infants. Technology transfer of PATHstrips™ and BIRTHweigh™ has already been completed to three countries where these products are being locally produced.

PATH is also developing and adapting diagnostic technologies to aid in the rapid and inexpensive diagnosis of infectious diseases, including acute respiratory infections and diarrheal diseases. PATH also assists private sector production and promotion of oral rehydration salts in a number of developing countries.

It is doubtful that these technologies would have reached their present stage of development without the support of USAID. The profit margins are generally not high enough to justify the commitment of resources by the private sector for research and development activities. PATH, in its unique role as a private/public sector link, has used USAID funding to establish collaborations which benefit both parties.

health. These village health workers serve as health promoters in their communities, providing information on immunization, oral rehydration therapy, nutrition and reduction of high risk births to some 6,000 mothers. The local government authority in the project area has played a crucial role in implementing and supervising the project activities and will shortly, under the auspices of the state ministry of health, take over completely the management and coordination of the project. Currently, the project manager and over half of the field staff are funded by the government, the result of a gradual transfer of project responsibility from Africare to the government. Further, the Governor of Imo State has established a Child Survival Task Force to



World Vision Relief and Development

**Strong community support for child survival is at the heart of many successful voluntary organization projects. Above, a community meeting in Oyo State, Nigeria.**

guide the state's child survival program and plans to replicate the Africare/Imo State project throughout the state.

Because they often work on a small scale and on the local level of a program of national priority, a number of private voluntary organizations are playing a new role, developing innovative service delivery approaches that are increasingly influencing national service delivery strategies. In the San Marco Department of Guatemala, Project HOPE suggested that tetanus toxoid vaccine be given to all women of childbearing age in the project area, not just pregnant women, as the ministry of health's protocol calls for. With the support of the department health chief, Project HOPE promoted and delivered vaccines to all women in the department; as a result, the percentage of women of childbearing age who had received at least two doses of tetanus toxoid increased from less than one percent in 1988 to 44 percent in 1989. The Ministry of Health is now considering a policy change to include the tetanus toxoid vaccine for all reproductive-age women in its national immunization cam-

paign. In Sudan, CARE project staff contributed to a similar policy change on tetanus toxoid for women of childbearing age.

In Kenya, the maternal and child health card developed by the African Medical and Research Foundation has provided a model for a similar card emphasizing weight gain during pregnancy developed by the ministry of health. In Ecuador, Catholic Relief Services has enlisted women in community and individual nutritional assessments, which has heightened women's awareness of nutritional status, an approach that has drawn the attention of Ecuador's National Institute of the Child and Family.

### **The Role of Community Support**

Though private voluntary organizations vary in size, philosophy and capability, most have a strong grassroots orientation. Many of these organizations work at the community level, earning the approval of community leaders and the trust and respect of the community at large. Because the voluntary organizations are sensitive to local conditions and social and

cultural factors that will determine long-term community commitment, they can be instrumental in building self-sustaining, well-integrated child survival programs. Voluntary organizations often stress community participation in identifying, prioritizing and creating solutions for its health problems, on the theory that if communities feel project ownership, they may be motivated to garner all available resources to ensure that project benefits continue after donor financing ends.

Over time, and in some countries stimulated by the common focus on child survival, many private voluntary organizations have established extensive networks of community organizations, including local PVOs, church groups and mothers' clubs, which help to ensure acceptance, community commitment and promotion of services. Caritas/Bolivia, a voluntary organization, has provided training on diarrhea control, growth monitoring and acute respiratory infections to one-third of the 1,800 mothers' clubs it organized throughout the country. A final evaluation of the project found that 68 percent of diarrhea cases among children assisted by the project were properly managed by the mother or a health promoter, well above the national average.

Ideally, grassroots support can be translated into sustaining the impact of child survival projects. In Uganda, CARE supports the Community Health Services project, which is implemented by the Church of Uganda's Busoga Diocese. In 20 rural areas with a total population of 168,000, immunization and diarrheal control activities are integrated into the services offered at the Diocese dispensaries. With project assistance, local health committees have also improved the financial management of these health services. Today, most dispensaries generate enough funds to cover the costs of providing project services. The project has served as an example to government and non-governmental organizations in Uganda of the potential for creating self-sufficient rural health units.

### **Strengthening PVOs Through Child Survival**

While the child survival program clearly benefits from the involvement of private voluntary organizations, the reverse is also true: many of these groups have gained substantial, long-lasting benefits from their participation in the child survival program. For most voluntary organizations, primary health care has been

only one component of their broader efforts to improve the living conditions of needy persons. With the technical focus on a limited number of interventions, PVOs have been able to considerably expand their activities in the health sector. It has given them the opportunity to move further into the mainstream of primary health care; to work with governments on a mutual priority; and to improve their technical capacity to play a useful role in child survival. A number of channels have been activated to reach PVOs with high caliber technical support and guidance.

### **Technical Assistance and Support**

Private voluntary organizations have benefited from the technical expertise provided through a variety of USAID-sponsored projects. HEALTHCOM, for example, has provided support to PVOs in Indonesia, conducting a workshop on social marketing techniques and providing a long-term advisor on immunization to Helen Keller International. PRI-TECH provided CARE field staff in Bolivia with training in diarrhea control, breastfeeding and growth monitoring. It also assisted CARE with a diarrhea knowledge, attitudes and practices study in Bolivia's Oruro and Potosi Departments, where the organization has begun a water and sanitation project. In 1989, REACH assisted several voluntary organizations in Africa and Haiti in evaluating their immunization activities. As part of the evaluations, vaccination coverage surveys were conducted and PVO and ministry of health personnel were trained to utilize a computerized program for analyzing the survey results. The WASH project has worked with voluntary organizations in many countries to provide technical assistance and to strengthen community organization, monitoring, evaluation and training for water and sanitation projects. Seven Child Survival Fellows have provided in-country, long-term technical assistance through assignments to voluntary organizations. In Bangladesh, Bolivia, Haiti, India and Kenya the Child Survival Fellows have worked to integrate evaluation into PVO activities, train staff, conduct research and surveys and strengthen PVO networks.

To provide technical support for voluntary organizations under the Child Survival Grants program, the Agency entered into a cooperative agreement with Johns Hopkins University to assist these organizations to improve their management systems (both personnel and fi-

nancial) and their monitoring and evaluation capabilities. A recent evaluation found that the technical support and management strengthening guidelines encompassed in the Child Survival Grants contributed not only to the voluntary organization's child survival activities but also to sustainability in all their health programs. According to one organization, the planning and evaluation tools developed for child survival have proven to be so useful that they have been applied to all aspects of the organization's health activities.

### **Strengthened Capacity for Monitoring**

One of the important areas where PVO capacity has been enhanced by child survival programs has been in the development and use of health information systems, monitoring and evaluation. Surveys and censuses have been routinely required for private voluntary organizations because they provide the basis on which to determine both the types and breadth of services needed in the project area. Baseline survey data can also help voluntary organizations quantify their successes and better understand the outcome of chosen service delivery strategies.

Many voluntary organizations are working to integrate effective health information systems into their projects to improve management and bolster services. Many PVOs have made a successful transition from thinking in terms of geographic region to thinking in terms of need, a crucial first step in tracking the health status and services delivered to a specific population. Save the Children Federation's health information systems currently operating in Bangladesh, Indonesia and Sudan, among other countries, rely on complete village health rosters to track every mother's and child's participation in the organization's health programs. At the village level, the information is used as a management tool to follow up on children and mothers in need of services. At the headquarters level, the information is analyzed to determine indicators such as immunization coverage and to measure trends in service delivery.

Under the Child Survival Grants program, the Agency now urges voluntary organizations to conduct a baseline survey within the first six months of the project, and to use the information in preparing a plan for project implementation. To gauge the progress made by centrally funded private voluntary organizations, the PVO Child Survival Support Pro-

gram reviewed the baseline surveys conducted in 1987 and 1988 by 20 USAID-funded PVO projects. The review found improved capacity to conduct and utilize baseline surveys since a similar assessment in 1983-84. Fourteen of the 20 projects analyzed carried out surveys within the first 12 months of project operation; the majority of these conducted surveys within the first six months. Additionally, most collected data according to well-established statistical methods. A shortage of properly trained survey personnel and the logistics of surveying widely dispersed communities were found to be problems in some projects, and some failed to ask crucial questions. As a result of the survey findings, and at the request of the participating voluntary organizations, the PVO Child Survival Support Program is developing standard survey modules for the baseline studies to ensure that the needed data are properly collected.

### **Encouraging PVO Networks**

USAID has created forums in which staff from different PVOs can exchange lessons, solutions and achievements. Through the PVO Child Survival Support Program, four "lessons-learned" workshops have been held in Africa, each hosted by a voluntary organization at or near their project site. The workshops have brought together field representatives of the centrally funded PVOs to discuss project problems, solutions and successes and to assess areas where field workers need to improve technical skills. As described by several private voluntary organizations, the workshops encourage the exchange of information and an opportunity to learn of other approaches to shared problems.

Similar regional workshops have been held in Bolivia and Guatemala, and the first Asia regional PVO child survival workshop was hosted recently by Project Concern in Southeast Sulawesi, Indonesia. Additionally, the PVO Child Survival Support Program has sponsored four workshops for headquarters staff of U.S.-based PVOs backstopping child survival projects throughout the world. To help ensure the rapid exchange of lessons learned and new technical developments in child survival, the support program recently began distributing a quarterly technical report to all PVO child survival projects. A recent issue shared the experiences of Save the Children's Bangladesh project and provided technical information on preventing maternal mor-

## PVO Development for Child Survival

In developing nations, private voluntary organizations (PVOs) often provide the lion's share of health services, particularly in rural areas. The PVOs may be indigenous or based in a developed country such as the United States; the health services provided may be comprehensive or limited.

Whatever their size or shape, PVOs are an important mechanism for delivering child survival programs. In fact, PVOs in Haiti, through the guidance and support of the USAID-funded Association of Private Health Organizations (AOPS), are playing a significant role in extending a range of child survival services to most parts of the country. The AOPS effort to strengthen and coordinate PVOs for child survival is a potential model of cooperation in health systems for the developing world.

The approximately 200 PVOs offering health services in Haiti range in size from one person to large organizations. Most serve a small geographic area and are clinic-based with a curative approach to health needs. Many, but not all, offer one or more child survival interventions.

In the early 1980s, AOPS was created to coordinate PVO participation in an effort by the national government to promote standardized primary health care services throughout Haiti. Service coverage is extended through "rally posts," temporary clinics that move from community to community on a regular schedule. AOPS assists PVOs in starting child survival programs by providing technical or financial assistance.

The AOPS strategy emphasizes (1) priority health interventions; (2) target populations; and (3) simple monitoring and evaluation methods. High morbidity and mortality rates among children due to diarrhea, vaccine-preventable diseases and malnutrition make services such as ORT, immunization and growth monitoring priority interventions. Therefore, infants, children under age five and mothers become target populations. Monitoring and evaluation is facilitated by registering all people in a service area.

The AOPS service delivery approach first asks a PVO to identify a geographic service area that includes at least 10,000 people, which is then divided into sectors with 1,000 residents. During this phase, the PVO sends a physician to Port-au-Prince for one month of training in the methodology of the primary health care activities. At the same time, community health workers (CHW) are selected for each of the service sectors. The physician trains the CHWs in census-taking, registration, promotion of basic features of primary health care and the operation of rally posts. High risk cases are identified from the registration records by CHWs with the help of the PVO administrator. Finally, the target population is informed about the date, time and place of the first rally post in their area.

Two institutes in Haiti also help the PVOs to conduct community health programs and to strengthen their child survival services. The Haitian Institute of Community Health trains PVO personnel in community programs, with emphasis on child health. The Child Health Institute provides assistance related to collection and dissemination of health information, data management, monitoring and research.

tality, developing effective nutrition action messages and the latest WHO acute respiratory infection treatment guidelines.

Beyond networking through workshops, USAID encourages increased collaboration and networking within countries. Cooperation both between U.S.-based voluntary organizations and between the U.S. voluntary organizations and local groups is aimed at achieving the most effective use of country experiences, resources and information. In Bolivia, USAID provides technical support to the newly formed Secretariat for Coordination in Child Survival, an association of eight U.S.-based and two local private voluntary organizations, to

strengthen the technical aspects of the members' activities and to finance a pediatrician to lead the secretariat's health unit and an educator/communicator.

The secretariat model is one example of networking among voluntary organizations; another is the PVO umbrella organization, such as the Haitian Association of Health PVOs (AOPS). Formed in 1982, the Association facilitates coordination and linkages with the ministry of health and assists its more than 120 member organizations in moving from clinic-based curative care programs to community-based preventive services. Bringing together both large U.S.-based PVOs and

Mobile health units often help extend essential child survival technologies to remote areas. Here, a mobile health worker in Kenya vaccinates an infant.



small, local organizations, the Association also coordinates support to voluntary organizations through technical organizations, awards grants to local voluntary groups and assists in developing sound management practices and conducting surveys.

It is important to underscore the central and varied role local voluntary organizations play in the child survival program. USAID has made a concerted effort to enlist the support of local organizations, which are instrumental in creating demand and increasing availability of services in underserved areas, and to encourage cooperative efforts among these groups. In Kenya, USAID-support to the CORAT Community-Based Child Survival project administered by a local PVO, reaches over five million people in western Kenya. Building on available local health manpower, the project trains community health workers and traditional healers in proper diarrheal disease control, growth monitoring and infant and child feeding practices. In Zaire, the Eglise du Christ au Zaire, a local PVO, administers a project reaching 90 of Zaire's 306 health zones with child survival interventions. Because families are willing to pay for health services, the project charges a small fee for vaccinations and for a "Road to Health" card that tracks a child's health status until she is five years old. The Agency also supports local voluntary organizations in Bangladesh, Indo-

nesia and Turkey through grants to UNICEF. Such support to the Bangladesh Red Crescent Society has resulted in increased measles vaccination coverage in a demonstration project area from less than one percent in 1986 to nearly 60 percent in 1989; in Indonesia, 17 religious organizations help promote oral rehydration therapy and immunization services to 11 provinces.

One of the best examples is Haiti's Center for Development and Health which has proven that organizing on a local level can have wide-reaching effects. The organization has expanded considerably since its inception in 1974, and now operates a hospital, three health centers, a nutrition rehabilitation center and nutrition demonstration centers, a vocational training center, a primary and a secondary school and a youth center. The Center's use of 150 community health agents, each serving approximately 200 families in the expansive slum of Cité Soleil, to promote and motivate use of oral rehydration therapy, immunization, improved feeding practices and family planning has contributed significantly to Haiti's child survival program. The Center has also made a major contribution to the decline in infant mortality in Cité Soleil from 235 deaths per 1,000 live births in 1976 to 75 deaths per 1,000 live births in 1988. Its managers are committed to making the Center self-sufficient and are experimenting with several

forms of cost recovery. Based on the success of the model in Cité Soleil, the organization is expanding to provide similar services in two additional cities, Gonaives and Cap-Haitien.

## **Sustainability**

Private voluntary organizations are increasingly looking for channels to sustain the outcomes and impacts of their activities in project areas. One way some are building sustainability into their activities is by involving governments, who may eventually assume responsibility for project activities. Since private voluntary organizations have traditionally worked at the community level, many PVOs first approach sustainability through community and family empowerment. Through education, training and improved service delivery, these organizations help families and communities to identify problems and find solutions. They commonly encourage the formation of health committees to direct local support for health services and act as the voice for the community. In Haiti, Honduras, Mali, Nigeria and Zimbabwe, among other countries, projects rely on health committees to identify high risk individuals, mobilize communities, oversee the work of community health workers and in general act as liaison between the local community and the project.

Ongoing financial support is a key to the continuation of child survival activities. Voluntary organizations are addressing this issue at the community level through several mechanisms to raise funds for services. In Malawi, Save the Children Federation has established a revolving drug fund to purchase chloroquine and aspirin. The fund has proven so successful that the communities of the Mzimba District served by the project now monitor carefully their own funds with quarterly reports. The ministry of health is reviewing the feasibility of applying this health care financing model nationally. PVOs in Cameroon and Kenya are moving towards financial stability by recovering costs through the sale of health cards and encouraging community contributions of cash and in-kind donations, land and labor. In Bolivia, through the efforts of just one Freedom From Hunger health worker in the community of Titiacachi, each family contributed a small amount of money in order to purchase a parcel of land for a nutrition center. This same health worker, in order to increase the disposable income available to his community, also helped form a cooperative of

Lake Titicaca boatmen, who now earn additional money by transporting tourists across the lake to the Island of the Sun. Other voluntary organizations are looking at new ways to generate revenues. World Relief Corporation in Bangladesh collaborates with the Christian Service Society to raise revenues for child survival commodities and activities. Money raised through the Society's income-generating project in Jalma is used to make small business and agriculture loans to families in the project area. A four percent service charge attached to each loan is deposited in a child survival account to help ensure that project activities continue after World Relief Corporation funding ends.

In some countries, private voluntary organizations are forming partnerships with local businesses as a means of sustaining activities. World Vision Relief and Development in Mali is working with the Compagnie Malienne de Développement de Textiles to form village cotton cooperatives. Cooperatives are given a production quota, and five percent of the revenues from the sale of the cotton is used to train and pay community health workers and to replenish medicines. In Guatemala, Foster Parents Plan formed a Child Survival and Local Development Committee, which includes project personnel, ministry of health and social security officials, and the medical officer of ANACAFE, the National Association of Coffee Growers. In the future, the committee will include officials of national organizations concerned with food production and income-generation in agriculture and animal husbandry. Bringing together such diverse groups and finding a common, linking interest in child survival is a solid step toward sustainability fostered through the unique involvement of private voluntary organizations. The example parallels the efforts of USAID on a global level to mobilize resources and bring the commercial sector into the partnership for worldwide child survival.

## **The For-Profit Sector**

**E**ven in the poorest countries people use private providers in addition to or in place of public health services and an unexpectedly high percentage of total health expenditures in many countries can be attributed to the private sector. In Kenya and Indonesia, for example, private sector expenditures account for 52 percent and 62 percent, respectively.

of all health expenditures: in Bangladesh, nearly 70 percent of the population consults private or traditional practitioners for illnesses. A 1984 survey in Peru found that between one-third and two-thirds of inhabitants of the major urban areas routinely use private doctors for their outpatient health care needs. Similarly, a recent survey in El Salvador found that nearly 60 percent of metropolitan San Salvador respondents and just over 40 percent of the rural respondents obtained their health care from private providers.

USAID has actively pursued the involvement of the for-profit private sector in order to increase the availability and sustainability of child survival services and commodities. Three areas have received the most attention: training of private practitioners in child survival technologies; production and distribution of child survival commodities through the commercial private sector; and the establishment of alternative, non-governmental sources of health care financing.

### **Training Private Sector Providers**

The support of private health care providers be they western-trained doctors, allopathic physicians, pharmacists, midwives or traditional healers is crucial to expanding and sustaining child survival services. Since so many people in developing countries turn to private practitioners for treatment of illness, it is important that these private providers use child survival interventions and are aware of their benefits. In the case of oral rehydration therapy programs, Dr. Alfredo Bengzon, Secretary of Health of the Philippines underlined the key challenge as, "the need to unify the message [about using ORT] to mothers by medical practitioners [so that] when both government and private sectors advocate and practice ORT against diarrhea, the treatment of the patient is improved and professionals affirm each other's use of ORT."

One way to reach large numbers of private practitioners is through professional societies and provider associations. The Philippine Pediatric Society is assisted by the Primary Health Care Financing project, one of 122 USAID-funded projects in 64 countries that are helping to train private practitioners in child survival services. To promote ORT, the society monitors and promotes its use by private pediatricians and gives them technical updates on a regular basis through a quarterly newsletter devoted to oral rehydration ther-

apy. The Indonesian Pediatric Gastroenterology Coordinating Group adapted medical school teaching materials developed by PRITECH and WHO to reflect national diarrheal disease control policies.

The World Medical Association and its national affiliates are committed to mobilizing private physicians for child survival. For example, the American Medical Association (AMA), with USAID funding, is helping the Indonesian Medical Association and the Medical Association of Thailand provide child survival services in a pilot project. In six Indonesian project areas, association members are supporting community health posts; providing immunization and other services out of their private offices; training other health workers; and conducting baseline surveys in the communities where they are working. In one of the Medical Association of Thailand's projects, in Sakorn Nakron province, the project "sells" a package of child survival services for both mother and child for approximately U.S. \$10 (200 baht); the package includes all immunizations, child spacing services, prenatal care including vitamins and tetanus immunizations, growth monitoring, oral rehydration solutions and advice on treating acute respiratory infections. Efforts are underway in another project area to subsidize preventive care among project participants to make services more widely available. In addition to reductions in the cost of child survival and some prenatal services provided by private physicians, those enrolled in the program will receive discounts at participating pharmacies.

Pharmacists can play a key role in child survival initiatives through their interaction with customers seeking treatment for diarrhea and other common childhood diseases. In 1989, 38 USAID-assisted projects in 23 countries targeted pharmacists for training in order to enlist their support in child survival activities. In just one country, Turkey, UNICEF, the ministry of health, regional representatives of the Pharmacists Association and local producers of oral rehydration salts organized a training program on oral rehydration therapy for pharmacists in an effort to accelerate diarrheal disease control efforts throughout the country. Project SUPPORT worked with Bilim, a private pharmaceutical firm and local producer of oral rehydration salts, to develop promotional materials for pharmacists to complement activities of Turkey's ORT program.

## Engaging the Private Sector in Child Survival Emphasis Countries

	Private Production of Health Care Commodities	Privatize Public Health Programs or Services	Regulate Private Sector Activities	Training Private Sector Health Care Providers	Involvement of For-Profit Business in Project	Involvement of Local PVOs or Non-Profit Organizations
<b>Africa</b>						
Kenya	■		■	■		■
Malawi				■		■
Mali						■
Niger			■			■
Nigeria	■	■		■	■	■
Senegal		■		■		■
Sudan			■			■
Zaire	■	■	■	■	■	■
<b>Asia/Near East</b>						
Bangladesh	■	■		■	■	■
Egypt	■			■	■	■
India		■	■	■	■	
Indonesia	■	■	■	■	■	■
Morocco						■
Nepal		■	■	■	■	■
Pakistan	■			■	■	■
Yemen				■		■
<b>Americas</b>						
Bolivia	■	■	■	■		■
Ecuador				■		■
Guatemala	■			■	■	■
Haiti		■	■	■	■	■
Honduras	■	■	■	■	■	■
Peru	■	■		■	■	■
<b>Total</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>18</b>	<b>12</b>	<b>21</b>

■ Denotes a country with one or more projects pursuing strategies involving the private sector.

Traditional healers and midwives are, perhaps, the most difficult private practitioners to reach to integrate child survival services and appropriate referrals into their practice. Yet, because they are significant providers of health care, there are, for example, more than 10,000 registered traditional healers in Zam-

bia, their views and practices can have a major bearing on the willingness of families and communities to support child survival activities. In Zambia, the Control of Diarrheal Disease Secretariat, with help from PRITECH, surveyed 192 rural and urban traditional healers to understand how they treat diarrheal

disease and to assess their willingness to prescribe oral rehydration therapy. The study found that the healers know the signs of dehydration, advise mothers to give fluids, inform mothers on ways to prevent diarrhea and are willing to use or promote oral rehydration salts or homemade sugar and salt solutions. With additional training, these attitudes and practices could be strengthened and the healers could be an important source of health manpower tapped for ORT.

In addition to providing instruction for practicing health professionals, USAID also tries to reach future private providers during their academic training, by encouraging revisions in curricula to incorporate child survival technologies and approaches. One project, assisted the Suez Canal University to establish the first medical school in Egypt with a focus on community practice and a curriculum that includes a strong emphasis on maternal and child health. The Agency's new NurseCare project, currently active in Kenya and Costa Rica, strives to incorporate child survival technologies into nursing education.

### Creating and Meeting Demand

Child survival programs have shown that the private sector can play a key role in stimulating demand for child survival services. It has also been instrumental in the production and distribution of child survival commodities. USAID has supported private enterprises in their efforts to develop, market, produce and distribute child survival products and educational messages as a way to enhance sustainability of child survival activities as donor assistance is reduced. In collaboration with private pharmaceutical firms, USAID-supported projects have conducted market research on ORS in Guatemala and treatment of malaria in Malawi. Working with private advertising agencies, USAID support has helped to promote immunization services and oral rehydration therapy in the Philippines and a national breastfeeding campaign in Paraguay. And in Indonesia, local officials and Helen Keller International developed radio spots in two languages for broadcast on six private stations, after determining that most people in the area listen to private stations rather than the national government station.

The Communication for Child Survival, or HEALTHCOM, project has been in the forefront of efforts to engage the private sector and encourage public-private partnerships in

### Increasing ORS Availability Production and Marketing of ORS in the Private Sector

	Promote ORS Production	Market ORS Commercially
<b>Africa</b>		
Kenya	■	■
Malawi		
Mali		■
Niger	■	■
Nigeria		
Senegal	■	
Sudan		■
Zaire		■
<b>Asia/Near East</b>		
Bangladesh	■	■
Egypt		■
India		
Indonesia	■	■
Morocco	■	
Nepal		■
Pakistan	■	■
Yemen	■	■
<b>Americas</b>		
Bolivia	■	■
Ecuador		
Guatemala	■	■
Haiti		■
Honduras	■	■
Peru		■
<b>Total</b>	<b>11</b>	<b>16</b>

■ Denotes a country with one or more projects promoting or supporting the production or marketing of ORS in the private sector. (Five other emphasis countries support ORS production through the public sector.)

advertising and development of social marketing capacity. To generate demand for child survival products and services in a number of countries, HEALTHCOM has assisted ministries of health to identify and contract with

private market research and advertising firms in an effort to improve the quality of child survival communications research and promotional efforts. Working directly with private agencies and firms to implement communications activities, HEALTHCOM has collaborated with local market research firms to conduct surveys on child survival knowledge, attitudes and practices in the West Java region of Indonesia, the Philippines and Papua New Guinea. HEALTHCOM also assists two regional education institutes, the Asian Institute of Management in Pakistan and the African Regional Health Education Center at the University of Ibadan in Nigeria, to strengthen their capacity to provide training in mass communication, social marketing and public service advertising on child survival interventions.

One of the success stories of this decade has been the remarkable growth in the local production of oral rehydration salts through a combination of public and private efforts. In 1985, only 50 percent of ORS was produced in the developing world; by 1987/88 this had increased to 75 percent and represented over 250 million litres of packets.

USAID has made a contribution to this expansion through its support to the private sector and encouragement of private-public partnerships. In 1989, 33 projects in 18 countries reported that they sponsored or promoted the production of ORS packets, through either private commercial businesses or joint private-government ventures. With project SUPPORT assistance, private firms in Ghana, Guatemala, Uganda and Turkey have either launched ORS products or are developing the capacity to do so. Cameroon recently asked USAID to assist a local company to finance, manufacture and promote an oral rehydration solution. The Agency's assistance in these efforts has ranged from advice on production facilities to development of marketing channels for ORS products to securing the financial and business aspects of the venture. In addition, SUPPORT is developing guidelines to strengthen private sector production, including manuals on ORS volume and labeling, quality assurance and local procurement.

The HealthTech project has developed a number of important child survival technologies and, where possible, promotes local production and marketing of these products. Carried out by the Program for Appropriate Technology in Health (PATH), a PVO, HealthTech worked with a range of for-profit

and not-for-profit groups to develop and produce low-cost and effective technologies for child survival.

The nature of private sector collaboration in producing HealthTech technologies varies depending on the product. In some cases, it is economically feasible for a product to be produced locally by a small entrepreneur. For example, a simple and durable hand-held scale was designed so that illiterate birth attendants can identify low birth weight babies and is now being manufactured in a university laboratory in Malawi. The technology to produce the BIRTHweigh scale has also been given to the SOFTECS company in Egypt for both local distribution and export. In other instances, however, technologies have worldwide market implications and large scale production and distribution is far more economical. In such cases, HealthTech may license the technology to a large private manufacturer, in return for the company's commitment to sell the product at a reasonable price and to make it readily available to the public health sector.

### **Developing Distribution Networks**

Getting products from the point of production to the home requires a solid system of distribution, and the extensive networks of the private sector have been mobilized, especially to distribute oral rehydration salts on a large scale. In Bangladesh and Egypt, pharmacists are contributing significantly to the success of their countries' diarrheal disease control program by their willingness to promote and sell oral rehydration salts. Two-thirds of ORS distribution in Egypt is through a network of 7,000 pharmacies and a recent survey showed that, today, only 20 percent of diarrheal cases are treated in government health facilities. The number of pharmacies selling ORS in Bangladesh in cooperation with the Social Marketing project has increased nearly four-fold since 1985 (see chart, page 28). Commercial sales in 1989 amounted to nearly seven million packets of ORSaline, a locally-produced oral rehydration solution. As its next goal, the project targets 7,000 physicians with educational messages about how to use ORSaline. In Ghana, a USAID-supported project is making oral rehydration salts available to the public through some 3,700 private pharmacies and other vendors. The importance of these distribution systems cannot be underestimated. According to a recent survey in Guatemala, pharmacies and stores are the most common sources

for oral rehydration salts – 45 percent of mothers cite these outlets as the location where they obtain packets.

In countries with widely dispersed populations, the steady supply of oral rehydration salts to remote areas is a great challenge for both the public and private sectors. In Niger and Mali, work is underway not only to increase self-sufficiency in the local production of ORS but to develop and expand private sector marketing and distribution capabilities.

### **Private Sector Financing**

With developing country health budgets severely restricted and even declining in some countries, USAID is committed to helping governments find alternative mechanisms for financing health care. Two objectives frame USAID's activities in health care financing: to achieve a more effective, efficient and equitable allocation of limited public health resources, and to generate additional nongovernmental resources to support child survival and other public health programs.

The Agency supports a variety of approaches to attain these goals, from promoting user fees for those able to pay for services to encouraging more efficient and rational service delivery to control costs and, ideally, provide assured resources to sustain child survival programs.

"Privatization first and foremost is a means or a tool for managing public programs better," according to Frank Hodsoll, Executive Associate Administrator for the Office of Management and Budget. "Privatization does not reduce services or programs used by the public. Rather, when properly implemented, privatization can insure the continued provision of these services and programs at reduced cost, sometimes with better service."

The PROSALUD project in Bolivia is a good example of privately managed health services for low- and middle-income urban and peri-urban communities, and effective public/private collaboration. The project began in 1984 with feasibility studies and household surveys to test the potential for a privately financed, self-sustaining primary health care service in the urban and peri-urban areas of the Department of Santa Cruz. Today, the PROSALUD network has 15 facilities, including municipal government and community-supported clinic buildings, which are becoming increasingly self-sufficient: the urban clinics now recover almost 100 percent of their

recurrent costs, and the peri-urban facilities recover 61 percent.

USAID supports countries' efforts to promote greater direct private sector involvement in financing health care, including child survival services. In the Philippines, work is underway to test a pre-paid HMO plan, and in Jamaica, to adopt public policies to encourage increased health insurance coverage and private sector expansion. The Jamaica project promotes a shift in the financing and delivery of health care to the private sector for those who can afford to pay through user fees, increased health insurance coverage and social marketing. In Morocco, the Agency supports research to aid in designing a new health care financing project scheduled to begin in 1991. The research has included studies of private insurance schemes and hospital costs. Ideally, greater private sector involvement in financing health care will ease the financial burden on the public health sector, allowing governments to redirect some of their scarce resources to populations and services most in need of their support.

The Health Sector Financing project in Indonesia is assisting in the development of a legislative framework for private health insurance and a department dealing with insurance within the ministry of health. The Indonesian project also assisted St. Carolus Hospital, a private facility, to develop and make available to the public a comprehensive package of benefits. For a monthly premium of U.S. \$7 to \$13, subscribers will receive preventive services such as health education, immunizations, family planning and nutritional counseling – previously provided only through government health programs – as well as advanced care. This type of plan is expected to reduce the financial burden on the government, allowing it to target its resources much more effectively.

If employers are convinced that they will benefit economically from providing birth spacing and child survival services for their employees, they often become strong proponents of the use of employee benefit programs to improve infant and child health. The Technical Information on Population in the Private Sector (TIPPS) project uses an approach that relies on cost-benefit analysis to demonstrate to employers the benefits they can anticipate with the addition of basic health care for their employees and dependents. The model of employer-provided family planning

services is a compelling one and studies continue to explore ways to adapt it to company-provided child survival interventions. In Peru, the project calculated the costs incurred by the Milpo Mining Company through inappropriate prescription practices for childhood illnesses by the company's health service. As a result, the company decided to offer child survival services as part of its employee benefits.

Other investigations of employer-provided child health services includes the Buncit Raya clinic of the Yayasan Kusuma Buana Business Development project in Indonesia, which is exploring the feasibility of providing health, family planning and child survival services at a major industrial estate in East Jakarta.

In a comprehensive look at financing issues in Latin America and the Caribbean, one project examined health care costs, demand for health care at the household level, perceptions of illness, payments for health care and alternative financing mechanisms in eight countries. The research contributed considerably to the body of knowledge on the nature of private health care services and the costs of public services in Latin America. In one study, the project determined that although the public sector budget for provision of health services in Santo Domingo, Dominican Republic, was very large, the majority of persons of all socioeconomic groups used private sector services. The ministry of health was surprised at these findings and has requested further USAID assistance to develop a plan to encourage the private sector to deliver a large proportion of the country's child survival services.

The private sector can contribute significantly to a strengthened and more diverse foundation on which to build child survival programs with lasting results. The range of private sector potential is extensive, running the gamut from mobilizing a national network of volunteers for immunizations to developing a community revolving drug fund to enlisting private retailers to sell packets of oral rehydration therapy from their shops.

