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CHILD SURVIVAL 1985-1990

A SIXTH REPORT TO CONGRESS ON THE USAID PROGRAM



U.S. Agency for International Development
Washington, D.C. 20523

May 1991

ERRATA

The following are corrections for errors appearing on two Fact Sheets:

- page 58 "Republic of Morocco" should read "Kingdom of Morocco."
- page 59 "Republic of Nepal" should read "Kingdom of Nepal."

Agency for International Development
Washington, D.C. 20523

MAY 16 1991

Dear Colleague:

I am pleased to enclose a copy of: Child Survival: A Sixth Report to Congress on the USAID Program.

This year's report is of special significance. Last September, the World Summit for Children was held at the United Nations in New York City. At this historic summit, President George Bush and seventy world leaders gathered together to voice their commitment to the health and well-being of the world's children. At the summit, President Bush announced that he was sending A.I.D. Administrator Ronald W. Roskens and Secretary of Health and Human Services Louis Sullivan to Africa to see what else the United States could do to advance child survival in the developing world. This mission was carried out last January.

The report documents the achievements of the child survival program over the past five years. The program is one of the most successful endeavors ever supported by A.I.D.. We are helping to save the lives of millions of infants and children each year in the developing world--and improving the health of millions more. This is being done through immunizations and oral rehydration therapy and interventions that promote breastfeeding, growth monitoring, birth spacing and the early detection and treatment of acute respiratory infection.

These achievements would not have been possible without the many participants in the global partnership for child survival. These include the developing nations, cooperating agencies, private voluntary organizations, international agencies, universities, research institutes and many other groups working toward this common goal.

As President Bush noted at the World Summit for Children--and as Secretary Sullivan and Dr. Roskens observed in Africa--we still have far to go. Fourteen million children still die each year in the developing world of diseases and conditions that, for the most part, can be prevented.

While we can all feel great pride in our accomplishments, we must continue to work together for the survival of the children of the developing world.

We look forward to your continued commitment to this global effort.

Sincerely,

Ann Van Dusen

Ann Van Dusen, Ph.D.^{MP}
Acting Agency Director
for Health,
Office of Health

Enclosure: a/s

CHILD SURVIVAL 1985-1990
A SIXTH REPORT TO CONGRESS ON THE USAID PROGRAM



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THE WHITE HOUSE

WASHINGTON

September 30, 1990

To the World Summit for Children:

No moment in our lifetime has been more opportune for a World Summit for Children. Never has our capacity to come together appeared so great. We come as leaders of the majority of the nations of the globe and as representatives of the nearly three billion children of the world. Let a new chapter begin, a time of unity and hope for a better future for the world's children.

I am proud to reaffirm the commitment of the United States of America to the survival, protection, and development of the children of the world. And I would urge that we, as national leaders, continue to work together to build upon the recent unprecedented successes we have achieved in the areas of child health, nutrition, and education. Through improved nutrition and safer drinking water, millions more children will be able to lead healthy lives. Expanding the scope of oral rehydration therapy will avert needless deaths. By vaccinating against, containing, and eradicating infectious disease, we can rescue thousands a day and millions over the years.

There is much more to be done, and much that we can do together. The United States is proud of its leadership around the world on behalf of children.

We must begin with parents. While science and its application can ensure the survival of children, their nurturing and development depend on the work of parents. We must seek to empower parents so they can be effective advocates and allies for their children.

Then there is what I have spoken of as a thousand points of light -- the commitment of countless individuals and social, cultural, and religious organizations to the well-being of children. I think of the commitment of charitable organizations working around the clock to ensure child survival and development; international private voluntary organizations willing to provide whatever quantity of vaccine is necessary to eradicate polio worldwide; and dedicated individuals and religious groups struggling to care for HIV-infected and drug-exposed babies. The light from these individuals and organizations brightens the future of all children.

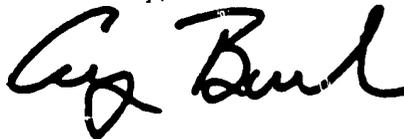
I think also of universities eager to put their research efforts into fighting the problems of poverty, illiteracy, and disease more effectively; of industries willing to develop products and dedicate profits to address the problems of people unable to obtain needed medicines or vaccines for themselves or their children; and of scientists devoted to applying their inspiration to the betterment of mankind.

In addition to ensuring children's survival, we must enable every child to learn. Education has always been the key to opening doors of opportunity. The growth of democracy demands educated populations. As world leaders, we must work to provide every child with the opportunity for an education. We must act on the valuable work of the World Conference on Education for All.

As this chapter unfolds, we as world leaders bear the responsibility for leading our nations to ensure the well-being of those who are least represented, our children. In them, we invest the sum of all our hopes and dreams for the future.

May God bless them all.

Sincerely,



FOREWORD
LETTER FROM THE ADMINISTRATOR



In September 1990, the leaders of 70 countries gathered at the World Summit for Children, held at the United Nations, to take stock of the status of the world's children and to set a course for fulfilling their vision of child survival. Leader after leader linked the health and well-being of children with the well-being of nations. Out of this unprecedented gathering came global commitment "to give high priority to the rights of children, to their survival and to their protection and development." As President Bush stated when he addressed the assembled leaders, "let us affirm, in this historic summit, that these children can be saved. They can be saved when we live up to our responsibilities, not just as an assembly of governments, but as a world community of adults, of parents."

This report documents what the world community has achieved in the past five years on behalf of the world's children and the part USAID has played in those efforts. We can be proud of what we have accomplished. Infant mortality rates in USAID-assisted countries have decreased overall by 10 percent over the past five years and by as much as 15 to 52 percent in countries with especially strong programs. Forty-two USAID-assisted countries have attained 80 percent immunization coverage for the third dose of diphtheria, pertussis and tetanus vaccine, including Egypt, Pakistan, the Philippines, and Swaziland. Simple, low-cost, oral rehydration therapy, still largely unknown in 1985 as a means of preventing deaths from diarrheal diseases, is now used in over 45 percent of all diarrheal cases in Kenya, Honduras, Egypt, and Lesotho. Family planning services, now more available worldwide, are enabling couples to have smaller, healthier families and to space the birth of their children to the benefit of mother and infant.

We have seen the results of some of these efforts. At the request of President Bush at the Summit, Secretary Sullivan and I visited seven African nations, where we observed firsthand the impact of these focused efforts. In country after country, the ravages of measles and diarrhea are being tamed, and basic health care services are being extended to communities and families that have never before received them. Clearly, child survival as a strategy is working, and all of the many organizations, countries and individuals who have played a part can be proud.

We can be proud, but we must not be complacent. In Africa, we observed what can happen if attention flags, if immunization coverage lags and measles and other preventable diseases reestablish a foothold in communities. I also saw the impact of the challenges of AIDS and malaria, which threaten to undermine past successes.

We have entered a new decade with a renewed commitment to the children of the world. Along with our many partners in many countries - private voluntary organizations, universities, international organizations - USAID is committed to continue this important

program. For children are the very essence of our development mission. Free, productive countries cannot be built when their citizens cannot ensure the survival of their own children. Ensuring the health and well-being of children and their families is an integral part of USAID's strategy for assisting countries to achieve the benefits of economic development over the long term.

Sincerely,

Ronald W. Roskens
May 1991



Vice President of Uganda Samson Kisekka (right) greets Administrator Roskens (left) and Secretary of Health and Human Services Sullivan at the dedication of Medipharm, a new private facility in Uganda that will produce oral rehydration salts.



EXECUTIVE SUMMARY

In 1985, the U.S. Agency for International Development (USAID) launched a major child survival initiative and committed itself to a course of action to bring about a significant reduction in the number of preventable child deaths in the developing world. Specifically, USAID undertook to reduce the infant mortality rate in USAID-assisted countries from the 1985 average of 96 to 75 per 1,000 live births, in large part by

- collaborating in an international effort to extend immunization coverage against the major vaccine-preventable diseases to 80 percent of children in the developing world and

- ensuring use of oral rehydration therapy in 45 percent of diarrheal episodes and making oral rehydration salts available to virtually every child in need of them.

Since 1985, USAID has committed over \$1 billion to its Child Survival program (see Figures 1 and 2) and developed detailed strategies to guide the efforts of field missions working with over 60 host governments to plan and implement child survival activities. It has also mobilized U.S. universities, private voluntary organizations, and scores of other public and private agencies to take part in this historic undertaking. This report details the progress made in increasing child survival between 1985 and 1990 and presents both global accomplishments and USAID's role in bringing those accomplishments about.

In the five years since USAID's Child Survival program was officially launched, significant gains have been made in enhancing the survival and health status of infants and children in the developing world. Foremost among the gains in USAID-assisted countries have been the following:

- Infant mortality rates declined by 10 percent. In six countries with particularly strong programs, the percentage decline ranged from 15 to 52 percent.

- Vaccination coverage for the full DPT series (three shots for diphtheria, pertussis, and tetanus) rose from 40 to 72 percent and continues to increase. Forty-two countries achieved coverage levels of 80 percent or better and another 10 countries had coverage rates that were between 70 and 80 percent.

- Vaccination coverage for measles increased from 24 to 71 percent.

- The use of oral rehydration therapy for the treatment of diarrhea rose from 20 to 33 percent.

Throughout the developing world, USAID, working in partnership with the World Health Organization, the United Nations Children's Fund, and many other partners, and in concert with the governments of developing nations, has helped to bring down infant mortality rates from the 1985

average of 96 to 86 per 1,000 live births in 1990. The World Health Organization estimates that immunization programs now avert 2.6 million child deaths in developing countries each year from measles, pertussis, neonatal tetanus, and polio. The use of oral rehydration therapy against dehydrating diarrhea is estimated to save the lives of over 1 million children every year. Since 1985, the proportion of the population with access to oral rehydration salts has climbed from about 35 percent to 63 percent.

In addition to the twin engines of child survival – immunization and oral rehydration therapy to control deaths due to diarrheal disease – USAID has developed and implemented an array of programs that attack the root causes of much of the child morbidity and mortality in the developing world. In particular, USAID has fielded programs that are working to –

- promote child spacing and other measures to reduce the number of high risk births;

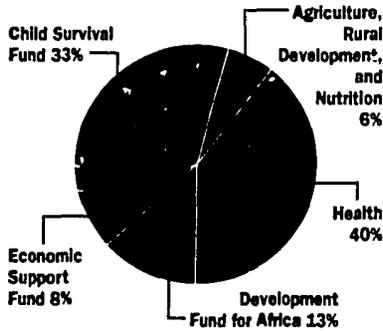
- improve child nutrition through the promotion of breastfeeding, better weaning practices, vitamin A supplementation, and growth monitoring;

- improve maternal health and nutrition; and

- increase the availability of local health services for the prevention and treatment of acute lower respiratory infections and malaria.

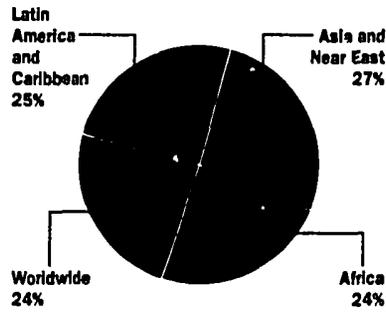
1 USAID FUNDING BY ACCOUNT

Total funding for child survival
FY 85 through FY 90: \$1,031,881,000

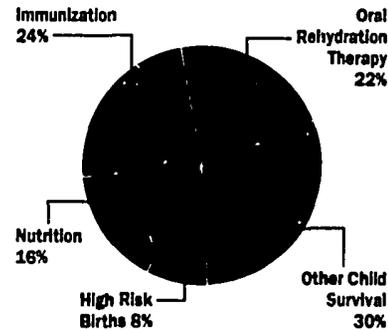


2 USAID FUNDING BREAKDOWNS

Total funding by regional distribution
FY 85 through FY 90



Total funding by intervention
FY 85 through FY 90



Underlying all USAID child survival programs are a number of key program strategies that are essential to achieving a lasting effect:

- focus on a few relatively simple, proven technologies;
- concentrate on countries with high infant and child mortality rates and in which the greatest impact can be made;
- collaborate with other donors and agencies, such as the World Health Organization, the United Nations Children's Fund, universities, and host country institutions;
- mobilize and work closely with the private sector, both private voluntary organizations and for-profit organizations;

- provide technical assistance to field programs;
- promote the development of sustainable services;
- increase program effectiveness through problem-solving applied research; and
- monitor, evaluate, and refine program services.

As detailed in the following pages, many of the causes of child morbidity and mortality are amenable to low-cost, relatively simple and proven preventive and curative measures. Since 1985, USAID and its partners in the global effort to increase child survival have made significant progress in making those measures available in more and more communities throughout the developing world.

This report describes what has been accomplished by this unprecedented global coalition as well as some of the challenges that remain. The experience of the past five years will provide valuable guidance on how to accomplish the tasks ahead. A major challenge will be sustaining these achievements in the coming years – experience has already shown that accomplishments not maintained with vigilance can slip away. The final section of this report summarizes the lessons from the past that are helping to chart USAID's child survival course for the 1990s.

TRENDS

INFANT AND CHILD MORTALITY

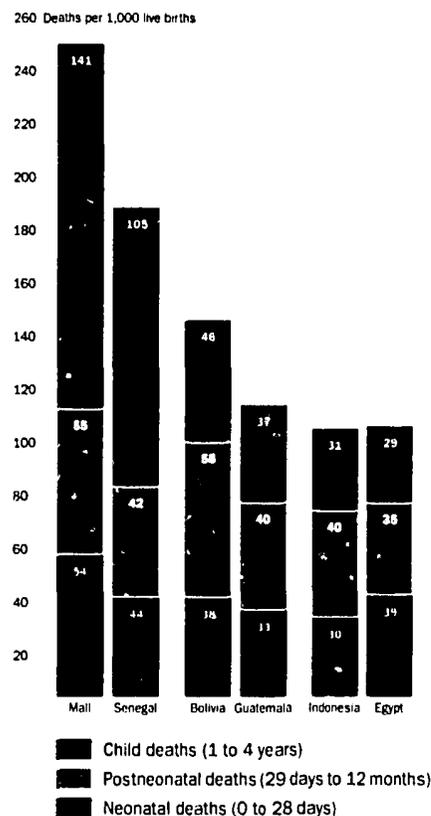
■ **Significant reductions in infant and child mortality rates were achieved during the 1980s.** At the beginning of the decade, the infant mortality rate (deaths at 0 through 11 months per 1,000 live births) stood at 106 in developing countries. By 1985, the rate had declined to 94, and by 1990, infant mortality had fallen to 84 deaths per 1,000 live births. Similar declines were seen in under-five mortality rates (deaths from birth through five years of age per 1,000 live births), which fell from 167 in 1980, to 149 in 1985, to 134 in 1990.

■ **In developing countries the period of infancy and early childhood is one of extreme vulnerability – to conditions surrounding birth, communicable diseases, lack of adequate nourishment, and a myriad of other threats to growth and development.** While infants and children in developing countries account for one of every ten persons globally, nearly one of every three deaths occurs in this group. Declines in infant and child mortality rates over time are important indicators of progress in increasing the survival chances of the very young. Infant and child mortality rates are also viewed as indicative of a country's overall investment in health care and its general level of economic and social development.

■ **Deaths occur during distinct periods of infancy and childhood and with somewhat different causes** (Figure 3). Despite overall progress in reducing infant mortality, deaths during the first 28 days (the neonatal period) have not declined as rapidly. Indeed, data show that as infant mortality declines overall, neonatal mortality accounts for a larger portion of infant deaths. Neonatal mortality results primarily from low birth weight due to prematurity and poor maternal nutrition, birth trauma, neonatal tetanus, and maternal infection. If the declines in infant mor-

3 THE AGE OF VULNERABILITY

Infant and child deaths in developing countries occur at distinct periods.



tality achieved in the 1980s are to continue, attention must be turned to the causes of neonatal death. Many of the interventions required to reduce neonatal deaths are at hand – improved maternal health and nutrition, maternal immunization with tetanus toxoid vaccine, increased access to prenatal care and safe delivery, and the promotion of breastfeeding – what awaits is their large-scale application.

■ Most postneonatal mortality (deaths occurring from day 29 to the end of the first year) and child mortality are due to a relatively small set of largely prevent-

able causes: dehydration brought on by diarrheal diseases, measles, pertussis, diphtheria, and pneumonia and other acute respiratory infections. Because the preventive and curative health services offered through child survival programs usually address the conditions leading to death in later infancy and childhood, the greatest progress has been made in reducing postneonatal and child mortality.

■ **The decline in infant and child mortality rates throughout the 1980s was sharper in some regions than in others.**

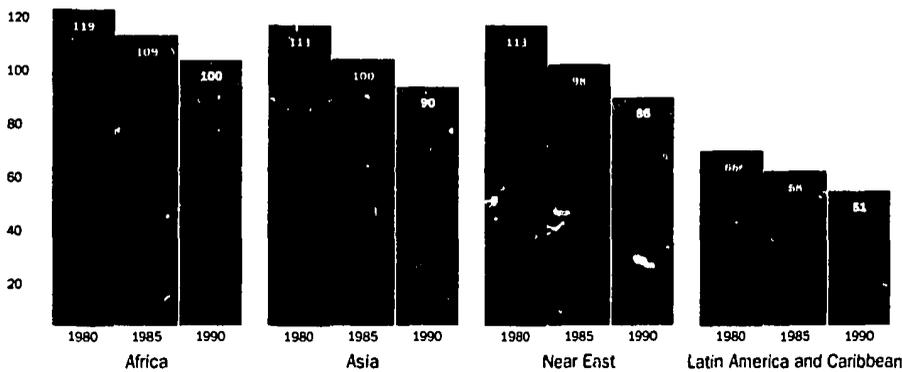
Among some 80 countries receiving USAID assistance during the 1980s, progress was slowest in Africa, where infant mortality declined by 16 percent (Figure 4). At current levels, deaths among African infants will account for a greater and greater share of infant deaths worldwide in the coming decades. The greatest progress in reducing infant mortality was achieved in the Near East region (24 percent reduction) and in Latin America and the Caribbean (23 percent). A somewhat lower rate of reduction was achieved in Asia (20 percent). The decline in under-five mortality rates was of similar magnitude, ranging from a 17 percent decline in Africa to a 21 percent reduction in Latin America and the Caribbean, to 22 percent reductions in both Asia and the Near East. Regional variations in mortality rates are a reflection in part of differences in the factors that set the stage for lasting health improvements – food supplies and distribution networks, health services, basic transportation, communication technologies, female literacy, strength of the economy, and distribution of the benefits of economic growth.

■ **Aggregate data are useful in reviewing regional trends in infant and child mortality, but they can mask considerable variation within the region.** For example, in Africa, Kenya's infant mortality rate fell by almost 11 percent from

4 LEVELS AND TRENDS

Variations in infant mortality rates from region to region reflect differences in factors that set the stage for lasting health improvements.

140 Deaths per 1,000 live births



1985 to 1990, but Mali's fell by only half that much (6 percent). Similarly, national-level data indicate the direction and pace of change, but they can obscure considerable intracountry differences. Within a country, a number of factors can lead to varying infant and child mortality rates. Environmental conditions, the level of health and other services available in different regions and in rural versus peri-urban and urban areas, differences in child-rearing practices among ethnic groups, and differences in income levels and in mother's and father's level of education – these and other socioeconomic factors contribute to varying infant and child mortality rates within a country and often result in “pockets” of heightened mortality risk. As an example, under-five mortality in rural areas of Indonesia during 1977-1987 was almost 60 percent (124 versus 78) higher than in urban areas. And compared with children born to Indonesian mothers with no formal education, child survival increased by 12 percent (142 versus 127) if the mother had some

primary school education, and by 60 percent (142 versus 84) if she completed primary school. Similar patterns are found throughout the developing world.

■ **Countries and even areas within countries also have distinct disease profiles.** Depending on a country's situation, the complications of diarrheal disease, acute respiratory infections, or malaria may claim the single largest number of young lives. Moreover, disease profiles change as programs effectively intervene against specific killers. In the early 1980s in Egypt, for example, diarrheal diseases were the leading cause of under-five mortality. A national program promoting oral rehydration therapy (ORT) was instituted, and ORT use spread rapidly throughout the country. As deaths due to the dehydration caused by diarrhea have plummeted, recent data indicate that acute respiratory infections account for an increased share of under-five mortality, and the process of designing and implementing programs that focus on this threat to child survival has begun. Thus, with success comes renewed challenge.

USAID'S ROLE

USAID's Child Survival program focuses on countries where mortality rates are very high, the government is committing its own resources to child health, USAID has a sizable presence, and opportunities exist for working with other donors. In 1985, USAID designated 22 such countries, which together accounted for two-thirds of infant mortality worldwide, as “emphasis” countries (see fact sheets beginning on page 42). USAID has also supported child survival activities in at least 40 other countries since 1985.

Focusing on countries where the greatest impact can be achieved has led to major child survival gains. Although other factors and donors played important roles, since 1985 of six USAID-assisted countries that have met USAID's target of reducing infant mortality rates to 75, five are emphasis countries: Egypt (43), Honduras (63), Kenya (68), Indonesia (70), and Morocco (75). Other emphasis countries – such as Peru (92) and Senegal (83) – are near the target.

Many countries started the five-year period with an infant mortality rate that far exceeded that of other countries, and health infrastructure that reached limited portions of the population. In such countries, USAID often helps expand the health care infrastructure so that it can extend service delivery to unreached populations.

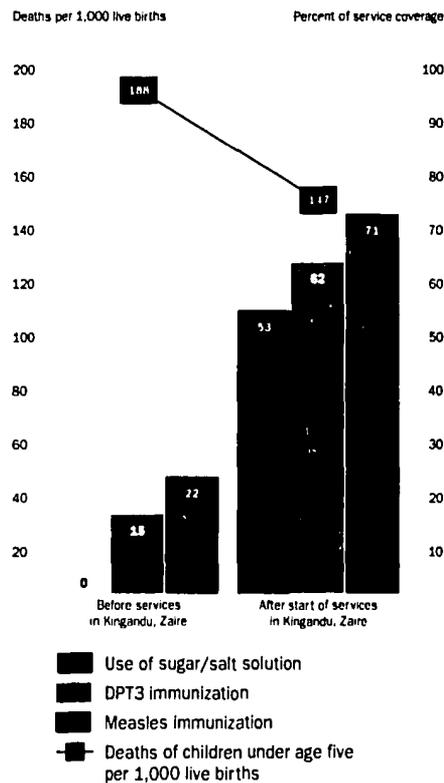
USAID's support includes developing in-country capacity to measure the impact of programs. In 35 countries, Demographic and Health Surveys have generated valuable information for program planning, monitoring, and evaluation. In nine countries of sub-Saharan Africa, the Africa Child Survival Initiative—Combatting Childhood Communicable Diseases project supports the development of health information and epidemiologic surveillance systems. And in Bangladesh, Honduras, Pakistan, and elsewhere, USAID works to monitor program progress through research, surveys, and strengthening of information systems.

■ **Hard data are accumulating on the impact that child survival programs are having on infant and child mortality.** Child survival interventions, such as measles immunization, are known to be effective in clinical settings. Demonstrating that a child survival program was the direct cause of some or all of the child mortality declines in a particular place is a more difficult task. Many factors work in combination to influence mortality rates. Child survival interventions are often multipurpose and take place simultaneously with other changes, including government- and donor-supported programs in health and other sectors. Isolating the effect of a particular factor would require the type of controlled clinical study that is seldom possible in the field and that might not be ethical with human subjects. However, data from a number of field programs are establishing the links between child survival programs and mortality reduction.

■ **Field surveys that compare area-specific changes in service usage and mortality rates provide evidence of the association between dramatic increases in the use of health services and reductions in mortality.** As an example, data from surveys conducted in Kingandu, Zaire, show how the use of health services increased following the initiation of the joint, multi-donor Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD) program in 1984 (Figure 5). Five years later, immunization coverage had increased from 22 to 71 percent for measles, and coverage for DPT3 (diphtheria, pertussis, tetanus) had climbed from 15 to 62 percent. Use of sugar and salt solutions for diarrhea increased from 0 to 53 percent. Concur-

5 CHILD SURVIVAL IN ZAIRE

Child mortality and the use of health services, 1984 and 1989.



rent with the gains in service coverage, under-five mortality in the area fell by 22 percent. Moreover, the large increases in service coverage stopped the persistent pattern of biannual measles epidemics, which most likely accounted for much of the reduction in child mortality.

■ **Data on declines in child mortality in rural areas of Menoufia, a governorate in lower Egypt, also point to program impact.** The Child Survival in Rural Egypt Survey found evidence that under-five mortality declined by over 75

percent between the mid-1970s and 1990. Under-five mortality fell in the late 1970s, remained constant until 1985, and then declined rapidly from 1985 to 1990 (Figure 6). The rapid decline of the late 1980s coincided with the implementation of a program emphasizing the use of oral rehydration therapy (ORT) as part of the National Control of Diarrheal Disease Program. The age pattern of the decline also points to possible program effects. Both infant mortality and child mortality declined, but the reduction for children, among whom one would expect to see the greatest impact of oral rehydration therapy, was substantially greater than the decline for infants. These trends in mortality cannot be taken as direct evidence of an impact of ORT on child survival, but they provide further evidence that the national program promoting the use of ORT has contributed to the observed mortality decline.

■ **A program to immunize nine-month-old children in Matlab, Bangladesh, against measles demonstrates both the long-term and synergistic effects of this child survival intervention.**

Baseline mortality rates were quite similar throughout Matlab when the program began in 1982, but by 1986 vaccinated children had a 42 percent greater chance of surviving to the 21st month after the vaccination, and a 40 percent greater chance of surviving to the 42nd month (Figure 7). The increased survival of vaccinated children applied to death from all causes, not just measles. These results provide evidence that child mortality is being averted, not merely postponed to

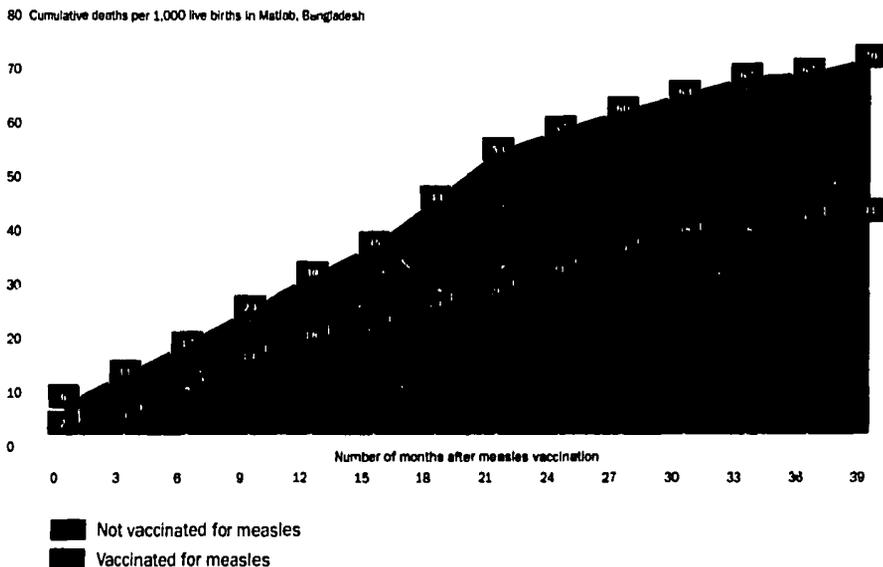
6 CHILD SURVIVAL IN EGYPT

Under-five mortality in the rural villages of Menoufia governorate has been falling, particularly since 1984-85, coinciding with nationwide implementation of the ORT program.



7 CHILD SURVIVAL IN BANGLADESH

A single intervention can have a broad impact; as shown here, the risk of death differs by measles vaccination status.



a later age. They also demonstrate that basic health interventions can have beneficial effects that far exceed their specific focus. Studies of antimalarial campaigns in Africa provide similarly strong support for a link between reductions in deaths from malaria and reductions in deaths from other causes as well.

■ It is widely believed that the results reported above are generalizable to a large number of countries. Although local disease profiles, socioeconomic conditions, and health infrastructures may vary widely, offering child survival interventions through strengthened health care systems is a formula that is working and that has been adopted and adapted from one country to the next.

■ Despite the economic slowdown of the 1980s in developing countries, child survival does not seem to have been unduly affected. Although it is too soon to be able to assess the situation with certainty, leading researchers on trends in child mortality found that in Latin America and Africa, the two regions hardest hit by recession, "the pace of child mortality decline does not appear to have slowed between the 1970s and the 1980s." A 1990 World Bank report on poverty also concluded that "the 1980's . . . did not, in fact, reverse the overall trend of progress." This is not to say that child survival programs have been completely unaffected by structural adjustment policies and the competition for scarce resources. But as the World Bank report noted, "within an overall framework of fiscal discipline," a country can still ensure that public expenditures provide a safety net for those who need basic services the most.



IMMUNIZATION PROGRESS AND IMPACT

■ **The international collaboration to achieve universal immunization against vaccine-preventable childhood diseases is a major child survival success story.**

Remarkable strides have been made in increasing immunization coverage since the international child survival community took up the fight against the six vaccine preventable diseases that are major killers and disablers of infants and children: measles, diphtheria, pertussis (whooping cough), tetanus, polio, and tuberculosis. With worldwide vaccination coverage at over 70 percent, goals that seemed quite distant a few short years ago are now within reach.