Building partnerships with the private sector to bridge the gap between need and available resources has proven to be beneficial not only to the recipients of services but to all partners. Private voluntary organizations have improved their management skills and techniques, formed alliances with host country governments around common goals and become increasingly accountable for the effects of their activities in terms of solid information



U.S. Agency for International Development

on the health status of the peoples reached. Employers have benefited in several ways: not only do child survival services guarantee future generations of healthier, more productive populations, but for those businesses that offer some form of health care to their workers, low cost, effective child survival interventions reduce the financial burden of costly and misprescribed pharmaceuticals. Finally, when the private sector is engaged and committed to child survival, governments benefit from the lessons and innovative approaches of private voluntary organizations and, ideally, from increased efficiencies by concentrating their efforts on the services and populations most in need while private providers care for those who are able to pay.

USAID supports the local production of oral rehydration salts to meet increasing demand. Above, workers in Bangladesh prepare packets for national distribution.



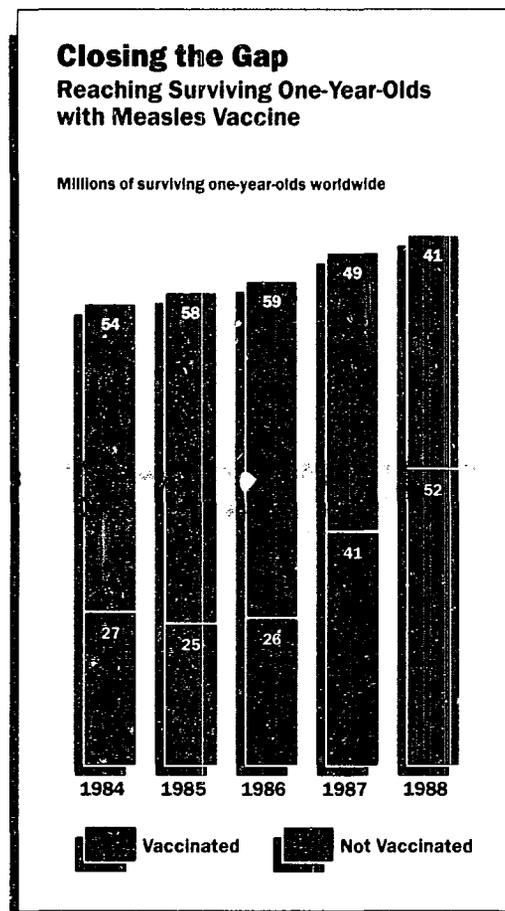
**A**s the child survival program completes its fourth year of operation, it is time to begin to take stock, to assess what has been accomplished and what lessons have been learned. And, indeed, USAID has laid the ground work and set in motion a series of activities that will permit planners and policymakers to effectively do just that.

Because so much is at stake, USAID has from the inception of the child survival program emphasized the need to measure carefully, the results of its efforts and, equally important, to understand the factors contributing to those results and the constraints that inhibit progress. Beginning with a three-part framework that distinguishes the information needed to measure the quantitative and qualitative aspects of program inputs (known in USAID's child survival jargon as Tier One); the measures of program effectiveness (Tier Two); and the special studies that assess impact (Tier Three). USAID has developed a very diverse portfolio of monitoring, evaluation and research activities.

Through these efforts, USAID and its collaborators are assembling a global body of knowledge and a record of experience rare in the arena of development activities. USAID's goal in assembling this knowledge has never been academic. Project and program evaluation is an important management tool, essential for improving program performance. Overall program monitoring, including the measurement of progress towards a standard set of global indicators, has helped to generate interest in and sustain attention to the program. The research program has been molded to provide insight into questions that have direct relevance to strategies pursued in the field.

### Measuring Progress Towards Global Targets

**T**he adoption of a series of Agency and country-specific goals and targets has facilitated monitoring overall progress and served as a stimulus to program efforts. Working in collaboration with host governments and other organizations such as UNICEF, WHO and the Centers for Disease Control, USAID has helped develop and bring into widespread use a series of indicators of progress toward accomplishing these targets. The progress that is being reported throughout this report and elsewhere, therefore, reflects achievement both in the results of the program as well as in the global capacity to



monitor the status of child health.

Assessing the progress of child survival on a global scale is an immense undertaking. Precise measurement of disease and death can be extremely difficult in countries where censuses are infrequent and may be unreliable, service statistics are incomplete and births, deaths, and cases of disease, especially those which occur in rural and poor urban areas, may not be reported. Ironically, as reporting improves, it may even appear, for a time, that health conditions are deteriorating not improving, as a higher proportion of the cases of disease are detected by health care systems.

Early on USAID recognized that data were not adequate to measure progress, and thus launched a major effort to carry out surveys to provide high-quality, national-level assessments of the status of key measures –

such as infant mortality rates and vaccination coverage – and enough information on related factors – such as the education and employment of parents – to permit a deeper understanding of the factors influencing child survival. The Demographic and Health Surveys project has now completed surveys in 35 countries and begun plans for an additional 25 surveys in the coming years. With UNICEF support, the project is also working to complete a survey in Sudan and, with support from the Arab League, a similar survey will be carried out in Yemen as well as three other countries. The data collected are being put to use in countries and in global data banks tracking progress in child survival. Plans are now being laid for a World Conference in 1991 where cross-country and other in-depth analyses will be presented. The National Academy of Sciences and Johns Hopkins University are also looking at this unique data set as the basis for assessing the impact of child survival programs cross-nationally.

### **Developing Institutional Capacity**

**O**n the surface, measuring progress towards simple targets, such as attaining a worldwide 80-percent vaccination coverage rate for children under age one or a 45-percent use rate for oral rehydration therapy, appears to be a straightforward task. In reality, however, it is not, especially if the aim is to vest the capacity to make such measurements permanently in the countries themselves. Accordingly, in addition to the Demographic and Health Surveys and other smaller scale survey efforts, USAID has devoted considerable resources and technical assistance to help countries develop the capacity to track progress within ongoing health information systems and as a part of the project evaluation process.

Interestingly, the growth of interest in systematically collecting quantitative information on child health has coincided with and benefited from an explosion of interest in the application of computers in developing countries. The developing world has been striving, with considerable success, to expand its information processing capacity, particularly the collection, manipulation, storage and analysis of quantitative data. With the easy access to computers that has accompanied the dramatic drop in the price of micro-computers and easy-to-use software, the primary constraint

today is access to country nationals trained in data collection and the subsequent stages of data processing required to convert raw numbers into quantitative, usable information. Developing country governments often have difficulty keeping such trained persons in the public sector, where wages are lower than in the private sector.

The Child Health Institute in Haiti is a superb illustration of the transfer of the capability to gather and process data. Established in 1985 to assist private voluntary organizations in Haiti to strengthen their programs through better use of information, the Institute, thanks in part to early support from several Child Survival Fellows, is now recognized as the agency in that country to undertake major studies involving high quality survey research. It has earned this reputation by conducting a number of large-scale surveys, including one on levels and patterns of childhood morbidity and mortality and now one on maternal mortality. The Child Health Institute also strives to stay at the forefront of methodological advances – testing and using some of the newest data gathering and survey techniques.

Building on existing information systems in the African countries where it is operating, the Africa Child Survival Initiative - Combating Childhood Communicable Diseases (ACSI-CCCD) project has sent experts from the U.S. Centers for Disease Control to help strengthen national capacity to gather, process and analyze data. Data processing capacity has now been established in eight of the 10 targeted countries, and ongoing surveillance systems are being established at sentinel sites in health facilities in the Central African Republic, Guinea, Liberia and Swaziland and Zaire. They are called "sentinel" sites because data from them are presumed to be indicative of what is taking place around them. The project is currently reviewing a variety of ways to make sure that information reaches people in the field, and has already begun to publish bulletins with concise, useful data in Lesotho, Liberia, Nigeria and Zaire.

As in the overall program, USAID is working with UNICEF and the World Health Organization to measure progress towards global goals and to develop the use of standardized information systems to gather the data required to measure changes in the child survival indicators. Information on vaccination coverage has seen the most progress in terms

## USAID's Child Survival Programs in Egypt

**B**eginning in the early 1980s, USAID, in collaboration with the Government of Egypt, UNICEF and WHO, developed a donor strategy for child survival focused on oral rehydration therapy and immunizations. USAID's most recent child survival project expands the scope to include acute respiratory infections, nutrition and child spacing.

The National Control of Diarrheal Disease project in Egypt has achieved impressive results. Studies suggest that the sharp decline in infant and child mortality in the mid-1980s is essentially due to project efforts. Information from admission records of hospitals and other health facilities show a decrease in number of cases of severe dehydration. It is plausible that home rehydration treatment, as popularized by the project, is being used before the children are brought to health facilities—as the available data indicate that the incidence of diarrheal disease probably has not changed.

Since 1984, the Government of Egypt has placed high priority on the Expanded Programme of Immunization. National cluster surveys in 1984 and 1987 provide strong evidence of rapidly increasing and high coverage rates among children for all antigens as a result of national campaigns. However, it is clear that Egyptian children without vaccinations are at significant risk from the six major communicable childhood diseases. A surveillance system to monitor residual disease and program impact is planned for the future.

Many factors seem to influence the performance and impacts of the two major child survival interventions in Egypt:

- Homogeneity of culture and concentration of population along the Nile make it easy to target programs;
- The extensive health infrastructure and large number of trained health personnel are a great resource;
- The simple, low-cost technologies of oral rehydration therapy and immunizations are readily available to the child survival programs;
- Universal access to television helps the programs stimulate demand for services;
- High levels of commitment, close collaboration and agreement on strategies by the Government of Egypt, USAID, UNICEF and WHO are important positive factors;
- Program structures provide a degree of management autonomy and flexibility that promote innovation.

Challenges for the future include the reintegration of the diarrheal disease control and immunization projects within the Ministry of Health structure. Optimism prevails, however, as the Ministry of Health has a high level of commitment and pride in these programs. A second challenge is shifting strategies to address unresolved problems such as the apparent unchanged incidence of diarrhea. This will likely require a move toward preventive health approaches, particularly hygiene related to infant and child care.

As a result of the successes of the diarrheal disease and immunization projects, childhood morbidity and mortality patterns are shifting, with acute respiratory infections emerging as the leading cause of death. The acute respiratory infection program, a component of the Child Survival project, provides an excellent opportunity to document the epidemiology of these infections and test approaches to disease control and mortality reduction. Progress to date includes the establishment of an acute respiratory infection research center in Belbeis and the development of a national acute respiratory infection work plan, the first such work plan in the developing world.

Taken from the Executive Summary, Impact Evaluation Report of USAID's Child Survival Programs in Egypt, USAID Center for Development Information and Evaluation, 1989.

of collaboration and use of standard indicators. The REACH and ACSI-CCCD projects have been working with WHO's Expanded Programme on Immunization (EPI) to refine and install a Computerized EPI Information System. Now installed in 26 countries, including 11 emphasis countries – Kenya, Nigeria, Senegal, Sudan, Zaire, Egypt, Morocco, Bangladesh, India, Indonesia and Nepal – the system not only promotes consistent definition

and calculation of values and simplifies data transfer among donor agencies, but – more importantly – is providing each of these countries the ability to monitor its own programs.

Of course, all of these activities contribute to USAID's efforts to routinely monitor and evaluate projects. Project-level evaluations are scheduled for many of the child survival projects either in 1990. The increased use of evaluation as a part of the management proc-

Taken from the  
Executive Summary,  
Impact Evaluation Report  
of USAID's Child Survival  
Programs in Indonesia,  
USAID Center for  
Development Information  
and Evaluation, 1989.

## Child Survival in Indonesia

**T**he child survival program in Indonesia has had a positive impact on the health of children and appears to be resulting in reduced infant and child mortality. Furthermore, the program has definitely strengthened the primary health care system, contributing to remarkable progress in delivering some key interventions and in extending services outside the confines (physical and administrative) of the existing public health facilities.

Among the most noteworthy achievements of the program have been:

- A rapid expansion of community level health posts – called posyandus – which deliver child survival interventions nationwide;
- High rates of immunization for children with diphtheria, pertussis and tetanus (DPT3) coverage, exceeding 65 percent of children and measles vaccinations exceeding 50 percent; and
- A diarrheal disease control program that has successfully educated mothers in the use of oral rehydration therapy, such that, in a survey of ten provinces, 40 percent of diarrheal episodes are treated with oral rehydration therapy.

Furthermore, these accomplishments built on and reinforced a nationwide family planning effort that has resulted in 48 percent of currently married women using contraception and has contributed to a declining fertility rate.

Much of the success of Indonesia's program can be traced to the incremental growth of highly focused and vertical efforts to deliver key services. During the 1970s, family planning and nutrition were Indonesia's most critical programs; they were the "twin engines" that reached out to communities. Immunization and diarrheal disease control were later added to these programs. Efforts beginning on a large scale in 1985 integrated these services at the community level through the posyandus, increasing coverage for all of the interventions.

USAID has played a critical role in stimulating and helping to shape Indonesia's child survival program, supporting its efforts with funding totaling more than U.S. \$60 million over the last decade (not including support for family planning) and more than 25 bilateral, private voluntary organization and central projects. The following have been key factors in USAID's contribution to the success of this program:

- Sustained commitment and support for highly focused programs (e.g., 21 years for family planning, 10 years for immunization);
- An effective policy dialogue based on long-term relationships and solid research and studies;
- Willingness to support some operational costs of key activities, especially for innovative activities;
- Central programs that have supplemented bilateral resources and provided support for technical assistance, research and innovative activities; and
- Collaboration with other donors and nongovernmental organizations.

Although excellent progress has been achieved overall, the success and sustainability of the child survival programs that USAID has fostered in Indonesia are not yet assured. The evaluation concluded that it was important to continue support for the child survival program in order to 1) realize and sustain benefits of investments made to date and 2) continue to develop the basis for developing and sustaining creative, efficient and equitable approaches to meeting the health care needs not only of Indonesian children, but of the nation.

ess is especially evident among private voluntary organizations. As described in Chapter Three, private voluntary organizations, with the assistance of Johns Hopkins University, have made special efforts not only to evaluate their efforts but also to share experiences of each project with others.

In addition to the broad spectrum of ongoing evaluation and research activity, the

Agency, through its Center for Development Information and Evaluation, began in 1989 to assess the impact of its child survival activities. With an eye to identifying lessons and improving future program performance, the series began with evaluations of child survival programs in Indonesia and Egypt. In 1990, evaluators plan to assess the Agency's child survival efforts in Nepal, Morocco and se-



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lected emphasis countries in Latin America and the Caribbean. The evaluations are being carried out primarily by senior USAID managers in order to assure that the recommendations can be readily acted upon. Each evaluation is based on a review of documents tracing the evolution of the country's child survival program and visits to observe field sites, interview host country and USAID field officials as well as to meet with service providers and beneficiaries at the periphery of the health service delivery system.

Finally, to complement project and program evaluation effort, USAID is supporting several studies to assess rigorously the impact of the interventions themselves on the survival of children. While it is not necessary, let alone ethical, to carry out the kind of experimental study that would answer this question in a scientifically unassailable way, USAID is taking full advantage of sites where the question of impact can be examined. Thus, for example, in Matlab, Bangladesh, researchers compared two sites with different service levels and found that measles vaccination, by

itself, reduced the risk of mortality by 48 percent, even after 24 months had passed since the vaccination was given. Studies of oral rehydration therapy in Egypt and the Philippines, vaccination in Haiti and Indonesia, and oral rehydration therapy use and vaccination coverage in Zaire are also contributing to a better understanding of the magnitude of the impact of these interventions on their ultimate goal: the health and survival of children.

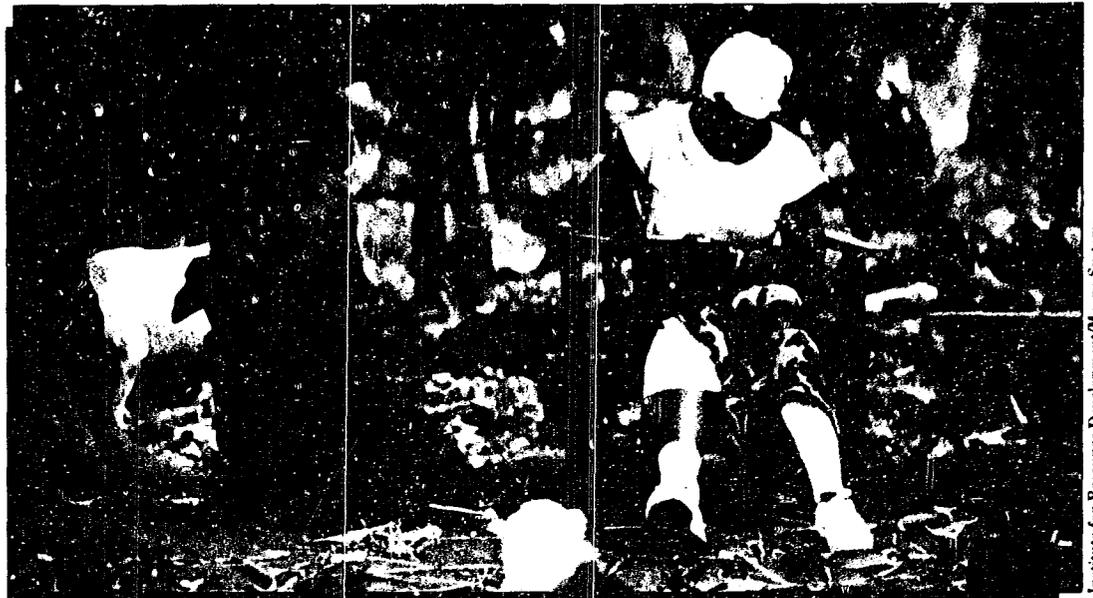
## Emerging Issues

### New Indicators of Success

Clearly, standardized child survival indicators are a basic tool to monitor program progress. At the same time, indicators may not reflect subtle changes as programs mature – and success may necessitate a new set of standards. For example, coverage rates are extremely useful in the early stages of a vaccination program; but, as those rates rise and disease control and even eradication become feasible, it becomes necessary to identify smaller geographic areas where the disease

Indonesia's community health posts – called *posyandus* – have helped to greatly increase immunization coverage and use of oral rehydration therapy. Here, a mother at a *posyandu* is interviewed about her child's diarrhea to ensure proper treatment.

Demographic and health surveys help countries track progress and identify areas of need. Here, a woman is interviewed about her reproductive history and the health of her children, as part of a large-scale survey.



Institute for Resource Development/Macro Systems

Right page: In Indonesia, with its emphasis on broad-based delivery of key services, the most significant early impact of child survival activity may be on equity. With USAID assistance, Indonesia has developed specific strategies to increase equity. An example is area-specific planning for immunization designed to increase coverage in provinces and districts with lower coverage. Coverage targets, set down to the health post level, have stimulated aggressive outreach and thus broader use of services within communities. As a result, in just three years the gap in measles immunization coverage has been reduced from tenfold difference between the provinces with the highest and lowest coverage to just over a twofold difference.

occurs to target vaccination efforts to prevent its spread. At this point in a program, managers need greater detail than coverage rates and thus turn to incidence, or the number of new disease cases within a given population. The best example of this change is the polio eradication initiative in the Americas, where generally high vaccination coverage rates have triggered efforts to strengthen disease surveillance and to track the presence of wild polio virus in order to monitor progress toward elimination of the disease.

### Measuring the Quality and Effectiveness of Services

Through the early years of the child survival program, the emphasis in many countries has rightly been on the expansion of services to population groups previously untouched by child survival technologies. As access to services reaches substantial levels, however, there is growing evidence that attention to qualitative improvements in child survival services may have the greatest impact.

The PRICOR project has developed inexpensive, practical techniques to enable program managers to assess and improve the quality of service delivery. Using an approach known as systems analysis, managers can break up service delivery into its component parts — such as taking the clinical history, conducting the physical examination, administering treatment, counselling and record keeping — and then study the components to identify weaknesses. Using direct observation, review of clinical records, key informant interviews,

client interviews and, where needed, population-based surveys to find problems, managers in countries from the Philippines to Costa Rica are finding that they can also plan appropriate remedial actions. Assessments of quality suggest that a shift in emphasis in the diarrheal disease control indicators may be necessary. A currently used indicator, use of oral rehydration therapy, describes the proportion of all diarrhea cases in the past two weeks that were treated with oral rehydration salts or a recognized home solution. Due in part to the work of PRICOR, there is mounting evidence that while mothers and caretakers are using oral rehydration therapy, they may not always be administering it correctly. A study in Zaire found that fewer than 30 percent of mothers who knew of ORT could also recite the recipe correctly. A study conducted by HEALTHCOM in a rural area of northern Mexico found that over 95 percent of mothers there were not feeding their children enough ORS during bouts of diarrhea. Such findings are prompting discussion as to whether the ORT indicators need to be redefined to capture whether the technology is being used correctly.

### New Tools and Methods

Informed decision-making for health programs in the developing world is often limited by the lack of accurate information on the population's health status and changes in that status. A critical element of the disease profile that is extremely difficult to quantify is the distribution of cause of death. Few deaths are

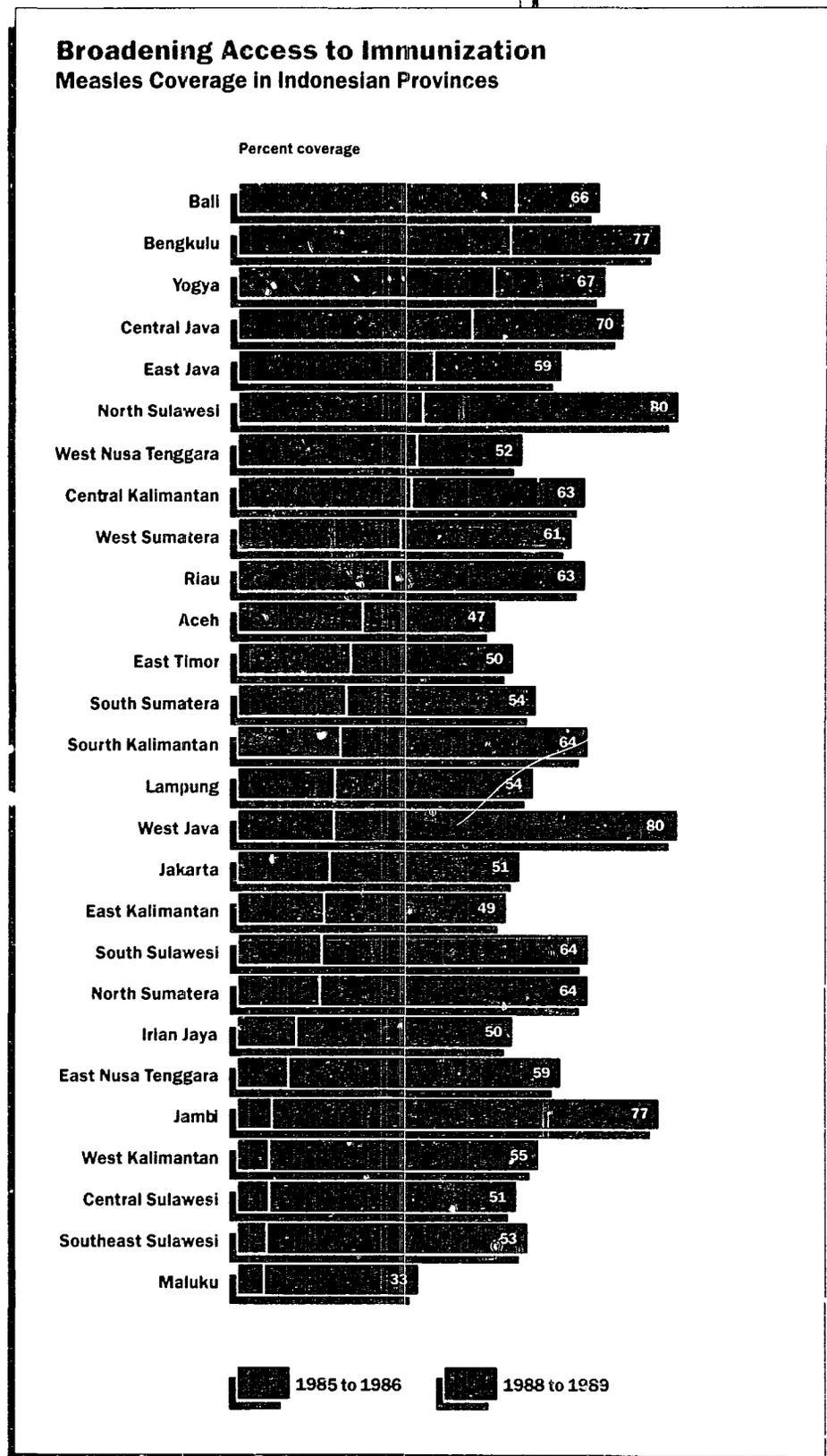
attended by a trained physician, and even fewer are subjected to physical autopsy. Vital statistics are often poor and reports from health facilities may present a distorted picture. As a result, health program planners in many developing countries have had to rely on very poor information concerning the causes of death.

Thus, there is increased interest in the use of surveys which ask parents for the signs and symptoms associated with the death of a child to get a more complete and representative understanding of the major causes of mortality. For example, such surveys of neonatal tetanus mortality have documented a problem of serious proportions that had gone largely unrecognized in many countries because these newborns were rarely seen in health facilities. In the Philippines, Senegal and Bangladesh, researchers have explored the accuracy of this technique, known as verbal autopsy, to determine the cause of death of infants. Following these studies, Johns Hopkins University hosted a workshop to review experiences with verbal autopsies. The participants concluded that although it is difficult to gain an accurate picture of cause of death, it is possible to do so with skilled interviewers. In the years to come, as interview techniques are validated through further study, the ability to procure additional data on causes of death should help direct child survival resources to those areas where they are most needed.

### Attributing Change

The evaluation of the impact of social programs is a challenging and difficult task. Evaluation efforts are particularly difficult given the fact that social programs do not operate in isolation; communities and cultures are evolving continuously, independent of interventions by governments and outside groups. Thus, attributing change to any single project or program requires elaborate studies to separate the effects of that project from the changes occurring normally in the community. In many cases, such an undertaking makes little sense, given the expense relative to the cost of the intervention.

In the context of child survival, attributing change to a single program is even more difficult because, as in USAID's evaluation of the Indonesia child survival program, the collaboration of numerous bilateral and multi-lateral donors and, more importantly, of host



country governments creates overlapping and interactive results. Any attempt to sort out the impact of one contributor may overlook the benefits attributable to the synergism of the combined efforts of many partners.

## Children at Greatest Risk

In countries around the world, disease and preventable death are often clustered by income level, ethnic group, educational level and geographic location. At the household level, some families suffer more than others. Finding the children of these families – the children at greatest risk – is a task of increasing importance as child survival activities evolve.

Given shortages of personnel, supplies and money, how can projects find these children? PRISMA, a local private voluntary organization in Peru, is carrying out innovative research to answer that question, research seeking to identify infants, children and mothers most likely to experience life-threatening illness, disease or other health problems.

In a study population of 57,000 residents of a slum area of Lima, PRISMA sought to identify and validate factors that put children at risk for malnutrition and death. This information would permit community health workers to identify and then provide services to the high risk families and children. The researchers, using advanced statistical techniques, eventually identified seven indicators that predicted most accurately which children were at greatest risk:

- low maternal height
- low birth weight
- any major problem during past pregnancy
- spacing less than 24 months
- three or more children
- education level of mother and father
- any child under age two breastfed less than two months.

To test the model, 200 community health workers from three health posts were trained to identify and target high risk families using the seven indicators. When a high risk child or family was found, the health workers counseled the family on child survival interventions. The health worker's message might focus on, for example, the importance of continued breastfeeding and child spacing, the nutritional needs of mothers and children, tracking a child's growth rate and/or how to treat diarrhea with oral rehydration therapy.

At this time, project scientists are comparing the results in communities where health workers used this risk approach to those where health workers used conventional and broader community strategies. In addition, a second study using the risk-specific approach is being conducted in a rural mountainous area of Peru.

The pioneering work of this local PVO is already having wider impact. The Ministry of Health in Peru is now using a risk targeting approach for supplemental feeding programs throughout the country in order to reach families with malnourished children or families with a previous child death.

Common sense, as well as empirical observation, suggests that social change is rarely linear: that is, change often begins slowly, gains momentum and then levels off. This is particularly true when a number of difficult conditions must be met before rapid change is possible. This is clearly the case in health and child survival programs, where the prerequisites for success are often tied to a variety of factors, such as the number and skills of trained individuals working at the country level; the level of development of the infrastructure, including outreach services; knowledge about and demand for child survival services in the population; the presence of private voluntary organizations; and the strength of logistical systems to transport, preserve and distribute project supplies such as vaccines or oral rehydration salts. If the basic prerequisites are lacking when a program begins, a country must concentrate first on providing them; only when they are in place can the actual delivery of services be stepped up. If, however, some or all of the prerequisites are in place at the outset, the country can move much more quickly to intensified service provision and show progress toward targets.

When the child survival program was initiated, the 22 emphasis countries were in different stages of development, not only in terms of economic stability and infrastructure, but also in terms of the coverage and effectiveness of their health service delivery systems. Indonesia, for example, had established a network of family planning services on which to build and had initiated its immunization program in 1977, starting with vaccination against tuberculosis (BCG) and diphtheria, pertussis and tetanus (DPT). By 1985, coverage rates had already reached 68 percent for BCG and 16 percent for DPT. Thus, a foundation existed upon which to build and accelerate the program – large numbers of health workers had already been trained and many health centers were already providing vaccinations on a regular basis.

In contrast, Mali in 1985 had yet to formalize its national program on immunization. No data existed to report coverage rates for the various antigens supported through the child survival initiative. One of Mali's first steps therefore was establishment of a comprehensive national immunization plan. During this design phase, very little actual vaccination of the nation's infants was possible.

As a consequence of their unevenness at

## Progress and Plateaus

Global targets that establish identical levels for selected indicators for all countries ignore the fact that individual countries start at very different points. To some degree, a global program can compensate for this unevenness by directing greater resources to countries that have the farthest to go to reach the target. Resources alone will not ensure change, however; sound program design, good management and solid infrastructure are also necessary.

the outset of the program, the level and nature of effort required to boost the vaccination programs in Indonesia and Mali were quite different, as was the immediate response to that effort. In 1988, Indonesia had attained 81 percent coverage with BCG and a remarkable 71 percent coverage with DPT3. In Mali, on the other hand, where the program was starting essentially from scratch, BCG coverage in 1987 (the most recent year for which statistics are available) had reached 21 percent and DPT3, six percent – levels below those achieved by Indonesia before the start of the child survival program. Despite the disparity, one can be as encouraged by moderate increases in key indicators in countries starting well below the “take-off” point as by the more dramatic gains registered in other countries.

In general, the rate of change in the indicators used to monitor progress at the country level, such as the vaccination coverage rate or the ORT use rate, tends to follow a similar, predictable pattern. In the early stages of a national program, when energy and resources are directed toward building the program’s foundations, indicators change slowly. Once the prerequisites for rapid expansion are in place, the indicators begin to rise more rapidly. Eventually, in most countries, coverage is extended to the population most readily reached and greater resources and intensified efforts are required to reach those more inaccessible or less likely to adopt a new behavior. At this point, the rise in the program indicators slows.

In addition it must be recognized that some countries are working against impossible odds. Several are in the grips of major social upheaval, if not military conflict. Many have experienced serious economic setbacks. While much can be done at the local level to promote child survival in countries faced with internal conflict and economic disintegration, government leadership and funding is critical to the success of a child survival program, and in times of political instability and/or economic hardship, child survival may simply not be given sufficient priority.

### **Hidden Failures – and Successes**

Child survival indicators are averaged at the national level and thus may mask the fact that illness and death due to preventable diseases hit hardest among certain segments of the population – the poor, the disenfranchised and the geographically isolated. The failure

to reach these groups is, unfortunately, not well reflected in the use of national-level progress indicators. As a result, changes in immunization coverage, diarrheal disease control, nutritional status or reductions in high risk births on the national level do not necessarily produce the anticipated changes in infant and child mortality.

Moreover, the ability to measure changes in mortality in a period shorter than five years is limited. Mortality estimates are generally revised on the basis of national censuses or large-scale national surveys, which are rarely undertaken more often than once every five or 10 years. Therefore, the evidence of the ultimate benefit from child survival programs may not appear until several years after its completion and evaluation.

### **Looking Ahead**

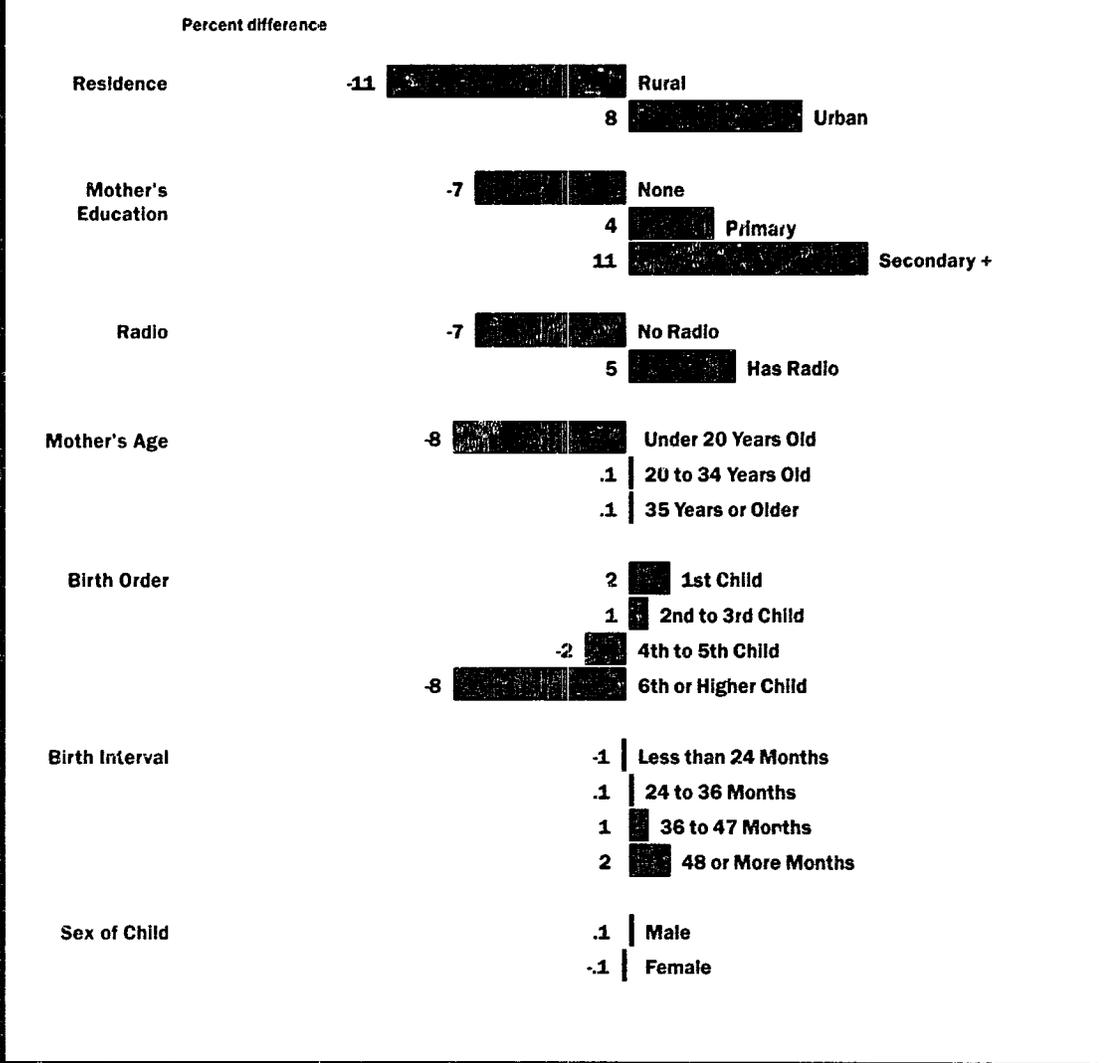
**F**or the reasons discussed above, some countries will not reach the child survival program’s ambitious targets in 1990. Many, however, as evident in the country fact sheets included in this report, will have attained or be nearing those targets. For those that fall short, acceleration of current efforts or, at the very least, maintenance of those efforts, will be required. For countries within reach of the targets, a shift in strategy may be indicated to sustain their efforts.

In addition, many countries will face new challenges that reflect changing patterns of morbidity and mortality. As the infectious diseases that cause high levels of mortality in children are brought under control, both the proportion and absolute number of deaths due to chronic and degenerative diseases, such as cancer and heart disease, increase. Mortality moves from striking the very young disproportionately to striking primarily older groups. Chronic and degenerative diseases, rather than the infectious diseases, become the principal causes of morbidity. This shift, known as the epidemiological transition, precipitates a change in the demands on the health care system.

Initially, this theory anticipated a steady change from a state in which infectious diseases dominate the disease profile of a country to one in which chronic and degenerative disease account for the largest share of illness and death. Evidence from Latin America suggests, however, that such an orderly transition may not occur. Instead, in some coun-

Built on data drawn from DHS Surveys in 23 countries, this chart gives a composite view of differences in DPT III vaccination coverage in groups with distinct characteristics. The differences are depicted as percentages above or below the overall median coverage rate of 78% among children with vaccination cards. Clearly, vaccination coverage is higher in urban populations, among children whose mothers have formal education, and in households with radios. Also, coverage is higher among first, second and third born children, and among children born more than two years after their next oldest sibling. Such information provides an important profile for program planners to identify children who remain beyond the reach of child survival interventions.

### Who Gets Immunized? Factors Affecting DPT III Coverage Above and Below the Overall Median Coverage Rate of 78%



tries, part of the population may continue to experience high morbidity and mortality from infectious diseases in children, while chronic and degenerative diseases predominate among other groups. The two patterns, occurring simultaneously, put a double burden on a country's health infrastructure and compete for limited resources.

There is also evidence that the transition does not go in only one direction, that is, from a dominance of infectious diseases to a dominance of chronic diseases. Some diseases recur, especially if measures to prevent them are relaxed. Recent measles outbreaks on U.S. college campuses illustrate the dangers of declining vaccination coverage. In the developing world, the incidence of malaria – on the rise in a number of countries where eradication

was once considered possible and with its control complicated by new strains of the disease parasite – is a sad and sobering reminder that gains in any public health endeavor can be transient.

In Lesotho, a country that has attained 80 percent coverage for measles vaccine, there has been a shift in measles cases from very young children to those over five years of age – nearly half of the current reported measles cases are occurring in children aged five years and older. This shift has been attributed to the high vaccination coverage, effectively diminishing the measles reservoir in young children. But older children, not vaccinated as infants, remained susceptible to measles. This epidemiological shift has prompted a concomitant shift in vaccination strategy, whereby all

children entering school will now be vaccinated against measles.

Along with overall declining mortality, Egypt, among other countries, is also experiencing a shift in the distribution of the causes of death. Diarrhea is no longer the leading cause of infant and child death and with high immunization coverage, deaths due to acute respiratory infections, perinatal causes, and accidents are becoming proportionately more significant, demanding greater attention from the health sector.

Thus, rather than signal the end of the need for emphasis on child survival, the epidemiological transition may signal the need for a different but equally pressing initiative: to target resources more efficiently to high risk populations, to sustain programs and to gather data and refine strategies in response to changing patterns of disease and death.

As the intense activity on behalf of the world's children continues, USAID, along with its many partners, can take pride in the success achieved by the child survival program to date while preparing itself for a new round of challenges.

The first challenge is posed by epidemiological and demographic change. Programs in countries reaching service delivery targets for the primary interventions of child survival will need to respond to challenges arising from altered disease patterns and changing age distributions. Part of this response will need to be directed towards conquering the diseases still hampering the growth and development of the world's children – malaria, acute respiratory infection and chronic malnutrition. The use of scarce resources will need to be rationalized so that the gains from child survival are secure in the face of competing demands for health and other resources arising from the presence of a larger, older and more urban population.

The second challenge is to reach children who have not yet been reached – to continue to strive to meet targets in countries where progress has fallen short of initial hopes and to reach those children not yet served in countries where initial goals have been realized. Project and program evaluation should be applied to determine the best courses of action for meeting unmet targets as soon as possible. The PVO community, with its unique character of commitment and enthusiasm, can help hasten the outreach of government programs while contributing to the quality of services



Project Concern International

offered. Finally, new methods must be developed to reach children heretofore unreachable, to bring programs to them and to promote their participation.

The third challenge is to continue the effort to refine strategies which enable the gradual reduction of the role of foreign donor assistance – both technical and financial – for child survival. One key element of those strategies, the mobilization of the private sector, can and should play a much larger role in many countries than it has to date. Innovative methods of financing service delivery need to be devised. And perhaps most important, the commitment of developing countries as well as the donor community must be maintained.

During this next year, an even greater effort is planned to assess the accomplishments and to understand the constraints of the child survival program. It is most important that the success of the program not be allowed to lead to its own downfall. It could prove easy for some to argue that the task is done – that the victory over child survival is won. While the progress has indeed been great – greater than anyone dared to hope five years ago – the challenge remaining is still greater. The time for meeting that challenge is now.



	Kenya Malawi	Mali Niger	Nigeria Senegal	Sudan Zaire	Benin Botswana	Burkina Faso Burundi	Cameroon Cent. Afr. Rep.	Chad Cote d'Ivoire	Ghana Guinea	Lesotho Liberia	Mauritania Mozambique	Rwanda Swaziland	Tanzania Togo	Uganda Zambia Zimbabwe
<b>Bilateral</b>	■ ■	■ ■	■	■ ■	■	■	■	■		■	■ ■	■	■	■
<b>Regional</b>														
Africa Child Survival-UNDP		■			■	■		■						■
Africa Child Survival Initiative - CCCD			■	■		■		■	■	■ ■		■	■	
HIV/AIDS Prevention (HAPA)	■ ■	■	■	■		■ ■	■ ■		■			■	■	■ ■ ■
Operations Level Management Development (MEDEX)					■					■				
<b>Private Voluntary Organizations</b>	■ ■	■ ■	■	■ ■		■	■	■		■	■ ■	■ ■		■ ■
<b>Central Project Support</b>														
AIDSCOM	■					■	■	■	■				■	■
AIDSTECH	■ ■	■	■ ■	■		■ ■	■		■			■	■	■ ■
Applied Diarrheal Disease Research	■		■ ■			■	■							
CSAP Support	■										■			
Demographic and Health Surveys	■	■	■	■	■	■	■		■	■			■	■ ■
HEALTHCOM			■	■						■				
HealthTech	■ ■													■
Improvement of Maternal/Infant Diet	■ ■		■	■	■		■		■			■		
Nutrition Education and Social Marketing		■		■		■								
ORT Help		■	■	■			■ ■						■	
PRICOR II		■	■	■									■	
PRITECH II	■	■ ■	■ ■	■		■	■	■			■	■		■
Project Support				■			■		■					■
REACH	■	■ ■	■	■ ■		■ ■	■	■	■					
Technical Advisors in AIDS and Child Survival		■ ■	■	■										■
Vector Biology and Control	■ ■							■	■				■	
Vitamin A for Health	■	■ ■		■		■				■				
Water and Sanitation for Health			■ ■	■ ■	■							■ ■	■	
WHO/Global Programme on AIDS	■ ■	■ ■	■	■	■	■ ■	■ ■	■	■ ■	■ ■	■	■ ■	■	■ ■ ■

# Republic of Kenya

## How USAID Helps



### Demographic Indicators

Total Population:  
24,097,000 (89)

Infant Mortality Rate:  
74/1,000 (89)

Life Expectancy at Birth:  
59 Years (89)

Children Under 1:  
1,214,000 (89)

Annual Infant Deaths:  
89,000 (89)

Total Fertility Rate:  
6.7 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 82% (89)  
Polio3: 82% (89)  
Measles: 72% (89)  
BCG: 93% (89)  
Tetanus2+: 72% (87)

Oral Rehydration Therapy:  
ORS Access Rate: 74% (88)  
ORT Use Rate: 63% (88)

Contraceptive  
Prevalence: 18% (89)

Adequate Nutritional  
Status: N/A

Appropriate Infant  
Feeding: 58% (89)  
Exclusively Breastfed: 24%  
Introduction of Solids: 71%

Duration of Breastfeeding:  
20 Months (89)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHL, March 1990

## Kenya Highlights

■ Kenya is characterized by a young population because of high fertility and declining mortality. "Best estimates" from available data indicate an infant mortality rate (IMR) of 70 deaths per 1,000 live births and an under-five mortality rate of 110 per 1,000 live births. Until the 1989 census data become available in 1991, it will not be possible to confirm the IMR in Kenya. The 1989 Kenya Demographic and Health Survey data showed evidence of a major decline in fertility, from 7.7 in 1984 to 6.7 in 1989. Contraceptive prevalence (modern methods only) among currently married women has increased to 18 percent from the eight percent reported in 1984.

■ Fifty-one percent of children 12-23 months of age are fully immunized. Moreover, oral rehydration salts (ORS) are available in all government health centers and hospitals and oral rehydration therapy (ORT) is used to treat 63 percent of diarrhea episodes.

### Bilateral Projects

■ Family Planning Services and Support works with the Ministry of Health (MOH) and Kenya's National Council for Population and Development and local non-governmental organizations to improve health and family planning services nationwide. Health workers, community leaders and mothers receive training in maternal and child health care. Local organizations, including networks of family planning associations and women's groups, provide family planning services to over 97,000 family planning users. A computerized Expanded Program on Immunization (EPI) information system was installed in the Ministry of Health's EPI management unit allowing better access to district immunization data. Based on project-sponsored operational research, the MOH is replacing one-liter packets of ORS with half-liter packets.

■ Community Based Child Survival, administered through Christian Organizations Research Advisory Trust, assists Kenyan churches to expand community-based health and child survival programs in the Dioceses of Maseno South, Maseno West, Mt. Kenya East and Eldoret and in the Tenwek Hospital region. Volunteer community health workers promote immunization, ORT, growth monitoring and child spacing.

■ Health Care Financing Sector Grant is a new program to support policy and structural changes in

the health sector to increase financial sustainability of health services. Reallocation of financial resources will favor preventive/primary health services, while cost sharing and improved efficiency will increase overall resources.

### Regional Project

■ HIV/AIDS Prevention in Africa Project supports the National AIDS Control Program in Kenya. Currently, USAID is the sole supplier of condoms for both AIDS prevention and family planning. The Agency supports World Vision Relief and Development for community-level education and counseling, and through AIDSTECH, efforts to improve blood screening and education/condom promotion for long-distance truck drivers. AIDSTECH, using a combination of central and bilateral support, also is helping to establish a blood donor bank and provides counseling to high risk groups in Mombasa.

### USAID/Washington Support

#### U.S. Private Voluntary Organizations

■ African Medical and Research Foundation works in three areas—the slums of urban Nairobi, the rural Kajiado District with its nomadic population and with the rural population of Kibwezi Division in Mombasa District. Community-based programs promote the full-range of child survival activities. Village-level volunteer workers have been trained to work with village health development committees in each village in the urban program. According to a 1989 survey in Nairobi, 70 percent of children under age five were fully immunized, compared with 34 percent in 1987.

■ Minnesota International Health Volunteers, working in the Dagoretti District of Nairobi Province, trains health volunteers to help deliver community-based services. A health center being built to provide maternal and child health services should be operational by the end of 1990.

■ World Vision Relief and Development works among the Masai community in Kajiado District to improve immunization coverage, diarrhea prevention with improved water supply and ORT, nutrition and malaria control. Twenty outreach centers have helped raise vaccination coverage rates to almost 80 percent. Follow-up of children and mothers in the home by traditional birth attendants and community health workers has notably increased mothers' effective use of ORT.

## Bureau for Science and Technology Support

■ A Child Survival Fellow supports AMREF's diarrheal disease research and education efforts to provide treatment for children from urban slums.

■ Applied Diarrheal Disease Research project supports research in the Department of Pediatrics at the University of Nairobi on diarrheal disease case management.

■ Improvement of Maternal/Infant Diet supports lactation management training programs for health professionals through the Wellstart/San Diego Lactation Program.

■ PRITECH (Technologies for Primary Health Care) supports the MOH's national Control of Diarrheal Diseases (CDD) Program. In preparation for the change over from one-liter to half-liter ORS packets, the project supported exchange visits of Kenyan and Egyptian health officials. Support also includes developing a communications strategy; assisting with operational research; revising CDD curriculum for health professionals; and working with the MOH to develop a two-year workplan.

■ REACH (Resources for Child Health) assists the MOH with its national (EPI). Support includes monitoring and surveillance activities, conducting a neonatal tetanus mortality survey and assisting in the development of communications and social mobilization strategies for EPI.

■ WHO Global Programme on AIDS in AIDS control activities.

Short-term technical assistance was reported by the following:

■ AIDSTECH in AIDS education, training and prevention.

■ Demographic and Health Surveys in the 1989 Kenya Demographic Survey.

■ FHI (Family Health International) in research on prevention of HIV infection.

■ HBCU (Historically Black Colleges and Universities) in research on schistosomiasis through a grant to Drew Postgraduate Medical School.

■ HealthTech (Technologies for Child Health) in immunization technologies.

■ MEDEX Support (NurseCare) in training nurses to provide child survival services.

■ REACH (Resources for Child Health) in health care financing.

■ VBC (Vector Biology and Control) in malaria control.

## Malawi Highlights

■ Despite some of the most severe health problems in the world, USAID working with UNICEF, has helped to significantly increase coverage for measles, polio, diphtheria, pertussis and tetanus to over 70 percent; protection from tuberculosis is now at 80 percent. In cooperation with the Ministry of Health (MOH) and through its rural health centers, Save the Children Federation has expanded the number of rural outreach clinics in the northern region of Malawi from 19 to 36. In a three-year time span, 100 percent vaccination coverage rates have been reported in the project area for children 12-23 months old.

■ A revolving drug fund for provision of chloroquine and aspirin has been introduced into northern region villages with assistance from Save the Children Federation. The fund has been so successful that the MOH is studying it as a possible model for the entire country.

## Bilateral Projects

■ **Health Institutions Development**, with assistance from Howard University, is the largest resource for in-service training in Malawi for family planning and other aspects of primary health care, including child survival interventions. Health service providers and trainers at all levels are improving their skills through training curricula which include child survival issues. During the past 2 1/2 years, nearly 1,000 service providers have received training in primary health care and family planning services under the project. Private sector health providers' access to in-service training has been expanded with approximately 20 percent of all trainees under the project from the Private Hospital Association of Malawi. Under a new component of the project, an AIDS control and prevention curriculum is being developed to train health workers at all levels of the health care system.

■ **Human Resources and Institutional Development** provides technical assistance and training to strengthen planning and management within the health sector.

■ **Promoting Health Interventions for Child Survival**, is a new project to assist the government increase and expand its support for maternal and child health services, including the provision of potable water, and to increase the availability and utilization of such services in rural communities. An estimated 1.5 million rural Malawians are expected to benefit from

integrated services of piped water, sanitation and health services and health education. Expanded teams of MOH workers will assist village health committees and health workers to provide maternal and child survival services, with special focus on malaria, diarrheal disease control, measles and other immunizable diseases, child spacing, and health and hygiene education, particularly nutrition education.

## Regional Projects

■ **Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD)**, support for the government's bilateral child survival programs, through technical assistance from the U.S. Centers for Disease Control (CDC), ended in mid-1988. However, a CDC-supported research project on malaria in pregnancy in Mangochi is continuing. The study is providing important epidemiological data on the effect of malaria during pregnancy, and its impact on infants, including its association with low birth weight and mortality. Most of the data is expected to be available in 1990.

■ **HIV/AIDS Prevention in Africa (HAPA)**, supports a research program with Johns Hopkins University's Institute for International Programs and Project Hope, a U.S. private voluntary organization (PVO) providing education and training.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Adventist Development and Relief Agency** supports vitamin A capsule distribution to children under age six and to pregnant women and lactating mothers as an integral part of its Malamulo Hospital Community Health outreach program in the highland district of Thyolo. The target population includes 41,000 children and 20,000 lactating mothers. Delivery of vitamin A capsules and education about growing and feeding vitamin A-rich foods is provided in under-five clinics by community health volunteers. The volunteers also administer vitamin A to children and lactating women living in areas where there are no clinics or where mothers do not attend the clinics that distribute vitamin A. Helen Keller International has provided technical assistance for a series of training seminars aimed at helping health workers to recognize vitamin A deficiency and how to deliver vitamin A services.

■ **International Eye Foundation (IEF)** received a new grant in FY 1989 to reduce infant and child morbidity and mortality in the Lower Shire Valley by lowering the prevalence of vitamin A deficiency in the target population. IEF will also continue to collaborate with the MOH and other agencies working in the area to promote maternal and child health through basic child survival interventions. Some 90,000 children under the age of six are targeted for vitamin A supplementation and 120,000 women aged 15-35 are targeted for nutrition education. IEF plans to investigate the potential for fortifying Likuni Phala, a weaning food currently distributed in health units and under-five clinics.

■ **Save the Children Federation** operates in an area with about 38,000 people in northern Malawi. Volunteer village health promoters are trained to encourage local development and community participation in health activities. They, in turn, train families to use oral rehydration therapy (ORT), and encourage them to complete immunization schedules for women and children and to take children to regular growth monitoring sessions. In addition, they encourage expectant mothers to attend prenatal clinics and teach new mothers about modern methods of child spacing. Mothers are also trained in appropriate infant and child feeding practices. Health promoters have been taught to diagnose and treat presumptive malaria. The health volunteers have helped communities learn to produce and prepare nutritional foods. Community vegetable gardens have been started throughout the project area and vitamin A capsules have been introduced. A revolving drug fund for provision of chloroquine and aspirin has been introduced in 140 communities.

### Bureau for Science and Technology Support

■ **WHO Global Programme on AIDS** provided technical assistance in AIDS control activities.

**Short-term technical assistance was reported by the following:**

■ **AIDSTECH** in AIDS education and prevention.

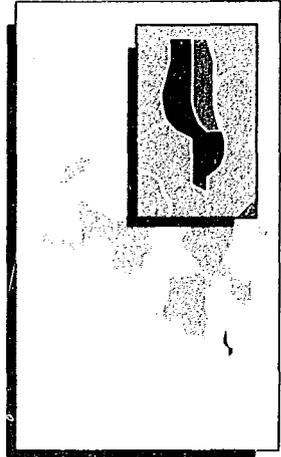
■ **AIDSCOM** in communication and training health workers in targeted behavior change to help prevent AIDS.

■ **Milwaukee International Health Training Center** in training for mid-level and community health workers.

■ **VBC (Vector Biology and Control)** in review of the malaria control program.

## Republic of Malawi

### How USAID Helps



### Demographic Indicators

Total Population: 8,151,000 (89)

Infant Mortality Rate: 147/1,000 (89)

Life Expectancy at Birth: 48 Years (89)

Children Under 1: 384,000 (89)

Annual Infant Deaths: 63,000 (89)

Total Fertility Rate: 7.0 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 72% (88)

Polio3: 72% (88)

Measles: 71% (88)

BCCG: 80% (88)

Tetanus2+: 45% (87)

Oral Rehydration Therapy:

ORS Access Rate: 56% (88)

ORT Use Rate: 42% (87)

Contraceptive Prevalence: 1% (84)

Adequate Nutritional Status: 70% (81)

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding: N/A

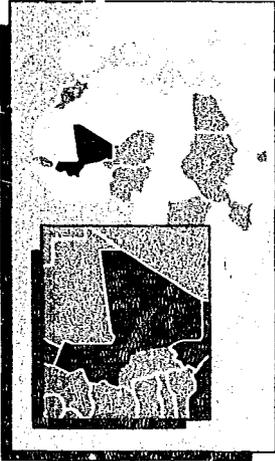
See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHL, March 1990

# Republic of Mali

## How USAID Helps



### Demographic Indicators

Total Population: 9,088,000 (89)

Infant Mortality Rate: 108/1,000 (87)

Life Expectancy at Birth: 45 Years (89)

Children Under 15: 400,000 (89)

Annual Infant Deaths: 75,000 (89)

Total Fertility Rate: 5.6 Children (87)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 6% (87)  
Polio3: 6% (87)  
Measles: 8% (87)  
BCG: 22% (87)  
Tetanus2+: 8% (87)

Oral Rehydration Therapy:  
ORS Access Rate: 57% (88)  
ORT Use Rate: 41% (89)

Contraceptive Prevalence: 1% (87)

Adequate Nutritional Status: 60% (87)

Appropriate Infant Feeding: 42% (87)

Exclusively Breastfed: 8%  
Introduction of Solids: 51%

Duration of Breastfeeding: 19.2 Months (87)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990

## Mali Highlights

■ While national statistics still lag, important progress is being made in local areas, such as by the CARE-assisted program in the Macina Region, where nearly 39 percent of children under two years of age were completely vaccinated in 1989. Save the Children Federation, working in four regions, reported that 44 percent of children 3-6 years of age were completely vaccinated in the first year of the project. A Foster Parents Plan project working in a rural area with over 24,000 children, reported that 95 percent had been reached by the Expanded Program on Immunization (EPI).

■ A recent survey of 598 mothers in four administrative districts conducted on behalf of the Programme National De Lutte Contre Les Maladies Diarrheiques, which began in 1985, revealed the use of oral rehydration therapy (ORT) increased from three percent to 41 percent, among those surveyed.

■ Significant changes have occurred in the national immunization policy: Tetanus toxoid is now available to all women of child-bearing age rather than only to pregnant women, and, beginning in January 1990, yellow fever vaccine will become part of the national EPI and will be offered to children under age two.

## Bilateral Projects

■ **Integrated Family Health Services** assists the government's maternal and child health and family planning programs in 15 health centers in the capital city of Bamako and the outlying Koulikoro region with training, pharmaceuticals and medical equipment. The health centers provide outreach for Mali's Expanded Program on Immunization and Diarrheal Disease Control Program. The project provides on-site training in various child survival interventions for all levels of personnel.

■ **Dioro Child Survival** is administered by the Government of Mali through Africare, a U.S. private voluntary organization (PVO). The project is located in Dioro in the Segou Region and serves 31 villages. During this first year of operation, the project conducted a comprehensive survey of child health status and provided nutrition and health education training programs for nurses, community health workers and mothers.

## Regional Projects

■ **A Grant to the United Nations Development Program** implements health worker training and provides equipment and support in the Mopti Region aimed at improving growth monitoring activities in health centers.

■ **Oral Rehydration Therapy** is a multi-donor project with full-time U.S. technical assistance in program management provided through PRITECH.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ CARE supports the Macina Child Health Project in the Macina Region of central Mali, which includes 32,000 children under age six. The project supports five fixed immunization centers and two mobile teams to assist the government's EPI. A project-sponsored vaccination coverage survey conducted in June 1989 revealed that 39 percent of children 12-23 months of age in the project area were completely vaccinated, and that 49 percent of women giving birth in the last year were completely vaccinated against tetanus. A survey of women's knowledge and use of oral rehydration salts (ORS) found that nearly 70 percent of women who reported an episode of diarrhea in a child used ORS to prevent dehydration. Another project survey of 65 villages over a 12 month period found that 63 percent of households were using ORT. Village women leaders have taken the lead in educating their communities about the importance of immunizations and ORT.

■ **Foster Parents Plan** provides immunization and ORT services to Banamba, a rural area of 205 villages with over 24,000 children under age five. Prior to 1988, fewer than five percent of the children under age two were fully vaccinated. An April 1989 survey indicated that 95 percent of all children in the region have been reached by the EPI program: 25 percent of the children aged 12-23 months and 54 percent aged 24-71 months have been completely and correctly vaccinated. Preliminary analyses show that 46 percent of pregnant women received one dose of tetanus toxoid, and 29 percent received two doses before the birth of their child.

■ **Save the Children Federation** works in four regions of Kolondieba with 32,500 children ages 0 to 72 months. During the first year

of the project, all families living in three districts and the town of Kolondieba were enrolled in the project. By the end of July 1989, through fixed centers and mobile teams, a total of 14,172 children 0-6 years - or almost 44 percent of children in this age group - were reported to be completely vaccinated against the six vaccine-preventable diseases. Mothers are trained in correct use of commercially packaged or home-based oral rehydration solutions to prevent dehydration from diarrhea. Village-level maternity clinics are providing prenatal care, and traditional birth attendants are receiving training in appropriate prenatal and intrapartum care. Health education and training sessions in the villages focus on the importance of proper feeding, using clean water and preventive measures against malaria.

■ **World Vision Relief and Development**, supports the expansion of the Ministry of Health's Maternal and Child Health (MCH) activities in the six districts of the Koutiala Region. Maternal and child health activities, including demonstrations on correct preparation of ORS and of enriched weaning foods, monthly weighing of children 0-2 years old and chloroquine distribution to under-threes registered in clinics, were added in 14 health facilities. Members of local health committees are trained as nutrition and health educators and organize and teach mothers about good nutrition practices. More than 90 percent of the Ministry of Health's MCH staff in the area and 95 percent of the zone-level health workers completed a six-day training program for maternal and child health activities, which included the proper use of ORS for treating diarrheal disease.

### Bureau for Science and Technology Support

■ **WHO Global Programme on AIDS** provided technical assistance in AIDS control activities.

Short-term technical assistance was reported by the following:

■ **AIDSTECH** in AIDS education and prevention in the Bamako District.

■ **Health Resources Support** in malaria, acute respiratory infection and AIDS.

■ **REACH** (Resources for Child Health) in program planning, training and evaluation of immunization activities of two USAID-funded PVO projects.

## Niger Highlights

■ Because of concern over the distribution of oral rehydration salts packets throughout the health system, a PRITECH-assisted study evaluated the production, distribution and pricing structure of ORT packets. One of the results from the study led the Ministry of Public Health (MOPH) to institute a 20 percent decrease in the price of packets to consumers.

■ The Government of Niger has made important policy changes in its national immunization program strategy. Most significant is a change from one based primarily on mobile teams to one that is increasingly reliant on fixed facilities. Previously, only 10 percent of immunizations were delivered at fixed centers; by 1990, 85 percent will be administered there. Another major policy shift is targeting children under age two, instead of all children under age five. Additionally, all women of childbearing age will now be targeted for tetanus toxoid, not just pregnant women.

## Bilateral Projects

■ **Health Sector Support**, in cooperation with the Ministry of Public Health and Social Affairs, provides technical assistance and training in the national child survival program. The project helps to train health workers in using and promoting oral rehydration therapy (ORT), and to conduct operational research studies to improve practices in ORT, immunization, nutrition education, child spacing and malaria control. A PRICOR-assisted study of the national village health worker program, one of the first of its kind in the world, identified problem areas in service delivery and is helping the MOPH to formulate a plan to address these problems. A comprehensive health information system has focused attention on improved management, planning and evaluation through better use of the information being collected. In 1989, a series of studies on cost recovery, cost containment and resource allocation were undertaken directed toward national health policy reform. One result has been reforms in cost savings aimed at helping Niger build financial and institutional sustainability in its health care programs.

■ **Family Health and Demography** supports the Government of Niger's efforts to improve maternal and child health to help ensure

sustainable development of the country. In 1989, progress was made in making family health services available nationwide through 114 clinics in all 39 districts. Training of health managers and service providers, curriculum development for training programs and communications activities are the major elements of this program. Long-term technical advisors will assist the Directorate of Family Planning in strengthening management, training and communications to help increase access to services throughout Niger.

■ **Africare Child Support**, through a USAID operational program grant to Africare, provides ORT, nutrition counseling and growth monitoring activities to strengthen child survival programs in two culturally very diverse locations, Dosso and Diffa Districts. Research conducted during the project is expected to offer interesting comparisons to data collected from other child survival programs in the country.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **CARE**, together with USAID, funds a project designed to reinforce selective health services of the MOPH in two districts of the Zinder Department, especially growth monitoring and control of diarrheal diseases. A series of training sessions have been held throughout the project area for health center personnel. Revised MOPH procedures and health charts for identifying, recording and following up malnourished children were introduced at these sessions. Training has also included instruction on diarrheal disease control, using a training manual adapted for Niger by PRITECH in cooperation with the MOPH. The National Program for Eye Health Care and Helen Keller International collaborated to present a session on prevention, diagnosis and treatment of vitamin A deficiency. A baseline survey has enabled the project to direct its interventions where services are most needed.

■ **Helen Keller International** supports operations research to determine how best to promote distribution of vitamin A capsules. A data collection system has been implemented and the first analysis of findings was distributed to health units. A national workshop was held in Niamey in June 1989 for policymakers and health profes-

sionals to increase their awareness about the problem of vitamin A deficiency in Niger. A series of activities were designed to educate and enlighten health workers as well as elementary school-age children about vitamin A deficiency.

### Bureau for Science and Technology Support

■ **PRITECH** (Technologies for Primary Health Care) assists the government's national diarrheal disease control program by providing managerial support for program implementation through a full-time resident advisor and short-term technical assistance. PRITECH also assists with the training and supervision of health professionals. PRITECH's Continuing Education Modules were used in a 10-day training course for regional coordinators and new members of the national diarrheal disease control committee.

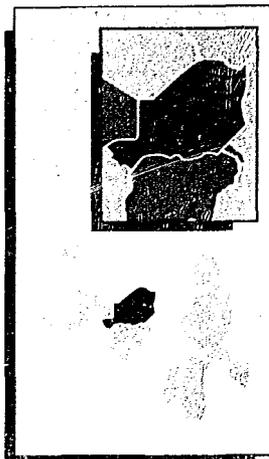
■ **PEACE CORPS** volunteers, working within the framework of a national nutrition program, are serving in regional nutrition and recuperation centers to teach sound nutritional practices to mothers and families, and to care for malnourished children. They help weigh babies, make home visits and conduct public seminars on better nutritional and health practices and sanitation. Volunteers also train and advise village health teams on how to organize and conduct nutrition education activities.

■ **PRICOR** (Primary Health Care Operations Research) assisted the Ministries of Public Health, Social Welfare and Women's Affairs to conduct a comprehensive analysis of the national village health worker program. Based on the concept of community self-help, the program has trained, supplied and supervised approximately 10,000 village health workers in virtually all parts of the country. The problems identified in the study will be addressed in ongoing operations research studies.

■ **WHO Global Programme on AIDS** provided technical assistance in AIDS control activities.

## Republic of Niger

### How USAID Helps



### Demographic Indicators

Total Population: 6,894,000 (89)  
Infant Mortality Rate: 132/1,000 (89)  
Life Expectancy at Birth: 45 Years (89)  
Children Under 1: 317,000 (89)  
Annual Infant Deaths: 46,000 (89)  
Total Fertility Rate: 7.1 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 16% (88)  
Polio3: 16% (88)  
Measles: 24% (88)  
BCC: 39% (88)  
Tetanus2+: 8% (88)  
Oral Rehydration Therapy:  
ORS Access Rate: 14% (88)  
ORT Use Rate: 38% (88)  
Contraceptive Prevalence: 1% (87)  
Adequate Nutritional Status: 88% (89)  
Appropriate Infant Feeding: N/A  
Exclusively Breastfed: N/A  
Introduction of Solids: N/A  
Duration of Breastfeeding: N/A

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990

# Federal Republic of Nigeria

How USAID Helps



## Demographic Indicators

Total Population: 109,175,000 (89)

Infant Mortality Rate: 102/1,000 (87)

Life Expectancy at Birth: 51 Years (89)

Children Under 1: 5,014,000 (89)

Annual Infant Deaths: 553,000 (89)

Total Fertility Rate: 6.9 Children (89)

## Child Survival Indicators

Immunization Coverage:

DPT3: 42% (88)

Polio3: 42% (88)

Measles: 42% (88)

BCG: 53% (88)

Tetanus2+: 16% (88)

Oral Rehydration Therapy:

ORS Access Rate: 50% (88)

ORT Use Rate: 35% (88)

Contraceptive

Prevalence: 1% (82)

Adequate Nutritional Status: N/A

Appropriate Infant

Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding:

N/A

See Data Notes

## USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CHH, Mar. 6 1990

## Nigeria Highlights

■ As a mark of the progress in Nigeria's efforts to decentralize health care, the Expanded Program on Immunization (EPI) has now been established in all 304 local government areas. More than 2.5 million children and pregnant women were immunized in 198.