■ **The internationally adopted target of 80 percent immunization coverage by 1990 has been achieved or is in sight in many developing countries.**

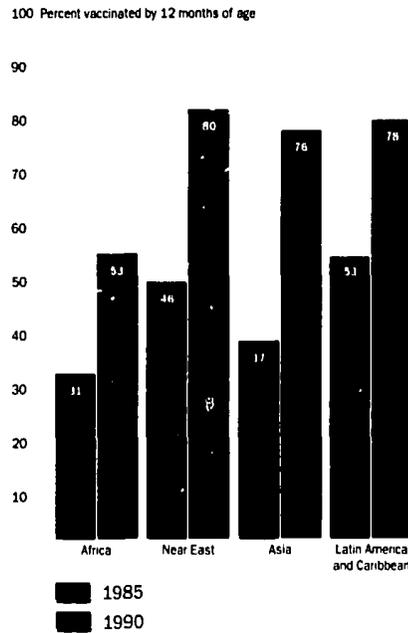
Although it was recognized at the outset that not all countries could achieve the target by 1990, setting the target helped to galvanize national governments and health care services, and many countries are working steadfastly toward the target. To date, over 316 million children in the developing world have been reached by internationally supported immunization programs since 1985. Coverage for the third dose of the DPT vaccine (diphtheria, pertussis, tetanus) is one indication of the progress that has been achieved (Figure 8). The DPT3 vaccine is often used as a proxy for full immunization because children must have had three health service contacts to be fully covered against DPT.

■ **Although the progress that has been made is impressive, it is still fragile.**

Recognizing the need to sustain the progress made to date by providing vaccinations to each new cohort of children, the leaders who met at the September 1990 World Summit for Children adopted new immunization goals for the year 2000 –

8 PROGRESS IN ALL REGIONS

Five years of effort have increased DPT3 coverage rates significantly.



maintaining high vaccination coverage levels and increasing global coverage to 85 percent of all children under one year of age. This renewed commitment sets the stage for the efforts that will be needed to sustain and extend the progress of the 1980s.

■ **International and national disease surveillance systems, which have been growing in parallel with service delivery systems, are providing significant evidence that reductions in the incidence of disease are following increases in immunization coverage.** In country after country, for example, evidence of the decline in measles cases is being reported as coverage rates climb. In Morocco, the decline in the number

of measles cases as coverage has risen (Figure 9) has been so dramatic – from 11,500 in 1984 to 2,300 in 1989 – the Ministry of Public Health is considering in-service training to ensure that health workers will be able to recognize a measles case if they encounter it.

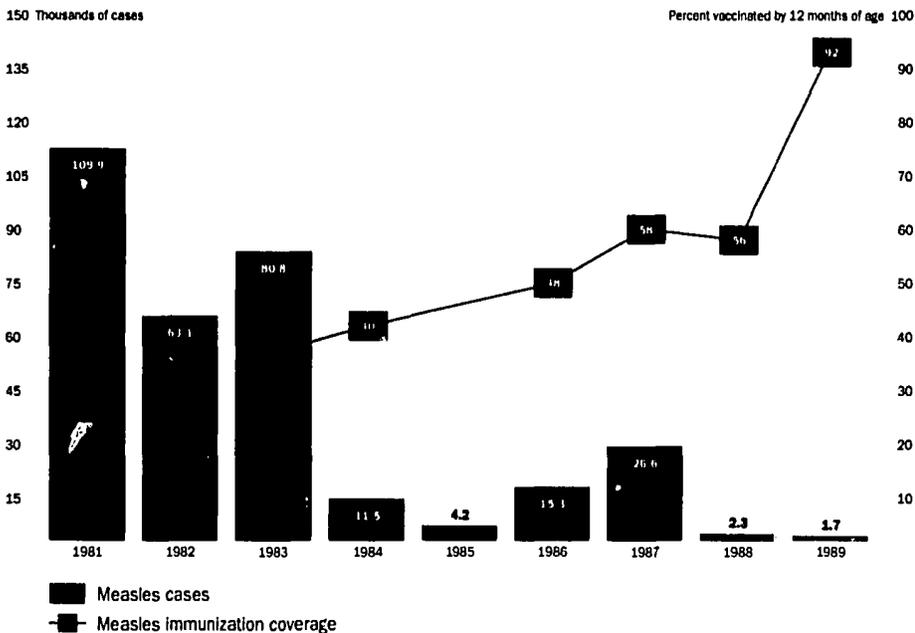
■ **Evidence of the near elimination of a disease following a sustained increase in vaccination coverage comes from the polio eradication program in Latin America and the Caribbean.**

Implemented through the Pan America Health Organization and supported by USAID and other donors, the program has not only sustained the high levels of polio vaccination throughout the region but increased it from 76 percent in 1984 to 87 percent in 1990. During the same period, the number of confirmed polio cases declined from 590 to 14 (Figure 10). Less than 1 percent of the 14,372 counties in the region are now considered to be areas of risk for polio. Once the transmission of polio is stopped, the organism causing the disease disappears. Thus, both current and future cohorts of children in the region will be polio free if no cases are imported from other regions. The success of the polio eradication program in Latin America and the Caribbean has led to the development of similar programs in other regions and to the adoption of a measles elimination goal in the English-speaking Caribbean. The world has already witnessed the eradication of one disease in the twentieth century – smallpox – and with concerted effort polio may be added to that list.

■ **The ultimate aim of immunization programs, of course, is to prevent both disease and the deaths of infants and children that result from it.** As noted earlier, it is difficult to isolate the impact of a single factor on mortality. However, in Bangladesh, Guinea-Bissau, Haiti,

9 IMPACT ON MEASLES

The impact of increased coverage is shown in Morocco where measles cases have declined while coverage rates have climbed.



Morocco, Senegal, and Zaire, among other countries, data confirm the powerful impact of measles immunization on child mortality. As an example, in Cité Soliel, an urban slum of Port-au-Prince, Haiti, children who were vaccinated against measles died at only one-quarter the rate of unvaccinated children of similar background during the next two and one-half years. Only 3 of the 235 infants (1.3 percent) vaccinated at nine months died (of any cause) during the period compared with 70 (6.6 percent) of the 1,056 unvaccinated infants. The same study found that measles vaccination had its greatest impact in "high-risk families" (e.g., families of low socioeconomic status and/or with closely spaced children),

where an infant's chances of survival rose from 68 to 93 percent on the basis of measles vaccination alone.

■ **The World Health Organization estimates that global immunization efforts now avert 2.6 million child deaths in developing countries annually from measles (1.65 million), pertussis (515,000), and neonatal tetanus (445,000), as well as 409,000 cases of polio.** Unfortunately, for every death averted, an additional child is lost to measles, pertussis, or tetanus and another child is left permanently disabled by a vaccine-preventable disease. The double challenge of the decade ahead will be to sustain the progress of the 1980s while making every effort to extend the benefits of immunization to the infants not being reached.

USAID'S ROLE

USAID has played an important part in the global effort to expand immunization coverage. Since 1985, USAID has provided \$246 million in assistance to at least 64 countries to reduce deaths due to vaccine-preventable diseases and help build systems to sustain programs and their impact.

As of 1990, 42 USAID-assisted countries have attained 80 percent immunization coverage for DPT3, including Egypt, Pakistan, the Philippines, and Swaziland. Other USAID-assisted countries achieved large increases in coverage from 1985 to 1990: In Bangladesh, coverage for measles and polio rose from about 3 percent to 54 and 62 percent, respectively. Sudan achieved more than a 6-fold increase in BCG, DPT3, and polio coverage and over a 10-fold increase in measles coverage. And in Guatemala, coverage for DPT3, measles, and polio rose from 21-23 percent to 64-72 percent.

In many countries, maintaining the systems that produced such advances will require continued technical and other support for several years. Thus, sustainability is a USAID priority. As a lead donor in Indonesia's Expanded Immunization Program (EPI), USAID has helped to build a program with good indications of sustainability, including strong government funding. In Indonesia, 80 percent of all child immunizations are delivered through community health rally posts—a system only possible with sufficient personnel, training, and cold chain support. Continued progress toward sustainability will require attention to better program management, including quality of care, communication and demand generation, and program monitoring.

With technical assistance from the REACH project, the Centers for Disease Control, HEALTHCOM, and others, immunization programs have bolstered health systems overall. With REACH assistance, nine countries, including Indonesia and Kenya, have set up EPI information systems, thereby increasing program managers' access to immunization data for program planning and evaluation.

■ **Over the past decade, immunization strategies have been continually refined on the basis of experience.**

The decade began with debates about the most desirable approach, but there is now broad consensus that no single strategy can meet the needs of all countries. The appropriate strategy, or mix of strategies, for a country depends on such factors as its disease profile, resources, immunization coverage patterns, social and political infrastructure, and population distribution.

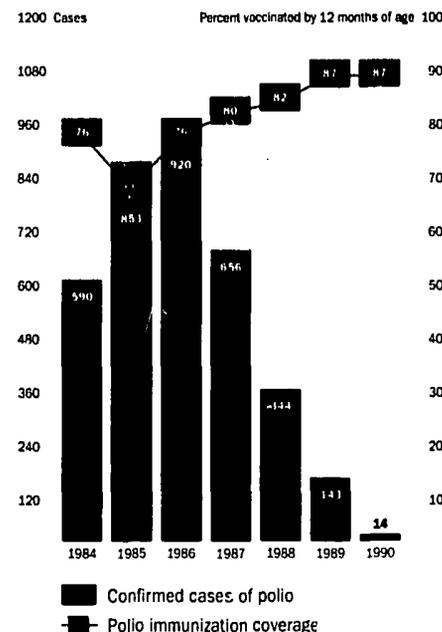
■ **Mass campaigns, such as national vaccination days, have proven to be an effective means of reaching a great many children in a very short period of time.** Countries that had very low coverage rates or were facing an outbreak of vaccine-preventable disease have found that campaigns are a good way to boost coverage rates rapidly. But countries have also learned that the preparation time, logistical arrangements, and energy required for fielding mass campaigns are hard to sustain and limit their usefulness as an ongoing strategy. Further, if the infrastructure for providing continued coverage is not in place when the campaign is over, coverage rates will soon begin to drop as new cohorts of children are born.

■ **To sustain coverage, most programs focus on service delivery from fixed sites, most often a health facility.** To reach distant communities, outreach efforts from the fixed sites are undertaken, such as door-to-door service delivery, use of mobile vaccination teams, and holding community vaccination days.

■ **As immunization programs have matured, they have had to develop strategies to overcome two common obstacles to expanding coverage: dropouts and missed opportunities.** "Dropouts" – those who receive some but not all of the full schedule of shots

10 ERADICATING POLIO

Closing in on polio in Latin America and Caribbean through a targeted program.



recommended by health authorities – present a formidable challenge to immunization programs. The standard vaccination schedule requires five health service contacts: one for tuberculosis (given at birth), three for DPT and polio (usually given together and at four-week intervals), and one for measles (at about nine months of age). To protect infants from neonatal tetanus, women of childbearing age must receive at least two doses of tetanus toxoid and up to five for life-long protection. As might be expected, dropout rates are generally higher where program coverage is low. Data from sub-Saharan Africa, for example, show that countries with the highest coverage rates for DPT1 had dropout rates of about 10 percent for

DPT3 (Figure 11). Countries with the lowest DPT1 rates, however, had dropout rates of 67 to 78 percent.

■ **Studies in Bangladesh, Haiti, Honduras, Indonesia, and elsewhere provide insights into the reasons behind dropouts – some of which have to do with the failure of programs to communicate effectively with mothers.** Mothers are often not told when to return for the next shot or about the normal reactions children have to some shots. In addition, they may not have the time for repeat visits or for the long lines that often form at health facilities.

■ **"Missed opportunities" – contacts with a service provider that do not result in the vaccination of an eligible child or adult – reflect underlying program inefficiencies.** Many factors account for missed opportunities, including overcrowded health facilities, mistaken beliefs about not vaccinating a sick child, and health workers' failing to check vaccination cards or being unwilling to open a new, multidose vaccine vial to give only one or a few vaccinations.

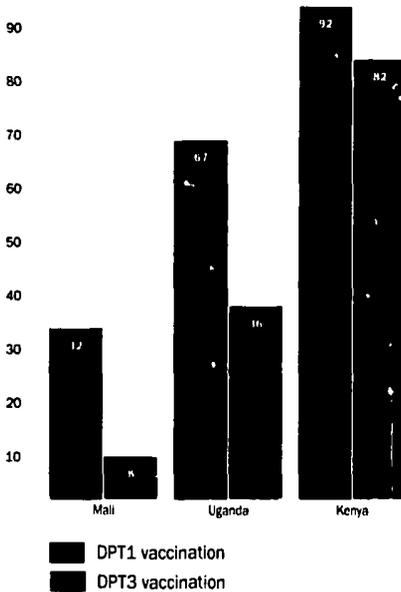
■ **Dropouts and missed opportunities are part of the larger challenge of providing quality care.** The provision of effective immunization services depends on such factors as maintaining the cold chain that ensures that vaccines remain viable; having an adequate stock of vaccines, needles, and syringes; adhering to sterilization procedures; providing counseling for parents; and keeping immunization records up to date.

■ **Operations research on immunization practices indicates that many shortcomings in service delivery are correctable through training, strengthened supervision, and communication.** For example, training can improve supervisors' ability to identify and resolve performance problems. And training can

11. EFFICIENCY THREATENED

Dropout rates reflect the stage of program evolution.

100 Percent of children 12 to 23 months of age



improve health workers' recordkeeping and client follow-up. In addition, programs have made use of feedback tools to relate measures of program success to field staff. Simple, straightforward feedback to staff through such means as monthly bulletins can be an effective way to motivate staff to improve performance.

■ **Communication programs are also a proven means of overcoming the lack of information, misperceptions, fears, and cultural beliefs that can hinder progress in expanding immunization coverage.** In the Philippines, for example, immunizations for measles increased from 21 to 45 percent in Manila during a five-month public information campaign. Two simple messages were directed at parents of young children: measles can

kill; get your child vaccinated at the health center. Other communication efforts take the form of highly focused campaigns aimed at making contact with and educating hard-to-reach groups.

■ **Sustaining and building on the rapid gains in immunization that have been achieved will require concerted effort on the part of national governments, health care providers, and international donors.** The achievement of the polio eradication effort in Latin America is an example of what is possible through sustained effort (Figure 10). Although dramatic success has been achieved in particular countries or with particular diseases, immunization coverage in other countries is still low. Major attention in those countries will have to be given to strengthening service delivery capabilities and generating consumer demand through communication programs, particularly among hard-to-reach groups in urban and remote rural areas.

■ **Steps are being taken in many countries to ensure program sustainability.** Among them are in-service training for health care providers, integration of immunization services within broader health care programs, and local production of vaccines to save scarce foreign currency and reduce dependence on donors. Moreover, the capabilities being developed to improve vaccination service delivery – program evaluation, logistics management, supervisory systems, information systems – are serving as the building blocks for other health care interventions. And as countries begin to institutionalize their immunization programs within the overall health care delivery system, the assets of those programs – most of all the trained cadres of workers armed with the knowledge that child survival can be achieved – will strengthen their health care delivery system overall.

USAID'S ROLE

Coverage rates for measles vaccinations, the last in the childhood series, lag behind those for other antigens. Recognizing this and that measles vaccination is associated with significant declines in overall child mortality in developing countries, USAID has joined the global initiative to reduce measles deaths by 95 percent by 1995. Over the next five years, USAID will commit \$50 million to increase measles coverage through improved training of health workers and managers, communication campaigns, and practical, applied research. In Bangladesh, Haiti, Nepal, Nigeria, Senegal, and elsewhere, USAID-supported resident advisors will help improve measles surveillance and service delivery and design communication programs to bolster measles coverage. Private voluntary organizations receiving USAID child survival grants have already made measles vaccination a priority in their programs.

Operations research and evaluation have been valuable tools in developing strategies and activities for USAID-assisted immunization programs. Studies of missed opportunities conducted by the ACSI-CCCD project in the Central African Republic, Guinea, Togo, and Zaire have led to steps to increase the timeliness and completeness of vaccination sessions. Studies in Bangladesh and Indonesia have provided a clearer understanding of the factors that make urban and peri-urban populations hard to reach with immunization services. And in Kinshasa, Zaire, ACSI-CCCD operational research on measles in children under nine months of age (prior to the age for routine vaccination) led to a demonstration trial of the Edmonston-Zagreb (E-Z) vaccine, a measles vaccine that can be given at six months of age. As a result of the research, trial administration of the E-Z vaccine at six months is under way in Kinshasa.

■ **In 1980, an enormous gap existed between the vaccines that were available and those that were being delivered to the children of the developing world.** Since then, the global commitment to child survival has significantly narrowed that gap. Simply sustaining the accomplishments of the immunization programs of the past decade, however, will be a challenge that will require concerted attention to ensuring the financing and long-term commitment for those programs.

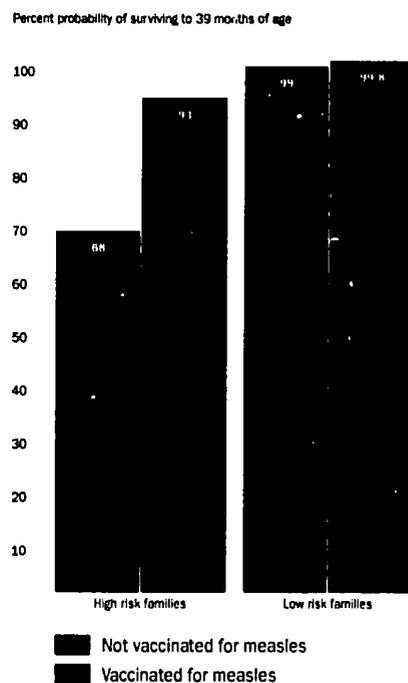
■ **Despite progress in closing the gap, millions of children are still unreached by current efforts.** Among them are the children who are the poorest and the most remote. Data from Demographic and Health Surveys in 23 countries show that children who are most likely to go without lifesaving vaccinations are the ones who are living in rural areas, are born to mothers without education or under 20 years of age, or are the sixth or later child born to the mother. As noted earlier, however, a study in Haiti found that it was high risk families who benefitted the most from measles immunization in terms of their child's chances for survival (see Figure 12).

■ **Ironically, coverage with the two vaccines that provide the greatest benefits in terms of saving lives – measles and tetanus toxoid – has lagged other coverage.** To spur the expansion of coverage with these vaccines, the world community has adopted global goals to reduce measles deaths by 95 percent by 1995 and to seek to eliminate neonatal tetanus.

■ **Behind the efforts to accelerate measles vaccination is a growing recognition of the impact of measles.** Measles kills some 1.5 million children in developing countries each year. Further, children who survive the acute disease are at increased risk of dying from other causes,

12 SURVIVAL AND THE POOREST

In Haiti, high risk families benefit the most from measles immunization.



especially diarrhea and pneumonia. As a result, measles is responsible for many more child deaths in developing countries than is apparent from looking at data on just measles mortality. On the positive side, as noted earlier, measles vaccination has a multiplier effect. Studies in Bangladesh, Guinea-Bissau, and Senegal have reported a greater reduction in mortality than would be expected on the basis of decreased measles mortality alone.

■ **Improving the efficiency of current immunization programs will help achieve the 1995 measles goal.** Efforts to eliminate dropouts will be particularly important because the measles vaccine is the

last in the childhood series to be administered, and dropouts generally increase at each stage of the series.

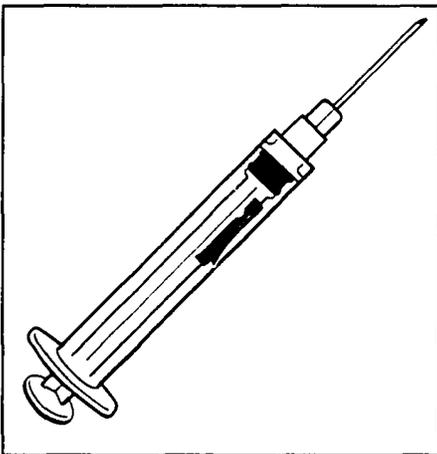
■ **Eliminating neonatal tetanus is a more formidable challenge.** Over 700,000 infants in developing countries die each year from tetanus infections transmitted through unhygienic delivery procedures. Coverage of pregnant women with tetanus toxoid vaccine, which would protect their infants, is the lowest of all child-related immunization coverage, however. Only 29 percent of pregnant women in developing countries are protected by two doses of vaccine. In addition, most women in developing countries are not attended by a trained person at childbirth (see section on maternal health). Progress in reducing neonatal tetanus will require stepped-up efforts to vaccinate girls and women of childbearing age and to ensure hygienic delivery practices.

■ **Given that immunization is now the most widely delivered health service, program planners are looking at ways to use the immunization infrastructure to deliver other child survival interventions.** Vitamin A supplementation is the first intervention being considered for large-scale introduction. Policymakers are assessing what will be needed to deliver vitamin A in conjunction with vaccinations and initiating studies to look at questions about the safety of vitamin A for young infants. Practical considerations, such as developing recordkeeping tools so that children do not receive excessive amounts of vitamin A, are also under study.

■ **Some national programs are also considering adding hepatitis B vaccine to the childhood immunization series.** Hepatitis B is usually acquired at birth or early in childhood, but its most serious effects generally occur when its victims are young adults. Some 250 million people

13 NEW TECHNOLOGIES

The SoloShot™, developed through the collaborative efforts of HealthTech and Becton-Dickinson Co., is a nonreusable syringe designed to prevent the transmission of infection through the reuse of contaminated syringes.



in developing countries are chronic carriers, and an estimated 1 to 2 million chronic hepatitis B carriers die each year from cirrhosis of the liver or liver cancer. Despite the existence of a good vaccine and the delivery capacity, the cost of the vaccine, still about \$3 to \$6 for the required three doses, is preventing many countries from adding it to their immunization series.

■ **With all the progress that has been made in delivering the available technology, program planners are increasingly impatient for improved technologies.** In particular, they are looking to the day when child survival programs will have access to – a simpler, less costly way of maintaining the cold chain; a measles vaccine that can be given to young infants along with the third DPT injection, which would reduce the number of dropouts; a

syringe that would make vaccination easier and safer; and a vaccine to protect children against rotavirus, pneumonia, malaria, and other killer diseases.

■ **Scientists and vaccine producers increasingly agree that significant progress is possible.** The recently announced Children's Vaccine Initiative is meant to capture that spirit. An affordable one-shot vaccine that would provide broad, long-term protection at or soon after birth is a distant dream; improvements in existing vaccines and immunization-related technologies are possible in the near future. Therefore, the Children's Vaccine Initiative will work to accelerate the development of new and improved vaccines that require fewer doses, can be given earlier in life, can be combined in unique ways (thereby reducing the number of visits), are more heat stable, and are effective against diseases not currently targeted by immunization.

■ **Other technological progress is even closer at hand.** The first generation of a nonreusable syringe (see Figure 13) was field-tested in 1990 and not only proved to be safe but also saved health workers' time. Field-testing has also begun on heat-sensitive markers that flag a break in the cold chain due to excessive heat. Markers have been developed that can be attached to individual vials of vaccine to monitor exposure to heat from the point of production to time of use; others are designed to be attached to packages of vaccines while they are in transshipment.

■ **The technological hopes are great.** The experience of a decade shows, however, that technology does not hold all the answers. What has been and will be required is the day-in day-out commitment to the delivery of these vaccines that has been the hallmark of one of the success stories of the twentieth century.

USAID'S ROLE

USAID has long been committed to the search for improved vaccines against diseases affecting children. In 1990, USAID allocated approximately \$15 million for the development and testing of vaccines, including vaccines against malaria and other diseases that contribute to child mortality.

A measles vaccine that protects children before 9 months of age is a high priority; two candidates are currently being field-tested. Through the Vaccine Development and Health Research project, USAID is also testing vaccines against rotavirus, pneumonia, and bacterial meningitis. Through the Malaria Vaccine Research and Development project, USAID is working with universities, U.S. agencies, and international organizations to develop a malaria vaccine. In addition to collaborating with the World Health Organization, the National Institutes of Health, and numerous universities and other organizations both public and private, USAID has specific agreements with Egypt, India, Thailand, and other countries to conduct collaborative research on vaccine development and testing.

In 1990, USAID participated in the technical meetings leading to the announcement of a Children's Vaccine Initiative at the World Summit for Children, and it has requested the Institute of Medicine to identify ways to accelerate the work of the Initiative.

USAID also supports an active program, through the HealthTech project, to develop technology needed to deliver vaccinations. SoloShot™, a nonreusable syringe has been successfully field-tested in Pakistan. A disposable, single-use, pre-filled injection device is soon to be tested with tetanus toxoid in Kenya and possibly in Indonesia. Both devices have been licensed for manufacture. Cold chain improvements are being sought through the development of devices such as the HEATMarker™, a cumulative heat exposure indicator that can be attached to vaccine vials to monitor heat exposure as the vaccines move through transport, storage, and handling.



CONTROL OF DIARRHEAL DISEASE PROGRESS AND IMPACT

■ **Significant progress was made during the 1980s in the treatment of diarrhea, largely a nuisance for adults, but the single largest killer of young children in developing countries.** Within the decade, oral rehydration therapy (ORT) went from being a scientifically recognized but virtually unused treatment to a program of action in over 100 countries. Progress can be reported on many fronts: knowledge and use of ORT have increased, packets of oral rehydration salts (ORS) are widely available, and diarrheal mortality has decreased. Between 1984 and 1989, global use of ORT to treat diarrhea tripled (Figure 14), and access to ORS packets nearly doubled (from about 35 percent to 63 percent). Most significant, an estimated 1 million young lives are being saved each year through this simple and effective treatment.

■ **Each year, some 4 million children die from diarrhea-associated causes.**

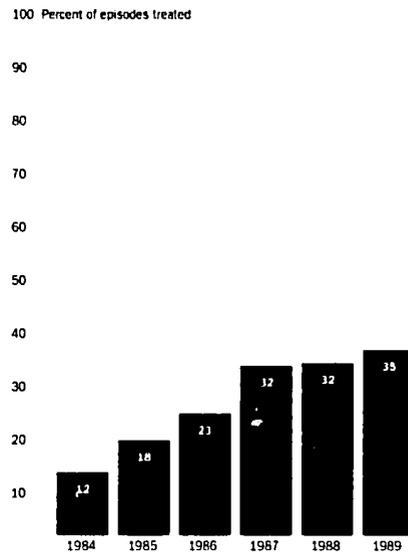
The average child in the developing world suffers three or four bouts of diarrhea (in some countries or areas up to nine) annually. Diarrheal diseases are caused by a wide spectrum of bacteria, viruses, and parasites and are primarily transmitted through unhygienic food handling and contaminated water. Most diarrheal episodes are short in duration. Referred to as acute watery diarrhea, these episodes can lead to dehydration, adverse nutritional effects, and increased vulnerability to other diseases. Persistent diarrhea (lasting more than two weeks), although less common than acute watery diarrhea, is more likely to lead to malnutrition and death.

■ **Oral rehydration therapy is at the heart of the international effort to combat the effects of diarrheal disease.**

Use of this simple, inexpensive, and proven therapy was endorsed by the world

14. GLOBAL PROGRESS

Throughout the decade of the 1980s, use of ORT rose steadily



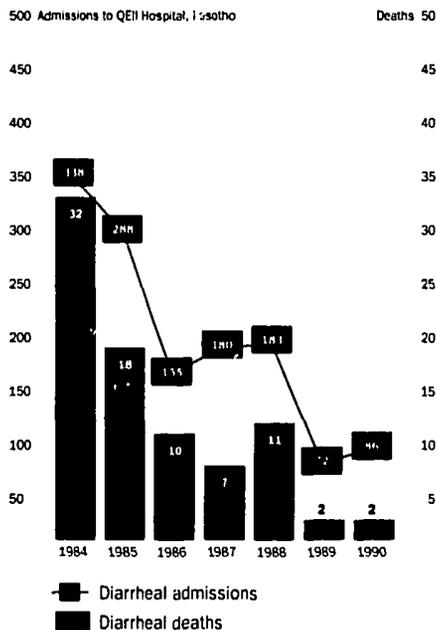
health community in the late 1970s. USAID's strategy for the control of diarrheal disease defines ORT broadly as diarrheal case management. It includes oral rehydration itself, that is, the replacement of lost fluids and electrolytes through administration of adequate amounts of appropriate oral fluids, using either ORS packets, home-prepared sugar and salt solutions (SSS), or other recommended home fluids as well as two important complements: continued feeding, including breastfeeding, during a diarrheal episode and increased feeding after each episode; and timely recognition and immediate referral of serious cases. In 1978, the British medical journal *The Lancet* called the development of ORS "potentially the greatest medical advance this century."

■ **In developing countries, concerted effort on the part of national governments, private groups and international donors has led to some remarkable achievements since 1985.** Although all cases of diarrhea require increased oral fluids and continued feeding, a minority of cases require treatment with a special rehydrating solution. Thus, USAID's program goal for the period was to have 45 percent of diarrheal episodes treated with ORT by 1990. Between 1985 and 1989, Egypt raised its ORT use rate from 50 to 66 percent and has sustained that high level through a broad-based national program. Honduras, Lesotho, and Kenya raised their ORT use rate to over 45 percent during the same period. And in Guatemala, Haiti, and Senegal significant strides were made in expanding ORT use—ranging from a 7- to 14-fold increase between 1985 and 1989.

■ **The global gains in ORT use rates reflect the considerable progress countries are making in improving the marketing, supply, and distribution of ORS packets.** According to the World Health Organization, 64 developing countries are producing ORS packets, and together, they account for over 75 percent of manufactured packets. Significant financial and human resources are also being invested in conducting information and marketing campaigns to increase public awareness of ORT and generate demand for ORS packets and in developing supply and distribution networks that can respond to current and future demand. Innovative distribution plans, coupled with strengthened private sector channels, have contributed to a global ORS access rate of about 63 percent. In country after country, ORS packets are now widely available through health care facilities, pharmacies, shops and markets, and private health care providers (see sidebar).

15 PROVEN IMPACT

Diarrheal admissions and deaths were reduced in a hospital setting.



■ **The experience of Egypt provides perhaps the clearest example of the impact national ORT programs can have on diarrheal mortality.** In 1983, Egypt launched its National Control of Diarrheal Disease Program, a USAID-supported project, which emphasized provision of ORS in public and private facilities, local production of ORS packets, training for public and private sector health care providers, and a national media campaign to stimulate demand. Five years later, the nationwide nondiarrheal mortality rate for infants and children showed little percentage change, but diarrheal mortality among infants had declined by 53 percent, and among children aged one to four, by 47 percent.