■ To encourage major reforms in primary health care policies, USAID has provided Nigeria with \$36 million in one of the first non-project assistance programs in the health sector in Africa. Nutritional status will be monitored to protect the most vulnerable populations, including mothers and children, during the period of health sector policy adjustments and reforms.

## Regional Project

■ Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD), a joint multi-donor project of the Nigerian Federal Ministry of Health, the U.S. Centers for Disease Control, UNICEF and WHO, began in February 1987, to expand the nation's primary health care services, especially immunizations for infants, prevention and control of diarrheal diseases and malaria control. With additional support from Rotary International, the project has helped in accelerated immunization campaigns. It also provides technical assistance in management information systems, operations research, communications and health education and pharmaceutical supply and distribution.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ Adventist Development Relief Agency (ADRA) works in six states using the existing Adventist health facilities as bases for outreach child survival activities, including immunizations, oral rehydration therapy (ORT), nutrition and breastfeeding, family planning, water, hygiene and sanitation, malaria control, vitamin A deficiency referral and supplementation and health education. In 1989, a vaccination coverage survey conducted in four local government areas in four states showed overall coverage of fully immunized children to be 29 percent, well below the national 1988 EPI target of 60 percent coverage. Findings from the survey are being shared with community health workers, local government authorities and the ADRA teams to find ways to improve service for better coverage.

■ Africare supports the Imo State Ministry of Health's child survival program in two areas, Isiala Ngwa and Aniazu-Mbaize. In these communities, 116 local women, trained as village health workers, serve as health promoters in their communities and have counseled more than 6,000 mothers during home visits. The village health workers organize community meetings to exchange information and mobilize local women to address health, food production and income generation needs.

■ Rotary International's Polio-Plus program mobilizes the private sector in support of the national immunization program in Nigeria. Project activities are directed by Rotary Nigeria towards the establishment of volunteer corps at the grassroots level. Rotary organizations have trained over 1,000 volunteers to work in their local communities and provide such services as helping to track babies to make sure they complete their vaccination series and providing public information and logistical support during vaccination campaigns. Nigeria's 256 Rotary clubs are expanding the PolioPlus immunization campaign to all of the country's local government areas. Rotarians are actively involved in the planning, management and implementation of state and national immunization days.

■ World Vision Relief and Development, with its partner agency, the Baptist Medical Center, works in Ogbomoso South in Oyo State, a remote area with 65,000 inhabitants and minimum basic health facilities. A baseline survey conducted in the project area documented the extent of the health problems affecting children and mothers. Interventions consist of immunizations for women and children, use of ORT, growth monitoring and nutritional counseling, encouragement of birth spacing and malaria prevention. A complete census of families in the project area will serve as the cornerstone of a health information referral system.

### Bureau for Science and Technology Support

■ Applied Diarrheal Disease Research Project supports research to understand the factors that put children at risk of falling sick with diarrheal disease. Studies are underway at the University of Ilorin's Faculty of Health Sciences and at the College of Medicine of the University of Lagos.

■ HEALTHCOM (Communication for Child Survival) works with the Health Education Division of the Federal Ministry of Health to support the communications compo-

nent of the ACSI-CCCD program. The project trains health staff and media personnel at the federal, zonal and state levels in communication planning and message development. Based on studies conducted in Niger State, project staff helped develop teaching aids to assist in educating parents about immunization, ORT and dietary management of diarrhea. Radio and television producers, along with health personnel in five states, have been trained on how to conduct focus group discussions, in-depth interviews and simple surveys to improve message development. Radio program managers in six states are committed to establishing child survival units at their respective stations to promote the health of children in their states.

■ Improvement of Maternal/Infant Diet through its sub-project, Dietary Management of Diarrhea, supports research in Kwara State on appropriate child feeding with locally produced foods during diarrhea. The Universities of Lagos and Ilorin are participating in this effort. Study topics include: local concepts of appropriate child feeding during diarrhea; effects of diarrhea on dietary intake; and efficacy of local diets for nutritional therapy for diarrhea. The project also supports lactation management programs for health professionals through the Wellstart/San Diego program.

■ A Child Survival Fellow, working with the Dietary Management of Diarrhea project, concluded research in rural Laudaba Village in Kwara State to study infant feeding practices and treatments for diarrhea. The results are being used to help implementing agencies design appropriate dietary interventions for treatment of diarrhea.

■ HBCU Research Grants Program, (Historically Black Colleges and Universities) supports research, through Howard University, on nutrition and disease control problems endemic in the Akoko and Ifesa regions of Western Nigeria.

Short-term technical assistance was reported by the following:

■ AIDSTECH in AIDS education and prevention.

■ PRITECH (Technologies for Primary Health Care) in design of in diarrheal disease control training activities.

■ REACH (Resources for Child Health) in Rotary's PolioPlus workshop and in the international review of Nigeria's EPI.

■ WASH (Water and Sanitation for Health) in hygiene education.

## Senegal Highlights

■ Management of primary health care programs has been successfully decentralized to regional and district levels in the Kaolack and Fatiek Regions. As a result, efforts are underway to assist the Ministry of Public Health (MOPH) to undertake similar changes in four other regions as a way of extending child survival interventions in immunization, diarrheal disease control, malaria control and nutrition.

## Bilateral Projects

■ **Rural Health Delivery Services II**, a project administered by the MOPH, supports preventive health and child survival services in the Kaolack and Fatiek Regions. About half of the villagers in the regions have access to primary health care through a system of 625 community-based health huts. The system's approximately 3,500 community health workers have been trained to provide rudimentary health services, health education and community mobilization, as well as prevention of diarrhea, malaria and malnutrition. The project has also established a distribution system for essential medicines extending from the regional pharmacy to the health hut. A regional training center established in Kaolack provides initial training and continuing education for the community health workers. Another 150 health professionals (physicians, nurses, midwives and administrative personnel) have benefited from the project through specialized training; eight have obtained a master's degree in public health and three others are pursuing doctoral studies in public health. The project has been ex-

tended to support further decentralization within the MOPH, and to provide public health training for Senegalese health workers as well as child survival activities in immunization, diarrheal disease control, malaria control and nutrition in four regions of Senegal.

■ **Family Health and Population** is a nationwide program offering maternal and child health and child survival services through public and private institutions. The project has used regional training teams to provide clinical instruction and information, education and communications training to improve and promote services both in new and existing health facilities. Under the project, over 180 physicians and nurses have been trained, a national family planning curriculum has been developed and over 60 public sector and 17 private sector family planning clinics are providing services to more than 20,000 couples. Television, radio and mass media coverage plays an important role in promoting family planning and health messages.

## Regional Project

■ **HIV/AIDS Prevention in Africa** supports the MOPH's national program on AIDS testing.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **World Vision Relief and Development** works with the Ministry of Health, UNICEF, and other organizations to strengthen the government's child survival program in the Louga Region. The project achieved high rates of vaccination coverage against the six vaccine-preventable childhood diseases by

working with the Ministry of Public Health's National Vaccination Campaigns. Assisting in the construction of 49 health huts, project staff stimulated community participation and provided villagers with improved access to basic health services. Mothers were trained in improved nutrition practices and preparation of weaning foods suitable for their infants. Oral rehydration therapy (ORT) training has been incorporated into nutrition training sessions so that more mothers can learn to use ORT.

### Bureau for Science and Technology Support

■ **PRICOR (Primary Health Care Operations Research)** is working with the MOPH to study the cost-effectiveness of the supervision system for community health programs. The study is being conducted in five regions, including the two supported by the Rural Health Delivery Services II project.

■ **TAACS (Technical Advisors in AIDS and Child Survival)** supports a public health advisor who assists in planning, managing and implementing child survival activities.

■ **WHO Global Programme on AIDS** provided technical assistance in AIDS control activities.

Short-term technical assistance was reported by the following:

■ **AIDSTECH** in AIDS education and prevention.

■ **PRITECH (Technologies for Primary Health Care)** in promoting ORT services nationwide.

■ **WHO Global Programme on AIDS** in AIDS control activities.

## Republic of Senegal

### How USAID Helps



### Demographic Indicators

Total Population: 7,171,000 (89)  
Infant Mortality Rate: 125/1,000 (89)  
Life Expectancy at Birth: 46 Years (89)  
Children Under 1: 297,000 (89)  
Annual Infant Deaths: 41,000 (89)  
Total Fertility Rate: 6.3 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 55% (88)  
Polio3: 55% (88)  
Measles: 60% (88)  
BCG: 88% (88)  
Tetanus2+: 26% (88)  
Oral Rehydration Therapy:  
ORS Access Rate: 21% (88)  
ORT Use Rate: 21% (88)  
Contraceptive Prevalence: 2% (86)  
Adequate Nutritional Status: 72% (86)  
Appropriate Infant Feeding: 49% (86)  
Exclusively Breastfed: 5%  
Introduction of Solids: 72%  
Duration of Breastfeeding: 19.6 Months (86)

See Data Notes

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# Democratic Republic of the Sudan

## How USAID Helps



### Demographic Indicators

Total Population:  
24,484,000 (89)

Infant Mortality Rate:  
105/1,000 (89)

Life Expectancy at Birth:  
50 Years (89)

Children Under 1:  
1,002,000 (89)

Annual Infant Deaths:  
114,000 (89)

Total Fertility Rate:  
6.4 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 41% (88)  
Polio3: 41% (88)  
Measles: 35% (88)  
BCG: 54% (88)  
Tetanus2+: 19% (88)

Oral Rehydration Therapy:  
ORS Access Rate: 18% (87)  
ORT Use Rate: 25% (87)

Contraceptive  
Prevalence: 4% (79)

Adequate Nutritional  
Status: N/A

Appropriate Infant  
Feeding: N/A

Exclusively Breastfed: N/A  
Introduction of Solids: N/A

Duration of Breastfeeding:  
N/A

See Data Notes

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## Sudan Highlights

■ Despite growing internal conflicts in Sudan, the National Control of Diarrheal Diseases (CDD) program has achieved remarkable progress since its creation in September 1985. As a result of the Ministry of Health's (MOH) decentralization policy, effective CDD programs have been established in most regions of Sudan. Major success has been achieved, especially in the wide availability of oral rehydration salts (ORS) and the management training of senior staff and over 7,300 paramedical, nurse and community leaders in diarrhea case management.

■ The Expanded Program on Immunization (EPI) has successfully established a vaccine delivery and cold chain system that increased coverage from an estimated three percent in 1976 to almost half of the target population in 1988.

## Bilateral Projects

■ Child Survival is implemented through a grant to UNICEF supporting Sudan's national EPI and CDD programs. In 1989, over five million ORS packets were distributed through health facilities and local organizations. The project provides technical support and vaccines to the national EPI program to improve immunization coverage. (See "Sudan Highlights" above.)

■ Rural Health Support has two major components that focus on delivery of health services in northern and southern Sudan. The project's northern component, operating in the Northern Kordofan Region and the Darfur Region, with a population of over seven million people, provides technical assistance to strengthen planning, budgeting, management, supervision and evaluation of primary health care activities. These activities include maternal and child health, immunization, oral rehydration therapy (ORT), nutrition and family planning. A new technical assistance contractor was selected to help strengthen the management and logistics of service delivery in the region. The southern component is located in Juba and nearby at the site of a large refugee camp. A grant to the African Medical and Research Foundation supports technical advisors to assist with the critical

health needs of the people there. In preparation for assignment to a new Nutrition Rehabilitation Center in Juba, four nurses received two months of training in Uganda.

## Regional Project

■ Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD) supports a public health advisor to assist in planning, managing and implementing child survival activities with the MOH.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ Adventist Development Relief Agency works in the southern district of the Northern Province of Sudan, where the target population is concentrated along an arable strip of the Nile River. The child survival program targets rural agricultural communities and displaced nomads by providing support to local MOH personnel for EPI activities, health education, nutrition/growth monitoring and control of diarrheal diseases. Community health committees and volunteer health workers are being trained to follow up health education child survival promotion in the communities.

■ CARE's North Kordofan Province Child Health project focuses on establishing sustainable immunization services and community-based education for control of diarrheal disease in two rural areas, Bara and En Nahud. In the first two years, the project has achieved 58 percent complete immunization coverage in areas that had never before been reached by immunization services. CARE trains health workers to promote community participation for control of diarrheal diseases using focus group discussion, role plays and demonstrations with women's groups in the villages. The strategy and manual used for the community-based training program is being incorporated into the national CDD program. The project area has been extended under a new grant and activities will be centered in three different areas around a rural hospital, which is intended to provide management and supervisory support to surrounding health facilities. All levels of rural health workers, including village volunteers, will be trained using the same methodology used in the earlier project to support EPI, nutrition and maternal health.

■ Helen Keller International (HKI) distributes vitamin A capsules in refugee camps in North Darfur in the Eastern Region to help prevent blindness due to malnutrition. HKI has prepared training manuals for primary health care workers and nutrition education materials for mothers and community groups and conducted workshops in assessment and intervention techniques for vitamin A deficiencies.

■ Save the Children Federation, working in two areas, Showak and Um Ruwaba, in the North Gedaref District, focuses on EPI, ORT, growth monitoring/growth promotion, malaria control, and training of traditional birth attendants. After organizing and training a health committee in each village, village dwellers are enrolled in the project in order to reach every family with services and to monitor progress. Distribution of vitamin A capsules to children and postpartum mothers has been added to the services provided in Um Ruwaba. The project has successfully established a community-based cold chain (a system of procedures, equipment and transportation designed to keep vaccines refrigerated and fresh) organization to serve 146 remote, hard-to-reach immunization sites. Immunization coverage of children and women are among the highest in the country. Chloroquine revolving funds for malaria control are being organized as a model of cost recovery for health services at the village level. A new grant will permit expansion of child survival activities to 37 additional villages in addition to the introduction of vitamin A and tetracycline eye ointment components.

## Bureau for Science and Technology Support

Short-term technical assistance was reported by the following:

■ Nutrition Education and Social Marketing in market research for new commercial weaning foods.

■ PRITECH (Technologies for Primary Health Care) in support of the National Control of Diarrheal Disease Program.

■ REACH (Resources for Child Health) in conducting an immunization cost effectiveness study.

■ WASH (Water and Sanitation for Health) in water and sanitation systems.

## Zaire Highlights

■ Despite severe budget constraints, the Government of Zaire has increased its contribution to the Basic Rural Health project by 100 percent between 1988 and 1989 and 100 percent for the Africa Child Survival Initiative - Combating Communicable Childhood Diseases program over the same period. The government acted after a consumer-demand computer cost model, designed through collaboration between USAID, Basic Rural Health Project and REACH staff, was presented to the Ministry of Finance and Planning during the budget process to help administrators better understand the effects of their decisions on supply-side variables (service costs, staffing patterns, etc.) on overall expenditures. This presentation is considered to have been instrumental in influencing increased funding levels for the projects.

## Bilateral Projects

■ **Basic Rural Health II**, administered by the Zairian private voluntary organization Eglise du Christ au Zaire, is establishing community-supported primary health care systems in 90 of the country's 306 health zones. These systems provide preventive and curative care for the most prevalent health problems. The project emphasizes financial sustainability, refinement of child survival services delivery and coordination with regional and national government health systems. Some 275 of the planned 720 curative centers have become full-service primary health care centers serving about 4.4 million people. The project also supports the National Rural Water Service and local communities to build and operate water and sanitation systems.

■ **School of Public Health**, through an agreement with Tulane University, has helped the University of Kinshasa establish the first independent and fully accredited school of public health in Central Africa. The school emphasizes practical training, management and research, child survival interventions and AIDS prevention.

■ **Area Nutrition Improvement**, through a PL 480 Title II Grant, supports the local production of a low-cost nutritious weaning food and the distribution of a corn and soy flour mix to nutrition rehabilitation programs in 50 area health centers in Kinshasa, serving an average of nearly 49,000 malnourished children each month.

■ **Family Planning Services** targets 1.5 million reproductive-age women in 52 urban health zones to increase contraceptive use to space births and increase their infants' chances for survival. The project's social marketing component, managed by the U.S. private voluntary organization (PVO), Population Services International, has shown success with condom sales, which exceeded 2.35 million in 1989. Contraceptives were also distributed through the Basic Rural Health project's rural health network. AIDS-prevention training modules were incorporated into the program of community-based distribution of contraceptives in two zones of Kinshasa, the first community-level AIDS prevention program for adults in Kinshasa.

■ **Shaba Refugee Health Project**, through the United Methodist Church of Shaba, is restoring health care delivery systems in the Lualaba and Kolwezi subregions to refugees. Newly constructed hospitals and renovated health centers are being integrated into the national primary health care system promoted by the Basic Rural Health project. The project is also working to ensure the financial sustainability of its health facilities.

■ **Shaba Refugee Water Supply**, through the International Association for Rural Development in Zaire, a local PVO, works with the National Rural Water Service and zonal health officials to provide safe water for an estimated 300,000 residents living in the Shaba area.

■ **Kimbanguist Hospital Assistance Project**, working through the Kimbanguist Church of Zaire, provides medical equipment and supplies as well as technical assistance in management and health care to the hospital, which has been completely renovated under this project. The hospital is expected to provide services to about 175,000 inhabitants of the predominantly poor sections of the Kimbanseke zone of Kinshasa.

## Regional Project

■ **Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD)**, operating for more than seven years with technical assistance from the U.S. Centers for Disease Control, has established services in 206 of Zaire's 306 health zones. While vaccine coverage in Zaire has increased slowly in the past few years, the project service area has also expanded steadily. Use of oral rehydration therapy (ORT) increased and the distribution of oral rehydration salts (ORS) more

than doubled between 1981 and 1985 under the program. A recent study showed that 72 percent of children with diarrhea in project areas are now treated with ORS, compared with 42 percent in 1985. ACSI-CCCD is conducting research to address the high rates of measles transmission in children under nine months of age with a vaccine trial using the Edmonston-Zagreb strain administered to infants six months of age.

## USAID/Washington Support

### Bureau for Science and Technology Support

■ **HEALTHCOM** (Communication for Child Survival) supports a full-time communications specialist who works with the government to promote child survival interventions through communications, training and development of educational materials. The project collaborates with other programs to strengthen national health communication planning and programming and with nationwide health projects to strengthen health communication training.

■ **Improvement of Maternal/Infant Diet** supports research on the role of traditional birth attendants in referring high risk births to hospitals.

■ **PEACE CORPS** volunteers, working with Zairian nationals in the ACSI-CCCD project, help assess a community's health problems and evaluate, with village health committees, and plan responses to community health education needs.

■ **PRICOR** (Primary Health Care Operations Research) provides funding and technical assistance for operations research studies on over 30 different topics carried out in 52 health zones. Over half of the studies address improving health worker delivery of health education in the areas of ORT, malaria treatment and growth monitoring.

■ **WHO Global Programme on AIDS** in AIDS control activities.

Short-term technical assistance was reported by the following:

■ **AIDSTECH** in AIDS education, testing and prevention.

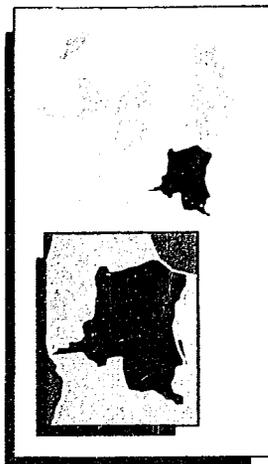
■ **Project Support** in supply, production and promotion of ORT.

■ **REACH** (Resources for Child Health) in improving health zone cost recovery.

■ **WASH** (Water and Sanitation for Health) in water and sanitation.

## Republic of Zaire

### How USAID Helps



### Demographic Indicators

Total Population: 34,853,000 (89)

Infant Mortality Rate: 96/1,000 (89)

Life Expectancy at Birth: 53 Years (89)

Children Under 15: 1,473,000 (89)

Annual Infant Deaths: 151,000 (89)

Total Fertility Rate: 6.1 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 41% (88)

Polio3: 41% (88)

Measles: 44% (88)

BCG: 55% (88)

Tetanus2+: 43% (88)

Oral Rehydration Therapy:

ORS Access Rate: 16% (88)

ORT Use Rate: 10% (87)

Contraceptive Prevalence: N/A

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding: N/A

See Data Notes

**USAID Child Survival and Health Fact Sheet**  
USAID Health Information System  
CIHE, March 1990

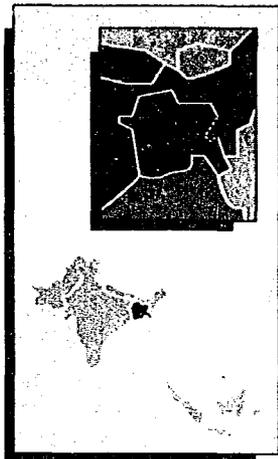


	Bangladesh	Egypt	India	Indonesia	Morocco	Nepal	Pakistan	Yemen	Afghanistan	Fiji	Jordan	Lebanon	Papua New Guinea	Philippines	Sri Lanka	Thailand	Tunisia
<b>Bilateral</b>	■ ■		■ ■		■ ■		■ ■		■		■ ■		■ ■		■ ■		■
<b>Regional</b>			■		■		■			■	■		■		■		
<b>Private Voluntary Organizations</b>	■		■ ■		■ ■		■		■		■ ■		■		■ ■		■
<b>Central Project Support</b>																	
AIDSTECH			■ ■				■			■			■ ■			■	
Applied Diarrheal Disease Research	■		■				■									■	
CSAP Support	■ ■		■ ■											■		■	
Demographic and Health Surveys		■	■		■ ■										■ ■		■
HEALTHCOM			■				■				■		■ ■				
Health Tech		■	■				■									■	
Improvement of Maternal/Infant Diet	■		■				■							■		■	
Maternal/Neonatal Health and Nutrition	■		■														
PRICOR II	■		■				■							■		■	
PRITECH II	■		■ ■		■						■		■ ■				■
REACH	■ ■		■ ■		■		■ ■				■		■				
Technical Advisors in AIDS and Child Survival			■		■		■				■						
Vaccine Development and Health-Related Research			■			■										■	
Vector Biology and Control		■	■		■		■									■	
Vitamin A for Health	■		■		■		■						■			■	
Water and Sanitation for Health	■ ■				■		■				■				■		■
WHO/Global Programme on AIDS						■										■	

Note: Countries with only one FY89 health or child survival project, and regionally or centrally funded projects active in only one country during FY89, are not included.

# Peoples Republic of Bangladesh

How USAID Helps



## Demographic Indicators

Total Population: 112,539,000 (89)

Infant Mortality Rate: 116/1,000 (89)

Life Expectancy at Birth: 51 Years (89)

Children Under 1: 4,312,000 (89)

Annual Infant Deaths: 543,000 (89)

Total Fertility Rate: 5.4 Children (89)

## Child Survival Indicators

Immunization Coverage:

DPT3: 16% (88)

Polio3: 16% (88)

Measles: 13% (88)

BCG: 26% (88)

Tetanus2+: 12% (88)

Oral Rehydration Therapy:

ORS Access Rate: 60% (88)

ORT Use Rate: 32% (88)

Contraceptive

Prevalence: 18% (85)

Adequate Nutritional Status: N/A

Appropriate Infant

Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding:

N/A

See Data Notes

## USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990

## Bangladesh Highlights

■ Studies conducted in Matlab by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), found that immunizations against measles, pertussis and tetanus reduced infant mortality rates by 21 to 23 deaths per 1,000 live births. Among children one to three years of age, mortality rates declined 16 to 37 deaths per 1,000 live births. For infants, immunization against tetanus was the key life-saver; for children one to three years of age, protection from measles was responsible for most of the drop in mortality rate.

■ Due to the efforts of the Family Planning Services Project, one-third of Bengali women in high risk birth categories (under age 20 with closely spaced births or over age 40 with high parity) are using contraceptives to space or limit births.

## Bilateral Projects

■ **Urban Volunteers Program**, a flagship urban health project in USAID's health and child survival portfolio, has served over one million residents of Dhaka slums since 1986 with oral rehydration therapy (ORT), immunization, nutrition and high risk birth services. In 1989, the project trained 1,500 destitute and abandoned women to become volunteer health workers. These women, mostly poor and illiterate, are now respected sources of health information and health care and serve approximately 80,000 families. They educate mothers about ORT, immunizations, birth spacing and high risk birth management and refer women with obstetrical problems to hospitals. The health workers are also trained to identify acute respiratory infections. The project also counsels mothers and other caregivers on proper infant and child feeding practices, promotes growth monitoring and distributes vitamin A capsules.

■ **Family Planning Services** and its follow-on project, **Family Planning and Health Services**, deliver diarrheal disease control and high risk birth services to rural areas nationwide and, more recently, immunization services to major urban areas. The project promotes and provides contraceptives and trains physicians, nurses and health workers on the health risks of closely-spaced births, births to very young or older women and births to women with high parity. A social marketing subproject implemented by Population Services International increased the commercial sales of oral rehydration

salts (ORS). Such sales now account for about 70 percent of total ORS sales in Bangladesh. During 1989, approximately 7,000 physicians, pharmacists, other health workers and school teachers were trained in ORT and diarrheal disease control. The Municipal Immunization subproject, begun in 1988, strengthened the Bangladesh Expanded Program on Immunization (EPI) by targeting children under age two and women of reproductive age in Dhaka and Chittagong, two of the nation's largest cities. Vaccination programs fully immunized 115,000 children under age one against diphtheria, tuberculosis and polio. For BCG and measles the numbers were 175,000 and 85,000, respectively. The project vaccinated over 195,000 women 15 and 44 years against tetanus.

■ **HKI Disaster Preparedness Program**, administered through Helen Keller International, collects and analyzes child health and nutrition data to determine the nutritional status of children under age five. This targets food and health aid during times of disaster.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Helen Keller International** is providing technical assistance to the Blindness Prevention Programme of Bangladesh for a vitamin A-related research project that targets children under age six and women of reproductive age living in Comilla District. This research focuses on nutrition education and social marketing as techniques for increasing vitamin A intake. The project also distributes vitamin A capsules.

■ **Save the Children Federation** expanded its priority population to 55,750 in the four child survival impact areas of Nasirnagar, Rangonia, Ghior and Mirzapur. Last year, findings indicated that 97 percent of diarrheal cases were treated with ORT. As of July 1989, 79 percent of women 15 to 49 years of age had received two doses of tetanus toxoid. Most significant is the 20 percent decline in the number of deaths due to immunizable diseases in the four impact areas.

■ **World Relief Corporation**, in cooperation with Christian Service Society, a local private voluntary organization (PVO) in Bangladesh, began its child survival project in January 1988. Last year, the project expanded services from

two to four unions in Jalma and Khalilmagar. A mid-term evaluation in May 1989 noted the following accomplishments within the target population: 100 percent of mothers know about birth spacing; 50 percent of couples use a birth spacing method; 100 percent of mothers know how to prepare ORS; 80 percent of mothers had used ORT to treat their children's diarrhea; 90 percent of children 12 to 24 months are completely immunized; and 100 percent of women 15 to 45 years of age have received two doses of tetanus toxoid.

■ **World Vision Relief and Development** established 14 Neighborhood Health Committees, trained 17 community volunteers and registered nearly 100 percent of the 12,150 families targeted for its child survival activities in one of the most densely populated slums of Dhaka. Over 45 percent of children under one year of age received BCG, DPT3, Polio3 and measles vaccines by their first birthday, a 192 percent increase over 1988 levels. In the northern zone of the project, 40 percent of women 15 to 45 years of age are fully immunized with tetanus toxoid, a 162 percent increase since 1988. Immunization service delivery is now integrated with the USAID-funded government vaccination program for Dhaka. Two doses of vitamin A capsules were given to nearly 100 percent of at-risk children and over 200 night-blind children were treated with vitamin A. World Vision also conducted eight PVO-sharing workshops based on lessons learned worldwide about child survival.

### Bureau for Science and Technology Support

■ **Applied Diarrheal Disease Research** project supports research conducted by the ICDDR,B.

■ **CSAP Support** (Johns Hopkins University) provided technical assistance for the evaluation of the ORT component of Bangladesh's Social Marketing Project.

■ **Drew University** evaluated arm circumference in pregnant women as a measure of the mother's nutritional status and a predictor of pregnancy risk and outcome.

■ **REACH** (Resources for Child Health) works with the Ministry of Health and Family Planning to provide immunization services to 20,000,000 people in the 88 municipalities of Bangladesh.

Short-term technical assistance was reported by the following:

■ **WASH** (Water and Sanitation for Health) in water and sanitation.

## Egypt Highlights

■ Diarrhea is no longer the leading cause of infant and childhood mortality in Egypt. Data from the first five years of the National Control of Diarrheal Diseases project, 1983 to 1987, show that infant mortality due to diarrhea dropped by 53 percent. For children one to four years of age, death due to diarrhea declined 47 percent. Nearly 70 percent of all cases of diarrhea in children under age five are treated with oral rehydration therapy (ORT).

■ Immunization coverage in Egypt is another success story. For the six childhood communicable diseases, coverage is above 80 percent. Vaccination coverage for children 12 to 23 months old is approaching 90 percent for DPT3 and Polio3. Immunization accomplishments in Egypt were discussed in a BBC program on development.

■ According to figures published by the United Nations and the Egyptian Ministry of Health (MOH), the infant mortality rate in Egypt fell from 115 per 1,000 live births in 1979 to 44 in 1988, one of the fastest declines in infant mortality on record (see **Data Notes**). This is a notable achievement because the infant mortality rate is considered one of the major indices of a country's well-being. Most experts attribute these declines in infant mortality to successful ORT and immunization interventions.

■ USAID continues to promote efforts to strengthen Egypt's ability to sustain USAID-funded child survival interventions. For example, private pharmacists are being trained to promote and sell oral rehydration salts (ORS). In the immunization arena, emphasis is placed on non-campaign mechanisms, cold chain improvements as well as vaccine production and distribution.

## Bilateral Projects

■ **Child Survival** is a nationwide child health effort that supports services and research related to immunization, growth monitoring, breastfeeding, maternal health and nutrition, birth spacing, high risk births and acute respiratory infections (ARI). During 1989, research focused on community-based ARI surveillance, measles immunity and morbidity and mortality due to diarrhea. Of special note, the project, in collaboration

with the World Health Organization (WHO), developed the first national ARI work plan. ARI prevalence studies were initiated to collect baseline data for the national program. The project joined with UNICEF to conduct surveys of vaccination coverage and train staff in seven governorates. Twenty-one million disposable syringes were provided for the Expanded Program on Immunization (EPI). The project also initiated a training program for 2,000 traditional Egyptian midwives (known as "dayas"). Two thousand delivery kits have been purchased for the dayas. In addition, the Child Survival project is lobbying for the inclusion of child survival training in the pre-service training curriculum for nurses. Also, four television spots were produced about high risk births.

■ **Control of Diarrheal Diseases** continues to support Egypt's National Control of Diarrheal Diseases Program by making ORS available through both private and public health facilities; sponsoring and promoting local production of ORS packets; providing training in ORT to physicians and nurses; and conducting research. The success of this project is evident in Egypt's dramatic drops in infant and child mortality due to diarrhea over the last five years (See "Egypt Highlights" above). A detailed analysis of the decline shows it to be due primarily to improved case management of diarrhea provided by the project. A survey found that Egyptian mothers were far more likely to use ORS in serious cases of diarrhea with dehydration than in more mild cases without dehydration. This finding suggests that mothers have effectively learned to discern serious from mild episodes of diarrhea and when to use ORS to avoid dehydration. The project continued efforts to fully institutionalize control of diarrheal disease activities throughout the Egyptian health system to ensure that the positive results attained thus far will be sustained.

■ **Suez Community Health Personnel Training** established the community medicine program at Suez Canal University - the first such program in Egypt - with technical assistance from Boston University. This year, 64 medical students completed training in primary health care and community-based practice, and half chose a primary health care specialty. The project also supported the renovation and construction of 24 health centers in three governorates along

the Suez Canal with a total population of 1.4 million. All health centers are run on a cost-recovery basis. In addition, the project provided laboratory and other equipment to the health centers.

■ **Cost Recovery for Health**, begun in 1988, assists the Government of Egypt with introducing cost recovery mechanisms into the public health/curative system, which today consumes 60 percent of all public and private health care expenditures. Cost recovery will be brought about through fees for service in 50 MOH hospitals and clinics, health insurance initiatives, improved management of health services and institutions and expanded private sector financing of individual, group and prepaid health care plans.

## USAID/Washington Support

### Bureau for Science and Technology Support

■ **CSAP Support** (Johns Hopkins University) is assisting the MOH with the impact evaluation of the National Control of Diarrheal Diseases Project and the collection of baseline data relating to immunization, respiratory diseases, birth spacing and feeding behaviors.

**Short-term technical assistance was reported by the following:**

■ **AIDSCOM and AIDSTECH** assisted the Egyptian MOH with a nationwide AIDS testing program for high risk groups, blood products and blood product recipients and foreign workers living in Egypt for more than one year.

■ **Combating Iron Deficiency** in developing a national strategy to combat iron deficiency anemia.

■ **HEALTHTECH** (Technologies for Child Health) in growth monitoring and nutrition education.

■ **REACH** (Resources for Child Health) in health care financing and health systems development.

■ **VBC** (Vector Biology and Control Project) during the pre-implementation phase of the Schistosomiasis Research Project.

■ **WASH** (Water and Sanitation for Health) for water and sanitation.

## Arab Republic of Egypt

### How USAID Helps



### Demographic Indicators

Total Population: 52,919,000 (88)

Infant Mortality Rate: 44/1,000 (88)

Life Expectancy at Birth: 59 Years (88)

Children Under 1: 1,899,572 (88)

Annual Infant Deaths: 87,428 (88)

Total Fertility Rate: 4.6 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 87% (88)  
Polio3: 89% (88)  
Measles: 84% (88)  
BCG: 80% (88)  
Tetanus2+: 49% (88)

Oral Rehydration Therapy:  
ORS Access Rate: 98% (87)  
ORT Use Rate: 67% (87)

Contraceptive Prevalence: 37% (88)

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A  
Exclusively Breastfed: N/A  
Introduction of Solids: N/A

Duration of Breastfeeding: N/A

See Data Notes

**USAID Child Survival and Health Fact Sheet**  
USAID Health Information System  
CHILD, March 1990

# Republic of India

## How USAID Helps



### Demographic Indicators

Total Population:  
825,812,000 (89)

Infant Mortality Rate:  
96/1,000 (89)

Life Expectancy at Birth:  
59 Years (89)

Children Under 1:  
26,920,000 (89)

Annual Infant Deaths:  
2,756,000 (89)

Total Fertility Rate:  
4.2 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 74% (88)  
Polio3: 63% (88)  
Measles: 45% (88)  
BCG: 72% (88)  
Tetanus2+: 61% (88)

Oral Rehydration Therapy:  
ORS Access Rate: 57% (88)  
ORT Use Rate: 23% (88)

Contraceptive  
Prevalence: 35% (86)

Adequate Nutritional  
Status: N/A

Appropriate Infant  
Feeding: N/A

Exclusively Breastfed: N/A  
Introduction of Solids: N/A

Duration of Breastfeeding:  
N/A

See Data Notes

**USAID Child Survival  
and Health Fact Sheet**  
USAID Health Information System  
CHH, March 1990

## India Highlights

■ The Indian Government is accelerating immunization with a major campaign targeted to urban areas nationwide. At the request of the government, Rotary International's PolioPlus Program will take a leadership role in helping to increase immunization among urban dwellers, an estimated 26 percent of the Indian population, including some 6.5 million children under age one. Rotary enrolled more than 28,000 volunteers in its national task force to provide support in registration, health education, cold chain logistics and demand creation. Last year, Rotary helped the government vaccinate over 16 million children against tuberculosis and nearly 10 million against measles. Over 14 million women were vaccinated against tetanus. State-level committees of leading industrialists have been formed to involve them in promoting immunization. Some now provide immunization to employees and their dependents; others are providing immunization service to the communities surrounding their factories.

## Bilateral Projects

■ PVOs for Health I & II are national programs that support growth monitoring, child spacing, nutrition interventions and the integration of traditional medicine into primary health care through grants awarded to Indian private voluntary organizations (PVOs). The purpose of the projects is to strengthen the capacities of indigenous PVOs to provide child survival interventions. PVOH II is a follow-on to PVOH I, a project that extended child health services to one million people through grants to 32 Indian PVOs.

■ Child Survival Health Support Project works with the Government of India at the national and state levels to strengthen the management and delivery of diarrheal disease control, immunization and maternal health services. Forty thousand health workers and two million mothers were trained last year. The project is also assisting with the production and distribution of films to help train 100,000 auxiliary nurse midwives and approximately 500,000 traditional birth attendants in safe and hygienic delivery practices.

■ Integrated Child Development Services project assists the Ministry of Human Resource Development to provide village-level health services to children under five and pregnant and lactating women throughout rural India. Project

objectives are to reduce child morbidity, mortality and nutrition, enhance mother's child-care capabilities and to promote psychological and social development of children. Services include supplementary feeding, immunization, nutrition and health education and health check-ups. Rural communities are served through the setting up of village centers and development of a staff that provides the services. Almost all of the planned 4,500 centers have been established and staffed; over 90 percent of the village center workers have received basic training in the feeding and health programs. This comprehensive project is conducting numerous research and feasibility studies, developing management information systems and training large numbers of staff through mobile in-service training programs.

■ Program for the Advancement of Commercial Technology is working with the private sector to find novel processes to synthesize anti-cancer drugs and to develop a method for production of campothecin, another drug used in cancer treatment regimens. Campothecin occurs in high concentrations in a small forest tree found in the Western Ghats of India.

■ Contraceptive Development and Reproductive Immunology sponsors Indo-U.S. collaborative research and training projects in reproductive immunology, contraceptive vaccine development and other areas of immunology. Six joint research projects were developed and funded during the last year.

■ Vaccine and Immunodiagnostic Development supports Indo-U.S. collaborative research to develop vaccines that will expand the range of vaccine-preventable diseases and to develop inexpensive diagnostic procedures. The project is managed by an Indo-American team of scientist-administrators. Four research proposals were funded during FY 89. The project focuses on cholera, hepatitis, rotavirus, polio and typhoid.

■ Biomedical Research Support is helping the Government of India to develop sophisticated data collection and analysis capabilities for the major diseases of India. Target diseases are primarily those that are infectious and controllable through vaccination or vector control. The project helps train physicians and health officers in clinical and field and laboratory epidemiology.

■ Development and Management Training trains physicians and health workers in the design and implementation of rural child survival programs, management of health projects, health systems applications of micro computers, epidemiology and the control of malaria, nutritional surveillance and international health.

■ CARE, using PL 480 Title II Commodities (Food Assistance Program), supports oral rehydration therapy, immunization and maternal and child health services delivered in Madhya Pradesh and Orissa States by the Indian government's Integrated Child Development Services program. The project is conducting research studies aimed at compliance, use of oral rehydration salts, training and growth faltering.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ Rotary International supports the national immunization effort through the recruitment and training of volunteers throughout the country and organization of immunization drives. Volunteers assist with such tasks as baby tracking, health education, record keeping, transportation, outreach and cold chain maintenance. Nearly 55,000 health workers, mothers and others were trained last year.

### Bureau for Science and Technology Support

■ A Child Survival Fellow sponsored by Johns Hopkins University assisted CARE/India and the West Bengal State Health Ministry with project design, implementation and staff training for an acute respiratory infections control project.

### Additional Support

■ UNICEF received support from USAID to conduct a knowledge, attitudes and practices survey on diarrheal disease.

Short-term technical assistance was reported by the following:

■ AIDSTECH in sponsoring participation in a worldwide AIDS conference.

■ REACH (Resources for Child Health) in assisting the Christian Medical College in performing a study on alternative methods of delivering polio vaccine.

■ VBC (Vector Biology and Control) in a preliminary visit related to strengthening data management systems for malaria control.

## Indonesia Highlights

■ Delivering vaccines across Indonesia's far-flung archipelago is a formidable undertaking, but the government, with assistance from the Agency-supported Expanded Program on Immunization (EPI) project, is nearing 80 percent coverage for all six vaccine-preventable childhood diseases.

## Bilateral Projects

■ **Comprehensive Health Improvement Program - Province Specific** is directed at the residents of Aceh, West Sumatra and Nusa Tenggara. Services address diarrheal diseases, immunization, vitamin A supplementation and health systems development. A study investigated ways to encourage nurses to stay longer at health posts in remote villages.

■ **Family Planning Development and Services II** works with the National Family Planning Coordinating Board to promote birth spacing and contraceptive use nationwide. Operations research is focusing on encouraging couples to pay for birth spacing methods historically provided by government.

■ **Private Sector Family Planning** will support private sector services aimed at birth spacing, contraception and high risk births.

■ **Expanded Program on Immunization (EPI)** has assisted with national immunization efforts for 10 years. Over four million children and nearly three million mothers were immunized last year. Strategies for the elimination of tetanus and polio are also being developed by the Ministry of Health (MOH).

■ **Health Sector Financing** provides technical assistance to the MOH to ensure sustainability of child survival programs through improved efficiency and cost-recovery. Last year, the project supported activities related to hospital management and social financing/health insurance.

■ **Faculties of Public Health** is helping to develop a national public health infrastructure by training public health graduate students in maternal and child health, nutrition, water and sanitation health education and epidemiological research.

■ **Village Family Planning/Mother-Child Welfare** seeks to develop village-level child survival services. The model that is more efficient and effective than the Integrated Village Health Services Post (Posyandu). A cost analysis

model, developed by the project can be used to gauge the cost of interventions and to study the proportion of costs borne by the community.

■ **PVO Co-Financing II**, with the PL 480 Title II program, gives support to U.S. and local private voluntary organizations to coordinate child survival efforts countrywide.

■ **Health Training, Research and Development** supports MOH diarrheal disease control services in Jakarta and the provinces of West Java, South Sumatra and South Sulawesi. Last year, the project produced a computer-driven exercise for evaluation of oral rehydration salts (ORS) management and oral rehydration therapy (ORT) delivery systems.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Adventist Development Relief Agency (ADRA)** provides child survival services to Celebes Island. During 1989, over 10,000 mothers and others were counseled on infant and child feeding practices. Cold chain efficiency was improved with cold boxes and the help of villagers who own refrigerators.

■ **CARE** is extending maternal and child survival services to residents of East Java, West Java and West Nusa Tenggara. Over 1,000 physicians, nurses, health workers and other caregivers were trained.

■ **Helen Keller International (HKI)**, has used mass media to improve the vitamin A status of young children living in Pariaman District. A second HKI project, in Java, combines interventions and research on vitamin A efficacy. A third project, in central Java, adds diarrheal disease control and nutrition activities to vitamin A services.

■ **Project Concern International** implements a child survival initiative in Southeast Sulawesi and Riau, aimed at health systems development. Nearly 175 physicians, nurses, health workers and others were trained in data collection, and monitoring and health information systems.

■ **Save the Children Federation's** child survival project in a Jakarta slum supports community-based delivery of the full range of child health services. Complete immunization for children under age five increased from 22 percent to nearly 70 percent.

## Bureau for Science and Technology Support

■ **American Medical Association** supports a program with the Indonesian Medical Association to involve private practice physicians in child survival activities.

■ **Applied Diarrheal Disease Research** supports studies related to case management and social psychological features of diarrheal disease and water use practices as risk factors.

■ **CSAP Support (Johns Hopkins University)**, with the University of Gadjah Mada, is supporting a study of vitamin A supplementation among children under age five.

■ **CSAP Support (John Snow)**, through the YKB Business Development Project, strengthens primary health care clinics offering child health services.

■ **HEALTHCOM (Communication for Child Survival)** works with the government to strengthen communications and training for diarrheal disease and vitamin A activities.

■ **PRICOR (Primary Health Care Operations Research)** assists the University of Indonesia Center for Child Survival with operations research. Studies focus on such topics as private sector distribution of ORS.

■ **PRITECH II (Technologies for Primary Health Care)** provides technical assistance to the National Diarrheal Disease Control Program.

■ **TAACS (Technical Advisors in AIDS and Child Survival)** helps to implement immunization programs and the development information systems.

### Additional Support

■ **UNICEF** completed activities in 1989 in a project that channeled immunization and diarrheal disease control programs through 17 non-government organizations. Over the three years of the project, 18,000 health "motivators" and 1,750 supervisors were trained.

Short term technical assistance was reported by the following:

■ **AIDSTECH** in AIDS education and prevention activities.

■ **HEALTHTECH** in immunization strategy.

■ **Improvement of Maternal/Infant Diet** project in infant feeding practices weaning food recipes.

■ **Maternal and Neonatal Health and Nutrition (MotherCare)** in maternal health and nutrition.

■ **REACH (Resources for Child Health)** in immunization strategies.

■ **VBC (Vector Biology and Control)** in malaria control.

## Republic of Indonesia

### How USAID Helps



### Demographic Indicators

Total Population: 177,716,000 (89)

Infant Mortality Rate: 70/1,000 (87)

Life Expectancy at Birth: 57 Years (89)

Children Under 1: 4,485,000 (89)

Annual Infant Deaths: 385,000 (89)

Total Fertility Rate: 3.2 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 71% (88)

Polio3: 73% (88)

Measles: 64% (88)

BCG: 81% (88)

Tetanus2+: 29% (88)

Oral Rehydration Therapy:

ORS Access Rate: 100% (88)

ORT Use Rate: 36% (89)

Contraceptive Prevalence: 44% (87)

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding: 23.6 Months (87)

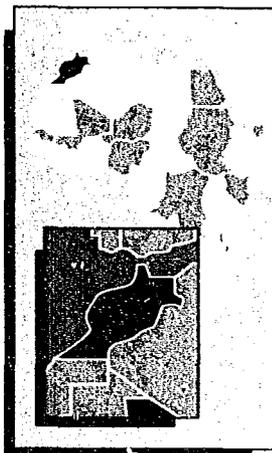
See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CHH, March 1990

# Kingdom of Morocco

## How USAID Helps



### Demographic Indicators

Total Population:  
24,521,000 (89)

Infant Mortality Rate:  
73/1,000 (87)

Life Expectancy at Birth:  
61 Years (89)

Children Under 1:  
796,000 (89)

Annual Infant Deaths:  
61,000 (89)

Total Fertility Rate:  
1.6 Children (87)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 92% (89)  
Polio3: 92% (89)  
Measles: 92% (89)  
BCG: 99% (89)  
Tetanus2+: 58% (89)

Oral Rehydration Therapy:  
ORS Access Rate: 61% (88)  
ORT Use Rate: 45% (88)

Contraceptive  
Prevalence: 29% (87)

Adequate Nutritional  
Status: 80% (87)

Appropriate Infant  
Feeding: 47% (87)

Exclusively Breastfed: 42%  
Introduction of Solids: 43%

Duration of Breastfeeding:  
15.2 Months (87)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990

## Morocco Highlights

■ Vaccination coverage in Morocco has surpassed the global goal of 80 percent coverage: Ninety-nine percent of children 12 to 23 months of age are protected against tuberculosis; and 92 percent are fully vaccinated against measles, diphtheria, whooping cough, tetanus and polio. Some 58 percent of women are protected against tetanus.

■ The Maghrebien Vaccination Campaign, initiated by His Majesty King Hassan II and led by Morocco in October 1989, was successful. All levels of the community were mobilized including key political, community and religious leaders, teachers and health care workers. A campaign logo was designed using the hand of Fatima, the flags of the Maghrebien countries and a stylized symbol of a woman and her child. This logo was widely distributed in posters and stickers and is recognized throughout Morocco.

■ The Ministry of Public Health (MOPH) recently completed a National Infant and Child Mortality Survey using the verbal autopsy method. The study provided detailed data on the leading causes of infant and child death and disability in Morocco. The survey also determined some of the underlying factors such as failure to seek treatment, insufficient vaccination coverage of women, lack of prenatal care and undetected or untreated malnutrition, that may have contributed to the deaths. These data will be extremely valuable in re-targeting and improving child survival interventions.

## Bilateral Project

■ Population and Family Planning Support III is a comprehensive national maternal and child health and family planning enterprise funded by USAID and implemented and managed by the MOPH. The project's five key child survival interventions focus on birth spacing and family planning, immunization, diarrheal disease and oral rehydration therapy, nutrition, including breastfeeding, growth monitoring and appropriate weaning practices, and prenatal and delivery care. His Majesty Hassan II and H.R.H. Princess Lalla Meriam, the King's daughter played important roles in national immunization campaigns. A regional vaccination campaign for the Maghreb countries (Algeria, Libya, Mauritania, Morocco and Tunisia) proposed by His Majesty Hassan II last spring took place in October. The MOPH recently completed a National Infant and Child Mortality Survey, one of the first such national surveys in the world (See "Morocco Highlights" above). USAID provided technical and financial assistance for the survey, which identifies leading causes of death and major underlying contributing factors. USAID also partially funded survey research related to national vaccination coverage. A nutrition guide for use by MOPH field staff was also developed.

In September 1989, the project initiated a program called PRO-TEX, which promotes the use of condoms using social marketing strategies through pharmacies nationwide. The theme of the program is "Family Planning is also a Man's Responsibility." During 1989, USAID launched a new six-year, U.S. \$31.5 million project, Population and Family Planning Support IV, which continues the support to Morocco's national integrated mother and child health and family planning program. The new project extends the scope of outreach efforts which provide maternal and child health services and family planning services.

## USAID/Washington Support

### Bureau for Science and Technology Support

■ AIDSTECH in providing support for health professionals to attend an international AIDS conference and in a needs assessment for possible AIDS prevention and control programs.

■ ORT Help in training Peace Corps Volunteers in child survival interventions.

■ TAACS (Technical Advisors in AIDS and Child Survival) provided long-term technical assistance in clinical and training aspects of child survival, and short-term technical assistance in developing a survey instrument to be used with the national census to measure causes of infant mortality.

■ VBC (Vector Biology and Control) in the safety of organophosphate insecticides for malaria control.

■ WHO Global Programme on AIDS in training on AIDS for MOPH medical and paramedical staff.

■ WASH (Water and Sanitation for Health) in planning of a sewerage for the municipality of Tetouan.

## Nepal Highlights

■ Early findings from the Jumla Acute Respiratory Infections Intervention Trial indicate that community health workers, with appropriate training, supervision and support, can diagnose and treat childhood pneumonia according to accepted procedures. Nearly 30,000 cases of childhood pneumonia have been identified and treated since the project began in 1985. At this time, about 80 percent of all cases are being treated in Jumla District.

■ To increase access to child health services in underserved communities, the Freedom From Hunger Foundation established "mobile camps" in September 1988. Since the mobile camps began to offer a range of child health activities, including immunization, diarrhea control and oral rehydration therapy (ORT), nutrition education and family planning, steady progress has been made toward project objectives.

■ Contraceptive social marketing team members working with Save the Children Federation walked from village to village in Gorkha District to meet with local leaders and community members and discuss birth spacing program. The program was officially opened on February 1989. Princess Jayantii Rajya Lakshmi Devi Shah traveled to Gorkha bazaar by helicopter and participated in the program inauguration activities. To increase political support for the birth spacing program, the inauguration ceremony was scheduled to coincide with the annual meeting of local government officials.

## Bilateral Project

■ **Integrated Rural Health/Family Planning Services** is an eight-year project funded by USAID scheduled to end in July 1990. The purpose of this project is to support efforts by the Government of Nepal to strengthen family planning and health services in rural areas. USAID also provides some funds for several non-governmental organizations (NGOs) that work with the government to provide family

planning and maternal and child health services. The NGOs include the Family Planning Association of Nepal, the Nepal Red Cross Society, Mothers Clubs, Ex-Servicemen's Organization and New Era and Integrated Development System. Child health interventions primarily focus on immunization, diarrhea control and ORT, acute respiratory infections (ARI), maternal health, birth spacing and nutrition. USAID's major contribution in the area of management has been assistance to the government's Integrated Community Health Services Development Project. USAID has also helped with the creation of village health committees, the training of field workers and the national management of the stocking and distribution of pharmacologies. The project also provided research support to the National Malaria Program.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Freedom from Hunger Foundation (FFH)** works with the Family Planning Association of Nepal (FPAN) to reduce infant and child morbidity and mortality. The FFH/FPAN child survival project also supports diarrheal disease control, immunization, breastfeeding, growth monitoring, nutrition, maternal health and child spacing services. The project targets 22,000 residents living in Sindhupalchok District in northeastern Nepal. During 1989, over 1,100 health workers, mothers and community members were trained in infant and child feeding practices and other child health topics. Immunization coverage for children 12 to 23 months old in the project area is 55 percent for BCG and nearly 30 percent for measles. These percentages are quite respectable given the mountains of Nepal and the remoteness of many

communities. The project registers all women, infants and children involved in various immunization activities.

■ **Save the Children Federation** provides a range of child survival services that are part of a comprehensive primary care program, which is embedded within a larger multi-sectoral community development enterprise. The child survival activities relate to ORT, contraceptive social marketing, immunization, growth monitoring, child spacing and high risk births. Research conducted under this project focuses on family spacing practices in Gorkha District, educational message design for diarrhea management and birth spacing and the impact of social marketing strategies on ORT and family spacing. The program trained over 650 community health workers and mothers in child health practices during 1989. Contraceptive social marketing workers used the Gaijatra festival to overcome the taboo against public discussion of sex-related topics. During this festival, people are allowed to discuss any topic they wish without fear of punishment. The workers discussed birth spacing and birth control at their booth and played a song about family planning. Over 1,000 people visited the booth on festival day. The workers also educated booth visitors about ORT.

### U.S. Bureau for Science and Technology Support

Short-term technical assistance was provided by the following:

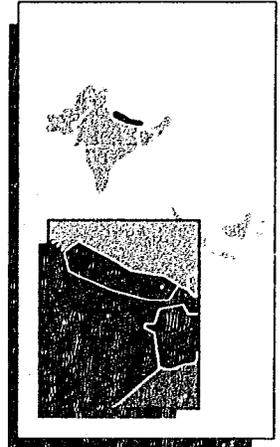
■ **ORT Help** is training Peace Corps volunteers in child survival interventions.

■ **REACH** (Resources for Child Health) is strengthening the nation's computerized immunization program information system.

■ **VBC** (Vector Biology and Control) is establishing an operations research program and in upgrading the data management system for the government's malaria control program.

## Republic of Nepal

### How USAID Helps



### Demographic Indicators

Total Population: 18,686,000 (89)  
Infant Mortality Rate: 125/1,000 (89)  
Life Expectancy at Birth: 52 Years (89)  
Children Under 1: 658,000 (89)  
Annual Infant Deaths: 90,000 (89)  
Total Fertility Rate: 5.8 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 71% (89)  
Polio3: 71% (89)  
Measles: 58% (89)  
BCG: 88% (89)  
Tetanus2+: 29% (89)  
Oral Rehydration Therapy:  
ORS Access Rate: 80% (88)  
ORT Use Rate: 28% (88)

Contraceptive Prevalence: 15% (86)

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A  
Exclusively Breastfed: N/A  
Introduction of Solids: N/A

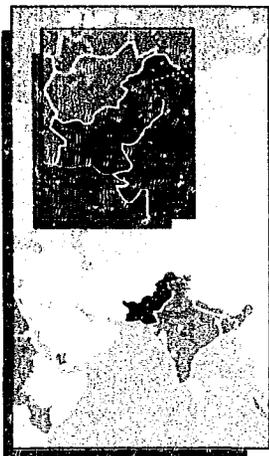
Duration of Breastfeeding: N/A

See Data Notes

**USAID Child Survival and Health Fact Sheet**  
USAID Health Information System  
CIH, March 1990

# Islamic Republic of Pakistan

How USAID Helps



## Demographic Indicators

Total Population: 118,820,000 (89)

Infant Mortality Rate: 106/1,000 (89)

Life Expectancy at Birth: 57 Years (89)

Children Under 15: 5,000,000 (89)

Annual Infant Deaths: 571,000 (89)

Total Fertility Rate: 6.3 Children (89)

## Child Survival Indicators

Immunization Coverage:  
 DPT3: 85% (88)  
 Polio3: 53% (88)  
 Measles: 84% (88)  
 BCG: 88% (88)  
 Tetanus2: 27% (87)

Oral Rehydration Therapy:  
 ORS Access Rate: 75% (88)  
 ORT Use Rate: 71% (88)

Contraceptive Prevalence: 8% (84/85)

Adequate Nutritional Status: 84% (85/87)

Appropriate Infant Feeding: N/A  
 Exclusively Breastfed: N/A  
 Introduction of Solids: N/A

Duration of Breastfeeding: N/A

See Data Notes

## USAID Child Survival and Health Fact Sheet

USAID Health Information System  
 CIHI, March 1990

## Pakistan Highlights

■ Immunization coverage for BCG, Polio3, DPT3 and measles now exceeds 80 percent, ranging between 84 and 88 percent for all antigens nationwide.

■ An estimated 22 million cases of malaria have been prevented since 1982 by Malaria Control II.

■ In one year, the experimental case management training methodologies used by Pakistan's Diarrheal Disease Training Units have been adopted by provincial health departments and teaching hospitals. The Training Units, established by the Primary Health Care project in the 10 largest pediatric wards of teaching hospitals in the country, train physicians to improve diarrhea treatment and case management, and to ensure that paramedics teach mothers about treating diarrheal disease.

■ Health Technician Training Schools are now located in all four of Pakistan's provinces. Of the more than 1,100 students enrolled in the 13 training institutions, 40 percent are women, a 20 percent increase from two years ago. Upon graduation, the health technicians return to health centers in rural and underserved areas to help provide better health and child survival services. The schools were built and equipped through funds from the Primary Health Care project.

## Bilateral Projects

■ **Primary Health Care** is instrumental in extending quality child survival services to rural areas throughout the country. Approximately 3,300 health technicians trained by the project are posted in rural and underserved areas. In addition to establishing the Diarrheal Disease Training Units (see "Pakistan Highlights" above) the project has set up "ORT corners" in 129 provincial health facilities. During 1989, the project trained over 200 physicians, funded a national oral rehydration therapy (ORT) communication campaign and implemented a computer-based management information system.

■ **Child Survival**, a new project, aims to reduce Pakistan's infant and child mortality by 25 percent by 1994. A major focus is the institutionalization of the Control of Diarrheal Diseases program, the Expanded Programme on Immunization and other newly-developing child survival programs. The project will also work with the Pakistan government on control of acute respiratory infections, which kill an estimated 80,000 infants and children each year in Pakistan, as well as on child spacing, nutrition and maternal health activities.

■ **Malaria Control II** assists the Government of Pakistan in reducing the incidence of malaria and developing a strong national malaria-control institution. Efforts to improve the sustainability of the program resulted in a savings of U.S. \$7 million in 1987 and 1988 while maintaining reductions in malaria incidence. Additionally, accurate diagnosis of malaria has been enhanced through the setting up of malaria case detection centers in health facilities nationwide and providing microscopes and diagnostic training. Collaborative activities with the National Institute of Malaria Research and Training investigated alternative control methods and the field testing of fish for biological control of mosquito larvae.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Adventist Development Relief Agency (ADRA)**, working in Karachi District, trained sixty health workers, two physicians and over 13,000 mothers and community members in a variety of child survival areas in 1989. An additional 45 traditional birth attendants (TBAs) were trained in safe birthing practices, and the director of ADRA Pakistan developed a new curriculum for TBA training. Mobile health teams continued providing immunization, ORT, nutrition and maternal health services to the 110,000 residents of the service area. Signed contracts with the Directorate of Health - Sind, specify mechanisms for institutionalizing program activities.

■ **Aga Khan Foundation** provides child survival interventions for the 55,000 residents of the mountainous rural Gilgit District through its USAID-funded Northern Areas Primary Health Care Project. The program continues to emphasize training of health workers, physicians, traditional birth attendants and mothers. During 1989, nearly 2,700 mothers and children were immunized. Research focused on the cause of diarrheal disease and a comparison of interventions.

## Bureau for Science and Technology Support

■ **Applied Diarrheal Disease Research** project helps the national government improve management of diarrheal disease by supporting studies conducted through the Aga Khan University Hospital and the Army Medical College. These studies are looking at digestibility of cereal-based oral rehydration salts (ORS), vitamin A deficiency, dietary management and health seeking behavior.

■ **PRICOR (Primary Health Care Operations Research)** supports the Primary Health Care project through its operations research on the Model Basic Health Unit, a primary health care facility designed to directly address community health needs, and on supervision of outreach health workers.

■ **PRITECH (Technologies for Primary Health Care)**, working through the Primary Health Care and Child Survival projects, assists the government's national diarrheal disease control program through technical assistance to the Diarrheal Training Units and other diarrheal disease control activities.

Short-term technical assistance was provided by the following:

■ **AIDSTECH** and **AIDSCOM** in assessing the needs and resources related to AIDS prevention and information, education and communication.

■ **HEALTHTECH (Technologies for Child Health)** in planning a pilot introduction of a scale for screening low birthweight newborns and developing training materials for testing a single-use syringe.

■ **Improvement of Maternal/Infant Diet** in assisting with a campaign to promote breastfeeding.

■ **REACH (Resources for Child Health)** in assisting the Government of Pakistan with efforts to conduct field trials of a single-use self-destructible syringe.

■ **VBC (Vector Biology and Control)** in the evaluation of the Malaria Control II project.

■ **WASH (Water and Sanitation for Health)** in developing management tools in water supply and sanitation.

## Yemen Highlights

■ The Tihama Primary Health Care (PHC) Project successfully established and furnished 65 primary health care units and trained personnel in child survival interventions at multiple levels of Yemen's health care delivery system. Lessons learned from the Tihama PHC project, which supports programs in immunization, oral rehydration therapy (ORT), nutrition education and acute respiratory infection (ARI) control, will be applied to Yemen's other bilateral project.

■ Under the Accelerated Cooperation for Child Survival project, the first group of health trainer/supervisors completed training at Yemen's Health Manpower Institute (HMI). The eight trainers/supervisors will return to Saadah, Marib and Hajjah governorates to begin training rural primary health care workers in diarrheal disease control, immunization and nutrition. USAID is also supporting a midwifery training program in collaboration with the HMI for nurses and birth attendants.

## Bilateral Projects

■ Accelerated Cooperation for Child Survival assisted by REACH and HEALTHCOM, helps the Government of Yemen to meet its child survival objectives by strengthening basic health services for women and children in six underserved governorates. The project focuses on ORT, immunization, nutrition and ARI prevention and treatment. During 1989, the project began a major initiative to assist the Ministry of Health (MOH) in establishing a National Epidemiology and Disease Control Program. The comprehensive program will institute a system to monitor the incidence and prevalence of diseases contributing to high morbidity and mortality of Yemeni women of childbearing age and infants and children. The program will provide the Government of Yemen with valuable data and

information that will permit more accurate assessment of the effectiveness of interventions and provide a sound base for planning, implementing and monitoring health care activities. In addition, the program assists with upgrading the government's central laboratory and developing strategies to investigate disease outbreaks. During 1989, the project trained community health workers in infant and child feeding practices, nutrition and growth monitoring. Further, the project conducted a training-of-trainers program in child survival interventions for governorate supervisors. The supervisors will train primary health care workers in the target governorates.

■ Tihama Primary Health Care continues to assist the government with the development of a primary health care system in coastal Tihama Province that offers a range of maternal and child health services. This year's activities began with a major initiative by the MOH, USAID and the Pathfinder Fund to upgrade midwifery training at the country's Health Manpower Institute in the town of Hodeidah. Highly respected and trusted among Yemeni women, these midwives have been trained to provide quality care to women of childbearing age throughout the country. The project also trained physicians, nurses and community health workers in child survival interventions, and sponsored activities to promote breastfeeding, proper weaning and feeding and growth monitoring. In addition, the project provided cold chain support and sponsored immunization activities in fixed centers and with mobile vaccinators. Vaccination coverage rates in Tihama Province are double and triple the national average. For example, the national coverage rate for Polio3 is 14 percent, versus 55 percent for Tihama.

■ Small Rural Water Systems, which ended this year, assisted the Government of Yemen to design, construct and manage village water systems nationwide. The project helped increase the availability of potable water in rural areas.

Local village councils for cooperative development were essential in meeting project goals. Activities will continue through a USAID-sponsored local development project and the Accelerated Cooperation for Child Survival.

## USAID/Washington Support

### Bureau for Science and Technology Support

■ HEALTHCOM (Communication for Child Health) is working with the Directorate of Health Education to strengthen its capacity to plan, develop, implement and evaluate effective child survival communication programs nationwide. Pilot health education projects have been implemented in the governorates of Saada, Hajjah and Mareb. During 1989, HEALTHCOM also conducted a staff development review at the Directorate.

■ REACH (Resources for Child Health) assists the government with the Accelerated Cooperation for Child Survival. Last year, REACH ordered health center equipment and trained the first group of governorate-level trainer/supervisors. REACH assembled a child health resource center for use by staff of the Accelerated Cooperation for Child Survival project.

Short-term technical assistance was provided by the following:

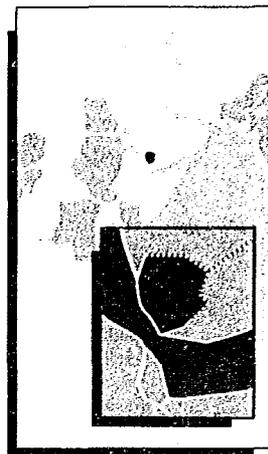
■ ORT Help in training Peace Corps volunteers in child survival interventions.

■ TAACS (Technical Advisors in AIDS and Child Survival) in providing assistance with child survival project design.

■ WASH (Water and Sanitation for Health) in water and sanitation.