■ **Hospital data from Lesotho illustrate the impact of improved diarrhea case management on the severity of diarrheal episodes and on diarrheal mortality.** Since the opening of an outpatient diarrhea treatment unit at a Lesotho hospital in 1986, annual pediatric diarrheal admissions and deaths have fallen considerably (Figure 15). Similar data on the reduction of diarrheal admissions and deaths after the introduction of ORT units come from Indonesia, Malawi, Mexico, Nigeria, and the Philippines. Indeed, the last time such hospital data were compiled by the World Health Organization, diarrheal admissions were down by 61 percent and case fatality rates among admitted patients were down by 41 percent.

■ **Evidence of the impact of ORT use at the community level comes from Bangladesh, Malawi, and Peru.** In one area of Bangladesh, clinic attendance dropped 30 percent following an intensive effort to promote the home use of ORT. In Malawi, promotion of outpatient ORT care in some areas was so successful that several hospital diarrhea wards were closed completely. Similarly, in Peru the diarrhea wards at the Cayetano hospital were closed for lack of patients.

■ **Diarrheal disease control programs clearly have the potential to bring about significant reductions in diarrheal mortality and morbidity.** In addition, reductions in the need for inpatient and outpatient diarrhea treatment reduce health care costs for families and health facilities and enable the health system to allocate scarce human and financial resources to the provision of other health services. As described in the next section, however, one of the most difficult challenges facing diarrhea control programs is bringing about sustained changes in how families and health workers treat diarrheal episodes in children.

USAID'S ROLE

Since 1985, USAID has made a significant contribution to diarrheal disease control efforts, allocating \$228 million to assist national diarrheal disease control programs in at least 64 countries. Use of oral rehydration therapy (ORT) was practically unmeasurable five years ago because usage was so low and systems to measure ORT use had not been developed. Today, Egypt, Honduras, and Kenya have achieved USAID's goal of 45 percent ORT use. Countries such as Indonesia, Niger, and Pakistan have seen important increases in ORT use through strengthened national programs, many with technical assistance from PRITECH and other projects.

With USAID support, diarrheal disease control programs have strengthened many aspects of the health sector in host countries. Training programs have reached traditional healers and health workers as well as nurses, pharmacists, and physicians. Links have been formed between the public and private sectors by involving medical schools, universities, professional associations, and pharmaceutical manufacturers in program activities. Medical and nursing schools in Indonesia, Kenya, the Philippines, and other countries have incorporated correct case management of diarrheal disease into their curriculums. Hospitals have established diarrheal disease treatment units in Pakistan, Malawi, Zaire, and Zambia, among other countries, through USAID assistance.

In 1985, most packets of oral rehydration salts (ORS) had to be imported into developing countries. Since then, USAID has helped to build capacity toward local production of ORS packets in more than 17 countries including Burundi, Egypt, Honduras, Mali, and Nepal. Project SUPPORT has provided assistance to the private sector to manufacture and market ORS packets in over 12 countries including Ghana, Guatemala, and Peru.

■ **Progress in reducing the effects of diarrheal disease is largely dependent on a program's ability to promote and sustain changes in individual behavior.**

Reaching mothers and health workers with information on the prevention and proper treatment of dehydration due to diarrhea and teaching them how to put that knowledge to use are formidable challenges, however.

■ **Experience has taught that carefully planned and executed communication strategies are key to bringing about sustained behavioral change.**

Many diarrhea control programs begin with a mass communication campaign to raise public awareness of ORT and generate popular demand for the related products and services. Such campaigns generally use a combination of broadcast and print media to convey basic information about ORT. Following the campaign, attention shifts to reinforcing and expanding basic health messages and helping people to translate information into behavioral change. Implementing a communication program requires maintaining a balance between generating demand and ensuring the availability of services and products, such as ORS packets. Programs that succeed in generating demand but are unable to satisfy it will ultimately fail.

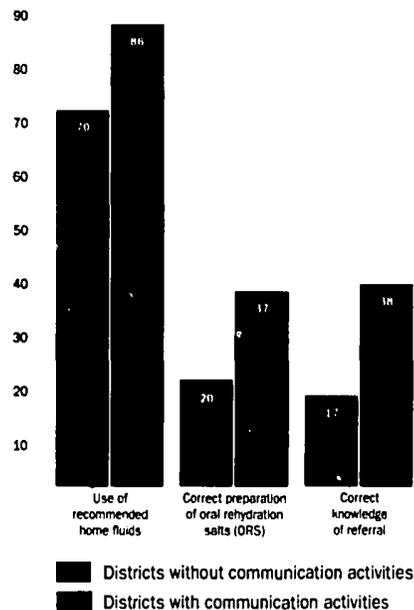
■ **Survey data provide strong evidence of the effect of communication programs on knowledge and use of ORT.**

Surveys following communication programs in Ecuador, Honduras and Pakistan showed that over 85 percent of mothers interviewed knew about ORS packets. A survey in Kenya shows how communication programs can reinforce caregivers' correct practices. Extensive health worker training had been carried out throughout Kenya at the time of the survey, but a major communication campaign had been conducted only in western Kenya.

16 IMPACT OF COMMUNICATION

Good treatment practices can be boosted with communication.

100 Percent of caregivers surveyed in Kenya



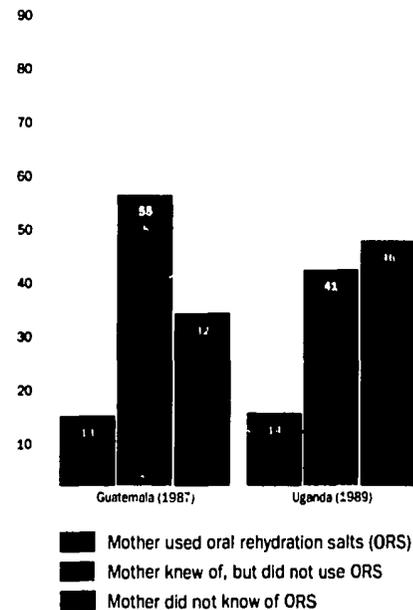
As shown in Figure 16, some aspects of treatment need to be strengthened in all districts surveyed, but good diarrhea management was more prevalent in the districts where the communication program had been conducted.

■ **Health communication programs often encounter a "knowledge-practice gap," that is, more people know about a particular health approach than follow it.** In Guatemala and Uganda, for example, studies of knowledge and practice revealed that 13 to 14 percent of the mothers interviewed used ORS packets, but another 40 to 55 percent who knew about ORS did not use it in recent episodes (Figure 17). Similar results have been reported in other countries as well.

17 KNOWLEDGE AND PRACTICE

Mothers' knowledge of ORS may be high, but use can be low.

100 Percent of children under age five with diarrhea in past two weeks



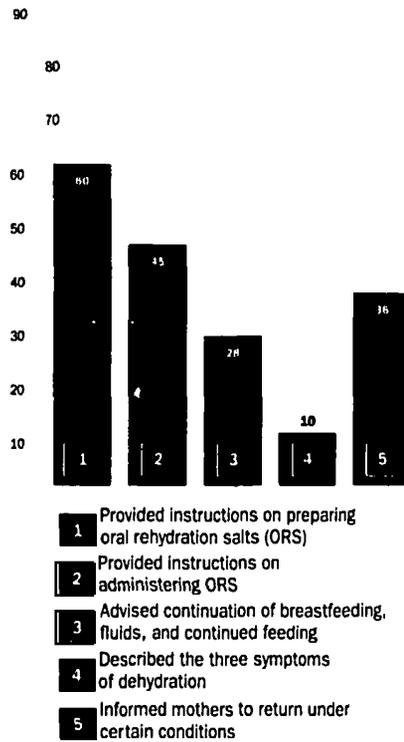
In addition, mothers who use ORT do not always use it correctly. For example, some use too much salt in preparing home-based rehydrating fluids or give the child only a few spoonfuls of rehydrating liquids at a time. Other frequent mistakes include decreasing the child's intake of food or fluids during a diarrheal episode and not breastfeeding.

■ **Communication programs are vital to closing knowledge-practice gaps among the general population.** Research into local knowledge, practices and attitudes is first required as a basis for designing communication programs that are capable of influencing behavior. Messages and communication techniques must then be developed that are easily understood, practical, culturally and socially relevant, and positive (see sidebar).

18 ESSENTIAL MESSAGES

The knowledge-practice gap can extend to health workers, too.

100 Average percent of health workers providing these essential messages in Niger, Pakistan, Peru, Senegal, and Zaire



■ **Communication programs that target health care providers are also closing the knowledge-practice gap.** Health workers must be more than dispensers of ORS packets. They must also be good communicators – counseling mothers about the use of rehydrating solutions and proper feeding practices during and after diarrheal episodes, and monitoring cases being managed at home. Data from five countries show the types of gaps in correct practice that exist among health workers (Figure 18). For example, only 28 percent of the health workers advised mothers about dietary practices during diarrhea

and only 10 percent described the symptoms of dehydration. Often, deficiencies in service delivery can be corrected through supervision and guidance. Some programs are using illustrated materials that lead health workers through the steps of diarrhea case management.

■ **The World Health Organization, USAID, and other donors routinely conduct in-service training programs to overcome the knowledge-practice gap among health care providers.** The World Health Organization has conducted in-service training programs in some 70 countries, and in-service training is an integral part of all USAID-supported programs. In-service programs seek to convince health care providers of the efficacy of ORT in managing diarrhea and discourage them from using antidiarrheal drugs and antibiotics. Through in-service training health workers are also learning how to teach their colleagues what they have learned. This multiplier effect is essential to achieving rapid improvement in program performance and to developing a base of qualified personnel on which other health care improvements can be built.

■ **Progress in expanding appropriate diarrhea case management in the health sector also requires increased focus on the preparatory training of health care providers.** Including diarrhea case management in the curriculums for doctors, nurses, and health workers is the most effective way of ensuring the use of appropriate treatment practices. Training in diarrhea case management is being provided, for example, by having students staff ORT units in hospitals and by developing teaching modules for inclusion in health curriculums. In this way, newly trained health care providers will have the experience they need to treat diarrheal diseases correctly and to promote appropriate diarrheal case management in the communities they serve.

USAID'S ROLE

From its earliest commitment to diarrheal disease control, USAID has recognized the importance of communication activities. Thus, USAID has incorporated into its efforts such communication tools and techniques as focus group research, mass media campaigns to disseminate health information, surveys of health-related knowledge, attitudes and practices, and social marketing. In Egypt, for example, the mass media played a key role in generating demand for diarrheal disease services and in influencing the behavior of mothers, other caretakers, and health professionals.

Evidence that USAID-supported communication activities are making a difference in diarrhea case management is mounting. A 1990 survey in Kenya found that proper treatment of diarrhea was more likely in districts where PRITECH had supported health communication programs. In Mali, ORT use in Bamako, the capital, and three provinces rose from 3 to 41 percent after a nationwide social marketing program was carried out with PRITECH assistance. In Indonesia, HEALTHCOM trained 20,000 community health volunteers to use diagnosis and treatment cards to counsel mothers in diarrheal case management. The mothers they counseled were able to prepare ORS more accurately than mothers instructed by workers not trained to use the cards.

PVOs such as Save the Children Federation in Honduras, the Aga Khan Foundation in Pakistan, and World Vision Relief and Development in Kenya are also changing attitudes and practices through community-level communication activities. In Bolivia, Catholic Relief Services and Caritas used a combination of radio, contests, and mothers' clubs to deliver and reinforce health messages. After the program, the proportion of properly treated diarrheal cases in the project area climbed to 42 percent, far surpassing project goals.

■ **Despite the progress in controlling diarrheal disease in the 1980s, the continued toll of diarrheal deaths provides a stark reminder of the magnitude of the task that remains.** Over one-third of all deaths of children under five in the developing world are diarrhea related (Figure 19). Even more sobering is the fact that 60 percent of those deaths are due to dehydration, deaths that could be prevented through timely intervention with ORT.

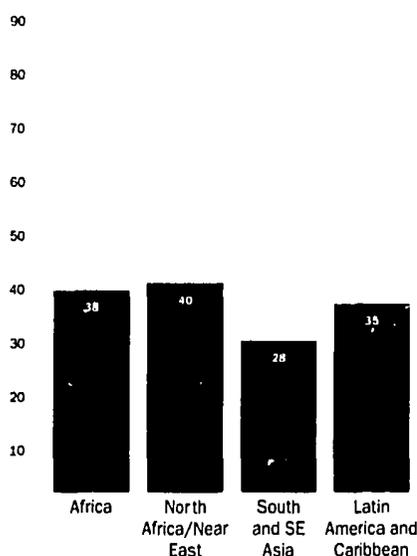
■ **Added to the death toll is the effect of diarrheal disease on the health and nutritional status of children.** Weight loss or failure to gain weight are often associated with repeated bouts of diarrhea, and children are unlikely to recoup the lost growth unless they receive increased amounts of food after diarrheal episodes. Poorly nourished children are also susceptible to further, more severe and prolonged episodes of diarrhea, to malnutrition and dehydration, and to other health problems.

■ **The World Summit for Children adopted a goal of achieving a 50 percent reduction in child deaths due to diarrhea and a 25 percent reduction in the incidence of diarrhea between 1990 and the year 2000.** Meeting that challenge will require concerted effort to expand the reach of diarrheal disease control programs and to institutionalize diarrheal disease control within primary health care systems. Meeting that challenge will also require further progress on three fronts: (1) developing treatment regimes that reduce the severity and duration of diarrhea (e.g., cereal-based ORS formulations or combinations of foods and fluids that have the same effect); (2) identifying risk factors for persistent diarrhea and

19 GLOBAL TOLL

Diarrheal disease accounts for one-third of child deaths in developing countries.

100 Percent of deaths associated with diarrhea



developing new techniques for its treatment; and (3) strengthening efforts to prevent diarrhea.

■ **Despite the proven efficacy of ORT in preventing and treating diarrhea-related dehydration, many mothers and health workers have been slow to recognize its value.** Part of the problem is the perception that oral rehydration solutions are not effective because they neither shorten the duration of diarrhea nor reduce stool volume during diarrheal episodes. For some time now, the search has been on for alternative rehydrating formulations that would do both while still preventing/treating dehydration.

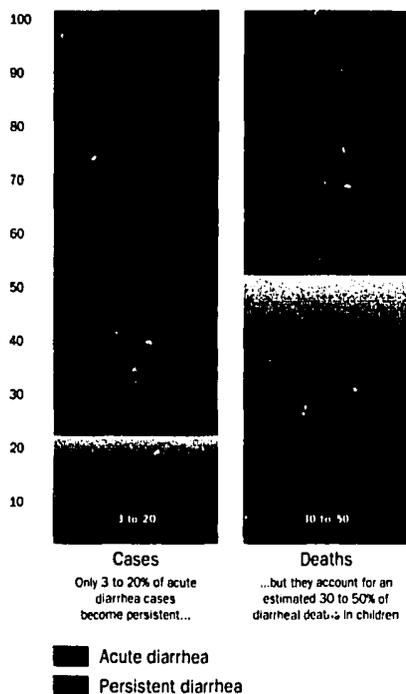
■ **Studies indicate that use of cereal-based ORS solutions may soon become another mainstay of diarrheal disease control programs.** New ORS formulations that replace the glucose in the standard ORS solution with rice powder or cereal grain have been found to support the reabsorption of more water and electrolytes than the standard ORS. Moreover, in clinical trials in Bangladesh, rice-based ORS reduced the rate of stool loss in children with acute diarrhea and also reduced the duration of diarrheal episodes. Studies of other cereal-based ORS (e.g., wheat and sorghum) found that the formulations were as effective as glucose-based ORS and reduced stool volume. Further studies are required to define how and at what ages these new formulations are best used.

■ **Persistent diarrhea – episodes lasting more than 14 days – are the cause of 30 to 50 percent of child diarrheal mortality** (Figure 20). Persistent diarrhea also has the most severe nutritional impact on children. Epidemiological evidence indicates that the next frontier for the control of diarrheal disease will be targeting persistent cases.

■ **Research into the risk factors for persistent diarrhea in children and its proper management is already in progress.** To date, the risk appears to be greatest among infants and among children who are malnourished, who have had previous episodes of acute or persistent diarrhea, or who have impaired immunologic status. For some children, being fed animal milk is also a risk factor. Evidence suggests that the best treatment for persistent diarrhea may be a combination of rehydrating fluids and nutritional therapy, including breastfeeding, during and after the episode. Further research is needed if greater gains are to be made in combating persistent diarrhea. In

20 THE FATAL DIARRHEA

Persistent diarrhea is associated with increased risk of death.



particular, studies are needed to identify further the epidemiology, types of organisms causing the disease, and specific risk factors (including dietary deficiencies). Additional research is also needed into how best to meet the dietary requirements of infants and children during and after episodes of persistent diarrhea.

■ **In the final analysis, efforts to control diarrheal disease depend on preventing the occurrence of diarrhea.** Activities to promote breastfeeding, improve feeding practices, expand immunization, and provide greater access to clean water and sanitation facilities form the core of diarrhea-prevention efforts. Evidence

described throughout this report makes clear that youngsters who are breastfed, properly fed during and after weaning, and vaccinated against measles experience fewer and less severe episodes of diarrhea. Studies also confirm that providing communities with access to an adequate supply of clean water and sanitation facilities can decrease the incidence of diarrhea. In Bangladesh, for example, a study found that diarrheal illnesses among children fell by 25 percent in an area with access to clean water and sanitation compared with an area that did not have such facilities. And in Lesotho, 24 percent fewer diarrhea cases were recorded among children whose homes had a latrine than for children from homes without. (The section on water supply and sanitation later in this report discusses the role of clean water and sanitation facilities – and related hygienic behaviors – in reducing the incidence of diarrheal disease.)

■ **Researchers are looking for new ways to prevent diarrheal disease.**

An important part of that effort is the development of a vaccine against rotavirus diarrhea, the most common cause of dehydrating diarrhea among infants and children. A global effort to develop and test an effective vaccine for rotavirus has been formed by, among others, the U.S. Department of Health and Human Services, USAID, the World Health Organization, and host country governments and institutes. Efforts are also under way to develop vaccines against cholera, typhoid fever, and enterotoxigenic *E. coli* diarrhea.

■ **Ongoing research is also contributing to increased recognition of the role of nutrition particularly optimal breastfeeding and weaning practices, in diarrheal treatment and prevention.** Improved nutrition is essential to reducing the incidence and severity of diarrhea and other diseases that afflict children.

USAID'S ROLE

Action-oriented research has contributed to the success of USAID-supported diarrheal disease control programs in Egypt, Honduras, Kenya, and elsewhere. In 1990, 78 projects in more than 30 countries conducted research on diarrheal disease control. A review of USAID's diarrheal disease research projects concluded that, by sponsoring basic, applied, and operational research on diarrheal disease, USAID has developed fundamental knowledge and technologies and improved the effectiveness of field programs.

New challenges have emerged that require USAID's continued support of research to refine approaches and develop appropriate technologies. Persistent diarrhea – a major cause of diarrhea-specific mortality – is a central focus of USAID-supported research conducted through the ACSI-CCCD project, the Applied Diarrheal Disease Research (ADDR) project, the International Center for Diarrheal Disease Research/Bangladesh, USAID missions in Bolivia and Indonesia, and others. USAID is also continuing to test vaccines against major causes of diarrheal disease (e.g., rotavirus and cholera).

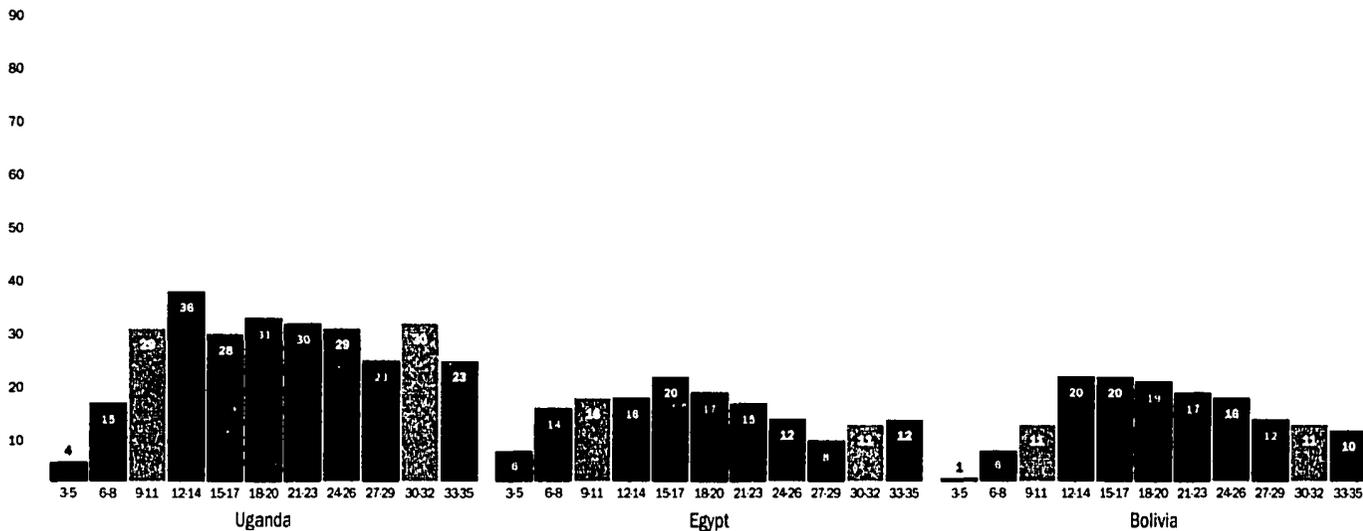
Along with the World Health Organization, governments, and others, USAID is focusing attention on the rational use of drugs in the treatment of diarrheal disease. An ADDR study in Mexico proved that use of a simple therapeutic protocol could decrease physicians' use of drugs to treat diarrhea and increase their use of ORS. In Burundi, Guinea, and Nigeria, the ACSI-CCCD project assisted in studies of prescribing practices in health facilities. And a study at a USAID-assisted diarrheal disease training unit in Pakistan revealed that the antidiarrheal drug loperamide had led to a significant number of infant deaths. The study's results, which received wide publicity, led the government to deregister the drug and similar preparations for infants.



21 LOW WEIGHT-FOR-AGE

Levels of malnutrition vary by a child's age, as indicated by low weight-for-age data. Growth faltering becomes evident at about six months of age and continues through weaning, the period of transition from breastmilk to solid foods.

100 Percent of children having deficient weight for age by month of age



■ **A well-nourished child is not only more likely to survive but also better able to develop normally and to thrive.** A child with nutritional deficiencies, on the other hand, has a weakened immune system and is unable to stave off the worst consequences of disease. The lack of adequate nutritional stores leads to a cycle of disease and malnutrition – each condition exacerbates the other and death is frequently the result. Those children who survive lack the nutritional stores to realize their full physical and mental potential.

■ **Malnutrition is widespread in the developing world and is estimated to be a contributing factor in up to 60 percent of child deaths.** Quantifying the extent of malnutrition globally at any point in time is difficult due to the complexity and volatility of the underlying causes of poor nutrition. The nutritional well-being of a single child and of entire communi-

ties can and does change rapidly in response to changes in food availability, food prices, family income, and other social and economic factors.

■ **Figure 21 shows the varying levels of malnutrition found in three selected countries.** More important, the figure illustrates the consistency with which growth retardation, which often begins as early as four to six months after birth, manifests itself most dramatically in the period following the critical transition from breastmilk to solid foods.

■ **Poor nutrition can be traced to the mutually reinforcing problems of inadequate food consumption and ill health.** Diets of poor quality and inadequate quantity exist at all levels of society, the nation, the community, the family, and the individual. Food production shortages and

maldistribution of food resources arise at national and community levels. Inadequate income prevents families from purchasing or growing enough food for themselves. Inappropriate family feeding and dietary practices also contribute to poor nutrition. And ill health magnifies nutritional shortfalls by interfering with optimal utilization of the nutrient value of the food consumed.

■ **The guarantee of adequate food consumption is referred to as household food security.** Household food security begins with national policies designed to promote sufficient food production and a fair and efficient food distribution network. It encompasses, as well, activities to improve the access of households to the food supply and the appropriate distribution of food within the family. Household food security is further promoted by a variety of specific interventions.

■ **A number of interventions, including nutrition education to improve infant and child feeding practices, growth monitoring, and supplemental feeding, are pursued according to the needs in a given situation.** The improvement of infant and child feeding practices is fundamental for child survival. Through social marketing and face-to-face counseling, mothers and other caretakers can be taught to improve children's nutritional intake. For example, messages on encouraging optimal breastfeeding practices and preparing nutritious weaning foods have been conveyed through well-designed communication programs and counseling.

■ **The period of weaning from breast-milk to solid foods is one in which children are especially vulnerable.** During this period, children need food that is high in nutritional value, especially calories, and easy to digest in adequate quantities. Due to excess bulk, which inhibits sufficient consumption by infants and young children, many traditional weaning foods do not provide adequate calories and other nutrients. Innovations such as the use of fermented grains in weaning food and such simple actions as adding oil are being used to enhance nutrient consumption during the weaning period.

■ **In many programs, guidance on infant feeding and weaning is delivered through growth monitoring and promotion activities.** Growth monitoring and promotion enable health workers to track the growth of individual children in order to identify nutritional problems before they become serious and provide an opportunity to counsel mothers about feeding practices and their child's development. The impact of seeing a child's growth faltering illustrated on a simple growth chart, along with guidance from the health worker, can be enough to trigger

behavioral change by mothers and other caretakers. Unfortunately, although the potential is there, some growth monitoring programs do not pay enough attention to the crucial aspects of counseling the mother. Operations research by USAID and other donors has found that this is a common problem. In Zaire and elsewhere, however, research also shows that programs that are aware of this shortcoming can rapidly become more effective.

■ **In areas where food availability is a constraint to good nutrition, targeted supplementary feeding programs offer an effective, but temporary, means of reaching the needy.** As important, when offered along with other health and educational services, supplementary feeding programs such as Public Law 480 programs (see sidebar) can also lend support to initiatives designed to teach families about the special nutritional needs of children and pregnant and lactating women.

■ **The health effects of diets deficient in such micronutrients as iron and vitamin A are becoming better understood.** Anemia due to iron deficiency particularly affects pregnant women and young children; the estimated global prevalence is 50 and 40 percent, respectively. Because iron deficiency depresses the body's immune response, it is associated with an increased risk of infection. In women, iron deficiency is also associated with increased risk of hemorrhage and other complications during childbirth. Infants born to anemic mothers have lower birth weights and thus are at increased risk for mortality. Interventions to prevent and correct iron deficiency among women and children focus on increasing the consumption of iron-rich food and delivering iron supplements. As described in the next section, the importance of vitamin A as a protection against infection is increasingly being recognized.

USAID'S ROLE

■ **Improving the nutritional status of infants, children, and women is an essential part of child survival activities.** Since 1985, USAID has committed \$162.2 million to programs in at least 53 countries to improve infant and child feeding practices, including breastfeeding, growth monitoring, and vitamin A programs.

In 1990, 92 USAID-assisted projects in 32 countries sponsored growth monitoring activities. Successful growth monitoring depends on counseling mothers – a step health workers often omit. To remedy this shortcoming, projects in many countries teach health workers to conduct more effective growth monitoring sessions. USAID also funds the PRICOR project to identify where this and other problems exist and to develop corrective measures.

Through the Women and Infants Nutrition project, USAID collaborates with governments and other agencies to enhance the effectiveness and sustainability of infant feeding projects. The Weaning Project and Dietary Management of Diarrhea Project have demonstrated that basing project designs on research into local beliefs and practices contributes to project effectiveness.

High risk, undernourished infants, children, and women have received food supplements through the Title II, Public Law 480 program. Evidence from a number of countries indicates that supplementary feeding programs can be effective in improving the health and nutritional status of vulnerable groups. These programs have also been shown to increase demand for health services and improve the nutritional knowledge of recipients.

In 1990, 11 projects, including 8 conducted by PVOs working with child survival grants, addressed iron deficiency anemia by distributing iron supplements.

Since 1985, the Demographic and Health Surveys project has completed nationwide surveys of nutritional status in 35 countries, providing a unique source of nutritional and other data.



■ **Evidence is mounting on the critical role of vitamin A in promoting child health and survival.** Although identified as an important nutrient because of its association with infection, the significance of vitamin A in public health has traditionally been linked most closely with clinically observed ocular disease. Recent studies suggest, however, that the association between subclinical levels of vitamin A deficiency and infection may be stronger than commonly thought and that the impact of vitamin A on morbidity and mortality may be substantial. The studies indicate that even relatively mild vitamin A deficiency may result in an increased risk of death from any number of infectious diseases. In some, but not all, studies, increased intake of vitamin A measurably reduced mortality among children.

■ **Results of a study in India, made public in 1990, offer clear evidence of the association between inadequate vitamin A intake and mortality in childhood.** Over 15,000 children in three drought-prone, economically depressed areas in southern India were divided into geographically distinct clusters. Half the children in each cluster were given a weekly vitamin A supplement equivalent to the amount obtainable from locally available foods. All children were given eye examinations, and all children showing any sign of vitamin A deficiency were treated whether or not they were in the clusters receiving the supplement. After one year, the children who did not receive the supplement had twice as great a risk of dying (Figure 22). It is significant that the risk was six times greater among those children who did not receive vitamin A and who were stunted because of prolonged, more broadly defined malnutrition. This suggests the importance of addressing the full spectrum of nutritional deficiencies.

■ **The importance of vitamin A in reducing the risk of dying is even more apparent in situations in which vitamin A deficiency and other diseases occur simultaneously.** In a series of clinical trials among African children hospitalized with measles, for example, it was shown that children given oral doses of vitamin A were 50 percent less likely to develop major complications or die. Moreover, the group receiving vitamin A recovered more quickly and spent fewer days in the hospital than the group not receiving the vitamin A. A similar study of children hospitalized for measles in Tanzania found that children given two large oral doses of vitamin A were half as likely to die as children given routine treatment (7 versus 13 percent mortality).

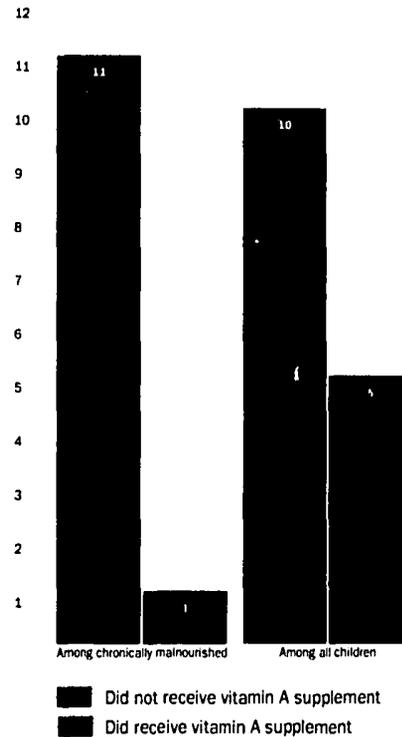
■ **As evidence of the protective role of vitamin A mounts, the consensus among international health experts to act to reduce the risk of vitamin A deficiency grows.** At the same time, however, it must be recognized that the degree of mortality reduction to be expected from an effective program is difficult to predict and may vary among populations. Studies are under way to determine further the impact of vitamin A deficiency on child health (e.g., the association with diarrheal disease morbidity and mortality). Studies are also examining the nature of prevailing conditions under which the various forms of vitamin A intervention are most appropriate.

■ **Vitamin A deficiency is endemic in much of the developing world.** Each year, an estimated 5 to 10 million children in developing countries show clinical signs of deficiency (visual impairments, including corneal lesions). One-quarter of those children become blind, and an estimated

22 THE RISK OF DYING

Vitamin A and the risk of dying: results of a low-dose supplementation program.

13 Probability of dying per 1,000 children in Tamil Nadu, India



60 percent of those blinded die within a few months of becoming blind, depending on their nutritional status, other infections, and availability of care. Reliable estimates of the number of children suffering subclinical levels of deficiency are not available, but experts estimate that the number is 5 to 10 times greater than the number whose symptoms are clinically observable.

■ **Within the context of child survival, the attention given to vitamin A nutrition has steadily increased.** Supplementation of vitamin A intake with a high-dose

oral capsule or liquid every six months for children one to five years old and for mothers in the first month after delivery is the most common intervention, but use of smaller, more frequent doses is being tested. Although supplementation is effective in alleviating a short-term or particularly severe problem, long-term, sustainable improvement in vitamin A intake is best achieved by behavior modification leading to increased consumption of vitamin A-rich foods. In some parts of the world, however, vitamin-A rich foods are available only seasonally, and in areas where they are available year-round, they are often underutilized or thought to be inappropriate food for young children during the transition from breastmilk to solid foods. Through community-based communication, nutrition education, and social marketing activities, child survival programs seek to overcome the obstacles to increased consumption of available vitamin A-rich foods by vulnerable populations. Where such foods are not available, families and communities are being encouraged to grow dark-green leafy vegetables as a local source of vitamin A.

■ **Private voluntary organizations (PVOs) are playing a major role in the struggle to reduce vitamin A deficiency.** As part of their work in the poorest and most remote regions, PVOs encourage and help mothers to make optimal use of locally available foods rich in vitamin A and introduce foods rich in vitamin A where none is available. PVOs also distribute vitamin A capsules as a short-term protective measure in areas where high levels of vitamin A deficiency are endemic (see sidebar).

■ **With the increasing evidence of the broader health impact of vitamin A, the designers of child survival programs are widening the search for additional strategies to eliminate vitamin A deficiency.** Because of the high coverage achieved by immunization programs, one strategy under consideration is to distribute vitamin A supplements through those programs. It remains to be determined, however, whether the addition of vitamin A distribution to the services provided by immunization programs will compromise the effectiveness of those programs. In addition, the effect of variable doses of vitamin A on children under six months of age is under study. Except for the target age for the measles vaccine (about nine months), immunization programs may be reaching children too early in life for vitamin A supplementation. The generally accepted age to begin vitamin A supplementation is six months, but most vaccines are administered to children under four months of age – an age when vitamin A deficiency is rare, particularly among breastfed children. Another delivery strategy is to include vitamin A distribution as part of broad community-based delivery of primary health care services. In Indonesia, for example, vitamin A supplements are distributed twice a year at local health rally posts.

■ **As support for concerted action to reduce vitamin A deficiency grows, cooperation and coordination among international donors, national governments, and private voluntary organizations becomes an increasingly important element of any vitamin A strategy.** Not only does such coordination eliminate waste, it also gives focus to the initiative and stimulates the allocation of the requisite resources.

USAID'S ROLE

USAID embarked on an expanded program of research on the importance and delivery of vitamin A supplements in 1985. Results from studies in several countries are now emerging to document the role of vitamin A supplements in reducing morbidity and mortality due to acute respiratory infection, measles, and diarrheal disease. Anticipating widespread delivery of vitamin A supplements, USAID is also sponsoring the applied research needed to make sure programs are effective and sustainable and to address specific issues related to program strategies. USAID is also active in the International Vitamin A Consultative Group, which assists in the prevention and treatment of vitamin A deficiency and nutritional blindness.

With assistance from USAID, 75 projects in 28 countries promote vitamin A-related activities such as distribution of vitamin A supplements, fortification of foods, and education on vitamin A-rich foods and their benefits. Assistance was provided by the Vitamin A Field Support Project to 14 of these countries. Since 1986, 10 PVOs have received over 20 USAID vitamin A grants. In Sudan, where a two-year drought contributed to the high incidence of vitamin A deficiency, CARE distributed vitamin A capsules to 36,000 children with help from volunteers.

Forty-one projects are promoting community gardens that include vitamin A-rich vegetables as a long-term, sustainable solution to vitamin A deficiency. In Thailand, an integrated communication and farming program is being carried out through the schools by Catholic Relief Services. World Vision Development and Relief assists nomadic people in the desert country of Mauritania to grow vitamin A-rich vegetables, creating a sustainable source of vitamin A as well as a new source of income for many women's cooperatives.



BREASTFEEDING BENEFITS FOR MOTHERS AND INFANTS

■ **Exclusive breastfeeding during the first four to six months of life reduces by half an infant's risk of death from all causes.** Optimal breastfeeding practices are an integral part of the major targeted child survival interventions. They improve infant nutrition; provide an infant's first protection against diarrhea, acute respiratory infection, and other diseases; increase child spacing; and reduce childbirth-related risks for mothers.

■ **Breastmilk provides all the nutrients an infant needs for the first four to six months of life.** Even its composition changes over time to meet the changing nutritional needs of the growing child.

■ **"On demand," exclusive or almost exclusive breastfeeding provides a mother with 98 percent protection from pregnancy in the first six months after childbirth, if menses has not returned.** Initiating breastfeeding immediately after birth also reduces the mother's risk of postpartum hemorrhage, retention of the placenta, and iron deficiency anemia.

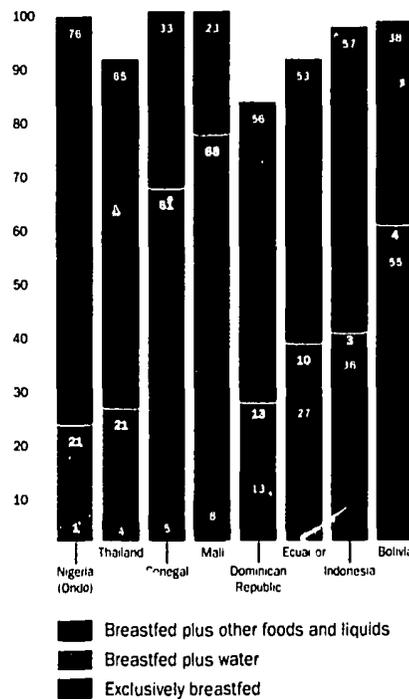
■ **Breastfeeding provides the maximum benefits when it begins within an hour of an infant's birth, is offered "on demand" of the infant day and night, and is the infant's exclusive source of food and liquid during the first four to six months of life.** As shown in Figure 23, a very high percentage of infants in developing countries are breastfed during the first four months of life, but only 1 to 55 percent are exclusively breastfed.

■ **The beneficial effects of exclusive breastfeeding on an infant's health are well documented.** As an example, a study in Peru found that formula-fed infants (up to two months of age) were 3.4 times as likely to suffer from diarrhea as exclusive-

23 GAINING THE FULL BENEFIT

In many countries, the proportion of infants exclusively breastfed is low.

Percent of infants 0 to 4 months of age breastfed in the past 24 hours



ly breastfed infants and that infants who received breastmilk and supplementary food were 1.6 to 2.6 times as likely to have diarrhea (see Figure 24). In the Philippines, a study of infants aged two months found that those not receiving breastmilk were 18.5 times as likely to suffer from diarrhea as exclusively breastfed infants. Breastfeeding also reduces the risk of having life-threatening lower respiratory infections. Formula-fed infants (up to five months of age) in Peru were 5.5 times as likely to have lower respiratory infections as exclusively breastfed infants.

■ **Given its nutritional, immunological, and child spacing benefits, breastfeeding should be continued well into the second year of life.** Although the percentage of infants never breastfed is small, the median duration of breastfeeding is far short of 24 months in many developing countries, and global trends suggest that there may be further decline.

■ **In addition to the many health benefits breastfeeding confers on mother and child, breastfeeding saves money.** Families save money that would otherwise be spent on a breastmilk substitute, and they realize further savings from having healthier children. Hospitals save money that would otherwise be spent on infant formulas, bottles, and staff time to prepare and feed formulas. In addition, allowing infants to room-in with their mother in the hospital frees staff from having to tend infants in the nursery. And the overall health care system saves money through reduced expenditures on curative care for infants and children.

■ **A number of trends work against optimal breastfeeding practices in developing countries.** First, breastfeeding role models are not as available to women in their communities as they once were. Second, hospital practices often discourage breastfeeding by delaying an infant's first breastfeeding until some time after delivery and by bringing infants to mothers on a fixed schedule rather than according to the infants' needs. In addition, hospital staff are not usually trained to provide the instruction and support needed by a mother breastfeeding for the first time.

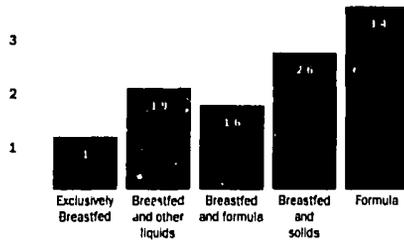
■ **Urbanization and women's employment outside the home also interfere with optimal breastfeeding practices.** Social and economic pressures, the break-up of the traditional extended family, and

24 REDUCED RISK

Exclusively breastfed infants are less vulnerable to illness.

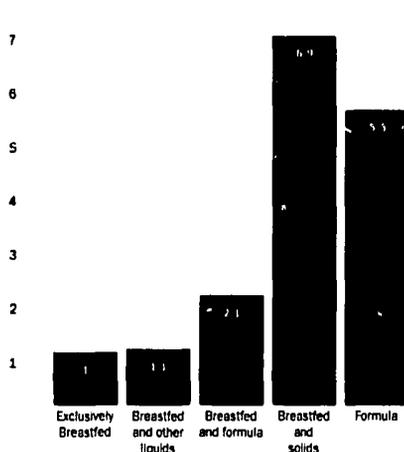
Likelihood of having diarrhea

4 Relative risk for infants 0 to 2 months of age in Lima, Peru



Likelihood of having acute lower respiratory infection

8 Relative risk for infants 0 to 5 months of age in Lima, Peru



hence, the loss of support networks keep many women from continuing to breastfeed. Moreover, the pervasive availability of breastmilk substitutes provides a seemingly ready solution to all obstacles to breastfeeding.

■ **Programs to promote breastfeeding are making extensive use of information, education and communication (IEC) to overcome obstacles to optimal breastfeeding practices.** Working directly in local communities and through

the major child survival interventions (e.g., immunization, diarrheal disease control, nutrition, child spacing), IEC programs are teaching mothers about the health benefits of breastfeeding and developing support networks. IEC outreach programs are also being used to inform employers and policymakers about the health and economic benefits of breastfeeding and to encourage them to institute policies that promote and support breastfeeding.

■ **Special training programs for hospital-based personnel are changing the way hospitals run their maternity wards.** After staff from 15 hospitals in Indonesia, the Philippines, and Thailand received training in lactation management (see sidebar for details), for example, the average time before infants received their first breastfeed decreased from 7.9 to 1.2 hours after delivery. In the same hospitals, the practice of routinely giving infants a bottle feed before their first breastfeed was completely eliminated.

■ **The world health community has called for a global initiative to increase breastfeeding in the 1990s.** In August 1990, USAID, the World Health Organization, the United Nations Children's Fund, and the Swedish International Development Agency co-sponsored an international meeting to increase policymakers' awareness of the importance of breastfeeding. Representatives from 26 developing countries and 4 industrialized countries were present. The resulting "Innocenti Declaration" has spurred efforts to get governments to develop policies and programs to encourage and enable women to practice exclusive breastfeeding for four to six months after giving birth. Governments are also being urged to integrate breastfeeding policies into their overall health and development policies and to ensure that health care providers receive the training necessary to implement those policies.

USAID'S ROLE

■ **In 1990, USAID allocated \$5.5 million to 108 breastfeeding programs in 60 countries, a 38 percent increase over 1989.** Through training, communication, research, and service provision, the programs are advancing USAID's goal of protecting and promoting optimal breastfeeding practices by creating a supportive environment for mothers wishing to breastfeed. With the completion in 1990 of USAID's Breastfeeding for Child Survival strategy, programming is expected to increase.

Following training in lactation management by the Wellstart program, health professionals from 72 teaching hospitals in 24 countries are designing national breastfeeding policies, developing training centers, and revising hospital practices. Through local training programs, Wellstart trainees will reach over 63 million mothers by 1993. With assistance from the NurseCare project, nursing schools in Costa Rica and Kenya now provide lactation management training. In addition, medical schools in the Dominican Republic and the Philippines have added lactation management to their curriculum.

In 1990, communication and social marketing programs in 10 countries, conducted by the HEALTHCOM and Nutrition Education and Social Marketing Field Support projects, provided breastfeeding information to nursing mothers and to policymakers, administrators, and employers. Through PVOs, mother-to-mother support groups promote breastfeeding in areas where traditional support systems have broken down. La Leche League in Guatemala and Honduras and PVOs in 23 other countries provide support to breastfeeding mothers.

Demographic and Health Survey data on the prevalence of suboptimal breastfeeding practices have heightened global awareness of the need to promote breastfeeding. USAID played a leading role in co-sponsoring the 1990 International meeting on breastfeeding, which was attended by senior health officials from 30 countries and produced the Innocenti Declaration on the Promotion, Protection and Support of Breastfeeding.



HIGH RISK BIRTHS IMPROVING THE OUTCOME FOR MOTHER AND CHILD

25 RISKS AND CONSEQUENCES

Risk Category	Estimated Median Impact on Infant Mortality	Major Contributing Factors
Short birth intervals (less than 2 years)	<ul style="list-style-type: none"> 71% greater infant mortality over infants born after intervals of 2 to 3 years (based on 23 countries) 	<ul style="list-style-type: none"> depletion of mother's nutritional stores contributes to prematurity/low birth weight competition for parents' time and other resources spread of infectious diseases among children close in age
Young mothers (under age 20)	<ul style="list-style-type: none"> 35% greater infant mortality over infants born to mothers aged 20 to 29 years (based on 21 countries) 	<ul style="list-style-type: none"> mother's physical immaturity can lead to pregnancy and delivery complications inadequate prenatal care low birth weight not psychologically prepared for motherhood
Older mothers (aged 40 to 49 years)	<ul style="list-style-type: none"> 24% greater infant mortality over infants born to mothers aged 20 to 29 years (based on 11 countries) 	<ul style="list-style-type: none"> mother less able to withstand stress of pregnancy and delivery poorer health status of older women low birth weight
High parity (4th or higher birth)	<ul style="list-style-type: none"> 6% greater infant mortality for infants who were 4th to 6th births over 2nd to 3rd births 34% greater infant mortality for infants of 7th or higher birth order over infants of 2nd or 3rd birth order (based on 23 countries) 	<ul style="list-style-type: none"> low birth weight birth intervals likely to be short mother's nutritional stores likely to have been depleted by previous births

NOTE: Infant mortality figures do not control for overlapping effects among risk categories or factors of socioeconomic status.

■ **In developing countries, about half of all births occur under circumstances that increase the risk of an adverse outcome for mother and child.** Figure 25 defines the four major categories of high risk births, provides estimates of their impact on infant mortality, and identifies major factors associated with each.

■ **Births that are spaced less than two years apart have the greatest adverse impact on infant mortality.** Data from Demographic and Health Surveys in 23 countries illustrate the magnitude of the impact: Among infants born after a birth interval of less than two years, the median mortality rate was 71 percent higher than among infants born after an interval of two or three years. Numerous studies confirm that the risk of short birth intervals applies to children born to women of all ages, children of all birth orders, and families at all socioeconomic levels and in urban and rural areas alike.

■ **Infant mortality rates based on mother's age and birth order generally follow a U-shaped pattern.** Based on mother's age, infant mortality rates are highest

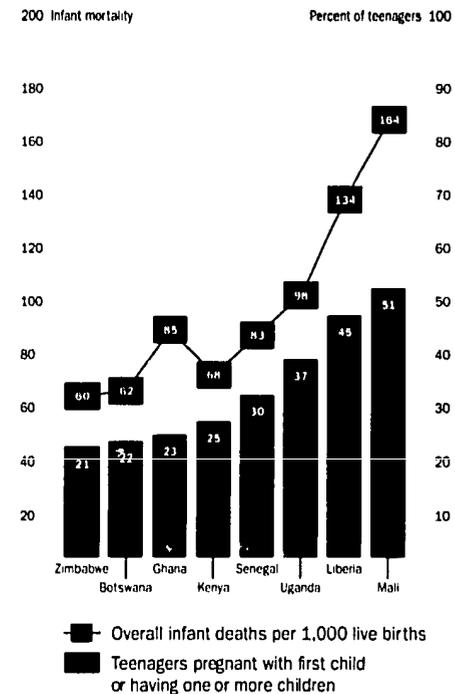
among teenaged girls, fall to their lowest point for women aged 20 to 29, and then climb with each succeeding year. Countries with high levels of teen pregnancies often have high infant mortality rates as well (Figure 26). Based on birth order, infant mortality rates are highest for the first child, lowest for the second and third, and then rise with each subsequent birth.

■ **High risk births have an impact on infant and child morbidity as well as mortality.** Children whose births are considered high risk often develop more slowly than normal and are at increased risk of infection and disease because they cannot overcome the lasting effects of such factors as low birth weight. Studies also show an association between high risk births and lower intellectual development and academic performance.

■ **The life of the mother, as well as that of her child, is jeopardized by a high risk birth.** The physical immaturity of teenaged girls and the depletion of the mother's resources through frequent childbearing, factors that place the infant at risk, also

26 TEENAGERS HAVING CHILDREN

Having children at a young age places both mother and infant at risk.



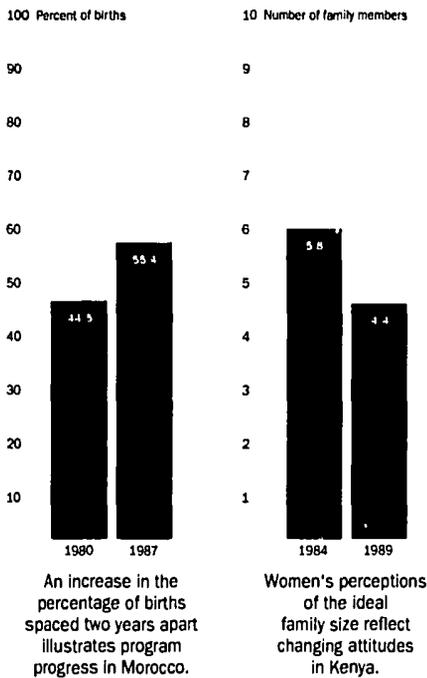
endanger the life of the mother. (See later section on maternal health and nutrition.)

■ **International and bilateral donors are supporting programs to prevent high risk births.** Such activities, often conducted as part of other child survival and basic health care programs, employ three basic approaches: conducting information, education and communication (IEC) programs, promoting breastfeeding as a means of child spacing, and providing family planning counseling and services.

■ **IEC programs provide general information to the public about safe child-bearing patterns and target messages to specific high risk groups.** IEC programs at schools, churches, and social centers teach young people about the benefits of postponing childbirth. And IEC programs at health care facilities

27 ATTITUDES AND PATTERNS

Increased awareness is seen in improved birth spacing and smaller families.



are counseling women on the importance of avoiding high risk pregnancies.

■ **Breastfeeding directly reduces high risk births by delaying a woman's return to ovulation following childbirth.** Exclusive or almost exclusive breastfeeding extends a woman's protection against pregnancy from the usual two months to at least six months after childbirth (if menses has not returned). For women who do not have access to modern means of contraception, breastfeeding is the primary means of child spacing.

■ **Child survival programs offer many opportunities to promote child spacing through breastfeeding.** In particular, programs that promote the nutritional and disease-prevention role of breastfeeding

(see discussion later in this report) can also counsel mothers about the child-spacing benefits of optimal breastfeeding practices.

■ **High risk births can also be reduced by educating couples about the adverse outcome for mother and child of high risk births and providing contraceptives for women at risk.** By targeting counseling and service delivery to high risk groups, family planning programs can enable couples to delay their first child to an age when the mother is best prepared, plan subsequent births after an appropriate interval, and limit family size.

■ **Survey data suggest that there is an unmet need for family planning assistance among high risk groups.** Among Bangladeshi women who had had four or more live births, 89 percent did not want more children, but only 38 percent were contracepting. Among married women in Ecuador, total unmet need for family planning assistance was 29 percent, but among women at risk of having another child too soon, it was 41 percent.

■ **A number of indicators point to important changes in childbearing attitudes and practices in developing countries.** Figure 27 provides data from two countries where family planning services formed the cornerstone of child survival activities. In Morocco, well-spaced births are on the rise; in Kenya, the number of children in the ideal family, based on women's perceptions, is on the decline. Data from Demographic and Health Surveys in sub-Saharan Africa indicate that formal education is changing childbearing attitudes and practices. In Botswana, Ghana, Kenya, and Zimbabwe, where over 75 percent of teenaged girls surveyed had five or more years of education, the proportion of girls who had given birth or were pregnant was approximately half what it was in six other countries, where less than 40 percent of the teenaged girls surveyed had five or more years of education.

USAID'S ROLE

Since 1985, USAID has programmed \$79 million for child survival activities to reduce high risk births. These child survival efforts complement the much larger family planning efforts funded through USAID's population program and often reach previously underserved populations.

Projects raise awareness of the risks of women having too many children, too close together, and at too young or too old an age. Sixty-six child survival projects in 30 countries trained health personnel in 1990 to educate communities about high risk births and distribute modern contraceptives. Breastfeeding, specifically to encourage improved birth spacing, was promoted in 25 countries. In Nepal, Save the Children Federation is using women health volunteers to promote contraceptive use among new mothers. Television and radio programs, flyers, calendars, and other materials promote child spacing in Zaire.

Many child survival emphasis countries promote, produce, and/or distribute contraceptives through the private sector. Private physicians and practitioners in Indonesia can now distribute oral and injectable contraceptives since the deregulation of their distribution. Condoms and oral contraceptives are marketed by local companies in Nepal and Morocco, with assistance from USAID.

Demographic and Health Surveys (DHS) in 35 countries have documented that closely spaced births are associated with a high infant mortality rate. Surveys in 28 countries reveal decreases in fertility rates. For example, between 1978 and 1989 the fertility rate for teenagers (15 to 19 years old) in Sudan dropped 39 percent.

Despite program accomplishments, high risk births are still a major problem. For example, 75 percent of all women under 50 years of age in Bangladesh would have a high risk birth if they were to have a child in the near future; 37 percent of all Bangladeshi women would be at risk for more than one risk factor.



MATERNAL HEALTH

INCREASING ACCESS AND QUALITY

■ **Pregnancy and childbirth are the greatest health risks many women in developing countries face during their reproductive years.** Pregnancy- and delivery-related complications take the life of close to 500,000 women annually (Figure 28) and account for between 25 and 50 percent of all deaths of women of reproductive age in developing countries. Over the course of their lifetime, for example, women in Africa face a 1 in 25 chance of dying from pregnancy or birth-related causes. This compares with a rate of 1 in 1,750 for developed countries. Of all public health statistics monitored worldwide, the disparity in maternal mortality rates between developed and developing countries is the widest.

■ Most maternal deaths are directly attributable to five causes: hemorrhage before or around the time of childbirth; infection caused by unhygienic delivery practices; unsafe abortion; eclampsia associated with very high blood pressure; and prolonged or obstructed labor, which can lead to hemorrhage, infection, dehydration, and metabolic problems.

■ **Adequate maternal health services lessen the risk of lasting impairment or death from complications arising during pregnancy or delivery.** Prenatal care services are important in identifying women at high risk for complications (see earlier section on high risk births). However, in most developing countries, only about one-third of pregnant women receive any prenatal care, and lack of prenatal care is particularly pronounced in rural areas (Figure 29). In most of the developing world, between 60 and 80 percent of women deliver their babies at home with the assistance of a traditional birth attendant or other untrained person.

28 PREVENTABLE DEATHS

The toll of preventable maternal deaths, by region

	Maternal deaths each year	Life-time risk	Maternal deaths per 100,000 live births
South Asia	296,000	1:38	572
Africa	150,000	1:25	640
Latin America	34,000	1:90	270
East Asia	12,000	1:870	55
Developed countries	6,000	1:1750	<20

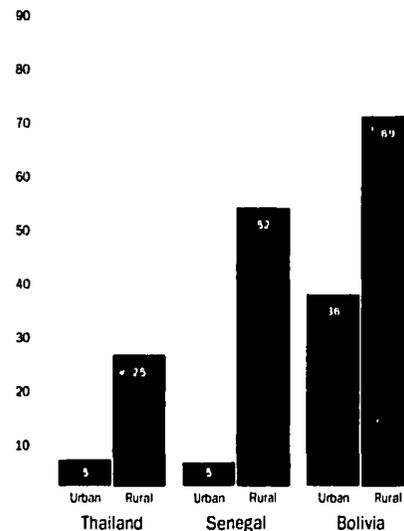
■ A woman's nutritional status can be a major complicating factor during pregnancy and childbirth. Surveys in over 80 developing countries indicate that from 20 to 45 percent of women aged 15 to 44 are undernourished. As a result, many women enter pregnancy underweight and do not gain sufficient weight while pregnant to ensure adequate nutrient stores for themselves and their infants. In addition, the World Health Organization estimates that two-thirds of pregnant women in developing countries are clinically anemic, which increases the risks associated with pregnancy and delivery, particularly the risk of hemorrhaging.

■ **The factors that place a mother's life in jeopardy during pregnancy and delivery also jeopardize the life of her infant.** Data from the Demographic and Health Surveys in 24 countries show that 40 to 64 percent of all infant deaths occur during the first 28 days of life, the time when mortality most directly reflects the mother's own health and nutritional status. Poor maternal nutrition, in addition to malaria and sexually transmitted diseases, causes low birth weight, and low birth weight babies are three times more likely than other babies to die during infancy. An estimated 750,000 infants die each year in developing countries due to tetanus infections acquired in conjunction

29 ACCESS: URBAN AND RURAL

Prenatal care, an essential health service, varies by mother's residence.

100 Percent of births in five prior years with no prenatal consultation



with childbirth. Yet, only 29 percent of pregnant women receive the two doses of tetanus toxoid vaccine needed to protect both the mother and the infant. Maternal mortality during childbirth increases the likelihood that the infant left behind will not survive either. According to a study in Bangladesh, a motherless infant has a 95 percent chance of dying before reaching the age of one.

■ **Interventions to prevent maternal mortality in developing countries focus on increasing access to quality maternal health and delivery services and improving the nutritional status of women of all ages.** An estimated 60 to 80 percent of all direct obstetric deaths and 85 percent or more of all maternal deaths in developing countries could be avoided through proper handling of pregnancy and childbirth. Recognizing this,

maternal health programs are training community-level health workers to provide basic maternal services and to recognize signs that a woman is at risk of a complicated pregnancy or delivery so that an early referral can be made to the appropriate health facility. Home-based maternal records, similar to growth monitoring charts for children, have been developed as a tool to aid in monitoring women's health during pregnancy and to alert mothers, families, and the community at large to risk factors in pregnancy and childbirth.

■ Traditional birth attendants are being trained to recognize when a pregnant woman should be referred for medical treatment and how to eliminate delivery practices that endanger the life of mother and child. Through the World Health Organization, traditional birth attendants have learned to prepare and use simple delivery kits containing items essential to a clean at-home delivery. Both traditional birth attendants and community health workers are also being trained to teach mothers and other community members about a pregnant woman's need for prenatal care and a proper diet, how to prepare for a safe delivery, and how to care for mother and infant after childbirth.

■ Health care systems, for their part, must ensure that referral centers – clinics and hospitals equipped to handle obstetric complications – are available to provide maternal services that cannot be provided in the community. Perhaps more than any other aspect of primary health care, maternal health services require an effective referral mechanism in order to save lives. In some communities, health care workers have organized transportation pools so that women in need of emergency care can be transported quickly and safely to a referral center. In areas where transport is limited or women have to travel great distances to a referral center, “waiting

homes” are being organized so that women in danger of delivery complications can spend the last few weeks of their pregnancy close to the obstetric center.

■ Programs to improve the health and nutrition of women are essential to efforts to reduce maternal mortality. Through a variety of channels, women are being taught the basic requirements of a healthful diet and how to obtain the nutrients they and their families need from locally available foods. Where feasible, home or community gardens are being encouraged as a means of increasing the amount and variety of food available within the community. Community-based food supplementation programs also provide pregnant and lactating women with the nutrients they need. Similarly, anemia is being prevented through distribution of iron folate supplements in the same health outlets developed for distribution of oral rehydration salts.