## Yemen Arab Republic

### How USAID Helps



### Demographic Indicators

Total Population: 9,274,000 (89)

Infant Mortality Rate: 136/1,000 (89)

Life Expectancy at Birth: 44 Years (89)

Children Under 1: 408,000 (89)

Annual Infant Deaths: 61,000 (89)

Total Fertility Rate: 8.7 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 31% (88)

Polio3: 31% (88)

Measles: 30% (88)

BCCG: 15% (88)

Tetanus-2+: 3% (88)

Oral Rehydration Therapy:

ORS Access Rate: 64% (88)

ORT Use Rate: 6% (88)

Contraceptive Prevalence: 3.5 (89)

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Duration of Breastfeeding: N/A

See Data Notes

USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CHH, March 1990



	Bolivia	Ecuador	Guatemala	Haiti	Honduras	Peru	Antigua*	Barbados	Belize	Brazil	Colombia	Costa Rica	Dominica	Dominican Rep.	El Salvador	Grenada	Jamaica	Mexico	Paraguay	St. Kitts/Nevis	St. Lucia	St. Vincent**	Trinidad***
<b>Bilateral</b>	■	■	■	■	■	■			■		■		■		■		■						
<b>Regional</b>																							
Intercountry Technology Transfer												■						■	■				
LAC Accelerated Immunization	■	■	■	■	■	■			■	■	■	■		■	■		■	■	■				
Malaria and Essential Drugs			■		■				■		■				■								
Technology Development/Transfer in Health	■	■	■		■	■			■		■	■		■	■			■					
<b>ROCAP</b>																							
Food Assistance Program			■		■							■			■								
ORT, Growth Monitoring and Nutrition Education			■		■							■			■								
<b>Regional Development Office/ Caribbean</b>																							
AIDS Communication and Technical Assistance							■	■					■		■					■	■	■	
Pharmaceuticals Management							■	■					■		■					■	■	■	
<b>Private Voluntary Organizations</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Central Project Support</b>																							
AIDSCOM	■	■	■		■	■			■		■			■			■	■	■			■	■
AIDSTECH	■	■		■	■	■			■					■	■			■					
Applied Diarrheal Disease Research						■						■						■					
CSAP Support	■		■	■	■	■								■				■					
Demographic and Health Surveys	■	■	■		■	■			■		■			■	■			■					
Diotech						■												■					
HEALTHCOM		■	■		■	■												■	■		■		
Improvement of Maternal/Infant Diet	■	■	■		■	■			■						■			■	■				
Maternal/Neonatal Health and Nutrition	■	■	■	■	■	■											■						
ORT Help			■		■	■	■							■						■			
PRICOR II		■	■	■	■	■					■	■											
PRITECH II	■	■	■	■	■	■			■									■					
Project SUPPORT			■		■	■														■			
REACH	■	■	■		■	■	■	■	■						■			■					
Technical Advisors in AIDS/Child Survival	■	■	■		■	■																	
Vaccine Development and Health-Related Research						■												■					
Vector Biology and Control	■	■			■	■								■	■		■			■			
Vitamin A for Health	■		■	■		■																	
Water and Sanitation for Health		■	■	■	■	■								■	■		■						
WHO/Global Programme on AIDS			■				■	■	■					■	■		■			■	■	■	■

Note: Countries with only one FY89 health or child survival project, and regionally or centrally funded projects active in only one country during FY89, are not included. \*Refers to Antigua and Barbuda; \*\*Refers to St. Vincent and the Grenadines; \*\*\*Refers to Trinidad and Tobago.

# Republic of Bolivia

## How USAID Helps



### Demographic Indicators

Total Population:  
7,113,000 (89)

Infant Mortality Rate:  
105/1,000 (89)

Life Expectancy at Birth:  
54 Years (89)

Children Under 1:  
279,000 (89)

Annual Infant Deaths:  
32,000 (89)

Total Fertility Rate:  
6.0 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 28% (88)  
Polio3: 38% (88)  
Measles: 58% (88)  
BCG: 55% (88)  
Tetanus2+: 3% (87)

Oral Rehydration Therapy:  
ORS Access Rate: 40% (88)  
ORT Use Rate: 34% (89)

Contraceptive Prevalence: 12% (89)

Adequate Nutritional Status: 81% (89)

Appropriate Infant Feeding: 51% (89)

Exclusively Breastfed: 55%  
Introduction of Solids: 39%

Duration of Breastfeeding:  
16.6 Months (89)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CHH, March 1990

## Bolivia Highlights

■ Technical assistance provided by Self-Financing Primary Health Care has helped make a network of private primary health care facilities for low-income people nearly self-supporting. The project's success enabled PROSALUD, a local private voluntary organization (PVO) and the major project implementor, to obtain government funds to build six new health centers.

## Bilateral Projects

■ Community and Child Health assists the Ministry of Health (MOH) with immunization and oral rehydration therapy (ORT) activities in the rural and peri-urban areas of La Paz, Cochabamba and Santa Cruz. An immunization campaign resulted in the vaccination of 635,000 children against polio and 464,000 children against diphtheria, pertussis and typhoid.

■ ORT and Child Growth Monitoring, jointly administered by CARITAS Bolivia (a local PVO), PRITECH and Catholic Relief Services, promotes ORT, growth monitoring and nutrition programs through mother's clubs. Club health promoters were trained to recognize and treat respiratory infections. Also, external evaluation found that 68 percent of diarrhea cases receive proper treatment, surpassing goals by 30 percent.

■ Self-Financing Primary Health Care, with PROSALUD, offers health and child survival interventions through private clinics providing health services. The network is now almost completely recovering recurrent costs through user fees (see "Bolivia Highlight" above).

■ Child Survival PVO Network coordinates resources available through cooperating U.S. and local PVOs. The Network also coordinates activities between PVOs and the MOH, to test and produce educational and technical materials.

■ ORS Packets Project assists the MOH with procuring, distributing and marketing of oral rehydration salts (ORS) packets nationwide.

■ Radio Education builds on Bolivia's successful use of radio as a means to convey health messages to half a million people in three departments. In conjunction with broadcasts, health education messages are being taught to children in primary schools.

■ Child Survival and Rural Sanitation, through CARE, assists the Government of Bolivia in providing health education and water and sanitation services to over 60,000 people in five departments.

Services also include vaccination promotion, treatment with ORT and growth monitoring. ORT use rates are now over 95 percent in La Paz, Sucre and Tarija, and nearly 100 water systems and 2,500 latrines were constructed last year.

■ AIDS Prevention and Control works with the MOH to plan prevention strategies and activities. Workshops provided information to health care providers and increased public awareness about the disease and its transmission.

■ Improving the Impact of PL 480 Resources, implemented through Planning Assistance, a U.S. PVO, is a nationwide effort by the Adventist Development and Relief Agency, CARITAS and Food for the Hungry to improve nutritional status and general health of children. Technical and managerial assistance and training are provided for groups engaged in vitamin A promotion, growth monitoring and diarrheal disease control.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ Andean Rural Health Care works with the MOH and local organizations to integrate immunization, ORT and nutrition education programs into the primary health care network serving 10,000 people in two areas. In one year, 57 percent of one-year-olds and 78 percent of two-year-olds were completely vaccinated in project areas.

■ Esperanza sponsors primary health care interventions in two remote regions. The project trains village health workers, distributes ORS and vaccinates children and women of childbearing age. Thirty-one nurses received training on child survival interventions by a community-financed program.

■ Foster Parents Plan assists the MOH in providing ORT, nutrition and immunization services to almost 50,000 women and children in the three departments. The project, ending in 1989, trained 2,500 volunteer health workers who monitor the health status of children in the community, educate mothers and help treat diarrheal and respiratory infections.

■ Freedom from Hunger is helping the Government of Bolivia to introduce child survival interventions into 40 communities in two provinces. Staff, community volunteers and government workers focus on immunization outreach, community-based growth monitoring, weaning practices and ORT. A community information system is being developed to track progress.

■ Project Concern International works with local health authorities in Cochabamba to provide a full-range of child survival interventions in primarily rural communities. Vaccination coverage rates in the project area are now 85 percent for measles and nearly 60 percent and 50 percent for polio3 and tetanus2, respectively.

■ Save the Children Federation is establishing community-based health care systems in three provinces that provide the full-range of child survival interventions. Health promoters educate families about good health behaviors and monitor community health through a family registration/follow-up system.

### Bureau for Science and Technology Support

■ CSAP Support (Johns Hopkins University) provided a Child Survival Fellow to work with PROSALUD, an executive committee representing Bolivian PVOs, to develop and evaluate child survival programs.

■ PRITECH (Technologies for Primary Health Care) provides technical assistance to PVOs that belong to the Child Survival PVO Network.

■ TAACS (Technical Advisor in AIDS and Child Survival), through an agreement with the U.S. Centers for Disease Control, provides long-term assistance to the Government of Bolivia and the PVO community to help implement national child survival programs.

Short-term technical assistance was reported by the following:

■ AIDSCOM in AIDS education and communication.

■ AIDS TECH in AIDS prevention workshops and the development of a national AIDS strategy.

■ Demographic and Health Surveys in conducting an in-depth health survey.

■ Health Care Financing in developing self-sustaining health clinics and use of pre-payment health plans.

■ Improvement of Maternal/Infant Diet in lactation management training programs for health professionals through the Wellstart/San Diego Lactation Program.

■ Maternal and Neonatal Health and Nutrition (MotherCare) in improving mother and child health.

■ REACH (Resources for Child Health) in strengthening neonatal tetanus control strategies.

■ VBC (Vector Biology and Control) in vector-borne disease control.

■ WASH (Water and Sanitation for Health) in water and sanitation.

## Ecuador Highlights

■ Rural Carchi Province became the first province in Ecuador to achieve 80 percent vaccination coverage against the six vaccine-preventable childhood diseases.

■ According to the nationwide Demographic and Health Survey, the infant mortality rate in Ecuador's rural areas has decreased 44 percent in the past decade, from 115 per 1,000 live births in 1972-76 to 63 per 1,000 in 1982-86. Urban areas have experienced a 32 percent decline during the same period, from 77 to 52 per 1,000.

■ The Ministry of Health (MOH) has implemented rooming-in programs in all government clinics nationwide. Rooming-in encourages exclusive breastfeeding. Rooming-in has been shown to be less expensive than keeping the infants in separate nurseries, where they are bottle-fed formula by hospital staff.

## Bilateral Projects

■ **Child Survival**, a new project, seeks to increase the effective use of vaccinations, oral rehydration therapy (ORT), nutrition education, breastfeeding and treatment for respiratory infections. To reduce maternal mortality, the project will support improved pre-natal and post-natal care, encourage child spacing and tetanus toxoid vaccinations.

■ **Integrated Rural Health Delivery Systems**, completed in December 1989, supported Ecuador's national child survival program by providing training and services for child survival interventions. In 1989, the project established 230 nationwide community oral rehydration units and provided clinical training on ORT to physicians, nurses, community health workers and traditional healers. Hospital-based oral rehydration units have now been established in all 21 of Ecuador's provincial hospitals. The project also assisted the Centro de Estudios de Población y Paternidad Responsable to conduct a national infant mortality and contraceptive prevalence survey.

■ **Financing and Health Care** works to establish financially self-reliant community organizations to provide health services. MAP International, provides maternal and child health services to the urban Solanda neighborhood of Quito and the rural community of Marcabell in the coastal province of El Oro. The project provides technical assistance to assess demand for health services and develop cost-recovery schemes for the Maraiana de Jesus Foundation, serving 30,000 inhabitants of the project areas.

■ **Water and Sanitation for Health and Ecuadorian Development**, complements water and sanitation activities begun by the Integrated Rural Health Delivery Systems project. The goal of the new four-year project is to improve the health of infants and children by assisting rural communities install and correctly use and maintain safe water supply systems and latrines. Primary focus will be on installing some 1,600 rural water and sanitation systems serving about one million persons in eight provinces and in institutionalizing community financing, operations and maintenance of systems.

■ **Malaria Control**, administered by the MOH with assistance from the U.S. Centers for Disease Control, supports the National Malaria Control Service. The project supplies anti-malarial drugs and insecticides and provides technical assistance to implement a national malaria information system.

■ **Andean Peace Scholarships** sponsors short- and long-term study in the U.S. for students from the Andean nations on health and child survival, health policy and administration and epidemiology.

## Regional Projects

■ **Health and Child Survival Policy**, through an agreement with the U.S. Centers for Disease Control, will provide a full-time technical advisor in AIDS and child survival.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Catholic Relief Services** works through 70 women's clubs in the regional capitals of Cuenca, Latacunga and Portoviejo promoting ORT and immunizations and providing growth monitoring services to over 2,000 children under age five. The project involves women in nutritional assessments, and involved them in developing solutions to combating the problem. This unique approach has drawn the attention of the National Institute of the Child and Family for use nationwide. Last year, health workers, mothers and community leaders were trained on the contraceptive effects and nutritional importance of breastfeeding.

■ **Freedom from Hunger** sponsored successful programs in ORT, immunization, growth monitoring and nutrition education. The project also trained community workers and rural families to develop projects that will generate income

to support ongoing child survival programs.

■ **Project Hope** has initiated a child survival service delivery and education project in the Manabi and Azuay Provinces. This new project seeks to lower neonatal mortality through child spacing and increasing the survival and well-being of infants and children through improved nutrition practices and access to immunizations, ORT and other health services.

### Bureau for Science and Technology Support

■ **HEALTHCOM** (Communication for Child Survival) provided technical assistance to strengthen immunization and ORS communication and promotion activities.

■ **Improvement of Maternal/Infant Diet Project** provided assistance to the MOH through the Weaning Project. Educational materials on breastfeeding and proper weaning for both urban and rural audiences were developed and are currently being used by UNICEF in its urban breastfeeding campaign.

■ **REACH** (Resources for Child Health), through a long-term technical advisor, is supporting MOH immunization efforts in the northern coastal Esmeraldas Province. The project trained physicians, nurses, community health workers, school teachers and community leaders in immunizations.

Short-term technical assistance was reported by the following:

■ **AIDSTECH** assists laboratory technicians in blood screening and HIV testing procedures and in national AIDS surveillance activities.

■ **Georgetown University** works with a local family planning organization to test promoting breastfeeding as a primary method of child spacing.

■ **MotherCare** supports operations research on the new kangaroo-mother approach to cost effectively care for low birthweight and premature newborns.

■ **ORT Help** trains Peace Corp volunteers in child survival interventions.

■ **PRITECH** (Technologies for Primary Health Care) works with Ministry of Health improving the management information system.

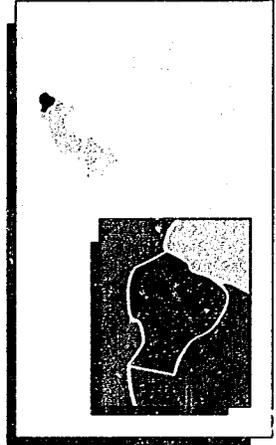
■ **U.S. Centers for Disease Control** trains provincial epidemiologists.

■ **YBC** (Vector Biology and Control) in malaria control.

■ **WASH** (Water and Sanitation for Health) in water and sanitation.

## Republic of Ecuador

### How USAID Helps



### Demographic Indicators

Total Population: 10,190,000 (89)

Infant Mortality Rate: 51/1,000 (87)

Life Expectancy at Birth: 66 Years (89)

Children Under 1: 350,000 (89)

Annual Infant Deaths: 22,000 (89)

Total Fertility Rate: 3.8 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 54% (88)

Polio3: 57% (88)

Measles: 52% (88)

BCG: 86% (88)

Tetanus-2+: 12% (87)

Oral Rehydration Therapy:

ORS Access Rate: 55% (88)

ORT Use Rate: 24% (87)

Contraceptive

Prevalence: 42% (89)

Adequate Nutritional Status: 76% (87)

Appropriate Infant

Feeding: 24% (87)

Exclusively Breastfed: 27%

Introduction of Solids: 15%

Duration of Breastfeeding:

13.9 Months (87)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
C.H.I., March 1990

# Republic of Guatemala

## How USAID Helps



### Demographic Indicators

Total Population:  
8,935,000 (89)

Infant Mortality Rate:  
72/1,000 (87)

Life Expectancy at Birth:  
63 Years (89)

Children Under 1:  
3,450,000 (89)

Annual Infant Deaths:  
20,000 (89)

Total Fertility Rate:  
5.6 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 47% (88)  
Polio3: 55% (88)  
Measles: 54% (88)  
BCG: 38% (88)  
Tetanus2+: 12% (87)

Oral Rehydration Therapy:  
ORS Access Rate: 60% (88)  
ORT Use Rate: 16% (87)

Contraceptive  
Prevalence: 19% (87)

Adequate Nutritional  
Status: 55% (87)

Appropriate Infant  
Feeding: N/A

Exclusively Breastfed: N/A  
Introduction of Solids: N/A

Duration of Breastfeeding:  
20.8 Months (87)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990

## Guatemala Highlights

■ A local coalition of the Ministry of Health (MOH), the National Committee to Promote Breastfeeding, Johnson and Johnson Pharmaceuticals, USAID, UNICEF, the Pan American Health Organization and local public and private institutions is working together to reduce mortality from diarrhea-related dehydration in Guatemala. A private sector firm has launched a new oral rehydration salts (ORS) product, and a public sector manufacturer has designed packaging for a soon-to-be released ORS packet. Other activities include the involvement of advertising agencies, market research firms and radio studios in mass media activities.

### Bilateral Projects

■ **Immunization and ORT Services for Child Survival** supports the MOH in cooperation with PAHO, Rotary International and UNICEF to improve immunization coverage and oral rehydration therapy (ORT). Multi-donor coordination in immunization resulted in 95 percent completion of the cold chain to deliver vaccines and distribute 5.5 million ORS packets. A three-day workshop of donor agencies, the MOH and public and private sector participants promoted the establishment of oral rehydration units in 22 hospitals.

■ **Expansion of Family Planning Services** project supports the International Planned Parenthood Federation affiliate, APROFAH and local organizations to provide all child survival interventions nationwide. An award-winning TV commercial, TV drama, and theatrical production with child-spacing themes were used to reach families throughout the country.

■ **Water, Women and Health**, administered through CARE, supports water and sanitation systems for rural communities in the mountainous western region. Personal hygiene education accompanies the construction of facilities.

■ **Community-Based Health and Nutrition Systems**, a project with the Division de Saneamiento del Medio of the MOH, supports efforts to develop and improve local water and sanitation systems for small rural communities in six departments. More than 16,000 latrines and 168 water supply systems have been built.

■ **Rural Potable Water and Sanitation II** was implemented by Agua del Pueblo, a local private voluntary organization. With labor provided by the community, the project built water and latrine systems for 14 rural communities.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Foster Parents Plan** is working in three municipalities to improve maternal and child health through feeding and nutrition programs, control of diarrhea and respiratory infections, immunizations and maternal care.

■ **International Eye Foundation** supports the National Committee for the Blind and Deaf and the Center for Studies of Sensory Impairment, Aging and Metabolism in the promotion and delivery of nutritional vitamin A supplements to women and children in Alta Verapaz Province. NutriAtol is easy to prepare and is a culturally acceptable medicinal food that is given to patients recovering from diarrhea or measles to prevent vitamin A deficiency, resulting from poor feeding practices during bouts of these illnesses.

■ **La Leche League International** promotes breastfeeding among pregnant and lactating women through development of groups in an area of Guatemala City. Some 100 women, including 10 midwives, were trained and act as breastfeeding advocates and support-group leaders in the community.

■ **Project Concern International (PCI)** assists the MOH in expanding health services to women and children in an isolated mountainous city. Thirty-five health workers and 120 women and other community members were trained in immunization and diarrheal disease control. A fundamental link to the community was the training and use of community members, despite their illiteracy, for peer counseling and training. Specialized training materials for these peer counselors were developed and are now being used by PCI and the MOH in community health worker training programs nationwide.

■ **Project HOPE** worked with the Guatemalan government to provide all rural communities in tow departments with immunization, ORT and nutrition services. Primary emphasis is on training community health workers with some 500 completing the initial child survival training, and another 350 participating in refresher courses. Under the new grant, 1,500 community volunteers, who were trained in child survival interventions and monitoring techniques, are implementing and recording child survival activities using a new family registration system.

## Bureau for Science and Technology Support

■ **AIDSCOM** assists the Association in Guatemala for Sex Education and the Regional Center for Audiovisuals in AIDS to conduct education and communication training for private sector health care personnel.

■ **CSAC Support**, through a resident Child Survival Fellow, provides long-term assistance to the Institute of Nutrition for Central America and Panama to strengthen its capacity to serve as headquarters for nutrition training and research programs.

■ **HEALTHCOM** provides technical assistance to the MOH to increase immunization coverage and reduce deaths due to dehydration from diarrhea. HEALTHCOM conducts training workshops for community health workers and is helping the MOH to develop a mass media communications program.

■ **PRICOR II** (Primary Health Care Operations Research) provides technical assistance to INCAP for growth monitoring and nutrition education. A systems analysis of growth monitoring activities was completed this year, as was training in conducting operations research for participants from throughout Central America.

Short-term technical assistance was reported by the following:

■ **HealthTech** in immunization, growth monitoring.

■ **Improvement of Maternal/Infant Diet** in supporting lactation management training for health professionals through the Wellstart/San Diego Lactation Program.

■ **Malaria and Essential Drugs** in training and research for malaria surveillance and vector control.

■ **Maternal and Neonatal Health and Nutrition (MotherCare)** in improving tetanus toxoid immunization coverage and assisting with maternal health programs.

■ **Nutrition Education and Social Marketing** in supporting research on breastfeeding, growth monitoring and appropriate infant feeding practices.

■ **ORT Help** in training Peace Corps volunteers in child survival interventions.

■ **PRITECH** (Technologies for Primary Health Care) in diarrheal disease control and ORT activities.

■ **Project SUPPORT** in assisting in the production and marketing of "Litrosol," the first locally manufactured ORS packet, and extensive market research for promotion.

## Haiti Highlights

■ For three days in September, October and December of 1988, Haiti delivered vaccinations through hundreds of vaccination posts throughout the country. Fifty thousand volunteers rallied people to the posts, helping to vaccinate some 60 percent of a 1 children nationwide.

■ The USAID-funded Child Survival Coordinating Committee continues to strengthen the relationships among more than 200 U.S. and local private voluntary organizations (PVOs) providing health services in Haiti. Through the committee influence, child survival interventions are being made available to hard-to-reach communities across the country and curative-based programs are becoming more preventive-oriented.

## Bilateral Projects

■ **Urban Health and Community Development II**, completed this year, was administered by the Complexe Medico-Sociale de la Cité Soleil, a local PVO. The project provided a full-range of child survival services to urban poor through two community centers and a group of other institutions. As testimony to the project's success, the usage rate for oral rehydration therapy (ORT) in the target population is more than 60 percent higher than the national average. Immunization rates in the project area are also significantly higher. The project covered approximately 17 percent of expenses through user fees and drug and product sales. Lessons learned are being applied to other projects.

■ **Expanded Urban Health Services** is an expansion of the successful Complexe Medico-Social de la Cité Soleil model into other low-income urban areas. The Center for Development and Health will provide health and child survival services to 367,000 residents of Cité Soleil, Gonaives, Cap-Haitien, Fort-Liberté and Onaniamithe.

■ **Mobilizing Mothers for Child Survival**, completed this year, provided technical and financial assistance to local PVOs working in child survival nationwide.

■ **Voluntary Agencies for Child Survival**, administered by the University Research Corporation, provides technical assistance to 11 local and U.S. PVOs to strengthen their child survival programs. The project focuses on organizational development, financial sustainability and management to improve service delivery.

■ **Community Water System Development** completed 17 water systems serving 70,000 people. Health education programs on diarrheal disease control and hygiene are provided at all sites.

■ **Presidential Training Initiative** of the Island sponsors short- and long-term training in the U.S., including studies in nursing, community health, nutrition and medical laboratory technology.

## USAID/Washington Support

### U.S. Private Voluntary Organizations

■ **Adventist Development Relief Agency** provides immunization, growth monitoring and nutrition, diarrheal disease control and high risk birth services to nearly 100,000 residents in rural and urban areas. In 1989, over 1,200 children were vaccinated with DPT1 and Polio1; 2,300 women were vaccinated against tetanus.

■ **Eye Care** provides services to help prevent nutritional blindness among 12,000 children ages six months to six years in northwest Haiti. Eye Care's project also includes ORT and other nutrition services, in addition to the vitamin A supplementation activities.

■ **Foster Parents Plan (PLAN)**, completed this year, assisted the Ministry of Health (MOH) in the Jacmel Region in integrating water and sanitation with child survival activities. PLAN's mobile clinics extended the reach of national immunization services. Health workers, teachers and community members were trained in ORT, growth monitoring and immunization, and in constructing prefabricated latrines. Extensions of existing water systems also improved access to potable water.

■ **Helen Keller International** works with the Center for Development and Health in Cité Soleil, a slum in the capital city of Port-au-Prince, to provide vitamin A services to 22,000 women and children. Vitamin A supplements were provided and 250 health workers and 26,000 community members were trained in improved infant and child feeding practices.

■ **Save the Children Federation** participated in Haiti's National Vaccination Campaign by providing immunization services to nearly 34,000 people in remote areas. Nearly 900 children and over 450 women were vaccinated. Save the Children provided a range of nutrition services, with emphasis on vitamin A supplementation, breastfeeding and growth monitoring.

■ **World Relief Corporation** supports a multi-purpose program in the southern region to improve the health of 4,000 children under age five and 5,000 women. Child survival rally posts and dispensaries have been established and MOH auxiliaries have been trained to conduct immunizations. Volunteer health promoters received training in ORT, nutrition, family planning and growth monitoring and taught these strategies to 2,000 mothers and other community members.

■ **World Vision Relief and Development** concentrated on providing immunizations to women and children. Rally posts originally set up to deliver immunizations are expanding their services to include diarrheal disease control, growth monitoring, nutrition services and vitamin A supplementation.

### Bureau for Science and Technology Support

■ **A Child Survival Fellow** provides assistance to the USAID-supported Child Health Institute.

■ **Johns Hopkins University** assisted in analyzing studies being conducted at the Child Health Institute on service utilization and low birthweight babies. A three-year measles vaccination trial at the Cité Soleil Health Center was concluded this year, improving services and vaccination coverage.

■ **REACH (Resources for Child Health)** provided cold chain training in preparation for three National Immunization Days and assisted with the introduction of a cold chain course in the medical curriculum.

■ **WHO Global Program on AIDS** helped support AIDS control activities.

■ **Short-term technical assistance** was reported by the following:

■ **AIDSCOM** in design and implementation of an AIDS education campaign with local PVOs.

■ **AIDSTECH** in AIDS education and prevention.

■ **CSAP Support** in diarrheal disease control and ORT.

■ **MotherCare** in maternal nutrition and health and research on attitudes toward prenatal care.

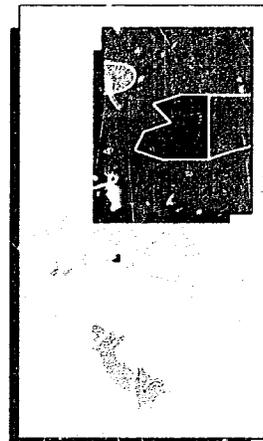
■ **Nutrition, Education and Social Marketing Field Support** in nutrition.

■ **PRITECH (Technologies for Primary Health Care)** in diarrheal disease control and ORT.

■ **WASH (Water and Sanitation for Health)** in child survival and pharmaceutical supplies.

## Republic of Haiti

### How USAID Helps



### Demographic Indicators

Total Population: 6,382,000 (89)  
Infant Mortality Rate: 114/1,000 (89)  
Life Expectancy at Birth: 55 Years (89)  
Children Under 15: 199,000 (89)  
Annual Infant Deaths: 25,000 (89)  
Total Fertility Rate: 4.6 Children (89)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 54% (88)  
Polio3: 54% (88)  
Measles: 63% (88)  
BCG: 45% (88)  
Tetanus2+: 23% (88)  
Oral Rehydration Therapy:  
ORS Access Rate: 21% (88)  
ORT Use Rate: 17% (88)

Contraceptive Prevalence: 10% (87)

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A  
Exclusively Breastfed: N/A  
Introduction of Solids: N/A

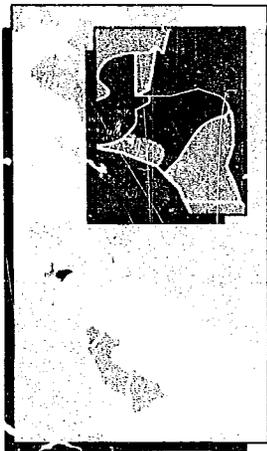
Duration of Breastfeeding: N/A

See Data Notes

**USAID Child Survival and Health Fact Sheet**  
USAID Health Information System  
CHILD, March 1990

# Republic of Honduras

## How USAID Helps



### Demographic Indicators

Total Population:  
4,376,839 (88)

Infant Mortality Rate:  
61/1,000 (87)

Life Expectancy at Birth:  
62 Years (87)

Children Under 15:  
153,300 (88)

Annual Infant Deaths:  
10,700 (88)

Total Fertility Rate:  
5.6 Children (87)

### Child Survival Indicators

Immunization Coverage:  
DPT3: 74% (88)  
Polio3: 70% (88)  
Measles: 76% (88)  
BCG: 85% (88)  
Tetanus2+: 46% (87)

Oral Rehydration Therapy:  
ORS Access Rate: 60% (88)  
ORT Use Rate: 66% (88)

Contraceptive Prevalence: 33% (87)

Adequate Nutritional Status: 77% (87)

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A  
Introduction of Solids: N/A

Duration of Breastfeeding:  
N/A

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CHI, March 1990

## Honduras Highlights

■ **Health Sector I**, a national comprehensive health care program administered by the Ministry of Health with support from USAID, ended this year. The project successfully met its goal of reducing the infant mortality rate (IMR) below 70 deaths per 1,000 live births. Health Sector I activities are being continued under Health Sector II. It is hoped that these activities will lead to a further reduction of IMR from 61 to 43 deaths per 1,000 live births.

■ With the long-term technical assistance of the HEALTHCOM project and use of a social marketing approach to generate consumer demand, the Ministry of Health (MOH) has successfully strengthened diarrheal disease control efforts. In HEALTHCOM's initial social marketing campaign project area of 400,000 persons, diarrheal-related mortality in children under age five declined 40 percent between 1981 and 1983. LITROSOL, the locally produced oral rehydration salts (ORS) which HEALTHCOM helped launch, has truly become part of Honduran culture. According to a national survey, 99 percent of mothers have heard of the product and 85 percent had used it to treat dehydration due to diarrhea. Finally, through joint HEALTHCOM/Ministry of Health communications activities, the School of Medicine of Honduras has been encouraged to develop a new oral rehydration therapy (ORT) community education curriculum for its students.

### Bilateral Projects

■ **Health Sector II** is a follow up to Health Sector I, which provided comprehensive health and child survival services and trained almost 700 health workers and community members. The new project supports the health care system by providing technical assistance in the areas of nutrition, diarrheal disease management and acute respiratory infection (ARI). To promote private sector growth, some services are being provided by local private voluntary organizations (PVO) as well as by a local manufacturer of ORS. A monitoring system for tracking the delivery of regional health services is currently being put into place. Portable computers will be used to collect information in the field so that services can be evaluated immediately and a preliminary report can be made before leaving the region.

■ **Rural Water and Sanitation**, completed in 1989, exceeded all project goals. The Ministry of Health worked with the National Autonomous Agency for Water and Sewer Systems to bring safe water and sewerage systems to over 510,000 rural inhabitants. Four hundred and thirty water systems were completed over the life of the project. One of the project's more successful components, the integration of water, sanitation and health education, is now being replicated throughout Honduras. The project design includes community financing for maintenance and repair of the systems.

### USAID/Washington Support

#### U.S. Private Voluntary Organizations

■ **La Leche League International** trains and certifies breastfeeding advocates who will establish local Breastfeeding Mother Support Groups. To ensure that mothers receive the same breastfeeding messages from all possible sources, La Leche League provides technical assistance to other PVOs that are involved in the promotion of breastfeeding.

■ **Project Hope** serves the Tegucigalpa Metropolitan Health Region using trained community health volunteers. The volunteers educate mothers to adopt healthy nutrition habits, diagnose and treat acute respiratory infections, and use ORT. Volunteers also provided more than 50 percent of the house-to-house coverage during an intensive polio immunization campaign in July 1989.

■ **Save the Children Federation** is strongly committed to health education in all child survival interventions. The project design includes the use of radio, festivals and "Mothers Contests" to promote health awareness. Health volunteers trained in each of the child survival interventions implement the majority of ORT, immunization, ARI treatment and nutrition education services provided by this project. Their role in health education is vital to the progress in the area. Visits are made to homes of pregnant mothers and malnourished children to educate mothers in prenatal care and proper feeding. The volunteers also encourage mothers to use the health centers. Last year in the project area, 95 percent of the children under five attended growth monitoring sessions. Most mothers are now able to weigh their children themselves and

evaluate their status and attend the growth monitoring sessions every other month.

### Bureau for Science and Technology Support

■ **HEALTHCOM** (Communication for Child Survival), since 1985, has successfully promoted Litrosol, a locally produced ORS, making it a household word now widely recognized throughout the country. To increase ORS accessibility, HEALTHCOM is working with the private sector to have ORS sold in pharmacies and grocery stores. HEALTHCOM is also implementing a new approach to treating ARI. The strategy includes home treatment of mild ARI as well as more prudent use of antibiotics. The project's success in ORS promotion and ARI treatment has so impressed the MOH that the integrated communications approach, using face-to-face communication to support mass media campaigns, has become a model for the communication components of other health service programs.

Short-term technical assistance was reported by the following:

■ **AIDSCOM** in developing public education programs about AIDS and HIV infection.

■ **AIDSTECH** in developing a national AIDS education and prevention strategy.

■ **Improvement of Maternal/Infant Diet** in supporting lactation management training programs for health professionals through the Wellstart/San Diego Lactation Program.

■ **Nutrition Education and Social Marketing Field Support** in child health and breastfeeding promotion.

■ **Project SUPPORT** in supporting local production of ORS and promoting distribution through the private sector.

■ **TAACS** (Technical Advisor in AIDS and Child Survival) in assisting coordination of child survival activities.

■ **VBC** (Vector Biology and Control) in collecting and analyzing vector control data to assess trends and program impacts in both the country and the region.

## Peru Highlights

■ Because many at-risk children were not being reached, the Ministry of Health (MOH) has introduced a risk assessment guide to help health workers identify families at high risk of malnutrition. The guide is built around seven factors, such as low birthweight and parent's education, believed to be related to malnutrition and early child death. The guide is particularly important because high risk targeting is one way to address child survival needs when resources are limited.

## Bilateral Projects

■ **Child Survival Action**, through the MOH and the Social Security Institute, provides services in diarrheal disease control, immunization, nutrition, child spacing and the control and prevention of acute respiratory infections (ARI). The project is assisting the MOH establish a computerized national health information system.