■ **Improving the nutritional status of women breaks the cycle of poor maternal health and low birth weight babies that plagues so much of the developing world.** Improved maternal health and nutrition start with the health and nutrition of young girls and as such are inextricably linked to the status and treatment of female children in regard to feeding, immunization, and other requirements of child health and development, including education. Properly nourished girls grow up to be well-nourished women, who are less susceptible to infection, obstructed labor, and other complications during pregnancy and childbirth. Properly nourished women have well-nourished infants and well-nourished infants have a head start on normal growth and development.

USAID'S ROLE

In 1990, USAID devoted \$21 million to maternal health and nutrition activities in over 60 countries. Earlier, in 1988, USAID stepped up its efforts to improve maternal health and nutrition by launching the MotherCare (Maternal and Neonatal Health and Nutrition) project. MotherCare works to improve pregnancy outcome through technical assistance, training, and research in 14 countries.

Building on existing community-level health networks, USAID emphasizes training traditional birth attendants (TBAs) and midwives to perform safe, clean deliveries and to refer high risk pregnancies to more sophisticated levels of care. In Guatemala, a Health and Child Survival Fellow works with MotherCare to reduce inappropriate (and therefore dangerous) use of the drug oxytocin by TBAs. The American College of Nurse-Midwives developed a manual for training midwives worldwide in lifesaving delivery skills.

USAID also supports critical research to improve maternal health and nutrition services. In 1990, 65 projects, including projects sponsored by USAID missions in over 20 countries, conducted such research. Through HealthTech, USAID sponsors the development of maternal health technologies, such as diagnostic tests. In addition, USAID supports efforts by host country governments and U.S. and local PVOs to target food-supplementation programs to meet the special, increased nutritional needs of pregnant and lactating women. In 1990, 15 such targeted food-supplementation programs were conducted in 9 countries, including Bolivia, the Dominican Republic, and Zaire.

The community-based child survival networks developed by USAID-supported PVOs offer good channels for expanding maternal health and nutrition care. As an example, in Indonesia, Project Concern International trains TBAs not only in safe delivery practices but also to motivate mothers to go to health service posts for prenatal care.



ACUTE RESPIRATORY INFECTION

BUILDING ON EXPERIENCE

■ **Acute respiratory infections (ARI), specifically pneumonia and other acute lower respiratory infections, are underlying factors in an estimated one-third of all deaths among children under five in the developing world.** Thus, their magnitude as a cause of childhood morbidity and mortality is similar to that of diarrheal disease. In Egypt and other countries where significant progress has been made in expanding immunization coverage and using oral rehydration therapy to treat diarrhea, acute respiratory infections have become the principal cause of child mortality.

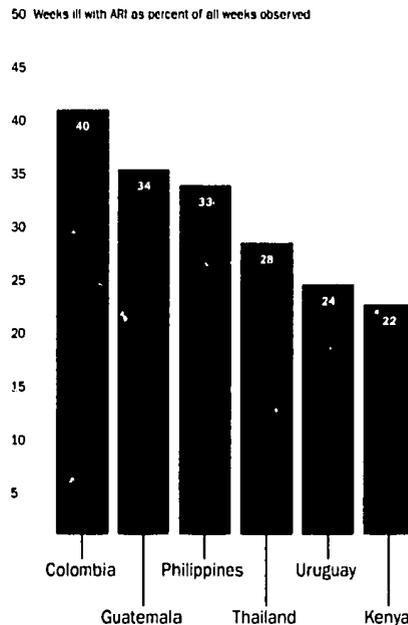
■ **Worldwide, the average child living in an urban area experiences six to eight acute respiratory infections a year (somewhat fewer in rural areas).** Studies in six countries found that, on average, children had signs of respiratory infection for 22 to 40 percent of the weeks they were observed (Figure 30).

■ **Upper respiratory infections, the most common type of ARI, cause a great deal of sickness and discomfort, but they are rarely life threatening.** Indeed, the greater danger is excessive treatment with antibiotics and other drugs that have no impact on the infection but can cause toxic side effects and stimulate bacterial resistance to antibiotic therapy. Unfortunately, many families and health care systems in developing countries spend their scarce resources on such remedies.

■ **Lower respiratory infections, although much fewer in number, kill over 4 million children in developing countries each year.** About one-fourth of those deaths are due to respiratory complications of measles and whooping cough (pertussis), both of which can be prevented by immunization. Most ARI-related deaths are due principally to pneumonia. An estimated 20 percent of infants and 5 to 7 percent of children aged one

30 COMMON INFECTIONS

Children spend large amounts of time ill with acute respiratory infections.



to four get pneumonia annually in developing countries. Death can come within 48 to 72 hours, and many of those afflicted die in their homes without ever having been seen by a health worker.

■ **As with many childhood diseases in developing countries, malnutrition is both a cause and an effect of ARI. Children who are malnourished have more frequent and more severe episodes of ARI, and conversely, malnutrition is exacerbated by frequent periods of sickness.** Low birth weight infants and seriously malnourished children are particularly at risk of not being able to survive a severe case of pneumonia. A study of 537 Filipino children admitted to an urban hospital for treatment of acute lower respiratory infection

found that malnutrition doubled a child's risk of dying. Other factors, such as diarrhea, measles, diphtheria, and whooping cough, are often associated with pneumonia and further reduce a child's chances of survival. Breastfeeding status is also related to a child's chances of having life-threatening acute lower respiratory infections. A study in a disadvantaged urban area in Lima, Peru, found that infants fed with formula and solid food were over five times as likely to have acute lower respiratory infection as infants who were exclusively breastfed.

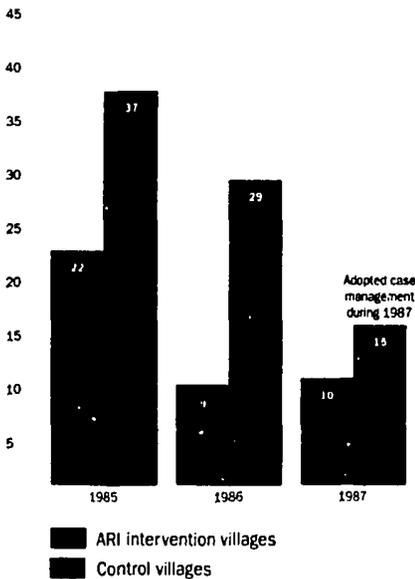
■ **Several other factors are thought to increase the risk for ARI.** Young maternal age, mother's educational level, the number of other children, and a mother's working outside the home seem to increase a child's risk of ARI. These factors, alone or in combination, can limit a mother's ability to care for her children and to recognize when prompt medical treatment is needed. Some data suggest that environmental conditions within the home may also place children at increased risk of ARI. In particular, overcrowded sleeping areas and kitchen cookfires coupled with poor ventilation may increase a child's risk of developing ARI.

■ **An estimated one-half of all ARI mortality could be averted through a combination of preventive action and increased availability of diagnosis and treatment for pneumonia.** The fact that one-quarter of ARI deaths are associated with measles and whooping cough underlines the urgency of vaccinating all children against those diseases. In addition, as described throughout this report, nutrition programs and other child survival interventions designed to improve the nutritional status of children – prenatal care for mothers, promotion of breastfeeding, and control of diarrheal disease – play an important role in the prevention of childhood disease, including ARI.

31 IMPACT OF CASE MANAGEMENT

Community-based case management has been shown to reduce ARI deaths.

50 ARI deaths per 1,000 live births in Abbottabad District, Pakistan



■ **A decade of collaborative research confirms that most life-threatening pneumonias are caused by two common bacteria.** The conclusion of this research is that, in most developing countries, the two bacteria can be effectively treated with well-known, inexpensive, and relatively nontoxic antibiotics. Global efforts to improve the diagnosis and treatment of pneumonia at the community level can now move forward based on the delivery of antibiotics through existing primary health care services.

■ **Pilot projects supported by USAID, the World Health Organization, and other donors have shown that frontline health workers can be trained to diagnose and treat pneumonia effectively.** Briefly, local health workers are being

trained to identify the nature of an ARI episode based on a set of questions on the child's symptoms, including severity of cough and the presence of wheezing, indrawn chest, and rapid breathing. If the child is diagnosed as having pneumonia, the health worker prescribes a standard antibiotic regimen, to be followed by the mother for five days, and provides 48-hour follow-up. Children with pneumonia too serious to be treated in the home are referred to the appropriate available level of health care for treatment. Data from a community-based project in Pakistan (see Figure 31) illustrate the effectiveness of this new approach.

■ **To date, 36 countries have begun ARI programs based on the new case management technique.** Successful, wide-scale implementation of the new technique will require training and careful supervision of local health workers, establishing delivery mechanisms to ensure adequate supplies of appropriate antibiotics at local health stations, gaining support for the effort from the medical and pharmaceutical communities, and establishing links between local health workers and higher level treatment facilities. Strong communication programs will also be required to teach mothers to recognize when respiratory infections require medical attention and to teach health workers how to work with mothers in providing home-based care.

■ **Current efforts to prevent and treat life-threatening acute respiratory infections in infants and children are a step toward more fully integrated child health services.** Indeed, the experience and systems needed to launch national ARI programs are, in many instances, already in place due to the success of international efforts to make immunization against childhood diseases and oral rehydration therapy universally available.

USAID'S ROLE

Since 1989, USAID has allocated \$12 million to combat acute respiratory infections in at least 40 countries. USAID is developing an ARI case management strategy based on a community-level approach to treating ARI that has been shown to be effective in at least eight pilot projects, including a USAID-sponsored program in Jumla, Nepal. Together, the pilot programs have demonstrated that community-level health workers can be trained to diagnose and treat childhood pneumonia correctly.

CARE, Plan International, Project HOPE, and Save the Children Federation are among 13 PVOs already using the community-level approach in the management of ARIs in Guatemala, Indonesia, Sudan, and other countries. In 1990, the ACSI-CCCD project continued to assist the development of a national ARI control program in Lesotho and provided other ARI assistance in Burundi and Swaziland. The HealthTech project is currently developing ARI diagnostic tests for use by nonmedical professionals working at the community level.

Effective use of the ARI case management strategy depends on well-trained and supervised health care workers. Operations research by PRICOR in Colombia, Indonesia, and the Philippines has revealed a need for such activities in order to improve health worker performance.

Another aspect of USAID's ARI control program involves developing communication programs to teach mothers when and where to seek help in treating ARIs, a component shown to be of critical importance in the Jumla project. In Honduras, HEALTHCOM recently developed an ARI communication strategy, including one-on-one demonstrations by health workers, that has improved mothers' ability to care for children with acute respiratory infections.



PEDIATRIC AIDS JEOPARDIZING GAINS IN CHILD SURVIVAL

■ The number of infants born with the human immunodeficiency virus (HIV) is projected by the World Health Organization to increase more than tenfold in the 1990s – from a worldwide total of 700,000 in 1990 to an estimated 8 to 10 million by the year 2000. The vast majority of those HIV-infected infants will soon develop AIDS (acquired immunodeficiency syndrome); nearly half will die before they are two years old; and 80 percent will die before they are five. In some developing countries, HIV/AIDS may become the leading killer of children during the 1990s.

■ The projected increase in pediatric HIV/AIDS cases is based on several factors: continued increases in the number of HIV-infected adults (currently 8 to 10 million), increased heterosexual transmission of HIV infection, and the fact that over 95 percent of HIV-infected adults are aged 20 to 49, which means that many women are becoming infected during their prime childbearing years.

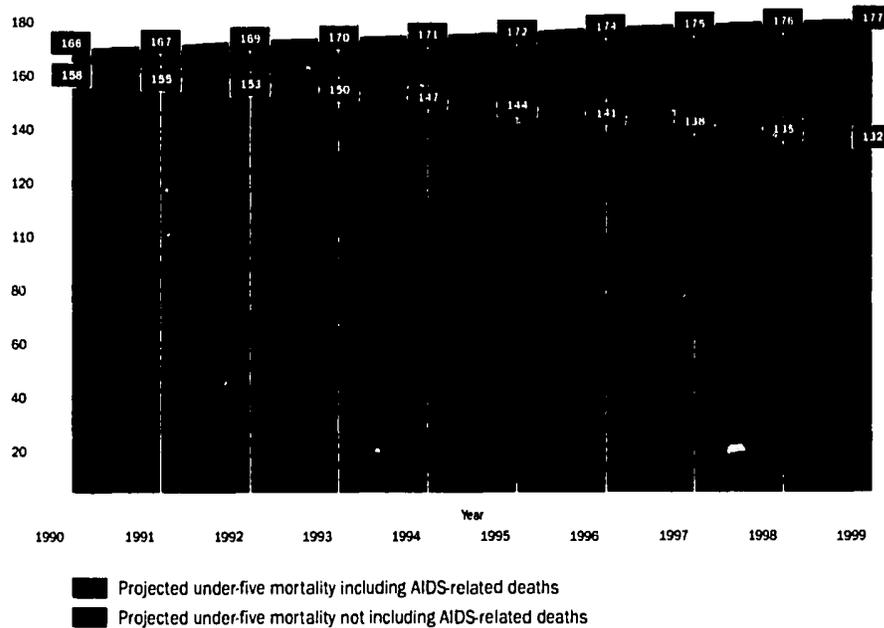
■ Children will bear an increasing share of HIV/AIDS morbidity and mortality as the pandemic continues. An estimated 3 million women of childbearing age were HIV infected in 1990. Based on studies of HIV-infected women around the world, 25 to 40 percent of infants born to HIV-infected mothers will be HIV infected, and the risk of perinatal transmission (mother to child) increases with the progression of the mother's disease.

■ Over 80 percent of HIV infections occur in the three regions of the developing world: Africa, 63 percent; Latin America, 13 percent; Asia/Oceania, 6 percent. Within those regions, the devastating burden of pediatric HIV/AIDS is falling most heavily in sub-Saharan Africa and the Caribbean.

32 AIDS AND CHILD MORTALITY

HIV/AIDS is expected to increase child mortality by 20 to 43 percent in 10 African countries.

200 Deaths of children under five years of age per 1,000 live births



■ In sub-Saharan Africa in particular, AIDS threatens to reverse the hard won gains made during the 1980s in promoting child health and survival.

The World Health Organization estimates that 5 million adults in sub-Saharan Africa were HIV infected as of 1990 and that about half of those infected were women. Moreover, 90 percent of all perinatal transmission of HIV is estimated to occur in sub-Saharan Africa. The significance of these numbers in terms of increased child mortality is underscored by Figure 32, which shows the projected annual child mortality rate during the 1990s – with and without AIDS – in 10 countries of

East and Central Africa. These estimates portend an increase in child mortality of 20 to 43 percent. In other words, up to 2.7 million additional child deaths may occur in those 10 countries alone in the 1990s due to HIV/AIDS.

■ HIV infection takes its toll quickly on children. At about six months of age, the child begins to suffer repeated bouts of diarrhea, fever, and respiratory infections. In developing countries, these illnesses, and the growth faltering that accompanies them, are similar to illnesses children commonly experience, and thus, they often are not recognized as symptoms of HIV/AIDS. Moreover, due to lack of knowledge of how HIV infection is acquired and the limited availability

of HIV blood-screening tests, many women at risk in developing countries are not aware of their HIV status nor that of their child. Even if a child in a developing country is correctly diagnosed as being HIV infected, little more can be done than to treat the symptoms.

■ **AIDS also threatens the well-being and survival of children who are not HIV infected.** The impaired health and nutritional status of HIV-infected mothers can lead to premature birth and low birth weight of noninfected, as well as infected, infants. In addition, sickness eventually limits the ability of HIV-infected mothers to care for their children, and young children are often left in the care of older siblings. When wage earners are infected with HIV, the resources available for feeding and taking care of children's other needs can become strained.

■ **Another significant aspect of the AIDS pandemic is the number of children orphaned by AIDS.** The World Health Organization estimates that 10 million noninfected children under age 10 will lose one or both parents to AIDS in the 1990s. Studies indicate that in East and Central Africa alone, AIDS-related deaths among women of reproductive age in the 1990s will leave between 3 and 5 million children motherless. Looking beyond the 1990s, USAID has projected that by the year 2015 AIDS will have created some 16 million orphans in sub-Saharan Africa alone.

■ **Families and public and private child care organizations are already straining under the burden of caring for AIDS orphans.** Older members of extended families are caring for more children while

faced with the loss of the productive labor and emotional support of the adults who fall victim to AIDS. Orphanages are being asked to take in more children than they can care for, and adoption agencies are finding it difficult to place children of AIDS parents, even if the children are not infected themselves. In urban areas, some of the older AIDS orphans end up on their own and trying to earn a living on the streets, where their life-style can put them at risk of becoming HIV infected.

■ **Given the grave implications of the rapid increases in HIV/AIDS, most program efforts are directed at preventing the spread of HIV among sexually active groups through fundamental changes in behavior and teaching children and young adults not yet sexually active about the causes and prevention of AIDS.** Through information, education and communication, programs are working to slow the spread of HIV/AIDS among young women as the first step in eliminating AIDS as a threat to child survival. For sexually active women, each contact with the health care system, whether for her own or her child's health, provides an opportunity to save a life through AIDS education, including the correct use of condoms to prevent transmission of HIV infection.

■ **Many developing countries are struggling to deal with the AIDS crisis at the same time that they are trying to maintain or increase basic health services and make structural economic adjustments to cope with the results of years of inflation and recession.** The challenge for the international health community is to find ways to maintain the momentum of the global effort to provide basic health care for all children while helping to prevent the spread of HIV infection and caring for those with HIV/AIDS.

USAID'S ROLE

An important step toward preventing AIDS in children is informing reproductive-aged teenagers and women about HIV/AIDS prevention and promoting behavioral change to reduce their risk of infection. In addition to its major support for the WHO Global Program on AIDS, USAID supports communication programs, counselling services, prevention and treatment of sexually transmitted diseases, condom distribution, and blood screening to prevent the spread of HIV/AIDS in over 65 countries, 24 of which have projects specifically targeted toward women of reproductive age.

In 1990, AIDSCOM developed communication programs that used radio, television, films, and brochures to reach women of reproductive age in 11 countries with HIV/AIDS prevention information. In Zaire, the HIV/AIDS Prevention in Africa project used mass media messages to reach young and prospective parents. With assistance from AIDSTECH, prevention education, treatment of sexually transmitted diseases, blood screening, and condom distribution were carried out in eight countries in 1990.

HIV/AIDS prevention activities are being integrated into child survival, health, and family planning projects in host countries. As a guide to the integration of AIDS and child survival programs, AIDSTECH is producing reports on the experience of the programs in Senegal and Ghana. In Senegal, mothers seeking child survival or family planning services at clinics are routinely counseled in HIV/AIDS prevention. In Kenya, World Vision Relief and Development teaches traditional birth attendants about the importance of using sterile or disposable equipment while delivering babies in order

to prevent the spread of HIV. Research in maternal and pediatric AIDS is being conducted by the National Institutes of Health and the Centers for Disease Control with support from USAID. HIV seropositivity among pregnant women and perinatal transmission of HIV are being studied in Lusaka, Zambia, and in Cité Soleil, Haiti.



MALARIA AND CHILD SURVIVAL

FUTURE DIRECTIONS

■ Nearly 60 percent of the world's population – 2.1 billion people in 103 countries – live in areas where malaria is endemic. In sub-Saharan Africa, where 80 percent of all cases occur, 1 million children succumb to malaria annually, and in many countries the number is on the rise (Figure 33). Malaria is the leading cause of death among children in Malawi and Ghana, and throughout the region it accounts for 25 to 30 percent of child mortality.

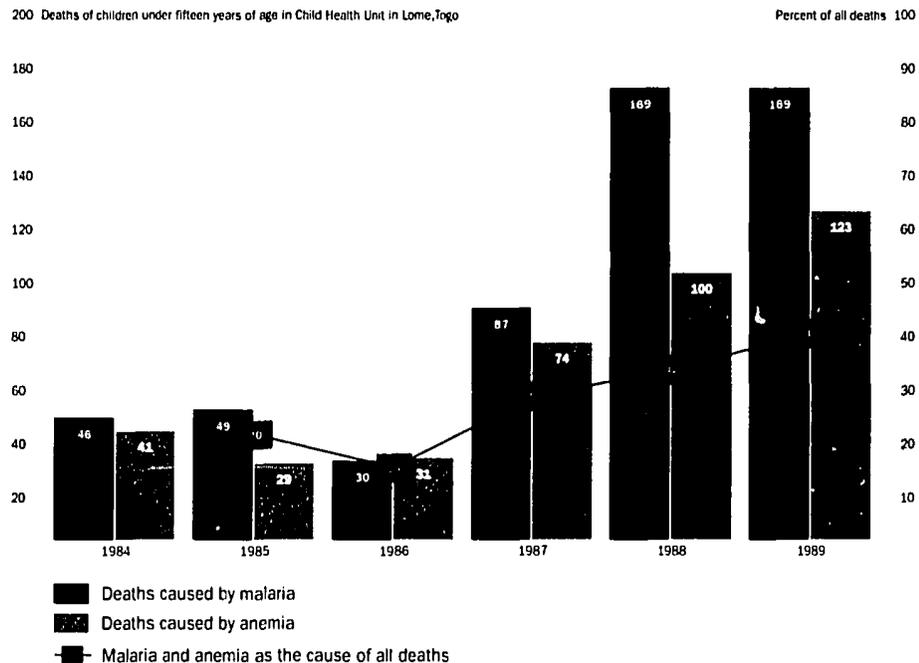
■ Between 250 and 300 million new cases of malaria are estimated to occur each year. The number of cases worldwide rose steadily in the 1980s, largely because population growth and migration and development-related activities (e.g., deforestation and hydroelectric power projects) have increased the opportunities for human contact with the malaria vector. In addition, some strains of malaria have become resistant to chloroquine, the main drug for preventing and treating the disease. Severe, chloroquine-resistant malaria is now a major problem in at least 55 countries.

■ Malaria is caused by a blood parasite, which is transmitted from one person to another by the female *Anopheles* mosquito. Malarial infection is also transmitted from mother to child through the placenta. The parasite invades the red blood cells, which can lead to anemia, spleen enlargement, liver and kidney failure, and complications involving the lungs and brain. Common symptoms include chills, fever, profuse sweating, nausea, diarrhea, muscle pain, and prostration.

■ Children's risk for malarial infection generally begins at about six months of age, when passive immunity acquired from the mother starts to wane. The fever, chills, nausea, and diarrhea asso-

33 MALARIA AND CHILD MORTALITY

As evidenced by hospital data from Togo, childhood deaths linked to malaria are on the rise in many African countries.



ciated with malaria can leave children – particularly those who are already undernourished – seriously weakened and at risk for other infections. Repeated episodes in children retard normal childhood growth and development and increase the risk of serious complications. Chronic malaria leads to anemia, which can be persistent and severe in children, and the two are often linked as a cause of child mortality (see Figure 33).

■ Infants born to women who have malaria while pregnant are at risk for low birth weight. The infants may also have anemia and a reduced immune response to other infections and to vaccines. In addition, they may have acquired the infection while in the womb and

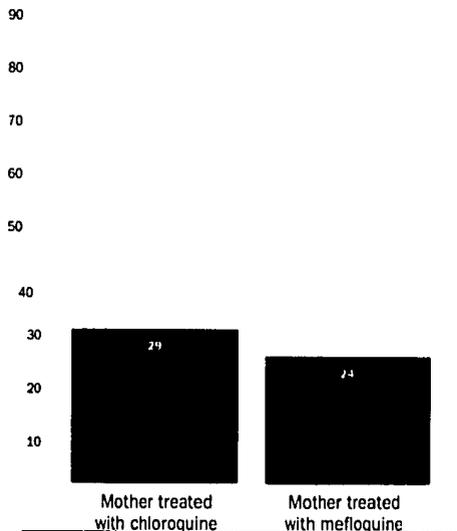
develop malaria within a few weeks of birth. In sub-Saharan Africa alone, some 20 million pregnant women are estimated to be infected with malaria each year, and thus at risk for transmitting malaria perinatally and for giving birth to underweight babies. The Centers for Disease Control estimate that some 3 million African infants are severely underweight at birth due to malaria.

■ Efforts to prevent and treat malaria include strengthening diagnostic capabilities by equipping laboratories and developing more efficient blood-screening techniques, implementing national malaria control programs, testing the use of

34 MALARIA AND BIRTH WEIGHT

Treatment with an effective drug during pregnancy can reduce low birth weight.

100 Percent of first born infants with low birth weight in Mangochi, Malawi



second-line drugs, setting up surveillance systems, training health workers, and using a variety of control methods to break the human-mosquito chain. Progress is also being made in developing a malaria vaccine that can be incorporated into the childhood immunization series, but much work remains before such a vaccine becomes a reality.

■ **Within child survival programs, early diagnosis and treatment of malaria among infants and children and prevention of low birth weight babies are the primary means of preventing the potentially life-threatening complications of malaria.** Health care workers are being trained to recognize the clinical signs of malaria, to use first- and second-line drugs correctly, and to look for signs of drug resistance. Treatment of malarial

infection in pregnant women is also being investigated. A study conducted in an area of Malawi with high levels of chloroquine-resistant parasites compared use of the drugs mefloquine and chloroquine for chemoprophylaxis of pregnant women and the impact on infant birth weight. Preliminary results suggest that chemoprophylaxis with an effective second-line drug during pregnancy can reduce placental infection and the incidence of low birth weight babies (see Figure 34).

■ Malaria control programs have traditionally relied on a mix of strategies. Principal among them have been (1) spraying mosquito-infested areas with insecticide; (2) eliminating mosquito breeding areas by draining ditches, planting trees in swampy areas, and the like; and (3) promoting family-oriented control measures, such as use of protective clothing, window and door screens, and insect repellents. Recent trials have shown insecticide-impregnated bed nets to be a safe way of protecting people from insect bites while they sleep. The nets can be treated by community members and are effective for 6 to 12 months.

■ Despite progress in some areas, malaria control programs are in a state of flux. Concern about the human and environmental impact of heavy use of insecticides and the development of chloroquine-resistant parasites and insecticide-resistant mosquitos have prompted a major rethinking of how area-specific programs can best prevent and treat malaria. Major studies are in progress (see sidebar) and regional meetings will be held throughout 1991 as preparation for a 1992 global summit on malaria, at which participants will develop strategies for improved control of malaria.

USAID'S ROLE

As malaria prevention and control become more complex, USAID is focusing on monitoring the problem, identifying better solutions, and adapting programs to address new challenges. Since 1985, USAID has allocated \$125 million to malaria activities.

The Vector Biology and Control (VBC) project helps some 40 countries develop strategies with a broad range of malaria prevention and control measures. In El Salvador, VBC assisted in a community-based malaria treatment and control program that contributed to an 84 percent decline in malaria cases nationwide between 1984 and 1990.

Six PVOs in 10 countries support community-based malaria control. World Vision Development and Relief and Save the Children Federation, among others, involve communities in eliminating mosquito-breeding areas, teach health workers how to treat malaria, and establish revolving drug funds.

USAID has long supported research, testing, and development of a vaccine to reduce illness and death brought on by malaria. Candidate vaccines are now under development and several have been tested in humans.

In 1990, research on malaria was carried out by 34 projects. An Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD) study in Malawi found that using mefloquine as a chemoprophylaxis among pregnant women reduced the incidence of low birth weight babies. Studies are also examining the effectiveness of insecticide-impregnated bednets and larvae-eating fish. A VBC study found that effective malaria control measures can increase labor productivity.

USAID is also supporting research to help chart new directions in malaria control. The Institute of Medicine is studying the status of malaria treatment and control efforts, including vaccine research, and will make recommendations on future directions. The American Association for the Advancement of Science is exploring alternative prevention methods and the impact of other sectors, such as agriculture and forestry, on malaria in Africa.



WATER, HYGIENE, AND SANITATION HEALTH AND CHILD SURVIVAL

■ **Today, only half the children in the developing world live in families that have access to safe drinking water.** Even fewer have access to sanitary waste facilities. As Figure 35 shows, although progress is being made in increasing access to safe water and sanitation in developing countries, the unmet need is still large, particularly in rural areas.

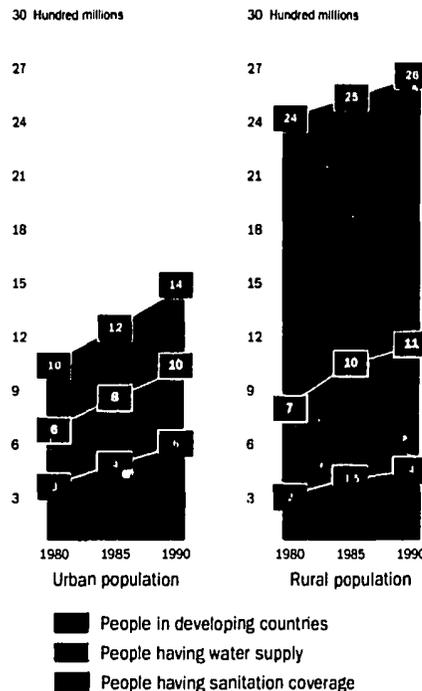
■ **Lack of safe water and adequate sanitation exposes children to diseases – principally diarrhea – that threaten their lives.** Each year, 4 million children die from diarrheal disease. For millions more children, repeated bouts of diarrheal disease impair their nutritional status, reduce their resistance to infection, and slow their overall growth and development.

■ **Unsafe water carries disease-causing microorganisms, and drinking it or using it to prepare food is dangerous to health.** Lack of sanitary facilities – toilets or latrines – and ineffective sanitation practices lead to fecal contamination in the household and in the community. Without sufficient water for personal hygiene and proper food preparation, family members are at risk of being afflicted with debilitating, even life-threatening, diseases.