■ **Reduction in Child Mortality**, implemented by PRISMA, a local private voluntary organization (PVO), is a nutritional surveillance program accompanying a food distribution effort serving the Departments of Lima and Cajamarca. The program, has provided immunization, birth spacing and nutritional services in these areas since 1986. has also witnessed a significant increase in the weight-for-height mean of children ages 0-3 years. A malnutrition risk assessment guide developed by PRISMA (see "Peru Highlight" above) is used to study the health effects of economic crisis on urban children and to monitor changes in project impact areas.

■ **Integrated Food, Nutrition and Child Survival** is a new joint project of the MOH and PRISMA promoting breastfeeding, growth monitoring, proper infant/child feeding practices and vitamin A activities.

■ **Integrated Health and Family Planning**, administered by APROPO, a local PVO, provides health education and family planning to women with three or more children in the Lima area. The project trained over 700 mothers, community health workers and pharmacists in the prevention of high risk births.

■ **Basic Infrastructure and Primary Health**, completed this year in the cities of Lima, Callao and Trujillo, trained health providers in child survival services. These activities continue under the Food Assisted Integrated Development Project, being implemented by CARE. This project includes such topics as food handling, hygiene and environmental sanitation.

■ **CARITAS Feeding Program**, which supported CARITAS, a local PVO, which ended this year, promoted improved infant and child feeding practices. The project trained mothers, health promoters and community leaders in the importance of breastfeeding and growth monitoring.

■ **Private Sector Nutrition for Child Survival**, administered by Peru's Nutrition Research Institute, provided counseling on infant and child feeding practices to 59,000 mothers and other caregivers. Mass media messages included a song explaining the importance of food and fluids during bouts of diarrhea.

■ **Training Physicians and Nurses**, a joint project of the Peruvian government and the Universidad Peruana Cayetano Heredia, completed activities in January 1989. Health professionals from 11 provinces received on-site training in clinical management of diarrhea. Oral rehydration units established in three Lima hospitals provide diarrhea treatment for children and training for health workers.

■ **The Peruvian PVO Health Promotion Network**, administered by Seton Institute for International Development, conducted seminars on child survival and program management for local PVOs.

■ **Nutrition and Food for Work**, implemented by the Adventist Development and Relief Agency, works with local PVOs in nine departments to provide child survival services. Community health workers conduct training in preparing oral rehydration salts (ORS) and growth monitoring at community mother-child centers. Counseling in ARI control, pre-natal care and personal hygiene is also provided.

■ **Rural Water Systems and Environmental Sanitation**, administered by the MOH, completed 135 new water systems and 5,800 latrines. Nearly 400,000 people have benefited from these services.

■ **Niños Child Survival Journal** published four issues covering a variety of child survival and maternal health topics. Niños is distributed throughout the country and Central and South America. Many medical and nursing schools use Niños as part of their studies.

■ **Andean Peace Scholarships** sponsors short- and long-term study in the U.S. for Andean students on topics including health and child survival interventions. Twenty health workers and 28 community leaders were trained over the last two years.

■ **AIDS Education and Prevention** provides educational and pre-

ventive services to a diverse group of high risk populations.

■ **FAACS** (Technical Advisor in AIDS and Child Survival) is assisting the MOH prepare and implement a communication strategy promoting child survival activities.

## Regional Project

■ **LAC Training Initiatives II** is part of a regional project administered locally by the National Planning Institute that sponsors expatriate training for health professionals. After training, project participants resume former positions and train fellow professionals about child survival intervention.

## USAID/Washington Support

### Bureau for Science and Technology Support

■ A Child Survival Fellow is helping to develop and starch-based ORS for home use.

■ **Applied Diarrheal Disease Research Project** supports research on the epidemiology of prolonged episodes of diarrhea in Lima, the development of a soup-based ORS and training programs for clinical management of diarrhea.

■ **Improvement of Maternal/Infant Diet Project** supports research on the development of a nutritious food and recipes based on local ingredients, for use in home-based management of diarrhea.

■ **Innovative Scientific Research**, administered by the University of Peru, studies the correlation between malnutrition, water and the transmission of cryptosporidium in children in the suburbs of Lima.

■ **PRICOR** (Primary Health Care Operations Research), in collaboration with PRISM, is conducting research on the delivery of oral rehydration therapy, nutrition and immunization services. The data enable training strategies to be developed to improve service delivery.

**Short-term technical assistance was reported by the following:**

■ **AIDSCOM** in communication and counseling on the AIDS virus.

■ **AIDSTECH** in AIDS education and prevention.

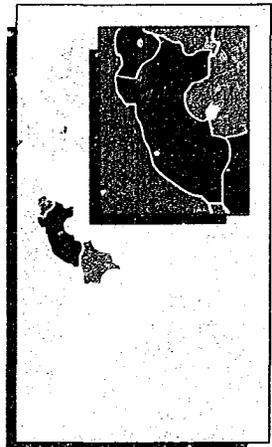
■ **MotherCare** in improving pregnancy outcomes through improved maternal health and nutrition.

■ **Nutrition Education and Social Marketing Field Support** in breastfeeding promotion.

■ **Project SUPPORT** in expanding local production of ORS and developing a promotion campaign for the private sector.

## Republic of Peru

### How USAID Helps



### Demographic Indicators

Total Population: 21,790,000 (89)

Infant Mortality Rate: 76/1,000 (86)

Life Expectancy at Birth: 62 Years (89)

Children Under 1: 684,000 (89)

Annual Infant Deaths: 61,000 (89)

Total Fertility Rate: 4.3 Children (89)

### Child Survival Indicators

Immunization Coverage:

DPT3: 58% (89)

Polio3: 60% (89)

Measles: 52% (89)

BCCG: 62% (89)

Tetanus2+: 3% (89)

Oral Rehydration Therapy:

ORS Access Rate: 23% (88)

ORT Use Rate: 10% (88)

Contraceptive Prevalence: 23% (86)

Adequate Nutritional Status: 78% (84)

Appropriate Infant Feeding: 28% (86)

Exclusively Breastfed: 31%

Introduction of Solids: 24%

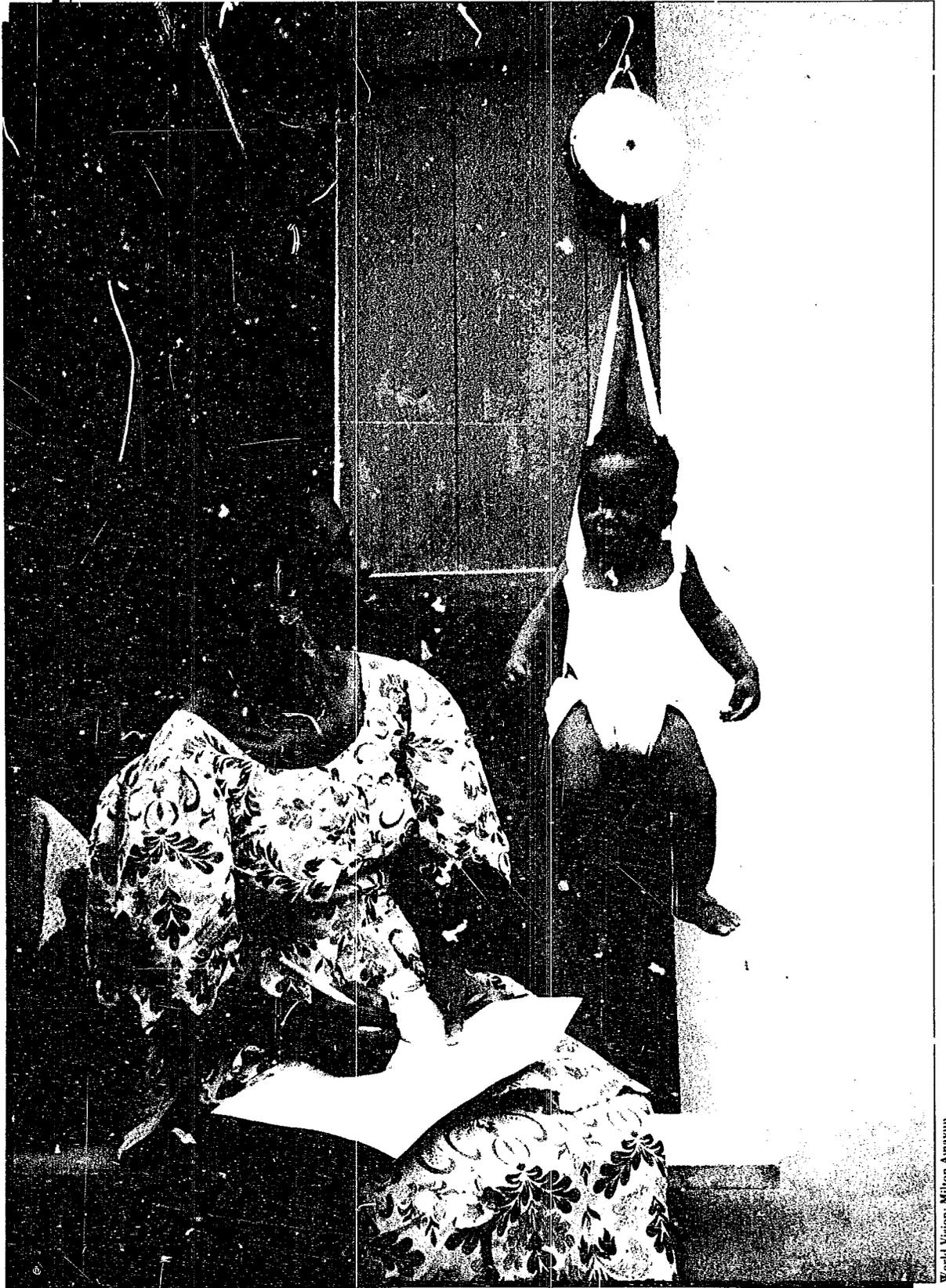
Duration of Breastfeeding:

16 Months (86)

See Data Notes

### USAID Child Survival and Health Fact Sheet

USAID Health Information System  
CIHI, March 1990



Fiscal Year 1989  
Child Survival Action Program

# Appendix

Project Title and Purpose	CSF (\$1,000)	HE (\$1,000)	ARDN (\$1,000)	DFA (\$1,000)	ESF (\$1,000)
<b>Population Sector Program Support:</b> Assists the government to develop and implement a national population policy including high risk birth management.	0	0	0	276	0
<b>FY 89 Child Survival Grant to Save the Children Federation:</b> Provides child survival services including the control of diarrheal diseases, immunization, growth monitoring, high risk birth management, malaria treatment and vitamin A supplementation.	1000	0	0	0	0
<b>Maternal Child Health/Child Survival:</b> A consortium including Harvard and Drew Universities and the Academy for Educational Development supports health care delivery services, including ORT, immunization and nutrition in the southern province of Adamaoua.	0	0	0	750	0
<b>Child Survival Project:</b> Administered by the Ministries of Public Health, Social Affairs and Women's Welfare, the project provides services in the control of diarrheal diseases, vitamin A supplementation and high risk birth management in the Moyen-Chari prefecture.	0	0	0	2700	0
<b>Family Planning Services and Support:</b> U.S. and local government agencies contribute to nationwide family planning efforts to promote health and family planning services including child spacing, diarrhea management, immunization and nutrition.	0	0	0	2948	0
<b>PVO Co-Financing:</b> Assists U.S. and local voluntary organizations to extend health and child survival services in Kenya.	0	0	0	790	0
<b>Health Care Financing Program:</b> A new program supports policy and structured changes in the health sector leading to increased resources for primary and preventive care including cost-sharing and cost-containment measures.	0	0	0	3000	0
<b>Private Health Care improvement:</b> Promotes the role of the private sector in expanding health and child survival services in Liberia.	0	0	0	0	2907
<b>Avotra Orphanage:</b> Provides support for shelter construction for abandoned children.	0	0	0	300	0
<b>Health Institutions Development:</b> Howard University provides technical assistance to improve health and child survival training in Malawian institutions.	0	48	0	1272	0
<b>Promote Health Interventions for Child Survival:</b> This is a new project to expand maternal and child health services, including provision of potable water.	0	0	0	4864	0
<b>FY 89 Child Survival and Vitamin A Grants to International Eye Foundation:</b> Promotes prevention of vitamin A deficiency in the Lower Shire Valley through vitamin A supplementation, education and fortification of local weaning foods.	115	0	415	0	0
<b>FY 89 Child Survival Grant to Save the Children Federation:</b> Supports immunization, diarrheal disease control, malaria treatment, growth monitoring, vitamin A capsule distribution, acute respiratory infection and high risk birth management in northern Malawi.	600	0	0	0	0
<b>Integrated Family Health Services:</b> Through the Ministries of Public and Social Affairs, strengthens and integrates child survival services in 15 maternal/child health and family planning clinics.	0	0	0	547	0

## Africa

### Botswana

### Burkina Faso

### Cameroon

### Chad

### Kenya

### Liberia

### Madagascar

### Malawi

### Mali

The funds in this table were obligated in Fiscal Year 1989 from various accounts: Child Survival Fund (CSF); Health (HE); Agriculture, Rural Development and Nutrition (ARDN); Development Fund for Africa (DFA); and Economic Support Fund (ESF). Amounts listed are estimates that can be attributed to child survival. A number of the projects have broader purposes, such as strengthening primary health care services or water and sanitation.

<b>Country</b>	<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Mali</b>	<b>PVO Co-Financing:</b> Assists U.S. and local private voluntary organizations to extend health and child survival services in the country.	0	0	0	102	0
<b>Mauritania</b>	<b>FY 89 Vitamin A Grant to WVRD:</b> Promotes prevention of vitamin a deficiency through vitamin A supplementation.	0	0	410	0	0
<b>Mozambique</b>	<b>Child Survival Pilot:</b> Johns Hopkins University, in cooperation with Medecins sans Frontieres, supports child survival services including the control of diarrheal diseases, immunization, growth monitoring, maternal health and nutrition education and vitamin A supplementation to the rural population of the Zambezia Province.	0	0	0	400	0
<b>Niger</b>	<b>Health Sector Support:</b> Tulane University provides technical assistance and in-service training to strengthen local health service delivery systems that include child survival initiatives.	0	0	0	332	0
	<b>Family Health and Demography:</b> The Ministry of Public Health, Social Affairs and Women's Status extends family health services to combat high risk births and to improve maternal and child health nationwide.	0	0	0	490	0
<b>Nigeria</b>	<b>Primary Health Care Support Program:</b> Encourages major reforms in primary health care policies through a support grant to the health sector.	0	0	0	12500	5500
	<b>FY 89 Child Survival Grant to AFRICARE:</b> Supports growth monitoring, oral rehydration therapy, high risk birth management and malaria referral services in areas of Imo state.	400	0	0	0	0
<b>Senegal</b>	<b>Rural Health Delivery Services II:</b> Provides preventive health and child survival services in the Kaslack and Fatick Regions of Senegal.	0	0	0	1000	0
<b>Sudan</b>	<b>FY 89 Child Survival Grant to Save the Children Federation:</b> Supports immunization, oral rehydration therapy, growth monitoring, vitamin A supplementation, high risk birth management services in the Showak and Um Ruwaba areas and among nomads.	600	0	0	0	0
	<b>FY 89 Child Survival Grant to CARE:</b> Extends immunization services and community-based education for the control of diarrheal diseases and improved nutritional practices in the Bara and En Nahud districts of the North Kordofan province.	600	0	0	0	0
<b>Swaziland</b>	<b>Primary Health Care:</b> Management Sciences for Health and Drew University support a national plan to integrate immunization, oral rehydration therapy, growth monitoring and high risk birth prevention initiatives into health delivery service programs.	0	0	0	600	0
<b>Togo</b>	<b>Health Sector Support for Child Survival:</b> Assists the Ministry of Health to plan and administer primary health care services, including child survival interventions.	0	0	0	400	0
<b>Uganda</b>	<b>FY 89 Child Survival Grant to World Vision Relief and Development:</b> Reinforces the Ministry of Health's efforts in immunization, oral rehydration therapy, growth monitoring, high risk birth management and essential drug supplies in the Bundibugyo district.	600	0	0	0	0
	<b>Support to Uganda Orphans:</b> Relocates orphans in their home villages and provides health services to those injured and in need as a result of past civil strife.	0	0	0	300	0
<b>Zaire</b>	<b>Basic Rural Health II:</b> Eglise du Christ au Zaire, a local private voluntary organization, promotes child survival through community-supported primary health care systems in 90 rural health zones.	0	0	0	1025	0

<b>Project Title and Purpose</b>	<b>CSF</b> ((\$1,000))	<b>HE</b> ((\$1,000))	<b>ARDN</b> ((\$1,000))	<b>DFA</b> ((\$1,000))	<b>ESF</b> ((\$1,000))	<b>Country</b>
<b>School of Public Health:</b> Tulane University assists an independent and fully accredited School of Public Health train an expanded cadre of health workers in child survival interventions.	0	0	0	330	0	<b>Zaire</b>
<b>Family Planning Services:</b> Targets urban women of reproductive age for child spacing activities to increase infants' chances for survival.	0	0	0	994	0	
<b>FY 89 Child Survival Grant to WVRD:</b> Enhances Ministry of Health's child survival initiatives to reduce infant and child mortality and morbidity in the Murehwa District.	130	0	0	0	0	<b>Zimbabwe</b>
<b>Africa Child Survival Initiative-CCCD:</b> A multi-donor effort by the U.S. Centers for Disease Control, WHO and others combats childhood diseases in 10 sub-Saharan African countries through appropriate diarrhea case management, immunization and malaria control activities and development of training, health education, health information systems and health care financing capacities in those countries.	500	1112	0	15082	0	<b>Regional</b>
<b>African Development Support:</b> Provides technical assistance to missions and regional offices for design, implementation and evaluation of health and child survival programs.	0	0	0	309	0	
<b>Operations Level Management:</b> MEDEX supports the design, testing and institutionalization of management-development technology within the MOHs in Botswana and Lesotho.	0	0	0	600	0	
<b>PVO Support Project:</b> Strengthens U.S. and African PVO activities including those engaged in child survival programs.	0	0	0	250	0	
<b>Small Projects Assistance:</b> Supports small health and child survival activities in Botswana, Cameroon, Chad, Ghana, Kenya, Niger, Senegal, Sierra Leone, Swaziland and Zaire.	0	0	0	115 <sup>1</sup>	0	
<b>Program Development and Support:</b> Provides technical assistance for design and evaluation of health and child survival projects in Chad, Swaziland and Togo.	0	0	0	34	0	
<b>Africa Sub-totals</b>	<b>4545</b>	<b>1160</b>	<b>825</b>	<b>52611<sup>1</sup></b>	<b>8407</b>	
<b>Health Sector Support:</b> Through cooperative agreement, USAID provides training and medical supplies cross-border to health care units which support immunization and primary care services to Afghan mothers and children.	0	3238	0	0	1850	<b>Asia and the Near East</b>
<b>PVO Co-Financing:</b> Expands child survival and health program activities through grants to U.S. and local private voluntary organizations for services within Afghanistan.	0	210	0	0	1260	<b>Afghanistan</b>
<b>Commodity Export Program:</b> At the recommendation of the Afghan Alliance, food, medical supplies and other related commodities are shipped into Afghanistan for war-affected Afghans.	0	716	0	0	0	
<b>Family Planning and Health Services:</b> As part of the Social Marketing Program, working with the Ministry of Health and Family Planning (MOHFP), the project promotes ORS marketing through maternal and child health programs and 100,000 outlets nationwide. The Reach Project assists MOHFP and the Ministry of Local Government to expand immunization in the urban slums.	4000	5000	0	0	0	<b>Bangladesh</b>
<b>Disaster Preparedness Program:</b> A grant to Helen Keller International permits the production, analyses and use of child health and nutrition data for determining nutritional status of children under age five requiring targeted food and health aid in times of disaster.	0	2000	0	0	0	

<b>Country</b>	<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Egypt</b>	<b>Cost Recovery Health:</b> Promotes a major initiative of the Ministry of Health to introduce cost recovery systems for child survival and public health services.	0	0	0	0	800
	<b>Science and Technology for Development:</b> Assists in mobilizing the Egyptian science and technology community to focus on solutions and their application to critical development problems including health and child survival.	0	0	0	0	2100
<b>India</b>	<b>Child Survival Health Support:</b> An USAID grant to UNICEF and local organizations assist the Ministry of Health in major expansion of child survival initiatives by promoting ORT, immunization and the control of acute respiratory infections.	2944	2756	0	0	0
	<b>Vaccine and Immunodiagnostic Development:</b> Supports Indo-U.S. cooperation to expand vaccine development and production and improve diagnostic tools.	0	1000	0	0	0
<b>Indonesia</b>	<b>PVO Co-Financing II:</b> Supports U.S. and local private voluntary organizations to integrate nutrition and other child survival activities with their Title II food distribution programs.	0	546 <sup>2</sup>	0	0	0
	<b>FY 89 Urban Child Survival Grant:</b> Save the Children Federation expands services in immunization, diarrheal disease control, growth monitoring, improved weaning practices and vitamin A supplementation in the city of Jakarta.	430	0	0	0	0
	<b>Health Sector Financing:</b> Helps the Indonesian Government to assess opportunities for collaboration with private providers and allocate resources to priority child survival programs.	0	390	0	0	0
<b>Morocco</b>	<b>Family Planning/Child Survival Support IV:</b> Supports the Ministry of Health's programs for immunization, control of diarrheal diseases and nutrition through information campaigns including mobilization of the private sector.	500	1600	0	0	0
<b>Nepal</b>	<b>Integrated Rural Health/Family Planning Services:</b> Assists the Ministry of Health in providing ORT, immunization, malaria control and family planning services in rural areas.	0	594	0	0	0
	<b>PVO Co-Financing II:</b> Provides U.S. and local private and voluntary agencies with support for health and child survival activities.	0	0	9	0	0
<b>Pakistan</b>	<b>Child Survival:</b> Supports the Ministry of Health's efforts to reduce infant mortality through key child survival interventions aimed at immunization, diarrheal disease control programs and acute respiratory infections.	7000	0	0	0	0
	<b>Malaria Control II:</b> Assists the Ministry of Health to implement a nationwide malaria control program including targeted household insecticide spraying, case detection, health worker training and operations research.	0	750	0	0	0
	<b>NWFP Area Development:</b> Promotes health education and child survival message campaigns in Gadoon-Amazai area.	0	0	0	0	64
<b>Philippines</b>	<b>Child Survival Program:</b> Administered through the Department of Health, provides decentralized support for the control of diarrheal diseases, immunization, breastfeeding, growth monitoring, maternal health, vitamin A supplementation, high risk birth management and acute respiratory infections.	0	5121	0	0	0
	<b>PVO Co-Financing III:</b> Expands child survival and health program activities through grants to U.S. and local private voluntary organizations.	0	453	151	0	0
	<b>Regional Development Fund:</b> Supports health and child survival activities through assistance to provincial governments.	0	0	0	0	211

<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Enterprise in Community Development:</b> Focuses on primary health care, including child survival programs implemented by local communities.	0	0	95	0	0
<b>OPG: PVO Co-Financing:</b> Provides U.S. and local private voluntary agencies with grant support to expand child survival and health activities.	0	0	220	0	0
<b>SPC Multi-Project Support:</b> Supports U.S. Peace Corps Volunteers efforts to carry out rural development activities including water and sanitation and health education.	0	130	0	0	0
<b>Project Development and Implementation Support:</b> Provides technical assistance for design and evaluation of health and child survival projects.	0	82	0	0	0
<b>PNG Child Survival Support:</b> Assists the government to decentralize rural health delivery systems to promote sustainable maternal and child health services.	0	803	0	0	0
<b>FY 89 Child Survival Grant:</b> Assists the Foundation of the People of the South Pacific to train community health nurses in Vanuatu in expanding health care services to include immunization, the control of diarrheal diseases and improved weaning practices.	855	0	0	0	0
<b>Water Supply and Sanitation Sector:</b> Provides safe domestic water supply and educates users in health and sanitation practices.	0	241	0	0	0
<b>Affected Thai Program II:</b> Assists with the Thai government to improve health and living conditions of Thai villages along the Lao and Cambodian borders.	0	0	0	0	1250
<b>Family Planning and Population Development:</b> Supports the Ministry of Health and the Catholic Relief Services, in providing nationwide services in high risk birth management and diarrheal disease control interventions.	0	0	0	0	40
<b>Accelerated Cooperation for Child Survival:</b> The Ministry of Health, with assistance from the REACH and HEALTHCOM projects, is expanding child survival activities in six governorates, including implementation of immunization programs, development of health education materials and training of primary health care workers.	0	990	0	0	0
<b>Regional Cooperation:</b> Includes support for immunization activities through mutually agreed upon projects between Israel and its Arab neighbors, especially Egypt.	0	0	0	0	1834
<b>Regional Environmental Activities Project:</b> Enhances regional cooperation in health care development and child survival activities.	0	12	0	0	0
<b>ASEAN Human Resources Development:</b> Enhances regional cooperation in health and child survival through the building of institutions and the development of human resources.	0	214	0	0	0

**Asia and the Near East Subtotals**

15729 26864<sup>2</sup> 475 0 9409

**Increased Productivity Through Better Health:** Supports government efforts to coordinate all donor supported activities in Belize to reduce morbidity and mortality of women and children by controlling the incidence of malaria, dengue fever and gastro-intestinal diseases.

72 48 0 0 0

**OPG: Village Health Sanitation:** CARE provides support to Village Health Committees in two Northern Districts for construction and maintenance of water and sanitation systems.

0 60 0 0 0

**Country**

**Philippines**

**South Pacific Regional**

**Sri Lanka**

**Thailand**

**Tunisia**

**Yemen**

**Regional**

**Latin America and the Caribbean**

**Belize**

<b>Country</b>	<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Belize</b>	<b>Child Survival Support: Project Hope</b> , in cooperation with the Ministry of Health, supports nationwide efforts to provide child survival services including ORT, immunization, growth monitoring, improved infant and child feeding practices and the control of acute respiratory infections.	630	0	0	0	0
<b>Bolivia</b>	<b>Child Survival PVO Network:</b> Coordinates resources available through cooperating U.S. and local private voluntary organizations to strengthen capabilities of these organizations to provide basic health services to high risk rural populations.	677	0	0	0	0
	<b>Self-Financing Primary Health Care: Management Sciences for Health</b> expands low-cost primary health care services and programs such as ORT, immunization and nutrition education through the private sector.	200	0	0	0	0
	<b>Program Development and Support:</b> Supports design and evaluation of child survival projects.	115	0	0	0	0
	<b>Community and Child Health:</b> The Ministry of Social Welfare and Public Health develops regional capacities to deliver sustainable primary health care services, including programs promoting immunization, ORT, high risk birth management, growth monitoring and water and sanitation activities.	2082	148	0	0	0
	<b>Radio Education:</b> Builds upon Bolivia's successful use of radio to broadcast health lessons to support the development of educational materials and distribution of ORS packets and information within school systems.	200	0	0	0	0
	<b>FY 89 Child Survival Grant to Esperanza:</b> Trains village health workers in the remote regions of Tuio Calvo and Gran Chaco to distribute oral rehydration salts and to promote vaccination of children and woman of child bearing age.	640	0	0	0	0
	<b>FY 89 Child Survival Grant to Save the Children Federation:</b> Provides immunization, oral rehydration therapy, acute respiratory infection, high risk birth management and nutrition services in the province of Inquisivi.	600	0	0	0	0
	<b>FY 89 Child Survival Grant to Food for the Hungry International:</b> Supports oral rehydration therapy, immunization and nutrition services in 40 communities in Manco Kapac and Camacho provinces.	500	0	0	0	0
	<b>OPG: Planning Assistance:</b> Provides technical assistance for design and evaluation of health and child survival projects.	500	0	0	0	0
	<b>OPG: Water and Health Services:</b> CARE assists the Government of Bolivia to provide health education and water and sanitation services to over 60,000 people, including vaccination promotion and growth monitoring and treatment of children suffering from diarrhea and nutrition deficiencies.	464	0	0	0	0
<b>Dominican Republic</b>	<b>Child Survival: Save the Children Federation</b> , through U.S. and local private voluntary organizations, supports nationwide programs to reduce infant and child morbidity and mortality through ORT, nutrition education and prevention and control of acute respiratory infections.	642	0	0	0	0
	<b>PVO Co-Financing:</b> Assists U.S. and local private voluntary organizations to extend health and child survival services.	0	1170	0	0	0
	<b>FY 89 Child Survival Grant to Foster Parents Plan:</b> Provides growth monitoring, immunization, oral rehydration therapy and high risk birth prevention services to women and children.	550	0	0	0	0
<b>Ecuador</b>	<b>Child Survival:</b> A new project to increase and institutionalize the delivery of child survival services through public and private systems.	1778	0	0	0	0

<b>Project title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)	<b>Country</b>
<b>FY 89 Child Survival Grant to Project HOPE:</b> Provides child survival services including high risk birth prevention and nutrition in the rural areas of the Manabi and Azuay provinces.	750	0	0	0	0	<b>Ecuador</b>
<b>Water and Sanitation Technical Assistance:</b> Assists rural communities to install cost-effective safe water supplies and latrines to improve family health through education an appropriate use of facilities provided.	0	171	0	0	0	
<b>Program Development and Support:</b> Supports design and evaluation of child survival projects.	30	0	0	0	0	
<b>Community-Based Integrated Rural Development:</b> In cooperation with the Ministry of Health. Save the Children Federation provides village families in eastern and northern regions with immunization. ORT, nutrition education and potable water.	0	480	760	0	0	<b>El Salvador</b>
<b>Health Systems Support:</b> Assists the Ministry of Health in supporting and strengthening public health care systems to ensure the delivery of maternal and child health services nationwide.	0	1353	0	0	0	
<b>OPG: Mother/Child Feeding:</b> A grant to Catholic Relief Services supports maternal and child health services and encourages breastfeeding.	0	52	0	0	0	
<b>OPG: Salvadoran Demographic Association:</b> With grant support is carrying out a demographic and health survey in El Salvador with emphasis on data related to child survival.	0	0	200	0	0	
<b>Public Services Restoration/Rehabilitation:</b> Includes expanded investments in potable water and sanitation systems to improve services through community involvement.	0	1600	0	0	0	
<b>Program Development and Support:</b> Supports the design and evaluation of child survival programs.	0	5	0	0	0	
<b>Expansion of Family Planning Services:</b> In cooperation with indigenous private voluntary organizations and the private sector, assists the Ministry of Health to provide child survival-interventions and family planning services nationwide.	1870	0	0	0	0	<b>Guatemala</b>
<b>Rural Health:</b> CARE works in 60 villages in the Western Highland to assist communities develop potable water systems and latrines and to educate users in appropriate maintenance and use of facilities.	0	84	0	0	0	
<b>FY 89 Child Survival Grant to Project Concern International:</b> Expands immunization coverage, the use of oral rehydration therapy, treatment of acute respiratory infections, high risk birth management and nutrition education in an isolated mountain city.	500	0	0	0	0	
<b>FY 89 Child Survival Grant to CARE:</b> Promotes improved feeding practices, oral rehydration therapy, dietary management of diarrhea and breastfeeding.	600	0	0	0	0	
<b>Program Development and Support:</b> Supports the design and evaluation of child survival projects.	99	0	0	0	0	
<b>Voluntary Agencies for Child Survival:</b> Provides technical assistance to numerous local and U.S. private voluntary organizations to strengthen their child survival interventions including training health workers and physicians.	2125	544	200	0	0	<b>Haiti</b>
<b>Community Water System Development:</b> CARE contributes to child survival by providing rural areas with potable water, improved sanitation and health education.	0	0	225	0	0	
<b>FY 89 Child Survival Grant to World Vision Relief and Development:</b> Provides immunizations, diarrheal disease control, growth monitoring and nutrition services to mothers and children.	130	0	0	0	0	

<b>Country</b>	<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Haiti</b>	<b>Expended Urban Health Services:</b> The Center for Development and Health, a local private voluntary organization, provides a wide range of child survival and other health services to low-income urban areas of Haiti.	1040	315	0	0	0
	<b>Urban Health and Community Development II.</b> Provides child survival services to urban poor through Complexes Médico-Sociale de la Cité Soleil, a local PVO.	0	33	0	0	0
	<b>FY 89 Child Survival Grant to Eye Care:</b> Provides services to prevent nutritional blindness among children in Northwest Haiti including vitamin A supplementation and other child survival services.	115	0	0	0	0
<b>Honduras</b>	<b>Health Sector II:</b> The Ministry of Health provides comprehensive health care services emphasizing child survival interventions and rural water and sanitation services.	4465	299	0	0	0
	<b>FY 89 Child Survival Grant to World Relief Corporation:</b> Supports efforts of two indigenous health agencies in immunization, oral rehydration therapy, growth monitoring, acute respiratory infections, high risk birth prevention, hygiene and sanitation services in the Departments of Olancho and Francisco.	1000	0	0	0	0
<b>Jamaica</b>	<b>Hurricane Reconstruction:</b> Assists in the restoration of essential utilities, including, water and sewerage services, and critical medical supplies and other rehabilitation efforts.	1254	812	0	0	0
<b>Peru</b>	<b>Child Survival Act - Project:</b> The Ministry of Health supports the development of sustainable programs and expands health care services in diarrheal disease control, immunization, nutrition education and child spacing.	2773	495	0	0	0
	<b>Upper Huallaga Area Development:</b> Includes assistance to community supported water and sanitation systems.	0	0	0	0	26
	<b>Nutrition and Food for Work:</b> Local private voluntary organizations provide ORT, immunization, nutrition, high risk birth management and water and sanitation services in fourteen departments of Peru.	140	0	80	0	0
	<b>Food Assisted Integrated Development:</b> A grant to CARE provides child survival interventions including growth monitoring and nutrition education to mothers and children through a community kitchen feeding program.	63	0	0	0	0
	<b>Andean Peace Scholarships:</b> Provides long and short-term training in the United States, including health and child survival skills development for health professionals.	0	27	0	0	0
	<b>Integrated Food, Nutrition, and Child Survival:</b> Prisma, a local private voluntary organization, distributes foods and provides nutrition and other child survival services to malnourished mothers and children nationwide, using a risk targeting approach.	150	0	0	0	0
	<b>CARITAS Food Relief, Nutrition and Development:</b> Supports the promotion of breastfeeding, growth monitoring and improved infant child feeding practices in nine districts.	187	0	0	0	0
	<b>Program Development Support:</b> Provides technical assistance for design and evaluation of health and child survival projects.	220	0	0	0	0
<b>ROCAP</b>						
<b>Regional</b>	<b>Accelerated Immunization:</b> Grant to the Pan American Health Organization assists countries in the region to control transmission of the polio virus and supports national immunization efforts for six WHO-designated vaccine-preventable diseases and neonatal tetanus.	2263	657	0	0	0