■ **Research studies show that increasing the use of safe water and sanitary waste facilities in developing countries significantly reduces the toll of diarrheal morbidity and mortality.** A summary analysis of 49 studies of the impact of water and sanitation on diarrheal disease indicates that a median reduction of 22 percent was achieved in diarrheal morbidity among adults and children. In three studies that specifically examined the impact on childhood mortality, improved water and sanitation was associated with

35 ACCESS TO WATER

Access to water and sanitation rose in developing countries during the 1980s.



a median reduction of 65 percent in childhood deaths due to diarrheal disease. (An earlier section of this report described how child survival programs are working to protect children from the devastating effects of diarrheal disease.)

■ **Further evidence of the importance of safe water and sanitary waste facilities to child survival comes from studies conducted in six countries.** Interventions to improve water and sanitation in the six countries were associated with a median reduction of 60 percent in total child mortality. The percentage reduction in infant or child mortality reported and type of intervention involved are shown in Figure 36. Although the studies reflect a

wide variety of settings and types of intervention, they present a clear picture of the potential of water and sanitation improvements as a child survival intervention.

■ **Water and sanitation holds great promise because they attack the root causes of many health problems with a potential long-term solution.** For this great promise to be realized, however, water and sanitation projects must be planned and implemented carefully. First, safe water by itself is not sufficient. Water projects must also provide access to safe excreta disposal facilities. Second, the water supply must be readily accessible and plentiful enough that families have adequate water for drinking, cooking, and keeping themselves and their home environment clean.

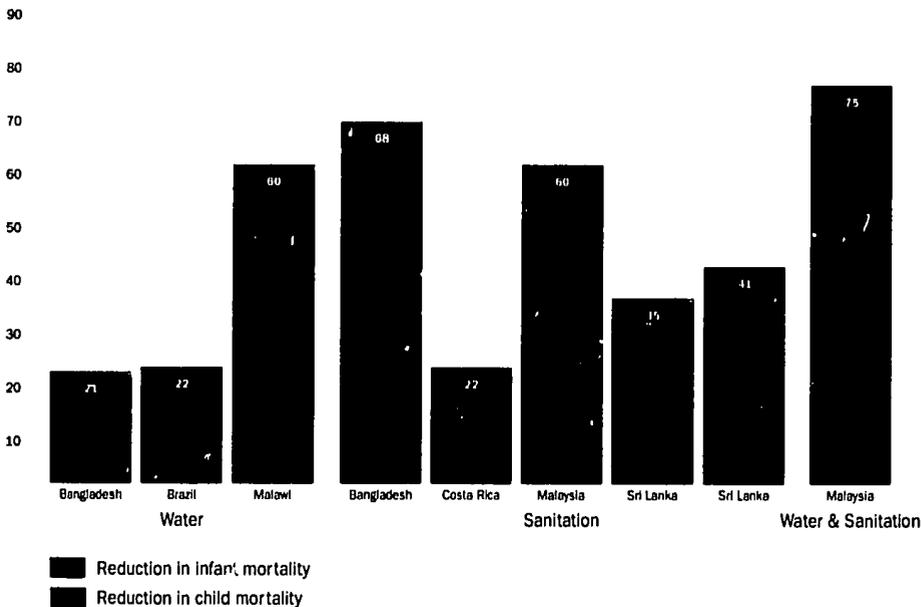
■ **From the standpoint of impact on health, hygiene education is an indispensable component of a water and sanitation project.** If families do not know how to use their new facilities properly, health benefits will not be forthcoming. In particular, mothers and other caretakers must know how to store and use water correctly, to wash their hands with soap and water – especially before preparing food, to dispose of children's feces safely, and so on. Thus, water and sanitation projects place heavy emphasis on training hygiene educators and other community workers who can promote behavioral change in communities newly served by water and sanitation projects.

■ **In addition to their direct effect on improving child health, adequate water and sanitation improve family life in ways that benefit children indirectly.** For example, if a mother does not have to spend many hours a day hauling

36 IMPROVED WATER CONDITIONS

The impact of improved water and sanitation on infant and child mortality is seen in a variety of study sites.

100 Percent reduction in mortality by type of intervention and age group



water from a distant river or spring, she will have more time to spend taking care of her children and engaging in other activities to benefit the family. Having easy access to water enables many families to have small home gardens in which to grow food. Safe water and adequate sanitation facilities bring health to mothers and fathers, as well as children, which benefits the entire family.

■ **Sometimes just obtaining water can be an economic hardship for families.** In water-scarce areas, families must purchase their drinking water from vendors. They may pay many times the amount paid by families with access to community wells or municipal water systems, and often the water is not safe to drink. Money

spent buying water from vendors could be better spent on food, housing, and school – all to the benefit of children and adults.

■ **Water and sanitation improve the overall quality of life and health.** People who live in areas where clean water is plentiful and taken for granted cannot fully appreciate the struggles and problems of the millions of families whose very existence turns on seeking water. Increasing access to safe water and adequate sanitation in developing countries will take commitment on the part of communities, national governments, and international donors alike and will be reflected in healthy and productive families.

USAID'S ROLE

Recognizing that water and sanitation projects can make long-term contributions to child survival, USAID has allocated \$148 million to water and sanitation for health since 1985. These funds are apart from USAID support for capital projects and are focused on community-based systems and increasing the sustainability of systems through policy formulation, institutional and human resource development, hygiene education, and cost recovery.

In 1990, 24 countries were assisted by the USAID-funded Water and Sanitation for Health (WASH) project. WASH also conducted a technical review of the impact of water and sanitation on child mortality and developed a comprehensive training guide for hygiene education, a critical element in maximizing the impact of new facilities. WASH has also worked to increase women's involvement in water and sanitation activities, for example, by setting up women's interest groups within water user associations throughout Tunisia.

USAID-assisted PVOs seek to involve community members in the planning, construction, and operation/maintenance of water and sanitation systems. Through the Basic Rural Health project in Zaire, implemented by Église du Christ au Zaire, water supply and sanitation systems are being built and operated using labor, material, and funds contributed by villagers. In Haiti, the success of a community water project implemented by CARE led the State Potable Water Service to endorse community-managed water systems. USAID-assisted PVOs also conduct hygiene education sessions to teach villagers how to use water and sanitation systems properly.

Water and sanitation projects can gain a community's respect and confidence and thereby facilitate other child survival activities. In 200 Bolivian communities, the activism initially stirred by the desire for water carried over to health education as community members turned out for 2,900 popular health education sessions conducted by CARE.



CONCLUSION

LESSONS LEARNED AND FUTURE DIRECTIONS

As USAID and other donors look to the 1990s and the new challenges for child survival, it is valuable to draw lessons from particular country experiences that are relevant to child survival programs as a whole. Evaluation is part of every USAID project and is contributing to the shape and success of many child survival projects. In addition to specific project evaluations, USAID's Bureau for Program and Policy Coordination has undertaken a series of evaluations of child survival programs, beginning with Egypt, Indonesia, Morocco, and Nepal. Evaluations are now under way in Latin America and are being planned for Africa. This section draws on the evaluations that have been completed to revisit the major aspects of USAID's child survival strategy and to illustrate important lessons learned.

■ **Focus on a limited number of proven interventions.** The four completed evaluations offer strong support for beginning with a limited number of proven interventions to reduce mortality and catalyze the expanded delivery of primary health care services. Egypt initially pursued the "twin engines" of oral rehydration therapy (ORT) and immunization and is now adding acute respiratory infection (ARI), breastfeeding, and other interventions. Morocco began with four interventions and Indonesia with a vigorous family planning program to which child survival activities were sequentially added. Nepal pursued a more wide-ranging strategy; but a focused malaria program dating to the 1950s and a recent immunization effort have been that country's most successful health programs.

A clear focus enables programs to reach an ever greater portion of the population rapidly and to exploit available infrastructure and personnel. In Egypt, Indonesia, and Morocco, infant mortality rate has fallen below 75 deaths per 1,000 live births

and coverage with the BCG vaccine has been extended to over 80 percent of the population. Country programs that have had success in expanding a limited set of interventions now face two main challenges. First, focused and sometimes separate or vertical programs must consolidate their activities and integrate them into routine efforts. Second, programs must evolve and meet broader health needs and expectations. ARI and maternal and perinatal health are two of the problems to be faced in many countries. In Africa, especially, AIDS and malaria are two additional challenges.

■ **Develop country-specific strategies.** The four programs were based on earlier programs that had built health infrastructure. USAID-funded projects in the early 1980s had helped the ministries of health develop and test country-specific strategies that became the basis of their child survival program. When additional child survival resources became available, it was possible to implement the tested strategies rapidly and on a large scale.

Successful country programs have adopted effective strategies appropriate to reach out beyond fixed health facilities into communities. Whether by home visitors (Morocco), community health rallies (Indonesia), mass communication and the private sector (Egypt), or community health workers (Nepal), each found a way to expand coverage well beyond the range of the existing health infrastructure.

■ **Encourage donor collaboration.** USAID always seek to work in conjunction with other donors. The United Nations Children's Fund and the World Health Organization have been particularly active in expanding immunization coverage, and other donors have contributed in other important ways. Collaboration among

donors enables each to leverage its investment of human and financial resources. Donor collaboration has been most successful where a specific mechanism has been set up and regular interaction takes place around common goals.

■ **Involve the private sector.** The private sector can play a major role in delivering basic health services, but in most countries its potential has only begun to be tapped. Private voluntary organizations (PVOs) are filling distinct needs in child survival programs. Some PVOs, such as Rotary International (polio vaccination), Helen Keller International and the International Eye Foundation (vitamin A), and the Program for Appropriate Technology in Health (technology research and development), have focused on a selected intervention or area and moved on to large-scale application—and impact. In countries such as Bolivia, Haiti, and Sudan, PVOs have joined together to support services in large areas of a country. Other PVOs work on a small scale in underserved communities, as in parts of Indonesia.

Child survival programs have also engaged the for-profit private sector. In Egypt and Morocco, the private sector brought expertise in communication and social marketing. Local production of oral rehydration salts and sales through private pharmacies contributed to the rapid expansion of the ORT program in Egypt. Gaining the support of private physicians and their medical association was invaluable in establishing the credibility of a new treatment.

■ **Plan for sustainability.** The experience of the family planning program in Indonesia suggests the elements needed if a program is to be sustained without donor support: technical, managerial, and physical capacity for effective service delivery and supportive research; long-term political will at all levels; consumer demand

for the services offered; and adequate resources. After 20 years of donor assistance, much of it from USAID, Indonesia's family planning program enjoys many of these features and, most notably, is almost entirely financed by local resources, much of which comes from the consumers.

The process of reaching sustainability has begun in important ways in many other countries. Effective health communication is building community demand for child survival interventions. Political will is being generated and reinforced both in-country and externally, such as by the World Summit for Children. Methods are being developed to generate revenues to support child survival programs and to ensure that adequate in-country resources are allocated to them. And remarkable strides have been made in building institutions that can continue to deliver these essential interventions.

Despite this progress, achieving sustainability will take more time and work. USAID's support for child survival activities in the four countries dates to at least the early 1980s, before the official launching of USAID's child survival strategy. Thus, although the results are impressive, they were not achieved overnight nor without earlier investments in human and physical infrastructure. Ensuring that they are sustained will require continued attention to the financial underpinnings of the programs and to the other factors that are needed to solidify commitment and support for them.

■ **Use research and evaluation results.** All child survival programs include evaluations and many also incorporate research designed to identify problems, test solutions, and gauge impact. Periodic evaluations have shaped projects, sharpened management, and helped make mid-course corrections. Moreover, the ability

to monitor results and report on impact has helped programs sustain support among host governments and donors.

The application of practical research results has also strengthened programs, USAID has supported behavioral and operations research to support implementation of projects; development of new technologies, from new syringes to improved approaches to measuring mortality; and demographic and epidemiologic research to track progress and identify emerging issues. From increased emphasis on tetanus toxoid vaccination in Indonesia to the development of effective communication strategies in Egypt and Morocco, practical research has been an important partner in child survival programs. And now, as successful programs achieve their goals, research is helping them to identify new priorities and to develop and refine interventions that address them.

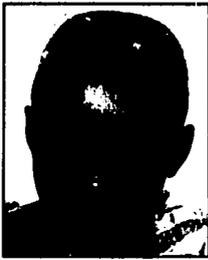
■ **Looking forward.** The success of the child survival strategy in these countries and many others forms a solid base for future programming and for the achievement of goals adopted at the World Summit for Children for the 1990s (see sidebar). Those goals outline a challenge to meet the broader needs of children. Achieving them will require a sustained commitment on the part of developing countries, communities, and families as well as the many international and national groups that can provide assistance. Achieving them will also require recognition of the emerging challenges of urbanization and industrialization and the pressures of environmental degradation, and of the spread of AIDS.

The challenge is great, but as President Bush said on the occasion of the Summit, "Let a new chapter begin, a time of unity and hope for a better future for the world's children. . . . There is much more to be done, and much that we can do together."

The World Summit for Children set forth the following major goals for the survival, development and protection of children for the 1990s. These goals were developed for implementation in all applicable countries, with appropriate adaptation in respect to cultural, religious, and social traditions.

- The reduction of infant mortality by one-third to 50 per 1,000 live births and mortality for children under age five to 70 per 1,000 live births by the year 2000.
- The reduction of maternal mortality by half by the year 2000.
- The reduction, by half, of severe and moderate malnutrition among children under age five between 1990 and 2000.
- Universal access to safe drinking water and sanitary means of excreta disposal.
- Universal access to basic education and completion of primary education by at least 80 percent of primary school-aged children by the year 2000.
- The reduction of adult literacy to at least half its 1990 level, emphasizing female literacy.
- Improved protection of children, especially in difficult circumstances.

All relevant United Nations agencies, including the World Health Organization, UNICEF, the United Nations Population Fund, The United Nations Educational, Scientific and Cultural Organization, the United Nations Development Program, the International Bank for Reconstruction and Development; a large number of nongovernmental organizations; and virtually all governments, including the United States, participated in the formulation of these goals.



AFRICA REGIONAL PROGRESS TOWARD CHILD SURVIVAL GOALS

Preventing infant and child deaths is a concern of critical humanitarian and development importance, and many of the Bureau for Africa's activities aim to increase the likelihood that African children will live to achieve their full potential. Children who are malnourished, stunted, subjected to malarial attacks, or suffer vitamin A deficiency may be at a serious disadvantage later in life. They may be too ill to attend school regularly, or too weak to concentrate on activities leading to literacy and numeric skills. Countries whose people are afflicted by high rates of disease and malnutrition may be unable to realize the full benefits of development.

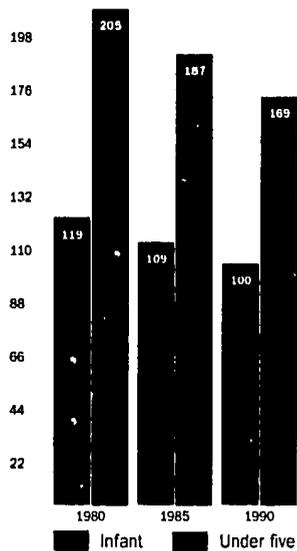
The Bureau for Africa began targeting infants and children with improved health services in 1981 with the initiation of the Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD) project in 13 participating countries (see Appendix III for the 9 currently active countries). The project focused on three strategies - increasing immunizations, controlling diarrheal diseases, and controlling malaria. Later, in 1985, the Bureau determined that priority attention and funding would be given to child survival projects in eight "emphasis" countries.

The ultimate goal of the Bureau's child survival activities is to bring about a substantial reduction in mortality among African infants and children. Considerable progress toward this goal has been achieved throughout the region. As seen in the accompanying chart, the infant mortality rate dropped 16 percent during the 1980s. Five African countries have reached the target infant mortality rate of 75 per 1,000 live births: Botswana (63), Congo (69), Kenya (74), Zambia (75), and Zimbabwe (60).

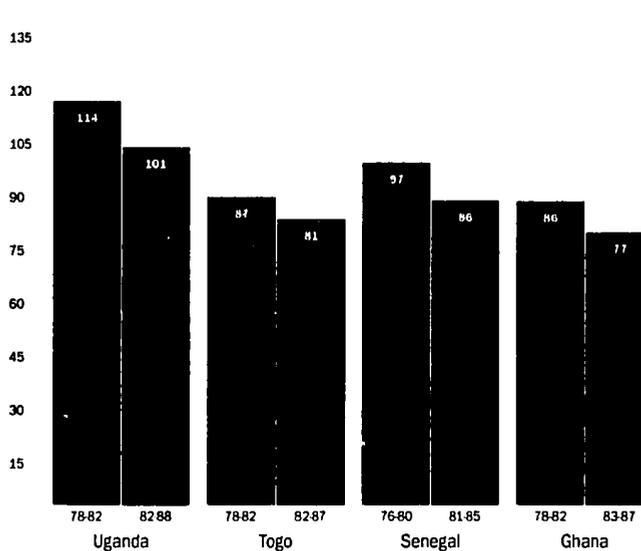
Since 1985, vaccination coverage of children under 12 months of age has doubled in the child survival emphasis countries for BCG, DPT3, polio3, and measles. For the entire African

37 MORTALITY TRENDS

220 Deaths per 1,000 live births in the Africa region



150 Deaths per 1,000 live births in selected countries in the Africa region



region, DPT3 coverage has increased by more than 20 percent. Burundi, Malawi, and Swaziland have achieved the Bureau's target of 80 percent coverage for DPT3, and the Central African Republic, Malawi, and Swaziland have achieved the Bureau's target of 80 percent coverage for measles.

The incidence of vaccine-preventable disease is continuing to decline or is remaining steady in the region as a whole. In many ACSI-CCCD countries, continued declines in disease rates may be related to improved supervision, in-service training, and cold-chain monitoring. Countries with unusually successful immunization programs, such as Lesotho, are generally small, well organized, and relatively free of political unrest.

The use of oral rehydration therapy (ORT) has tripled throughout the African region since 1985 - from just below 10 percent in 1985 to 35

percent in 1989. To achieve this, the Bureau has pursued several strategies, including health education, increased availability of oral rehydration salts (ORS), and training mothers in the use of ORT while continuing to feed their children during diarrheal episodes. Among the child survival emphasis countries, Kenya leads with an ORT use rate of 63 percent. Domestic production facilities for ORS have been established in Burundi, Lesotho, Nigeria, and Zaire. Some governments have adopted policies promoting home preparation of oral rehydration solutions. Diarrheal training units have been instituted widely in health facilities, which has led to decreased hospital admissions.

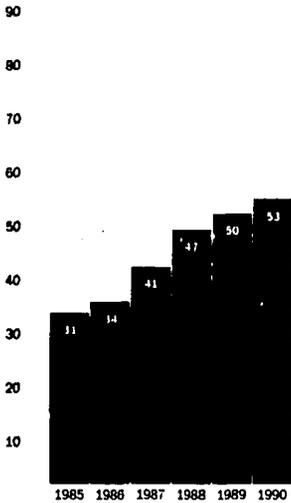
Despite improved infant and child survival throughout Africa, total deaths among children are actually increasing - due to population growth. Other factors that may increase child deaths include resurgent malaria, the AIDS pandemic, and famine or drought, particularly if economic

difficulties are not overcome. Eighty percent of the world's malaria cases occur in sub-Saharan Africa, and most of these cases are resistant to chloroquine treatment. One million children succumb to malaria each year, and an estimated 3 million infants are born with low birth weight as a result of maternal malarial infection during pregnancy. Through the ACSI-CCCD project, the Bureau for Africa is examining second-line drugs, expanding the use of diagnostic microscopy, studying nonmedical means of controlling malaria (including insecticide-impregnated bednets), and assisting in the development of surveillance systems.

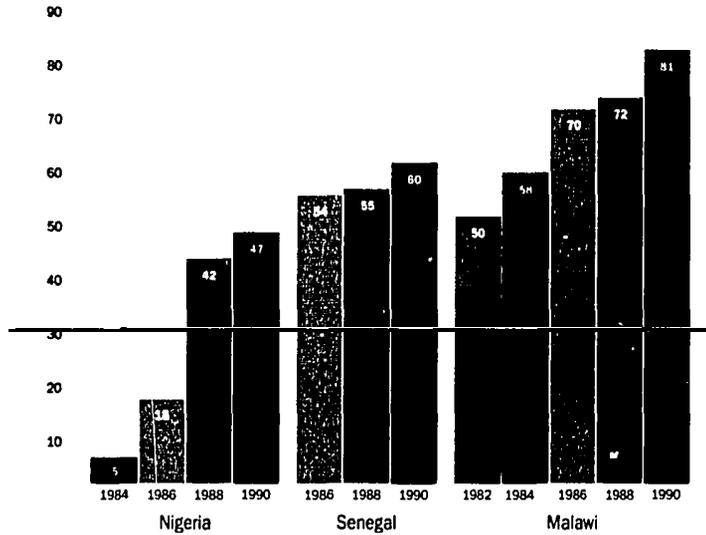
The HIV/AIDS Prevention in Africa project was initiated by the Bureau in 1988 to respond to the HIV/AIDS crisis. The full impact of AIDS on infant and child health is not anticipated before 1991-93, and it may be

38 DPT3 COVERAGE

100 Percent vaccinated by 12 months of age in the Africa region

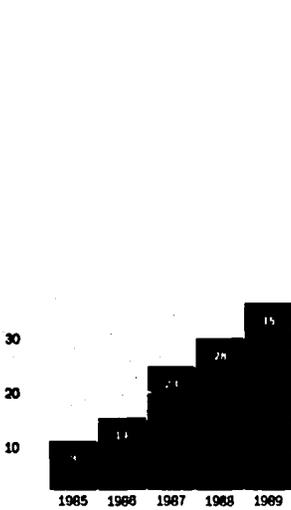


100 Percent vaccinated by 12 months of age in selected countries in the Africa region

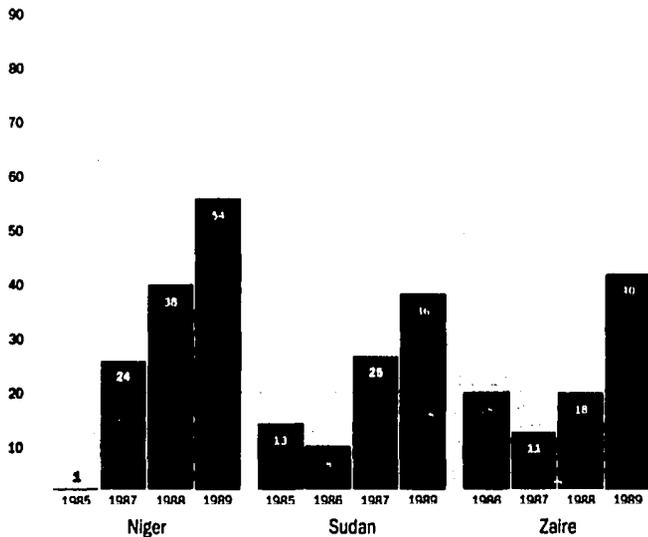


39 ORT USE

100 Percent of children under age five in the Africa region



100 Percent of children under age five in selected countries in the Africa region

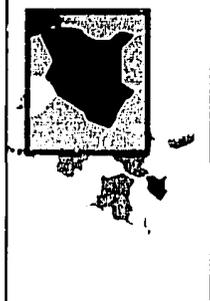


significant enough to nullify the gains in child survival that immunization and other interventions have achieved. Because an estimated 1 million African women are HIV infected, in some areas the number of AIDS orphans may exceed the capacity of relatives to care for them and may swamp institutional child-care facilities as well. Thus, besides its direct effects in reducing adults' capacity to provide adequate child care, AIDS may indirectly increase child deaths as well.

Famine and drought, which are particularly common in Africa, result in food shortages and severe malnutrition. The Bureau for Africa is supporting the integration of infant feeding into child survival, health, and family planning programs. The Nutrition Communication Project, along with PRITECH and Wellstart, aims to integrate infant feeding components into diarrheal treatment programs throughout the region.

Although clear progress has been made in controlling infant and child mortality, it is questionable whether this progress can be sustained in the eventual absence of donor assistance and outside expertise. A recent study identified factors that promote sustainability; these include (1) demonstrated effectiveness, (2) full integration of activities into established administrative structures, (3) significant funding from national sources, and (4) a strong training component.

The Bureau is currently designing a new approach to foster sustainable development in the health, population, and nutrition sector. Building on successful regional project elements, the Bureau's Africa Public Health and Population Support project will reinforce bilateral child survival programs in the context of an integrated approach to strategic planning, analysis, impact reporting, and information sharing throughout the sector.



DEMOGRAPHIC INDICATORS

Total Population:	23,000,000 (89)	Annual Infant Deaths:	80,011 (89)
Life Expectancy at Birth:	59 Years (90)	Infant Mortality Rate:	74/1,000 (89)
Children Under 1:	1,025,222 (89)	Under 5 Mortality Rate:	106/1,000 (90)
		Total Fertility Rate:	6.7 Children (89)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	58% (89)
DPT3:	74% (90)	ORS Access:	63% (89)	Exclusively Breastfed:	24% (89)
Polio3:	71% (90)	ORT Use:	63% (89)	Introduction of Solids:	71% (89)
Measles:	59% (90)	Contraceptive Prevalence:	18% (89)	Breastfed 1 Year or Longer:	88% (89)
BCG:	80% (90)	Adequate Nutritional Status:	N/A		See DATA NOTES
Tetanus2+:	37% (90)				

KENYA HIGHLIGHTS

■ Kenya has achieved a substantial increase in the use of oral rehydration therapy (ORT) over the past five years. The 1990 ORT use rate was 63 percent, up from only 3 percent in 1985. Additionally, among surveyed women who breastfed their infants, nearly all (97 percent) continued breastfeeding during the infants' bouts of diarrhea. High levels of ORT use are thought to reflect the common Kenyan practice of feeding gruels, milk, and fruit juices for treating diarrhea in the home.

■ A Food and Fluid Panel of Kenyan pediatricians and a communicator has recommended use of *uji*, a locally available porridge, as a rehydrating fluid during diarrhea. The panel endorsed home use of *uji* after reviewing surveys on the control of diarrheal diseases and weighing such factors as the nutritional and rehydrating value of *uji*, the availability of oral rehydration salts, and the importance of early treatment of diarrhea with foods and fluids. In addition to providing specific guidance on how to use *uji* during diarrhea, the panel recommended use of other fluids, breastfeeding, and proper weaning. Kenya is one of the first countries to develop and implement a policy for the home management of diarrhea.

BILATERAL PROJECTS

■ **Family Planning Services and Support** works with Kenya's National Council for Population and Development to improve health and family planning services nationwide. With project support, eight local organizations provide community-based family planning services to over 150,000 family planning users through a network of family planning associations, women's groups, and church organizations. The Child-to-Child pilot project in Siaya district encourages schoolchildren to refer infants in

their community for immunizations through a school-based competition. Efforts have resulted in a 93 percent increase in measles coverage. Child-to-Child activities are being expanded to six other districts with low immunization coverage.

■ **Community Based Child Survival**, administered through Christian Organizations Research Advisory Trust, assists Kenyan churches to expand community-based health and child survival programs. In 1990, nearly 1,500 volunteer community health workers were trained to promote the full range of child survival interventions by motivating behavioral change to avert recurring and preventable diseases.

■ **Health Care Financing Sector Grant** supports policy and structural changes in the health sector to increase financial sustainability of health services. In December 1989, the Ministry of Health initiated cost sharing. In each health district, 25 percent of the revenue generated will be retained for primary and preventive health services.

■ **Private Sector Family Planning** works with the National Council for Population and Development to introduce family planning services and distribute contraceptives through nongovernmental organizations and other private sector groups to help prevent high risk births.

REGIONAL PROJECTS

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD)** is supporting a study on the use of insecticide-impregnated bed nets to prevent malaria transmission.

■ **HIV/AIDS Prevention in Africa** is designing an AIDS education and condom distribution project for high risk groups in Mombasa, long-distance truck drivers, and disadvantaged persons in Nairobi. Workshops on AIDS for family planning service providers were also sponsored.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **African Medical and Research Foundation** is promoting a full range of child survival services in urban slums of Nairobi, among the nomadic Maasai tribe, and in rural villages of Kibwezi. The project achieved immunization coverage goals for children under age five in all three project areas. Immunization coverage rates for children aged 12 to 23 months were 93 percent in Maasailand, 70-80 percent in Kibwezi, and 96 percent in urban Nairobi. The ORT use rate was reported at 79 percent based on data collected in a 1989 survey. Services in Nairobi's slums are continuing under a 1990 child survival grant.

■ **Minnesota International Health Volunteers** is building the Chandaria Health Center, scheduled to open in 1991, to provide maternal and child health services. The new clinic will be the center for a community-based health care program and a training program for health workers. Nearly 90 community health workers volunteered to participate in the first training course.

■ **World Vision Relief and Development** improves immunization coverage, diarrhea prevention, nutrition, and malaria control in the Kajiado district. The project has had an impact on mothers' attitudes and practices in the control of diarrhea with home-prepared rehydrating fluids. The project's 20 outreach centers are visited by 90 percent of the mothers in the project area for child immunization services. The project is also incorporating AIDS/HIV awareness and prevention activities into the training of traditional birth attendants.

Bureau for Science and Technology Support

■ **AIDSTECH** works in AIDS education, training, and prevention.

■ **Demographic and Health Surveys** assisted in conducting and analyzing the 1989 Kenya Demographic and Health Survey.

■ **HealthTech** (Technologies for Child Health) develops and tests immunization technologies.

■ **MEDEX Support** (NurseCare), with the Kenyan Nursing Council, began implementing the first national nursing curriculum in child survival and related maternal health.

■ **PRITECH** (Technologies for Primary Health Care) helped develop communication materials such as posters, booklets, and a logo for the Control of Diarrheal Disease Program.

■ **REACH** (Resources for Child Health) assisted Kenya's Expanded Program on Immunization in management, logistics training, and social marketing to stimulate demand for immunization.

■ **WHO Global Program on AIDS** assists in AIDS control activities.

■ **WIN** (Women and Infant Nutrition: A Family Focus) supports lactation management training programs through the Wellstart/San Diego Lactation Program.

Short-term technical assistance was reported as follows:

■ **Health Financing and Sustainability** conducted a review of alternative cost recovery mechanisms.

■ **Health Resources Support** (Department of Health and Human Services) provided technical assistance in health care finance.