<b>Project Title and Purpose</b>	<b>CSF</b> (\$1,000)	<b>HE</b> (\$1,000)	<b>ARDN</b> (\$1,000)	<b>DFA</b> (\$1,000)	<b>ESF</b> (\$1,000)
<b>Intercountry Technology Transfer:</b> Multiple implementing agents adapt existing technologies to support improvement in delivering health and child survival interventions in the Advanced Developing Countries of the region.	500	0	798	0	0
<b>Health Technical Services Support:</b> Supports vitamin A and other nutrition activities, HIV/AIDS prevention and water and sanitation services information in the region.	197	296	0	0	0
<b>Program Development and Support:</b> Supports design and evaluation of child survival projects.	35	0	0	0	0
<b>Latin America and the Caribbean Subtotals</b>	<b>30156</b>	<b>8649</b>	<b>2263</b>	<b>0</b>	<b>26</b>
<b>Technical Support/Child Survival for PVOs:</b> Johns Hopkins University, PRITECH and ARS provide technical assistance to private voluntary organizations in management and evaluation of child survival programs.	1104	0	0	0	0
<b>Child Survival Grant to Rotary Foundation:</b> Incremental funding of a grant to Rotary International to support its worldwide immunization programs.	59	0	0	0	0
<b>FY 89 Child Survival Grant to Save the Children Federation:</b> As a part of multi-country grant, supports the development of health data to manage and evaluate child survival activities.	800	0	0	0	0
<b>Matching Grants to PVOs:</b> Grants to U.S. private voluntary organizations to implement health and child survival programs in developing countries.	0	1363	65	62	0
<b>PVO Vitamin A Support:</b> Grants to U.S. private voluntary organizations for various vitamin A services to alleviate nutritional blindness, and to Helen Keller International to provide technical assistance to these organizations in the design, monitoring and implementation of their vitamin A programs.	0	0	1110	0	0
<b>Ocean Freight Reimbursement for PVO Health and Child Survival Activities:</b> Supports U.S. private and voluntary organizations through reimbursement of costs for shipping donated goods in support of health and child survival projects.	0	54	0	0	0
<b>Integrated Studies and Systems:</b> Supports special studies on child survival related programs.	0	230	0	0	0
<b>Project Development Support:</b> Provides technical assistance for development of health and child survival activities through the private sector.	0	0	0	0	0
<b>Housing and Urban Programs:</b> Includes support for basic water and sanitation infrastructure as a component of urban support activities.	0	225	0	0	0
<b>Operations Research in Primary Health Care II (PRICOR):</b> Center for Human Services conducts operations research to study factors impeding the effective development and operation of health care systems delivering child survival interventions.	0	1758	0	0	0
<b>MEDEX Support:</b> University of Hawaii trains nurses in delivery of child survival techniques and maternal health services in primary health care programs in Africa and Latin America.	0	650	0	0	0
<b>Diagnostic Technology for Community Health (DIATECH):</b> Program for Appropriate Technology in Health (PATH) and Johns Hopkins University develop and adapt simple, low-cost diagnostic technologies to treat and control malaria, acute respiratory infections and diarrheal diseases.	0	1218	0	0	0

**Country**

**Regional**

**Global**

Country	Project Title and Purpose	CSF (\$1,000)	HE (\$1,000)	ARDN (\$1,000)	DFA (\$1,000)	ESF (\$1,000)
Global	<b>Child Survival Action Program-Support (CSAP-Support):</b> Johns Hopkins University and other implementing agencies promote child survival programs through advisors and fellows, operations support, applied and evaluation research and information management and dissemination.	2300	540	0	0	0
	<b>Communication for Child Survival (HEALTHCOM):</b> The Academy for Educational Development provides worldwide field support for communication and social marketing efforts in the health sector to increase the use of child survival interventions such as ORT and immunization.	2000	0	0	0	0
	<b>Communication and Marketing for Child Survival (HEALTHCOM II):</b> The Academy for Educational Development provides technical assistance in health communications to include communication strategy planning, implementation, monitoring and evaluation; communication research; materials and strategy testing; information dissemination; and institutionalization of communications efforts.	460	2	0	30	0
	<b>Technologies for Child Health (HEALTHTECH):</b> PATH develops low-cost, appropriate tools for child survival programs, especially immunization.	720	0	0	0	0
	<b>ORT Health Education and Long-Term Planning (ORT-HELP):</b> Multiple implementing agencies support information exchange among developing country leaders and health providers on all aspects of diarrheal disease control.	720	341	0	100	0
	<b>Maternal and Neonatal Health and Nutrition (MOTHER-CARE):</b> John Snow, Inc. and other agencies provide worldwide field and applied research support to improve maternal and neonatal care, behavior and pregnancy outcomes.	1585	0	0	0	0
	<b>Technical Advisors in AIDS and Child Survival (TAACS):</b> Technical advisors recruited from federal and state agencies and schools of public health in cooperation with the U.S. Department of Health and Human Services, assist in implementing child survival programs.	1562	275	0	0	0
	<b>Supply, Production and Promotion of ORT (Project SUPPORT):</b> PATH provides technical assistance promoting local manufacturing, quality control and distribution of ORS through the private sector.	55	0	0	0	0
	<b>Technologies for Primary Health Care (REACH):</b> John Snow, Inc. provides worldwide field support for disease control programs emphasizing immunization interventions.	1397	0	0	0	0
	<b>Technologies for Primary Health Care I:</b> Technical assistance provided for child survival by short-term consultants and WHO.	149	0	0	0	0
	<b>Technologies for Primary Health Care II:</b> Through Management Sciences for Health this project follows on to PRI TECH, serving as a central resource for technical assistance in implementing ORT/diarrheal disease control programs worldwide.	2760	0	0	0	0
	<b>Vaccine Development and Health Research:</b> Supports programs, through the U.S. Department of Health and Human Services, to test and improve vaccines to combat childhood diseases such as measles and rotavirus.	500	670	0	0	0
	<b>Applied Diarrheal Disease Research (ADDR):</b> Harvard University supports country-specific applied research on priority diarrheal disease problems.	720	825	0	0	0
	<b>Diarrheal Disease Research:</b> Supports research, training and information dissemination on control and treatment of diarrheal diseases through the World Health Organization and International Center for Diarrhoeal Disease Research, Bangladesh.	0	2345	0	0	0

Project Title and Purpose	CSF	HE	ARDN	DFA	ESF	Country
	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	
<b>Water and Sanitation for Health III (WASH):</b> Camp, Dresser and McKee International and other implementing agencies provide technical assistance on a broad range of services to help plan, implement and evaluate rural and urban water and sanitation programs.	0	765	0	30	0	<b>Global</b>
<b>Demographic and Health Surveys (DHS):</b> The Institute for Resource Development assists countries in conducting demographic and health surveys which provide data on the status of child survival interventions and infant and child mortality.	150	0	0	0	0	
<b>Health Resources Support:</b> Assists in implementation and evaluation of health and child survival programs through an agreement with the U.S. Department of Health and Human Services.	0	12	0	0	0	
<b>Health Care Financing and Sustainability:</b> Abt Associates, Inc. and other implementing agencies provide technical assistance, conduct applied research and disseminate information on health care financing and sustainability.	710	0	0	0	0	
<b>Technology and Resources for Child Health (REACH II):</b> John Snow, Inc. provides expertise for immunization and acute respiratory infection programs through operations research, cost analysis and disease surveillance.	489	325	0	0	0	
<b>Combatting Iron Deficiency:</b> Nutrition Foundation and Kansas University support efforts to reduce the incidence of iron deficiency anemia in mothers and children.	349	50	0	0	0	
<b>Improvement of Maternal and Infant Diet:</b> Multiple implementing agencies, including Wellstart International, promote breastfeeding, use of healthy weaning foods and better nutrition and health care for pregnant and lactating women.	247	282	0	0	0	
<b>Women and Infant Nutrition – A Family Focus:</b> Provides an integrated package of appropriate feeding services and technical assistance to improve infant and child nutrition.	403	870	0	0	0	
<b>Vitamin A for Health:</b> Private voluntary organizations, research foundations and other implementing agencies conduct research activities, provide service delivery and technical assistance on the prevention of vitamin A deficiency.	0	0	5200	0	0	
<b>Nutrition Education and Social Marketing:</b> The Academy for Educational Development supports host country efforts to design, implement and evaluate nutrition education programs.	0	700	200	0	0	
<b>Food and Nutrition Monitoring:</b> IFPRI and the University of Arizona promote the integration of human food consumption and nutrition considerations in development policies, programs and projects in the food, agriculture, health and related sectors in selected countries.	0	0	108	0	0	
<b>HBCU Research Grants:</b> Grants to Historically Black Colleges and Universities support biomedical and operational research activities related to child survival initiatives.	0	422	0	0	0	
<b>Small Project Assistance:</b> Supports small health and child survival activities, including training for Peace Corps volunteers.	0	375	0	0	0	
<b>Global Subtotals</b>	<b>20568</b>	<b>14455</b>	<b>6683</b>	<b>522</b>	<b>0</b>	
<b>Totals by Account</b>	<b>70998</b>	<b>51128<sup>2</sup></b>	<b>10246</b>	<b>53133<sup>1</sup></b>	<b>17842</b>	
<b>Grand Total</b>	<b>203347</b>					

<sup>1</sup> Includes \$5,000 SAHEL account funds for Senegal; <sup>2</sup> Includes \$18,000 Selected Development Account for Indonesia attributed to child survival.

## Conventions

Throughout this document, reference is made to the report prepared last year, *Child Survival: A Fourth Report to Congress on the USAID Program*, as "Child Survival: The Fourth Report."

## Indicator Data

Note: The notation "NA" is used when a particular indicator is not available.

### Demographic Indicators

- **Total Population:** Mid-year estimate of the total number of individuals in a country.
- **Infant Mortality Rate (IMR):** The estimated number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year. An IMR may be calculated by direct methods (counting births and deaths) or by indirect methods (applying well-established demographic models).
- **Life Expectancy at Birth:** An estimate of the average number of years a newborn can expect to live. Life expectancy is computed from age-specific death rates for a given year. It should be noted that low life expectancies in developing countries are, in large part, due to high infant mortality.
- **Children Under Age One:** Mid-year estimate of the total number of children under age one.
- **Annual Infant Deaths:** An estimate of the number of deaths occurring to children under age one in a given year.
- **Total Fertility Rate:** An estimate of the average number of children a woman would bear during her lifetime given current age-specific fertility rates.

### Vaccination Coverage Rates

- **Vaccination Coverage in Children:** An estimate of the proportion of living children between the ages of 12 and 23 months who have been vaccinated before their first birthday—three times in the cases of polio and DPT and once for both measles and BCG. Vaccination coverage rates are calculated in two ways. Administrative estimates are based on reports of the number of vaccines administered divided by an estimate of the pool of children eligible for vaccination. Survey estimates are based on sample surveys of children in the target age group and may or may not include children without vaccination cards whose mothers recall that their children had been vaccinated.
  - **Vaccination Coverage in Women:** An estimate of the proportion of women in a given time period who have received two doses of tetanus toxoid during their pregnancies. Currently under worldwide review, this indicator is being changed to account for the cumulative effect of tetanus toxoid boosters. A woman and her baby are protected against tetanus when a mother has had only one or, perhaps, no boosters during a given pregnancy so long as the woman had received the appropriate number of boosters in the years preceding the pregnancy in question. (The appropriate number of boosters required during any given pregnancy varies with number received previously and the time elapsed.) The revised indicator is referred to as TT2+. Rates are computed using administrative methods or surveys.
- ### Oral Rehydration Therapy
- **ORS Access Rate:** An estimate of the proportion of the population under age five with reasonable access to a trained provider of Oral Rehydration Salts who receives adequate supplies. This is a particularly difficult indicator to measure and, therefore, it may fluctuate dramatically from year to year as improved methods of estimation are devised.
  - **ORT Use Rate:** An estimate of the proportion of all cases of diarrhea in chil-

dren under age five treated with ORS and/or a recommended home fluid. ORT use may be determined using administrative means or surveys. In general, administrative estimates are based on estimates of the number of episodes of diarrhea in the target population for a given year and the quantity of ORS available. Thus, changes in the estimates of the frequency of diarrhea episodes can alter the ORT Use Rate as well as "real" changes in the pattern of use. Surveys are more precise in that they focus on the actual behavior of mothers in treating diarrhea in the two-week period prior to the survey.

### Contraceptive Prevalence

- **Contraceptive Prevalence Rate:** An estimate of the proportion of women, aged 15 through 44 (or, in some countries, 15 through 49), in union or married, currently using a modern method of contraception. Where sources fail to distinguish modern and traditional methods, the combined rate is shown.

### Nutrition

- **Adequate Nutritional Status:** An individual child of a certain age is said to be adequately nourished if his/her weight is greater than the weight corresponding to "two Z-scores" (two standard deviations) below the median weight achieved by children of that age. The median weight and the distribution of weights around that median in a healthy population are taken from a standard established by the National Center For Health Statistics, endorsed by the World Health Organization. The indicator for the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished.
- **Appropriate Infant Feeding:** A composite estimate of the proportion of infants (children under age one) being breastfed and receiving other foods at an appropriate age according to the following criteria: breastfed through infancy with no bottle-feeding, exclusively breastfed through four months (120 days) of age, and receiving other foods if over six months of age (181 days). Water is not acceptable in the first four months (120 days). ORS is considered acceptable at any age. Surveys are the only source of data to form this indicator. Surveys yield an estimate of how many children in the target group (children under age one) are being fed correctly at the moment of the survey. They do not give an indication of the proportion of individual children fed appropriately throughout their first year of life.
- A number of sub-indicators may be calculated from the data used to form the composite, of which two are presented in this report:
  - **Exclusively Breastfed:** An estimate of the proportion of infants through four months (120 days) of age who receive no foods or liquids other than breast milk.
  - **Introduction of Solids:** An estimate of the proportion of infants over six months (181 days) of age still breastfed but also receiving complementary weaning foods.
  - **Duration of Breastfeeding:** An estimate of the median duration of breastfeeding computed from cross-sectional survey data using the Current Status Method. According to this method, the value reported is the month at which half of the children surveyed are no longer breastfed.

### Sources and Comments on Child Survival Indicators

- Project data and descriptions are drawn from the 1989 Health and Child Survival Project Questionnaires submitted by USAID-funded projects. This

questionnaire now includes a module on AIDS/HIV activities. In addition, data on the child survival indicators were submitted by USAID missions on a form disseminated to the missions along with the above mentioned questionnaires. These forms are referred to as the FY 1989 Mission Response Forms.

- The primary source for the demographic indicators is: World Population Prospects: 1988, (referred to as WPP) prepared by the Estimates and Projections Section of the Population Division of the Department of International Economic and Social Affairs, United Nations.
- The primary sources for vaccination coverage data are the annual reports of the Expanded Programme on Immunization of the World Health Organization (referred to as WHO) the most recent being WHO/EPI/CEIS/90.1, January 1990.
- The primary sources of data on oral rehydration, both access and use, are the annual reports of the Diarrheal Disease Control Programme of the World Health Organization (referred to as WHO). An advanced copy of the indicators to be published in the next report was provided, courtesy of that program. Another major source of information is the Demographic and Health Surveys (referred to as DHS with the year of the survey). Institute for Resource Development/Macro Systems, Inc.

### Kenya

- **Demographic Indicators:** a) All except Total Fertility Rate: WPP. b) DHS reports an Infant Mortality Rate (IMR) of 60/1,000 live births in the report, acknowledges an under-reporting of deaths during the survey. The official Government of Kenya estimate is 84/1,000. c) Total Fertility Rate: DHS, 1989.
- **Vaccination Coverage Rates:** a) Rates for the antigens administered to children are from the DHS, 1989. They are computed based on assumptions regarding the reliability of mothers' recall. The Government of Kenya continues to report the 1987 rates as reported in "Child Survival: The Fourth Report." b) The TT2+ rate is taken from a corrected interpretation, provided by the REACH project, of a table printed in Immunization Coverage in Kenya, 1987.
- **Oral Rehydration Therapy:** Access: WHO and Use: DHS, 1989.
- **Contraceptive Prevalence (modern methods):** DHS, 1989.
- **Nutrition:** a) Appropriate Feeding Indicators: DHS, 1989. b) Median Duration of Breastfeeding: DHS, 1989.

### Malawi

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** a) Rates for the antigens administered to children are from the WHO/UNICEF/Rotary International report entitled, National Evaluation Of The Expanded Programme On Immunization, August 1988. The rates cited in "Child Survival: The Fourth Report" were derived from the same study; however, the values shown were the rates among only those children in possession of vaccination cards. As approximately 90 percent of all children had cards, the true rates, as shown in this Fifth Report, are somewhat lower than last year's. b) The rate for TT2+ is the rate reported by WHO for 1987.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence (modern methods):** Unpublished 1984 Family Formation Survey. The rate of five percent shown in "Child Survival: The Fourth Report" was based on an extrapolation of an estimate based on Ministry of Health Service Reports.
- **Nutrition:** The Adequate Nutritional Status indicator is from the "National Sample Survey of Agriculture, 1980/81."



World Bank

National Statistics Office, Zomba, Vol. III, 1984 as recorded in the WHO Anthropometry Data Base.

## Mali

- **Demographic Indicators:** a) Population, Life Expectancy, Children Under 1 and Annual Infant Deaths: WPP.
- **Infant Mortality Rate:** DHS, 1987. Taking the DHS data into account, the U.S. Bureau of the Census has recalculated the IMR for MALI using indirect methods as 117/1,000. The next (1990) version of World Population Prospects will, in all likelihood, reflect the lower rate as indicated by DHS. WPP, 1988 shows an IMR of 166/1,000. c) Total Fertility Rate: DHS, 1987.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** a) Access is an estimate of the percent of the population having access to at least one point of distribution as reported by USAID/Mali. b) Use is reported in "Connaissances, Attitudes Et Pratiques Des Mères En Matière De Thérapie De Réhydratation Par Voie Orale", a study financed by PRITECH/ SAID carried out by the Programme National De Lutte Contre les Maladies Diarrhéiques, Bamako, September 1989. The study was done in four of the country's seven regions where educational materials had been distributed effectively.
- **Contraceptive Prevalence** (modern methods): DHS, 1987. "Child Survival: The Fourth Report" cited the rate for all methods.
- **Nutrition:** All indicators: DHS, 1987.

## Niger

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** The rates for all antigens are from a Nationwide Survey, Ministry of Health, December 1988 as reported on the USAID Health and Child Survival Project Questionnaire, project number 683-0254.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): "Columbia University KAP: 1987" as reported by USAID/Niger.
- **Nutrition:** The Adequate Nutritional Status is from "Le Système de Santé et la Politique de Développement Sanitaire au Niger," May 1989 as reported by USAID/Niger.

## Nigeria

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is from the World Fertility Survey as cited in World Population Profile: 1989. "Child Survival: The Fourth Report" cited the rate for all methods.

## Senegal

- **Demographic Indicators:** WPP. In "Child Survival: The Fourth Report", the IMR reported was 86/1,000, a rate reported by the DHS for the period 1981 to 1986. Current consensus at country level, as expressed by USAID/Senegal, is that the DHS estimate is too low.
- **Vaccination Coverage Rates:** Rates for all antigens are reported in "Senegal: Follow-up Rapid Assessment, Universal Childhood Immunization (UCI) and Social Mobilization - Evaluation of Senegal's Immunization Programme", June 19 - July 6, 1989, UNICEF-Evaluation office.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): DHS, 1986.
- **Nutrition:** All indicators: DHS, 1986.

## Sudan

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is from the World Fertility Survey of 1979 as cited in World Population Profile: 1989. "Child Survival: The Fourth Report" cited the rate for all methods.

## Zaire

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** All rates are drawn from statistics furnished through the ACSI-CCCD Project Report. The figures shown are updates from the ACSI-CCCD Project Report, 1988 based on reports from the periphery in Zaire not available at the time of publication of that report.
- **Oral Rehydration Therapy:** WHO.

## Bangladesh

- **Demographic Indicators:** WPP. The higher rate shown in "Child Survival: The Fourth Report" was from 1985 and was reported under the assumption that natural crises (floods, etc.) had circumvented the decline predicted by most demographic models.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is reported in United Nations, Population Division, World Contraceptive Use (New York, United Nations, 1987). "Child Survival: The Fourth Report" cited the rate for all methods.

## Egypt

- **Demographic Indicators:** a) Total Population: the Statistical Yearbook, CAPMAS, 1988, as reported by USAID/Egypt. b) Infant Mortality Rate, Life Expectancy, Children under 1 and Annual Infant Deaths are statistics published by the Ministry of Health/Egypt, as reported by USAID/Egypt. The Infant Mortality Rate confirms the provisional figure cited in "Child Survival: The Fourth Report." c) The Total Fertility Rate: DHS, 1983, forthcoming, as reported by USAID/Egypt.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** Access is reported by WHO; Use is reported in the "7th CDD Programme Report to WHO for 1987" as cited by USAID/Egypt.
- **Contraceptive Prevalence** (modern methods): DHS, 1988, forthcoming, as reported by USAID/Egypt.

## India

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is the rate reported by the Government of India, Ministry of Health and Family Welfare, 1986, as noted by USAID/India in Cable/00624, January 1988.

## Indonesia

- **Demographic Indicators:** a) All but Infant Mortality Rate, WPP. b) The Infant Mortality Rate is taken from the DHS, 1987. The DHS, 1987 also reports a TFR of 3.4; however, it is reasonable to believe that the rate has dropped since the survey.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** a) Access: WHO. b) Use: an unpublished 10 province study by the Department of Health, March 1989 as cited in the FY 1989 USAID Health and Child Survival Questionnaire for Project 497-0273.
- **Contraceptive Prevalence** (modern methods): DHS, 1987.
- **Nutrition:** Median Duration of Breast-feeding: DHS, 1987.

## Morocco

- **Demographic Indicators:** a) Total Population and Life Expectancy: WPP. b) Infant Mortality Rate and Total Fertility Rate: DHS, 1987. c) Children Under 1 and Infant Deaths were calculated using the Population and Crude Birth Rates reported in the WPP and the Infant Mortality Rate from the DHS, 1987.
- **Vaccination Coverage Rates:** Enquête Nationale sur la Couverture Vaccinale, June 1989, carried out by the Ministry of Public Health.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): DHS, 1987.
- **Nutrition:** All indicators: DHS, 1987.

## Nepal

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): United Nations, Population Division, World Contraceptive Use (New York, United Nations, 1987).

## Pakistan

- **Demographic Indicators:** WPP.
- **Vaccination Coverage Rates:** a) The rates for the antigens administered to children are from a survey done as part of a national Primary Health Care Review as cited in the USAID Mission Response Form for FY 1989. b) Tetanus II: WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is reported in United Nations, Population Division, World Contraceptive Use (New York, United Nations, 1987). "Child Survival: The Fourth Report" cited the rate for all methods.
- **Adequate Nutritional Status:** This indicator is taken from a National Nutrition Survey, 1985-1987 carried out by the Government of Pakistan as cited in the FY 1989 USAID Mission Response Form.

## Yemen

- **Demographic Indicators:** a) Total Population, Infant Mortality Rate, Life Expectancy, Children Under 1 and Total Fertility Rate are from the Central Planning Organization (YARG), as cited in the FY 1989 Mission Response Form and USAID/Yemen facsimile 967-2-251578. These figures are based on a reanalysis of recent census data. b) Annual Infant Deaths are calculated as (Total Population \* Crude Birth Rate \* IMR) where the Crude Birth Rate is from WPP.
- **Vaccination Coverage Rates:** WHO.
- **Oral Rehydration Therapy:** WHO.
- **Contraceptive Prevalence** (modern methods): The CPR is from the Central Planning Organization (YARG) and the Population Strategy Team, as cited in USAID/Yemen facsimile 967-2-251578.

## Bolivia

- **Demographic Indicators:** WPP. (The DHS, 1989 reports an IMR of 96.)
- **Vaccination Coverage Rates:** a) Rates for the antigens administered to children are from the DHS, 1989. They are computed based on assumptions regarding the reliability of mothers' recall. b) TT2+: WHO.
- **Oral Rehydration Therapy:** Access, WHO; Use, DHS, 1989.
- **Contraceptive Prevalence** (modern methods): DHS, 1989.
- **Nutrition:** All indicators: DHS, 1989.

## Ecuador

- **Demographic Indicators:** a) All except Infant Mortality Rate and Total Fertility Rate, WPP. b) Infant Mortality Rate: Rutstein, Shea Oscar, Fermo, Aurora V., and Crespo, Antonio. "Child Survival In

Ecuador." a Report to the USAID Mission in Ecuador, 4 November, 1987. c) Total Fertility Rate: Preliminary results from "Encuesta Nacional Demográfica y de Mortalidad Materno y Infantil," 1989. ■ **Vaccination Coverage Rates:** WHO. ■ **Oral Rehydration Therapy:** WHO. ■ **Contraceptive Prevalence (modern methods):** Preliminary results from "Encuesta Nacional Demográfica y de Mortalidad Materno y Infantil," 1989. ■ **Nutrition:** a) Adequate Nutritional Status: National Nutrition Survey 1987. Ministry of Health. b) Appropriate Infant Feeding: DHS, 1987. c) Median Duration of Breastfeeding: DHS, 1987.

### Guatemala

■ **Demographic Indicators:** a) All except Infant Mortality Rate. WPP. b) Infant Mortality Rate: DHS, 1987. ■ **Vaccination Coverage Rates:** WHO. ■ **Oral Rehydration Therapy:** Access. WHO: Use. DHS, 1987. ■ **Contraceptive Prevalence (modern methods):** DHS, 1987. ■ **Nutrition:** a) Adequate Nutritional Status: DHS, 1987. b) Median Duration of Breastfeeding: DHS, 1987.

### Haiti

■ **Demographic Indicators:** a) All except Total Fertility Rate. WPP. b) Total Fertility Rate: Cayemittes, Michel and Chahnazarian, Anouch, *Survie et Santé De L'Enfant En Haiti*. Institut Haitien de L'Enfance, 1989. ■ **Vaccination Coverage Rates:** WHO. ■ **Oral Rehydration Therapy:** WHO. ■ **Contraceptive Prevalence (modern methods):** Enquête Nationale Haitienne sur la Contraception (ENHAC): Résultats Préliminaires. Institut Haitien de l'Enfance and U.S. Centers for Disease Control. Atlanta, 1990.

### Honduras

■ **Demographic Indicators:** a) Total Population and Children Under 15: National Census, 1988. Ministry of Planning, Coordination and Budget. b) Infant Mortality Rate and Life Expectancy: National Epidemiological and Health Survey, 1987. Science and Technology Unit, Ministry of Health. c) Annual Infant Deaths are calculated by applying the Crude Birth Rate as given in WPP to the Total Population to estimate births and multiplying by the Infant Mortality Rate. ■ **Vaccination Coverage Rates:** WHO. ■ **Oral Rehydration Therapy:** WHO. The most recent empirical estimate of ORT Use is found in Epidemiological and Family Health Survey: Honduras, 1987. The report, prepared by the Honduran Ministry of Health, the Association for Family Planning in Honduras (ASHONPLAFA), Management Sciences For Health and Family Health International, cites a use rate for Litrosol, the name given to ORS packets in Honduras, of 17.5 percent and a use rate for herbal remedies, including various home solutions, of 18.2 percent. ■ **Contraceptive Prevalence (modern methods):** National Epidemiological and Health Survey, 1987. ■ **Nutrition:** Adequate Nutritional Status: National Nutrition Survey: 1987, as cited in USAID/Honduras Cable/00525.

### Peru

■ **Demographic Indicators:** a) All except Infant Mortality Rate. WPP. b) Infant Mortality Rate: DHS, 1986. ■ **Vaccination Coverage Rates:** Ministry of Health, Program Data for 1989 as cited in USAID/Peru facsimile, 31-2700. ■ **Oral Rehydration Therapy:** WHO. ■ **Contraceptive Prevalence (modern methods):** DHS, 1986. "Child Survival: The Fourth Report" cited the rate for all methods. ■ **Nutrition:** a) Adequate Nutritional Status: Encuesta Nacional de Nutrición y Salud (ENNSA), 1984. b) Appropriate Infant Feeding: DHS, 1986. c) Median Duration of Breastfeeding: DHS, 1986.

## Notes and Sources on Charts and Graphs

### Chapter One

#### USAID Funding for Child Survival

Source: USAID Health Information System, CIHI, March 1990. Notes: Funds from Population Account and Public Law 480 are not included. The category Other Child Survival (OCS) is derived from the sum of the child survival portion of the following health activities: water and sanitation for health, malaria, other disease control, acute respiratory infections and health systems development, including health care financing. Twenty-seven percent of the OCS category for FY 1989 is for the Nigeria Health Sector Support project which cannot be attributed by intervention at this time.

#### Preventing Deaths Due to Dehydration

Source: ORT Use Rates for 1985 for all emphasis countries from WHO, 1988 Use Rates are noted in the country fact sheets in this report, sources given above. Estimates of the population under age five are derived from WPP. Notes: The figures shown are an average of ORT Use Rates, weighted by the population under age five.

#### Increasing Protection

Source: Vaccination coverage rates for 1985, WHO. The 1988 rates are noted in the country fact sheets in this report, sources given above. Estimates of the surviving population under age one for 1985 are derived from WPP. Estimates of the surviving population under age one for 1988 are in the fact sheets, sources given above. Notes: The figures shown are an average of country-wide vaccination coverage rates, weighted by the surviving population under age one.

#### Proving It Is Possible

Source: Vaccination coverage rates for 1985, WHO. The 1988 rates are noted in the country fact sheets in this report, sources given above.

### Chapter Two

#### The Impact of Vaccination

Source: a) Measles in Lesotho: ASCI-CCCD 1988-1989 Annual Report. The data for the table provided by the U.S. Centers for Disease Control. b) Neonatal Tetanus in Indonesia: Report of the WHO EPI Programme, WHO/EPI/CEIS/90.1. c) Polio in Latin America and the Caribbean: Report of the WHO EPI Programme, WHO/EPI/CEIS/90.1.

#### Making ORT: The Response to Diarrhea

Source: ORT Use Rates for 1985, WHO. The 1988 rates are noted in the country fact sheets in this report, sources given above.

#### Expanding Access

Source: Personal communication with project staff from the implementing agency, Population Services International. Notes: Figures given are for pharmacies selling the 500 cc. sachets of OR-Saline as part of the Social Marketing Project.

#### Getting a Better Start

Source: A survey of 15 participating hospitals as reported in "Proceedings of the Invitational Asian Regional Lactation Management Workshop," June 29 - July 9, 1988. Notes: Based on vaginal births at hospitals with over 94,000 annual deliveries.

### Uneven Odds

Source: Demographic and Health Surveys.

### Chapter Three

#### Child Survival and the PVOs

Source: a) CARE Records Progress In Sudan: National Vaccination Coverage and ORT Use Rates are noted in the country fact sheets in this report, sources given above. Rates in the Bara District, 1989 CARE/PHC Unit Annual Report and FY 1989 USAID Health and Child Survival Questionnaire, project number 938-0516. The ORT Use Rate from a cluster survey of 40 villages in August 1989. Notes: The Bara District project area has a total population of approximately 166,100. b) PVOs Target Neonatal Tetanus: National Vaccination Coverage Rates are noted in the country fact sheets in this report, sources given above. Project Hope project area rate is the result of a modified cluster sample survey, carried out in June 1989, as reported in FY 1989 USAID Health and Child Survival Questionnaire, project number 938-0507. The CARE project area rate is the result of a two-stage cluster sample survey, carried out in June 1989, as reported in USAID Health and Child Survival Questionnaire, project number 938-0516. The Save the Children project area rate is drawn from the project area rosters as of August 1989, as reported in USAID Health and Child Survival Questionnaire, project number 938-0502. Notes: The sizes of the populations in the three project areas are: Project Hope/Guatemala, 232,749; Care/Mali, 144,000; and Save The Children/Indonesia, 18,304. c) Home Visits Improve Knowledge: Rates are derived from a 30 cluster sample (210 interviews) in August 1989 as reported in USAID Health and Child Survival Questionnaire, project number 938-0517. Notes: The population in the project area is 169,000.

#### Increasing ORS Availability

Source: FY 1989 USAID Health and Child Survival Questionnaires. Notes: A country was considered to promote ORS production or market ORS if one or more individual projects reported such activity.

#### Engaging the Private Sector in Developing Countries

Source: FY 1989 USAID Health and Child Survival Questionnaires. Notes: A country was considered to be promoting activity through the private sector by applying a given strategy if one or more individual projects reported such activity.

### Chapter Four

#### Who Gets Immunized?

Source: Demographic and Health Surveys in 23 countries, analysis by the Institute For Resource Development/Macro Systems, Inc.

#### Closing the Gap

Source: Annual reports of the Expanded Programme on Immunization of the World Health Organization. Notes: Figures exclude China.

#### Broadening Access to Immunization

Source: Ministry of Health, Indonesia.

#### Miscellaneous Notes

USAID/Washington support for U.S. Private Voluntary Organizations is provided by the Bureau For Food For Peace and Voluntary Assistance, Office of Private and Voluntary Cooperation.