■ **Historically Black Colleges and Universities** conducted research on schistosomiasis through a grant to Drew Medical School.

■ **Nutrition Education and Social Marketing Field Support** assisted in a communication program promoting exclusive breastfeeding during diarrhea.

■ **Vector Biology and Control** advised on malaria control efforts.



DEMOGRAPHIC INDICATORS

Total Population:	8,754,092 (90)
Life Expectancy at Birth:	48 Years (90)
Children Under 1:	439,339 (90)

Annual Infant Deaths:	70,574 (90)
Infant Mortality Rate:	144/1,000 (90)
Under 5 Mortality Rate:	251/1,000 (90)
Total Fertility Rate:	7.6 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:	
DP13:	81% (90)
Polio3:	79% (90)
Measles:	80% (90)
BCG:	97% (90)
Tetanus2+:	72% (89)

Oral Rehydration Therapy:	
ORS Access:	56% (88)
ORT Use:	14% (88)
Contraceptive Prevalence:	1% (84)
Adequate Nutritional Status:	70% (80)

Appropriate Infant Feeding:	N/A
Exclusively Breastfed:	N/A
Introduction of Solids:	N/A
Breastfed 1 Year or Longer:	N/A

See DATA NOTES

MALAWI HIGHLIGHTS

■ One of the leading killers of children in Malawi is malaria, a parasitic disease that can lead to low birth weight, severe anemia, and malnutrition. In response to the pervasiveness of parasite strains that are resistant to chloroquine (a drug traditionally used to treat malaria), the Mangochi Malaria Research project, conducted by the Ministry of Health (MOH) with assistance from the U.S. Centers for Disease Control, is testing the expanded use of mefloquine. Preliminary results from the study suggest that chemoprophylaxis during pregnancy with an effective drug can lead to a significant improvement in infants' birth weight.

■ Having attained immunization coverage rates of over 80 percent for children aged 12 to 23 months, the MOH is aiming at increasing the immunization program's institutional and human resource capacities. Efforts to increase the availability and use of services at the community and family levels will enhance sustainability.

BILATERAL PROJECTS

■ **Health Institutions Development**, a six-year program implemented with assistance from Howard University, ended in September 1990. The project supported in-service training in health and family planning, including child survival interventions. Over 1,000 service providers received training, including private sector health providers, primarily from the Private Hospital Association of Malawi.

■ **Human Resources and Institutional Development** supports technical assistance to strengthen the capacities of training institutions and service delivery units in planning, implementing, and evaluating an expanded primary health care system. During 1990, four nurses/tutors from the Mlambe Hospital and Kamuzu College of Nursing were funded to study for master's degrees

in the United States. The medical assistants training program at the Lilongwe School for Health Sciences has been strengthened through improved curriculum design.

■ **Promoting Health Interventions for Child Survival** assists the government in increasing and expanding its primary health care research, training, and services and in extending rural piped water supplies. An estimated 1.5 million rural Malawians are expected to benefit from the integrated services of health care, health education, and piped water and sanitation. Expanded teams of ministry workers will assist village health committees and health workers to provide maternal and child survival services. Health personnel training activities begun under the Health Institutions Development project have been incorporated into this project.

■ **Services for Health, Agriculture, Rural and Enterprise Development** is a new project, implemented through the Experiment in International Living, to support private voluntary organizations engaged in primary health care, child spacing, and AIDS programs.

REGIONAL PROJECTS

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases** (ACSI-CCCD) has supported a research study in Mangochi district. The study provided important epidemiological data on the effect of malaria during pregnancy and its impact on infants, including its association with low birth weight and mortality (see highlights). A new five-year national malaria control strategy has also been developed.

■ **HIV/AIDS Prevention in Africa** supports a research program with Johns Hopkins University and Project HOPE that is providing education and training.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency** (ADRA) supports vitamin A capsule distribution to 41,000 children under age six and to 20,000 pregnant and lactating women as an integral part of its Malamulo Hospital Community Health outreach program. Community health volunteers deliver vitamin A capsules and teach mothers about growing vitamin A-rich vegetables. Helen Keller International assisted in the development of a series of seminars to train health workers to deliver vitamin A services. In 1990, ADRA was awarded a new three-year grant to supplement health and child survival services to 114,000 women and children living in Nsanje district.

■ **International Eye Foundation** works with the MOH and local agencies to reduce infant and child morbidity and mortality in the lower Shire Valley by lessening the prevalence of vitamin A deficiency. Some 90,000 children under age six were targeted for vitamin A supplementation and 120,000 women aged 15 to 35 were targeted for nutrition education. The 1990 midterm evaluation found that vitamin A distribution targets were surpassed.

■ **Project HOPE** was awarded a grant to conduct a feasibility study for a unique project to supplement child survival services on private tea estates. The project will focus on more than 50,000 women and children residing in a section of Thyolo district.

■ **Save the Children Federation** serves 147,000 people in north and central Malawi. Volunteer village health promoters train families to use oral rehydration therapy and encourage them to complete immunization schedules and take children to growth monitoring sessions. In

addition, the health promoters encourage expectant mothers to attend prenatal clinics and teach new mothers about child spacing and infant and child feeding practices. Community vegetable gardens have been started, and 20 schools joined in a competition designed to stimulate production of vitamin A-rich vegetables. The project has also begun to distribute vitamin A capsules.

■ **VITAP** (Vitamin A Technical Assistance Program) assisted in vitamin A-related activities.

■ **World Vision Relief and Development** was awarded a new grant to supplement primary health care and child survival services in the Lilongwe district in the central region. The project will target 22,000 women and children living in the area.

Bureau for Science and Technology Support

■ **AIDSCOM** works with the MOH on AIDS policymaking, program development, and information and communication activities, including an AIDS education program for schools.

■ **WHO Global Program on AIDS** assisted in AIDS control activities.

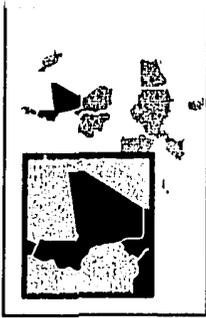
Short-term technical assistance was reported as follows:

■ **AIDSTECH** provided technical assistance related to strengthening surveillance systems, training in data management, and studying the economic impact of AIDS in Malawi.

■ **Health Resources Support** (U.S. Centers for Disease Control) provided training in malaria vector ecology and biology.

■ **PRITECH** (Technologies for Primary Health Care) supported diarrheal disease control activities.

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



DEMOGRAPHIC INDICATORS

Total Population:	9,213,797 (90)	Annual Infant Deaths:	50,655 (90)
Life Expectancy at Birth:	45 Years (90)	Infant Mortality Rate:	108/1,000 (87)
Children Under 1:	433,570 (90)	Under 5 Mortality Rate:	281/1,000 (90)
		Total Fertility Rate:	5.6 Children (87)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	42% (87)
DPT3:	29% (90)	ORS Access:	46% (89)	Exclusively Breastfed:	8% (87)
Polio3:	29% (90)	ORT Use:	41% (89)	Introduction of Solids:	51% (87)
Measles:	47% (90)	Contraceptive Prevalence:	1% (87)	Breastfed 1 Year or Longer:	91% (87)
BCG:	78% (90)	Adequate Nutritional Status:	60% (87)		
Tetanus2+:	18% (90)				See DATA NOTES

MALI HIGHLIGHTS

■ Neonatal mortality among children aged 5 to 14 days old dropped 75 percent between 1988 and 1989 in a USAID-supported private voluntary organization's project area. According to preliminary figures of Save the Children Federation's midterm evaluation, a change in governmental policy that increased tetanus coverage from just pregnant women to all women of childbearing age is already having a clear impact on neonatal mortality.

■ A growing trend toward privatization is increasing distribution channels (e.g., small drugstores, private physicians, nongovernmental organizations) for the new, locally produced oral rehydration salts (ORS), *Keneyaji* and other commodities. Private sector participation is strengthening the supply component of health services delivery. The number of private pharmacies in Bamako has grown from 3 in 1989 to 32 in 1990, and new pharmacies are opening in secondary cities.

BILATERAL PROJECTS

■ **Integrated Family Health Services** assists 15 health centers in and around the capital city of Bamako that provide immunization and control of diarrheal diseases. The project has strengthened the Family Health Division of the Ministry of Health (MOH), which is responsible for implementing many child survival interventions. Major accomplishments in 1990 include developing a strong financial control and accounting system with the assistance of a full-time resident advisor.

■ **Dioro Child Survival** is administered by the Government of Mali through Africare. The project is located in Dioro in the Segou region and serves some 31,000 people in 31 villages. In 1989, its 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. Vaccination activities targeting children and women were initiated in 1990.

■ **PVO Co-Financing: Seventh Region Child Survival Project** is being implemented by World Vision Relief and Development in the remote desert areas of the Koutiala region. The project covers about 288 villages spread across 131,000 square kilometers. Nutrition-related activities include growth monitoring, training mothers in infant/child food preparation, and providing health and nutrition education. Using Public Law 480 food assistance, the project distributes food to children and pregnant and lactating women. The project's nutrition surveillance system indicates that 60 percent of the children are malnourished.

REGIONAL PROJECTS

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD)** supports the Diarrheal Disease Control Program with technical assistance provided through PRITECH. The program designed a national ORS social marketing project for locally produced ORS packets. Educational messages were delivered through radio and print media. A recent survey showed a significant improvement in oral rehydration use from 3 to 41 percent in three major provinces and the capital city of Bamako. This increase involved use of both ORS and sugar-salt solutions. Educational materials aimed at improving breastfeeding and infant feeding practices, vitamin A intake, and identification of cases of malnutrition are being developed for use in four areas.

■ **A grant to the United Nations Development Program** is being used to implement nutritional surveillance and to train health center workers in the Mopti region in growth monitoring activities.

■ **HIV/AIDS Prevention in Africa** is a joint activity of AIDSTECH, the National AIDS Committee, and the Division of Social Affairs. The program offers a comprehensive and integrated approach to the prevention of HIV infection and sexually transmitted diseases among commercial sex workers in Bamako.

U.S. Private Voluntary Organizations/FVA/PVC

■ **CARE** supports the Macina Child Health Project in central Mali, an area that includes 32,000 children under age six. The project supports five fixed centers and two mobile teams to assist the government's immunization efforts. The immunization rate - 90 percent of children under age six - is among the highest in the country.

■ **Foster Parents Plan**, under a new grant awarded in 1990, is planning to expand child survival activities initiated in the Banamba area under an earlier project. Emphasis will be on diarrheal disease control (extending knowledge of oral rehydration therapy to rural village communities), nutrition education, vitamin A supplementation, and specific disease-targeted activities.

■ **Save the Children Federation** works in five districts of Kolondieba circle, which have over 28,500 children under five years. By the end of June 1990, through fixed centers and mobile teams, 74 percent of children aged 12 to 23 months were reported to be completely vaccinated against the six vaccine-preventable diseases, and 93 percent of women aged 15 to 49 were vaccinated against tetanus. The project is also training mothers in the correct use of ORS to prevent dehydration from diarrhea. During

1990, growth monitoring activities resulted in the identification and targeting of villages with the highest levels of malnutrition.

■ **World Vision Relief and Development** extends maternal and child health activities to six districts of the Koutiala region. The project provided growth monitoring equipment for 20 rural dispensaries. Based on successful nutrition activities in one area, the project expanded its activities into 11 wards of Koutiala town in collaboration with the Union of Malian Women. Women in the 11 wards were trained as volunteer health workers, called *animatrices*, to help identify malnourished and other high risk children through home visits and refer them to health facilities. Weekly classes for the volunteers are held on such topics as ORS preparation, improved nutrition, and health education.

Bureau for Science and Technology Support

■ **AIDSTECH** assists in AIDS education and prevention in the Bamako district.

■ **Nutrition Education and Social Marketing Field Support** assisted the MOH in developing a vitamin A communication strategy. Work continued on a manual for identifying malnourished children and counseling their parents.

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

Short-term technical assistance was reported as follows:

■ **PRITECH** (Technologies for Primary Health Care) participated in a qualitative study on weaning and feeding during diarrhea and promoted community awareness of ORS.

DEMOGRAPHIC INDICATORS

Total Population:
7,744,000 (90)

Life Expectancy at Birth:
47 Years (90)

Children Under 1:
360,960 (90)

Annual Infant Deaths:
54,300 (90)

Infant Mortality Rate:
134/1,000 (90)

Under 5 Mortality Rate:
218/1,000 (90)

Total Fertility Rate:
7.1 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 13% (90)
Polio3: 13% (90)
Measles: 21% (90)
BCG: 50% (90)
Tetanus2+: 44% (90)

Oral Rehydration Therapy:
ORS Access: 47% (89)
ORT Use: 54% (89)
Contraceptive Prevalence: 1% (87)
Adequate Nutritional Status: 88% (89)

Appropriate Infant Feeding: N/A
Exclusively Breastfed: N/A
Introduction of Solids: N/A
Breastfed 1 Year or Longer: N/A

See DATA NOTES



NIGER HIGHLIGHTS

■ The Government of Niger has made an historic decision to institutionalize a cost recovery scheme in health facilities starting in 1991. Studies on cost recovery in hospitals conducted during the first two years of the Niger Health Sector Support project were instrumental in bringing the government to this decision. Another study has resulted in the Ministry of Public Health's (MOPH) creation of a new office to supervise and control the purchase and distribution of pharmaceuticals.

■ Strong community support and pride in village health workers are key indications that the Village Health Team program, which began in the early 1960s, is still providing valuable services. Operations research conducted by PRICOR found, however, that while communities hold the workers in high esteem, they provide little help to sustain their services. Further investigation revealed a community willingness to pay for services and, in some cases, to offer a small profit to increase health worker incentive. As a result of this research, the Ministry of Public Health is investigating ways to strengthen training and enhance supervision systems and may sponsor a national mass media campaign to revitalize the Village Health Team program.

BILATERAL PROJECTS

■ **Africare Child Support**, through a USAID grant to Africare, provides oral rehydration therapy (ORT), nutrition counseling, and growth monitoring activities to strengthen child survival programs in the culturally diverse Dosso and Diffa districts. Trained village health workers promote health and nutrition in the villages, in particular such preventive activities as ORT, hygiene, and malaria control. In response to drought, communal gardens are being promoted for food security.

Family Health and Demography

supports the government's efforts to improve maternal and child health. Building on previous accomplishments in making family health services available nationwide and training health managers and service providers, activities in 1990 focused on strengthening management and infrastructure development. Technical advisors from University Research Corporation worked with the Directorate of Family Planning to establish management systems, comprehensive work plans, a national contraceptive logistics system, a standardized in-service training program for health workers, and a plan for operations research.

■ **Health Sector Support** program provides the Government of Niger with budgetary and technical support to investigate possible policy reforms and cost recovery systems designed to increase health sector efficiency. The program is being implemented by the MOPH and the Ministry of Plan with technical assistance from Tulane University and Abt Associates. Progress is reported toward devising cost recovery systems, improving the accounting system at Niamey Hospital, adopting a list of essential medications to be sold at reduced prices, and costing drugs purchased by the parastatal pharmaceutical monopoly. A law legalizing the use of contraceptives has been implemented, and a plan for a population policy has been proposed.

REGIONAL PROJECT

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD)** supports technical assistance provided through PRITECH to the national Control of Diarrheal Diseases program. A seminar on appropriate diarrhea case management for physicians

and nurses working in maternal and child health centers resulted in fewer referrals for diarrhea to hospitals and fewer deaths due to dehydration.

U.S. Private and Voluntary Organizations/FVA/PVC

■ **CARE** is working with the MOPH to reinforce selective health services in 48 villages in two districts of the Zinder department. A series of shorter, more focused training sessions has been held throughout the project area for 67 health center personnel. Topics covered included the control of diarrheal disease, growth monitoring, and vitamin A supplementation. Revised procedures and health charts to be used to identify, record, and follow-up on malnourished children were introduced at these sessions. Follow-up supervisory visits involved the village leaders and thereby strengthened community support for the workers. The training has resulted in increased community-level health education activities, including group discussions, home visits, and community health campaigns.

■ **Helen Keller International** has been fighting vitamin A deficiency since 1986 and supports operations research to determine how best to promote the distribution of vitamin A capsules. The project is helping the MOPH develop a national vitamin A strategy that will integrate distribution of vitamin A capsules with the Expanded Program on Immunization. In addition to providing ongoing technical assistance to nongovernmental organizations, the project is conducting baseline surveys, reviewing priority program needs, and developing measurable goals.

Bureau for Science and Technology Support

■ **CSAP Support** (Health and Child Survival Fellows) provides an epidemiologist/health educator to assist in the design, coordination,

and evaluation of nutrition, immunization, diarrheal disease, malaria, and other health and child survival activities.

Nutrition Education and Social Marketing Field Support

project conducts research on infant feeding practices. A "mini-project" is assessing how adoption of simple technologies could improve vitamin A consumption in rural Niger.

■ **PRICOR** (Primary Health Care Operations Research) assisted the MOPH in a comprehensive analysis of the national Village Health Team program. Five continuing studies are investigating problems identified in earlier analyses.

■ **PRITECH** (Technologies for Primary Health Care) supports the national diarrheal disease control program and also assists with the training and supervision of health professionals. As a result of the 1989 PRITECH-assisted Health Facility Survey, intensive work is under way to improve diarrhea case management practices and to establish oral rehydration units in the 11 maternal and child care centers in Niamey.

■ **TAACS** (Technical Advisor in AIDS and Child Survival) assists the government in designing, developing, coordinating, and evaluating nutrition activities within the child survival strategy.

Short-term technical assistance was provided as follows:

■ **ORT Help** worked with Peace Corps volunteers who teach nutritional practices to families and care for malnourished children.

■ **Vector Biology and Control** assisted in assessing malaria control activities.



DEMOGRAPHIC INDICATORS

Total Population:
108,541,897 (90)

Life Expectancy at Birth:
51 Years (90)

Children Under 1:
4,793,034 (90)

Annual Infant Deaths:
518,152 (90)

Infant Mortality Rate:
100/1,000 (90)

Under 5 Mortality Rate:
165/1,000 (90)

Total Fertility Rate:
6.7 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 47% (89)

Polio3: 47% (89)

Measles: 31% (89)

BCG: 76% (89)

Tetanus2+: 16% (88)

Oral Rehydration Therapy:

ORS Access: 60% (88)

ORT Use: 35% (88)

Contraceptive Prevalence: 1% (81-82)

Adequate Nutritional Status:

N/A

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Breastfed 1 Year or Longer: N/A

See DATA NOTES

NIGERIA HIGHLIGHTS

■ A 1989 international evaluation of the Expanded Program on Immunization estimated that immunization services provided that year averted 100,000 deaths that would have otherwise resulted from the six vaccine-preventable diseases targeted by the program.

■ Health and child survival messages are gaining coverage on broadcast programs, such as children's shows, family entertainment, and documentaries. The Federal Ministry of Health (FMOH) has been developing new approaches to health communication and public education since 1984. With assistance from HEALTHCOM, state-level workshops for media writers and producers of popular Nigerian programs are promoting the incorporation of primary health care and family planning messages into popular programs.

BILATERAL PROJECT

■ **Nigerian Health Sector Assistance** is designed to encourage major reforms in primary health care policies by providing grants directly to local government areas where health services are delivered. Field studies are under way to test the feasibility of changes in health financing policies. These include contracting with the private sector for support services in tertiary health care facilities, operating private patient wings in public health facilities, permitting private physicians to use the facilities of public hospitals, and allowing all senior medical staff employed at public facilities to have private practice during off-duty hours.

REGIONAL PROJECT

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD)**, which was begun in 1987, is a multi-donor project of the FMOH, USAID, UNICEF, and the World Health Organization. The project works to expand the nation's primary health care services, especially immunizations for infants, prevention and control of diarrheal diseases, and malaria control. During 1989-1990, the project supported the administration of 1.4 million doses of DPT3 and polio3 vaccines and 1.6 million doses of measles vaccine. Recently, the project helped expand the malaria sentinel surveillance system and develop national guidelines for malaria control in conjunction with Nigeria's National Council on Health. The African Regional Health Education Center serves as a regional training center in health education for 31 countries.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency** has built an outreach system for child survival using existing Adventist health facilities in six states. In 1990, a vaccination coverage survey conducted in four states showed that 70 percent of children were fully immunized, up from 29 percent reported in 1989, and that the highest levels documented were in project areas.

■ **Africare** supports the Imo state Ministry of Health's child survival program in three areas, where 160 local women volunteers serve as health promoters in their communities and have counseled more than 7,000 mothers during home visits. The health volunteers mobilize women to address health, food production, and income-generation needs. A recent survey found that mothers

registered and counseled by the volunteers demonstrated consistently higher levels of knowledge and improved health practices than those mothers not involved in the project. The project is implementing two income-generating activities that focus on planting improved crop varieties and use of more productive farming techniques. By recognizing community needs directly and indirectly linked to health, the project has strengthened community support and enthusiasm for maternal and child health services.

■ **Rotary International's PolioPlus** program mobilizes the private sector in support of the national immunization effort in Nigeria. Project activities are establishing a grass roots volunteer corps. In 1990, the project trained over 3,000 health care workers, mothers, students, and other volunteers to provide such services as tracking babies to make sure they get their complete vaccination series and providing public information and logistical support during vaccination campaigns. The program has also worked with the FMOH to decentralize management of immunization programs. In April 1990, Nigerian Rotarians presented the FMOH with over US\$1 million worth of cold chain equipment. Rotarians are actively involved in the planning, management, and implementation of state and national immunization days.

■ **World Vision Relief and Development** works with a local private voluntary organization, the Baptist Medical Center, in two remote areas of Oyo state. The areas have over 37,000 inhabitants and minimal basic health facilities. Interventions consist of vaccinating women and children, promoting the use of oral rehydration therapy, growth monitoring, and nutritional counseling. A 1990 midterm project evaluation reported that immunization coverage rates

have risen to 88 percent for BCG, 73 percent for DPT3, and 79 percent for measles. A complete census of families in the project area is serving as the cornerstone of a health information referral system. Village health workers are responsible for this activity, assisted by local council members, chiefs, religious leaders, schoolteachers, and members of village health committees.

Bureau for Science and Technology Support

■ **AIDSTECH** assists the FMOH in developing and implementing HIV/AIDS education and condom promotion programs directed at high risk groups.

■ **Applied Diarrheal Disease Research** project supports research to identify the factors that put children at risk for diarrheal diseases.

■ **Demographic and Health Surveys** assisted the FMOH in collecting national data on fertility, family planning, and maternal and child health.

■ **HEALTHCOM** (Communication for Child Survival) works with the FMOH's Health Education Division to support communication efforts. In collaboration with numerous local media organizations, such as the Federal Radio Corporation, the Nigeria Television Authority, and regional and state broadcasting authorities, the project trains health staff and media personnel at the federal, zonal, and state levels and assists in communication planning and message development.

Short-term technical assistance was reported as follows:

■ **AIDSCOM** assisted in AIDS education through mass media campaigns and training private sector health care providers.

■ **WASH** (Water and Sanitation for Health) reviewed and field-tested a hygiene education training guide.

DEMOGRAPHIC INDICATORS

Total Population:
7,326,537 (90)

Life Expectancy at Birth:
48 Years (90)

Children Under 1:
308,389 (90)

Annual Infant Deaths:
27,349 (90)

Infant Mortality Rate:
83/1,000 (90)

Under 5 Mortality Rate:
213/1,000 (90)

Total Fertility Rate:
6.3 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 60% (90)
Polio3: 66% (90)
Measles: 59% (90)
BCG: 92% (90)
Tetanus2+: 45% (90)

Oral Rehydration Therapy:
ORS Access: 16% (88)
ORT Use: 27% (88)
Contraceptive Prevalence: 2% (86)
Adequate Nutritional Status: 72% (86)

Appropriate Infant Feeding: 49% (86)
Exclusively Breastfed: 5% (86)
Introduction of Solids: 72% (86)
Breastfed 1 Year or Longer: 96% (86)

See DATA NOTES



SENEGAL HIGHLIGHTS

■ In 1989, Senegal's vaccination coverage rates for children aged 12 to 23 months had reached 59 percent for measles and 92 percent for BCG, which are the highest of all USAID child survival emphasis countries in Africa.

■ The decentralization of the activities of the Senegalese Ministry of Public Health (MOPH) has been Senegal's top priority in 1990. Progress toward this goal includes the establishment of a national committee that will manage activities related to the development of regional plans. With USAID assistance, operations research aimed at strengthening the performance of departmental-level supervisors is under way. Four studies have focused on the management of basic resources, such as vehicles and gasoline, and development of training instruments and a guide to service delivery protocols. Information gained from the studies is being used at both the central and departmental levels to facilitate the process of decentralizing the health delivery system.

BILATERAL PROJECTS

■ **Primary Health Care for Child Survival**, formerly Rural Health Delivery Services II, supports the MOPH in establishing a system of decentralized planning and management of primary health care. In 1990, the MOPH and USAID organized a national seminar on decentralization, visited eight regions, and helped develop criteria for regional health development plans. The project also supports operations research on a strategy for controlling malaria, one of the major causes of infant deaths in Senegal. The project is also funding an extension of the World Vision Relief and Development child survival project in the Louga region. Targeting 25,000 children and 27,000 women of childbearing age in over 200 villages, World Vision Relief and Development is involved in immunization, treatment of diarrheal diseases, nutrition promotion, malaria prophylaxis, and prenatal services for pregnant women.

■ **Family Health and Population** is a nationwide program offering maternal and child survival services through public and private institutions. The project has used regional training teams to provide clinical instruction and training in education and communication for physicians, midwives, and other health workers. Women of childbearing age are targeted for AIDS prevention education

and services through child spacing clinics. In order to strengthen development planning, the project is working to upgrade basic demographic information and establish an easy-to-use demographic data base. The U.S. Bureau of the Census assisted the Senegalese Bureau of Statistics with the analysis of the 1988 census data. Regional health staff are being trained in using the census results in program planning.

REGIONAL PROJECT

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

USAID/WASHINGTON SUPPORT

Bureau for Science and Technology Support

■ **PRICOR** (Primary Health Care Operations Research) provides technical assistance to the MOPH in operations research studies to strengthen the primary health care supervision system.

■ **PRITECH** (Technologies for Primary Health Care) assists the MOPH in developing a national oral rehydration therapy and nutrition plan within the context of the decentralization of

health services to the regional level. PRITECH also assists with drug distribution and management information systems.

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

■ **WHO Global Program on AIDS** provides technical assistance in AIDS control activities.

Short-term technical assistance was reported as follows:

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

■ **HEALTHCOM** (Communication for Child Survival) is assisted the Ministry of Public Health to strengthen information, education, and communication capacities at the regional and national levels.

■ **ORT Help** trained Peace Corps volunteers in oral rehydration activities.

■ **Vector Biology and Control** provided assistance in developing a malaria control strategy.

■ **WIN** (Women and Infant Nutrition: A Family Focus) provided technical assistance and support to a Senegalese nutrition research institute through the Clearinghouse on Maternal Nutrition and Infant Feeding.



DEMOGRAPHIC INDICATORS

Total Population:
25,203,357 (90)

Life Expectancy at Birth:
50 Years (90)

Children Under 1:
1,027,241 (90)

Annual Infant Deaths:
114,743 (90)

Infant Mortality Rate:
103/1,000 (90)

Under 5 Mortality Rate:
164/1,000 (90)

Total Fertility Rate:
4.9 Children (89)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 60% (89)

Polio3: 61% (89)

Measles: 61% (89)

BCG: 76% (89)

Tetanus2+: 25% (89)

Oral Rehydration Therapy:

ORS Access: 50% (89)

ORT Use: 36% (89)

Contraceptive

Prevalence: 6% (89-90)

Adequate

Nutritional

Status: N/A

Appropriate Infant Feeding:

N/A

Exclusively

Breastfed: N/A

Introduction

of Solids: N/A

Breastfed 1 Year

or Longer: N/A

DATA NOTES

SUDAN HIGHLIGHTS

■ Despite continued internal strife in Sudan, child survival activities have demonstrated progress since the outset of focused programs targeting mothers and their children. Immunization coverage rates for measles and the third dose of DPT have increased fivefold since 1985. Oral rehydration therapy (ORT) use rates have risen from 13 to 36 percent during the same period. Private voluntary organizations have been pivotal in providing child survival services in many areas that previously did not receive health services.

■ A recent analysis of a 1988 diphtheria outbreak in Khartoum found that children under five years of age accounted for only 19 percent of hospital admissions compared with a 1978 outbreak in which under-fives accounted for 50 percent of admissions. This change in the age distribution of patients is considered to be an indication of the improved immunization coverage rates among children and of the effectiveness of Sudan's Expanded Program on Immunization.

■ Since the last fertility survey, which was conducted in 1978-79, a 39 percent reduction in the fertility rate among 15 to 19 year olds has been achieved. This evidence of a decline in the fertility rate of young women, a group at high risk for both infant and maternal mortality, comes from a preliminary analysis of the 1989 Demographic and Health Survey conducted in 12 provinces of northern Sudan.

BILATERAL PROJECTS

■ **Child Survival**, completed in 1990, was implemented through a grant to UNICEF supporting Sudan's national Expanded Program on Immunization and Control of Diarrheal Diseases program.

■ **Rural Health Support** comprises two major components focusing 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, was completed during the reporting year. The southern component serves the Juba, Logo, Nyakaron, and Malakia areas and a large refugee camp where the African Medical and Research Foundation supports technical advisors who assist with the critical health needs of some 200,000 people. Assistance is concentrated on improving breastfeeding practices and nutritional status. Maintenance of water supply systems at selected health centers is another focus of the project's activities.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency** completed work in the southern district of the Northern province of Sudan in September 1990. The target population of the project area is concentrated along an arable strip of the Nile River. The child survival program targeted rural agricultural communities and nomads by providing support to local Ministry of Health personnel for immunization activities and training village health committees to undertake community-based child survival activities. In mid-1988, severe flooding in the area disrupted all activities. Though the project operated at an optimal level for less than two years, significant achievements were made in

training and supporting health committees and district ministry personnel. Limited amounts of equipment, such as generators for a fixed vaccination center, were also provided.

■ **CARE's** Bara Child Health project is working to establish sustainable immunization services and community-based education for control of diarrheal disease in the Bara district in western Sudan, which has a target population of about 21,000 children under age five and over 30,000 women of childbearing age. The project trains health cadres using training modules and treatment protocols for diarrheal disease control, acute respiratory infections, malaria, and vitamin A deficiency. A diarrheal disease control manual for training illiterate volunteers has been successfully pretested, and the Ministry of Health is considering its use nationwide. The project also assisted the district in mass distribution of vitamin A capsules to 36,000 children under age 18 and women who had delivered during the previous two months. A 9.2 percent incidence of vitamin A deficiency was recorded in October 1990. Two consecutive years of severe drought in the region was a contributing factor.

■ **Helen Keller International** (HKI) distributes vitamin A capsules in refugee camps in North Darfur in eastern Sudan to help prevent blindness due to malnutrition. Over 50,000 children are reached through the project's activities. HKI has prepared training manuals for primary health care workers and nutrition education materials for mothers and community groups, and it has conducted workshops in assessment and intervention techniques for vitamin A deficiencies.

■ **Save the Children Federation** (SCF), working in two areas, Showak and Um Ruwaba, focuses on immunization, oral rehydration therapy,

growth monitoring, malaria control, and training of traditional birth attendants. SCF works with local health authorities and village health committees to increase the sustainability of child survival activities. Chloroquine revolving funds for malaria control are being organized as a model of cost recovery for health services at the village level. Eighty village-based workshops were held to expand community participation in immunization by encouraging villagers to transport their own vaccine using market trucks. In August 1990, 60 of the 80 sites picked up their vaccines from the cold chain center. Twelve village health committees have created revolving funds to meet the transportation costs. Expenses for transport are recovered by charging a small amount for immunizations. With the project's assistance, an ORT demonstration corner was established in the Um Ruwaba Hospital. During the reporting year, the hospital administration has completely taken over the operation of the ORT corner, providing staff and all supplies.

Bureau for Science and Technology Support

■ **Demographic and Health Surveys** collected and analyzed health and child survival information that will provide a foundation for future health planning.

Short-term technical assistance was reported as follows:

■ **Nutrition Education and Social Marketing Field Support** conducted training in qualitative research methods and data analysis for the design of nutrition messages.

■ **PRITECH** (Technologies for Primary Health Care) assisted in evaluation activities.

■ **REACH** (Resources for Child Health) conducted an immunization cost-effectiveness study.

DEMOGRAPHIC INDICATORS

Total Population:
35,568,427 (90)

Life Expectancy at Birth:
53 Years (90)

Children Under 1:
1,509,531 (90)

Annual Infant Deaths:
151,890 (90)

Infant Mortality Rate:
94/1,000 (90)

Under 5 Mortality Rate:
153/1,000 (90)

Total Fertility Rate:
6.0 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 38% (89)
Polio3: 38% (89)
Measles: 44% (89)
BCG: 59% (89)
Tetanus2+: 29% (89)

Oral Rehydration Therapy:

ORS Access: 50% (89)
ORT Use: 40% (89)

Contraceptive Prevalence: N/A

Adequate Nutritional Status: N/A

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Breastfed 1 Year or Longer: N/A

See DATA NOTES



ZAIRE HIGHLIGHTS

■ In the Kingandu health zone, a study on mortality and the use of health services concluded that increases in the use of child survival services are having an impact on reducing child mortality. Substantial increases in vaccination coverage likely accounted for much of the 40 percent reduction in mortality for children aged 1 to 4 years and for having stopped the biannual measles epidemics that had previously existed. The study found a 22 percent reduction in under-five mortality from 1984 to 1989.

■ Mothers' knowledge about the use of chloroquine to treat malaria increased from 48 to 90 percent and knowledge of proper dosage increased from 0 to 82 percent in rural and urban health zones that were used to test a malaria control strategy. The strategy included training nurses and designing clear educational messages for mothers about the correct use of chloroquine. Nurses' knowledge of correct dosage increased from 8 to 90 percent.

BILATERAL PROJECTS

■ **Basic Rural Health II (SANRU)**, administered by the Zairian private voluntary organization, Eglise du Christ au Zaire, promotes collaboration among the government, local nongovernmental organizations, and the communities in establishing community-supported primary health care services in one-third of the country's health zones. The services provided include preventive and curative care and emphasize child survival activities. The project's success has prompted the Government of Zaire to increase its health investment budget channeled through SANRU. SANRU's water component helps communities build and operate water supply and sanitation systems using village-level contributions of labor, material, and funds.

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

■ **Area Nutrition Improvement**, through a Public Law 480 Title II grant, has established local income-producing activities using milling machines to produce a low-cost nutritious weaning food. The project distributes corn and soy flour mix to nutrition rehabilitation programs in health centers in Kinshasa; an average of 50,000 malnourished children are served each month.

■ **Family Planning Services** targets 1.5 million reproductive-age women in major cities to increase their contraceptive use for well-spaced births. The project's social marketing component has successfully sold over 8 million condoms and 1.5 million spermicide foaming tablets during the reporting year. The project has become a model social marketing project for sub-Saharan Africa.

■ **Shaba Refugee Health Project**, working through the United Methodist Church of Shaba and the International Voluntary Services, rehabilitates health facilities to improve health services for refugees settled in the area. Nearly 30 newly renovated health centers are being integrated into the national primary health care system supported by the Basic Rural Health II project.

■ **Shaba Refugee Water Supply** is implemented through the International Association for Rural Development in Zaire. It supports development of community water systems organized and operated by village health committees in rural Shaba region to provide potable water to 240,000 rural residents, especially Zairian refugees returning from Angola.

■ **Kimbanuist Hospital Assistance Project**, through a grant to Hadasah Medical Organization, a U.S. private voluntary organization, works with the Kimbanuist Church of Zaire to provide medical equipment, supplies, and technical assistance in management and health care to the hospital. The hospital provides health care, including child survival services, to over 500,000 inhabitants of the predominantly poor sections of the Kimbanseke zone of Kinshasa.

REGIONAL PROJECTS

■ **Africa Child Survival Initiative-Combating Childhood Communicable Diseases (ACSI-CCCD)**, supports immunization, oral rehydration therapy (ORT), and malaria control activities in 207 of Zaire's 306 health zones. Some 2.5 million children under age five now have access to vaccination services. ACSI-CCCD is conducting research on a measles vaccine trial using the new Edmonston-Zagreb (E-Z) vaccine for infants six months of age. The study is demonstrating that measles vaccination under nine months of age is effective in averting the disease in this highly susceptible age group. An impact evaluation of this vaccine will be completed in early 1991.

■ **HIV/AIDS Prevention in Africa** assists in national AIDS information, education, and communication campaigns using mass media. The project has expanded its target groups to include young or prospective parents aged 20 to 30 years.

USAID/WASHINGTON SUPPORT

Bureau for Science and Technology Support

■ **Applied Diarrheal Disease Research** developed a research study on the incidence of persistent diarrhea in children with AIDS.

■ **HEALTHCOM** (Communication for Child Survival) works with the Zairian government to promote child survival interventions through communication, training, and development of educational materials.

■ **PRICOR** (Primary Health Care Operations Research) provides technical assistance for operations research studies on 31 topics carried out in 52 health zones. Half of the studies deal with improving health worker performance in health education and counseling in the areas of ORT, malaria treatment, and growth monitoring.

■ **Vaccine Development and Health Research**, through the U.S. Department of Health and Human Services, is participating in the E-Z measles vaccine study.

Short-term technical assistance was reported as follows:

■ **AIDS Technical Support** (U.S. Centers for Disease Control) and AIDSTECH assisted in AIDS control activities.

■ **ORT Help**, with assistance from Peace Corps volunteers, helped organize village health committees to take an active role in improving local health conditions.

■ **PRITECH** (Technologies for Primary Health Care) assisted in the supply, production, and promotion of oral rehydration salts.

■ **REACH** (Resources for Child Health) helped improve cost recovery and financial management in health zones.

■ **WASH** (Water and Sanitation for Health) provided technical assistance in water and sanitation systems.

■ **WIN** (Women and Infant Nutrition: A Family Focus), through the International Center for Research on Women, conducted studies in maternal health.



In the early 1980s, concern about the health status of children in the Near East and Asia* prompted several USAID missions to begin implementing health activities targeted at children under age five. In 1985, when USAID initiated its child survival program, Bangladesh, India, Indonesia, Nepal, Morocco, Egypt, Yemen, and Pakistan were designated the region's child survival emphasis countries.

Since 1985, infant and child mortality rates in the Near East and Asia have declined significantly, and life expectancy has increased. Infant mortality rates have dropped from almost 100 (1985) to 89 deaths per 1,000 live births in 1990. The target infant mortality rate of 75 deaths per 1,000 live births has been achieved by three emphasis countries, Egypt (43), Indonesia (70), and Morocco (73).

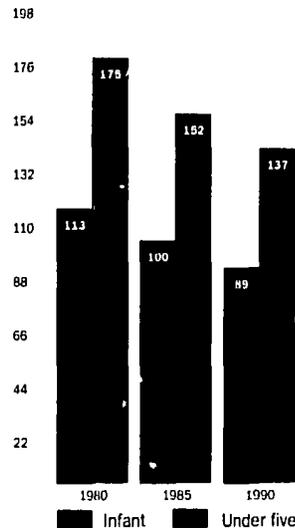
Even more dramatic have been the improvements in immunization coverage among USAID-assisted countries in the region: Since 1985, vaccination coverage for DPT3 has more than doubled to 84 percent. Based on provisional data, Egypt, Morocco, Pakistan, and Yemen have exceeded 80 percent coverage for polio3, DPT3 and BCG. In Indonesia and Pakistan, coverage against measles vaccination has been increased by 70 to 75 percent since 1985. And Bangladesh has increased measles coverage from 1 percent in 1985 to 54 percent in 1990.

Fluctuations in the reported levels of oral rehydration therapy (ORT) use have been seen in the region due to varying supplies of oral rehydration salts (ORS) packets and to continued refinement in data collection and reporting systems. ORT use did not increase greatly at the regional level, but ORT use in Egypt rose to 66 percent and is quickly approaching 45 percent in Pakistan and Indonesia.

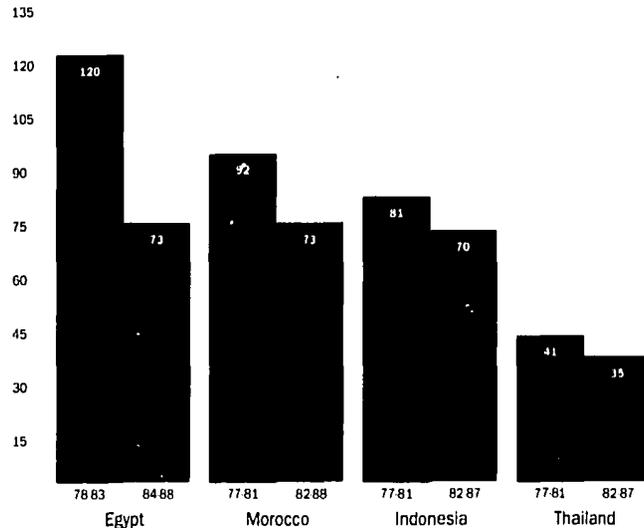
In addition to child survival targets adopted by the agency, the Asia and Near East Bureau established a goal of 50 percent contraceptive prevalence for the region by 1990. Several countries, including Indonesia, India, and Egypt, are within reach of that target.

40 MORTALITY TRENDS

220 Deaths per 1,000 live births in the Asia and Near East region



150 Deaths per 1,000 live births in selected countries in the Asia and Near East region



Progress has been made toward many of the targets set in 1985, but much remains to be done. Infant mortality rates in Bangladesh, India, and Yemen, among others, remain above 93 deaths per 1,000 live births. Vaccination coverage for measles and tetanus lags behind coverage for other diseases. ORT use in Bangladesh, Morocco, and Nepal, as in many other countries, remains low. And Nepal, Pakistan, Yemen, and other countries still have contraceptive prevalence rates under 18 percent. The region's large population and high fertility rate are making it difficult not only to maintain services but also to expand them to meet the growing demand.

Indicators such as immunization, ORT use, and infant mortality rates often reflect improvements in service coverage and survival in areas with greater access to health services and overall levels of development. Disparities often exist among regions of a country and among urban, peri-

urban, and rural areas. In Indonesia, regional infant mortality rates range from 37 (Yogyakarta) to 95 deaths per 1,000 live births (West Java). In Egypt, data from the period 1978-1988 shows the infant mortality rate for rural areas to be 115 deaths per 1,000 live births compared with 66 deaths per 1,000 live births in urban areas.

With ORT and immunization well established, the APRE and ENE Bureaus are looking at the underlying causes of infant mortality and at other issues, as appropriate, such as high risk births, acute respiratory infections, vitamin A deficiency, poor maternal health, and maternal and child undernutrition. An APRE Regional Vitamin A project aims to reduce infant and child morbidity and mortality by supporting country-specific interventions designed to correct vitamin A deficiency.

The countries that have made the least progress toward improving child survival are ones where women's access to health care is severely limited. Increasing the number of female health providers is one of the keys to improving the access of both women and children to health care.

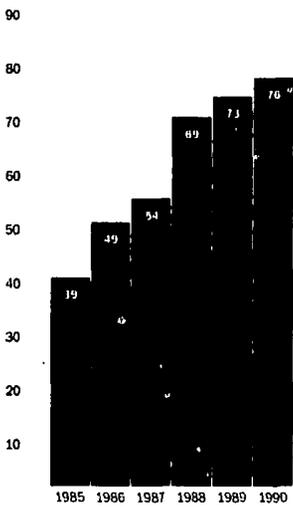
Pakistan's Primary Health Care Project has increased female enrollment in health technician training to 40 percent. Yemen and Nepal are also recruiting and training women as health workers.

The populations of Asian and Near East countries are diverse and demographically expanding and shifting. With infant mortality rates declining and life expectancy increasing, the fastest growing age group in many countries is no longer children but young adults. Young families will demand a wide range of services as disease patterns shift. Moreover, urban areas will contain half of the total population in the North African and Near East areas of the ENE Bureau by the year 2000, which will create new and more complex public health problems. A new ENE Regional Population Project is being developed to assess the broad implications of urbanization and other major demographic trends.

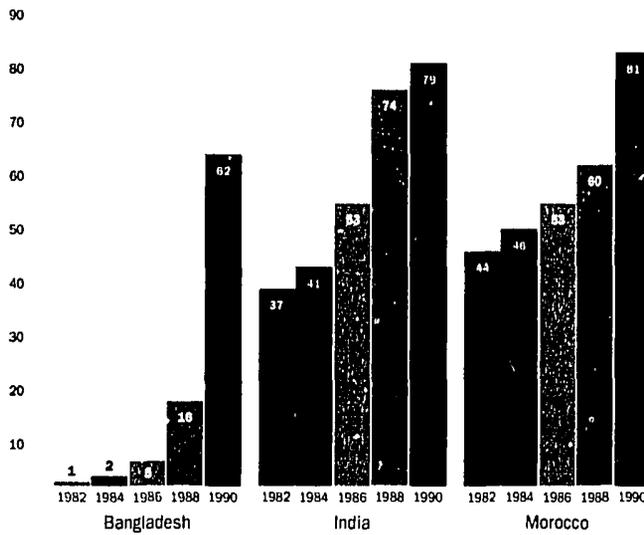
Strategies are being developed to enhance sustainability by stimulating private sector involvement in pursu-

41 DPT3 COVERAGE

100 Percent vaccinated by 12 months of age in the Asia and Near East region

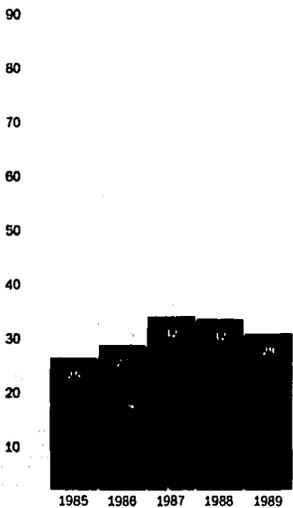


100 Percent vaccinated by 12 months of age in selected countries in the Asia and Near East region

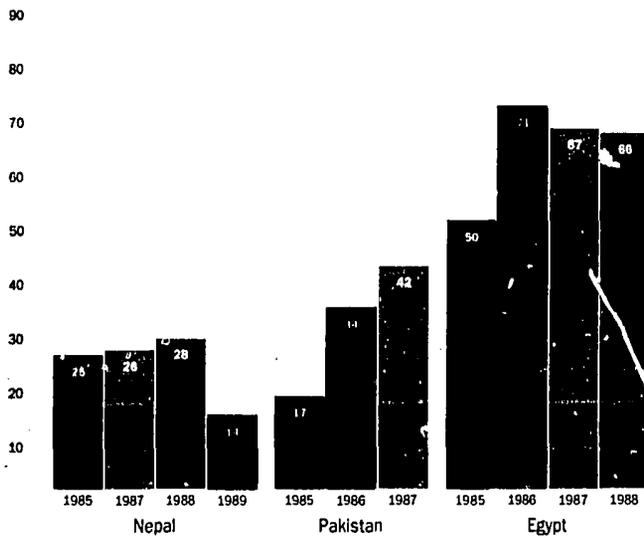


42 ORT USE

100 Percent of children under age five in the Asia and Near East region



100 Percent of children under age five in selected countries in the Asia and Near East region

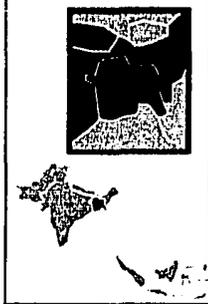


ing child survival objectives. Private sector promotion, production, distribution, and sale of ORS packets has been increasing throughout the regions. Private sector companies promote or produce ORS in Bangladesh, Egypt, and Pakistan, and ORS production in the private sector is planned in Morocco. Ministries of health are creating opportunities for private sector involvement by deregulating the distribution of ORS. In India, USAID is helping to increase and diversify private sector involvement in health problems in the country's principal underserved areas.

Sustainable strategies are a high priority. Cost recovery mechanisms aimed at those most able to pay will also enable governments to focus public resources on the segments of the population that cannot afford essential health services. In Indonesia, legislation is being developed to allow the private sector to provide health insurance in order to increase cost recovery from those who can afford to pay. Surveys often find that even poor rural households by-pass free government services and pay for private services. Continued research into factors affecting demand and utilization of health services will be necessary for improved child survival.

The new regional Health Sector Financing and Support project will help countries develop the skills needed to address health finance and sustainability issues. In addition, Morocco and the Philippines are developing new bilateral health finance projects, and a health finance project in Egypt is already under way.

*When the child survival program was initiated in 1985, the Near East and Asia region was under one bureau. In 1990, USAID divided the bureau into two separate bureaus, Europe and the Near East (ENE) and Asia and Private Enterprise (APRE). Because the region was under one bureau for the majority of the reporting period, the bureaus are presented together in the discussion and the graphs.



DEMOGRAPHIC INDICATORS

Total Population:
115,593,455 (90)

Life Expectancy at Birth:
51 Years (90)

Children Under 1:
4,404,262 (89)

Annual Infant Deaths:
542,248 (90)

Infant Mortality Rate:
113/1,000 (90)

Under 5 Mortality Rate:
178/1,000 (90)

Total Fertility Rate:
4.9 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 62% (90)

Polio3: 62% (90)

Measles: 54% (90)

BCG: 86% (90)

Tetanus2+: 74% (90)

Oral Rehydration Therapy:

ORS Access: 60% (88)

ORT Use: 25% (89)

Contraceptive Prevalence: 26% (89)

Adequate Nutritional Status:

22% (89)

Appropriate Infant Feeding:

N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Breastfed 1 Year or Longer: N/A

N/A

N/A

See DATA NOTES

BANGLADESH HIGHLIGHTS

■ Immunization coverage for children aged 12 to 23 months who live in the Dhaka slums increased from only 2 percent in 1985 to 55 percent in 1990. Although a national immunization program was started in Bangladesh in 1979, there have remained large pockets of urban populations not reached by the program. In 1988, USAID began assisting the Expanded Program on Immunization (EPI) in 88 municipal urban areas (comprising 17 percent of the country's total population). The program has been highly successful in raising coverage rates and developing the capacity for long-term sustainability in the urban areas.

■ Social Marketing Company, Ltd., a newly formed private, not-for-profit company, markets and distributes oral rehydration salts (ORS) to pharmacies and indigenous health providers throughout Bangladesh. Seven million ORSaline packets have been purchased from local manufacturers and sold in 15,000 pharmacies. Now that the vast majority of pharmacists are selling ORSaline, the Social Marketing Company is shifting its efforts to training pharmacists and the public in oral rehydration therapy (ORT). The Social Marketing Company is also the nation's largest commercial distributor of oral contraceptives and condoms. Previously a parastatal firm, Social Marketing Company recovered approximately 50 percent of operating expenses, including commodity costs, in its first year as a private company.

BILATERAL PROJECTS

■ **Urban Volunteers Program** trains illiterate women to promote the use of ORT and make referrals for immunization and nutrition services to over 1 million residents of Dhaka slums. Women health volunteers have become reliable sources

of health information for urban slum dwellers. Services provided by these women since 1987 have contributed to an increase in the immunization rate for children aged 12 to 23 months from 2 to 55 percent. Two diarrhea treatment centers developed by the project are now entirely community funded.

■ **Family Planning Services** project provided diarrheal disease control and birth spacing services in rural areas throughout the country from 1981 to 1990. These services are now provided under the Family Planning and Health Services project. USAID supports maternal and child health and family planning services delivered by over 120 local non-governmental organizations. In the public sector, USAID support focuses on developing urban immunization services. A multimedia campaign was a major undertaking to increase awareness and support for the EPI. With assistance from USAID, Social Marketing Company, Ltd., promotes, distributes, and sells ORSaline, a locally manufactured oral rehydration salt.

■ **HKI Disaster Preparedness** is a surveillance program that collects monthly nutrition and health data on 6,000 children living in nine famine-prone areas of Bangladesh. The information is used to identify program deficiencies, formulate policy changes, and provide an early warning of possible famine. After just two rounds of data collection, a gap in vitamin A coverage was discovered and corrective action has been initiated.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Helen Keller International** assisted the Blindness Prevention Program of Bangladesh in a communication and social marketing campaign for the prevention of vitamin

A deficiency in Comilla district. Pregnant and lactating women, mothers, fathers, and in-laws were targeted in the campaign. Television, radio, posters, leaflets, village promotion, and health care worker outreach were used to communicate the message. A semi-annual distribution of vitamin A capsules was a major part of the campaign.

■ **Save the Children Federation** provides child survival services in four areas of rural Bangladesh. A 1990 midterm evaluation found a 100 percent ORT use rate in the project area. Eighty-eight percent of all children under age three are fully immunized. Mothers, who traditionally do not introduce weaning foods until 17 months of age, have been introduced to an inexpensive, easy-to-prepare, and palatable weaning food. Seventy-one percent of the mothers now give their infants weaning food at 4 to 6 months of age.

■ **VITAP** (Vitamin A Technical Assistance Program) assisted in the preparation of a national workshop on the link between vitamin A and child survival.

■ **World Relief Corporation** provides child survival services to 89,000 people in rural areas of Julma and Khalil-magar districts, in cooperation with the local private voluntary organization, Christian Service Society. After two years of meetings, religious and community leaders are now accepting, and in some cases, strongly advocating child survival interventions and family planning. Over 87 percent of children aged 12 to 23 months in the project area are fully immunized. Training in proper weaning and growth monitoring is beginning to address childhood malnutrition. Vitamin A supplements were provided to all children aged 6 to 71 months.

■ **World Vision Relief and Development** provides immunization, ORT, nutrition (including vitamin A), and

birth spacing services to 80,000 people living in an urban slum of Dhaka. Community health workers help local leaders establish neighborhood health committees and select community volunteers, thus developing a sense of project ownership and responsibility for the community's health. A 90 percent drop in the prevalence of vitamin A deficiency has been attributed to education programs for mothers and the determination of community volunteers and health workers. A midterm evaluation in 1988 found that only 11 percent of mothers in the project area had heard of ORT; now, 99 percent of mothers are aware of the treatment and 82 percent have used it.

Bureau for Science and Technology Support

■ **Diarrheal Disease Research** supports the International Center for Diarrheal Disease Research/Bangladesh in research on the control of diarrheal diseases.

■ **REACH** (Resources for Child Health) assisted in developing immunization promotion campaigns, including a 10-minute television spot, a school-based program, and an educational program for men targeted to the National Football (soccer) Tournament.

Short-term technical assistance was reported as follows:

■ **AIDSTECH** assisted in HIV/AIDS prevention.

■ **CSAP Support** (CIHI/ISTI) assisted in program reporting.

■ **CSAP Support** (Johns Hopkins University) assisted the Urban Volunteers Project with designing, implementing, and analyzing impact studies.

■ **MotherCare** (Maternal and Neonatal Health and Nutrition) assessed the impact of maternal health interventions using Save the Children Federation data.

DEMOGRAPHIC INDICATORS

Total Population:
54,059,000 (89)

Life Expectancy at Birth:
60 Years (90)

Children Under 1:
1,801,755 (89)

Annual Infant Deaths:
84,106 (89)

Infant Mortality Rate:
43/1,000 (89)

Under 5 Mortality Rate:
112/1,000 (90)

Total Fertility Rate:
4.4 Children (88)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 83% (90)

Polio3: 84% (90)

Measles: 78% (90)

BCG: 86% (90)

Tetanus2+: 63% (90)

Oral Rehydration Therapy:

ORS Access: 98% (87)

ORT Use: 66% (88)

Contraceptive Prevalence: 37% (88)

Adequate Nutritional Status: 83% (88)

Appropriate Infant Feeding: N/A

Exclusively Breastfed: N/A

Introduction of Solids: N/A

Breastfed 1 Year or Longer: N/A

See DATA NOTES

**EGYPT HIGHLIGHTS**

■ In five years, the infant mortality rate in Egypt has dropped from 90 to 43 deaths per 1,000 live births, the largest percentage decline in USAID child survival emphasis countries. This reduction of the infant mortality rate can largely be attributed to the extraordinary efforts of the diarrheal disease control and expanded immunization programs. Just over five years ago, diarrhea was the leading cause of infant and childhood mortality in Egypt. Between 1983 and 1987, mortality due to diarrheal disease among infants fell by 53 percent and among children one to four years of age, by 47 percent. In 1988, immunization coverage rates for the major childhood communicable diseases exceeded the USAID goal of 80 percent coverage and, with the exception of the measles vaccine, have remained above 80 percent. As illness and death from diarrhea and vaccine-preventable diseases wane, acute respiratory infections are emerging as the leading cause of death among infants and children in Egypt. The Child Survival project is now beginning to implement interventions for the prevention and treatment of acute respiratory infections.

■ Bab El Shaareya University Hospital conducted a study from 1983 to 1989 of acute diarrhea in children, which showed that while the number of outpatient diarrhea cases remained fairly constant at 10 percent of the case load, cases of moderate dehydration dropped from 25 to 4 percent and cases of severe dehydration dropped from 1.4 to 0.4 percent. The significant decrease in dehydration has been attributed to increased awareness among mothers of the need to take prompt action to prevent dehydration during diarrheal episodes.

BILATERAL PROJECTS

■ **Child Survival** project is a nationwide child health effort supporting services and research related to immunization, breastfeeding, growth monitoring, maternal health and nutrition, birth spacing, high risk births, and acute respiratory infections. Since 1985, service delivery has been concentrated on immunizations through Egypt's Expanded Program on Immunization, in collaboration with UNICEF. The immunization campaigns have raised coverage rates for children aged 12 to 23 months to 78 percent.

The project is expanding to include the prevention and treatment of acute respiratory infections, which has surpassed dehydration from diarrhea as the leading killer of infants and children (see highlights). A national acute respiratory infection plan is currently being implemented, and 50 district health officers have been trained in the management and supervision of acute respiratory infections. Training centers for clinic-level physicians have been equipped, and 40 trainers have completed their training.

■ **Control of Diarrheal Diseases**, in support of Egypt's National Control of Diarrheal Diseases Program, is working to institutionalize project activities to ensure sustainability of the program after the completion of USAID support in 1991. Since 1983, when the National Control of Diarrheal Disease Program was set up as a semiautonomous unit within the Ministry of Health, USAID-supported activities have included making oral rehydration salts (ORS) packets available through private and public health facilities, sponsoring and promoting local production of ORS packets, training physicians and nurses in oral rehydration therapy (ORT), stimulating demand through media campaigns, and conducting research. Television campaigns have been highly effective in educating mothers and creating demand for ORS. Survey

findings indicate that subsequent to the campaigns, 96 percent of mothers could properly mix ORS and 51 percent had used it during their child's last episode of diarrhea. The mass media campaigns received international recognition in 1991 when they were featured on the BBC's telecast of the International Conference on Children from London.

Some 40,000 physicians and health workers were trained in the use of ORT in the past, and an additional 10,000 medical staff received training in 1990. In a recent survey of health care providers' knowledge and practice, 93 percent of physicians continue to use ORS to treat diarrhea. Between 30 and 40 million ORS packets are being produced annually by the Chemical Industries Company in Egypt.

■ **Cost Recovery for Health** helps the Government of Egypt explore avenues of potential cost recovery in the health sector. Areas being investigated are fee-for-service in 50 hospitals and clinics, health insurance initiatives, improved management of health services and institutions, and an expanded private sector role by providing credit to private practitioners and financing of individual, group, and prepaid health care plans. Special incentives have been designed to attract participation in rural areas and secondary cities. One of the first activities is an evaluation of the management information system of Egypt's Health Insurance Organization. Information will be used to modernize the computer system to increase program efficiency.

■ **Schistosomiasis Research** project promotes research and training in the prevention and control of schistosomiasis, a chronic, debilitating water-borne disease that affects 20 percent of Egypt's population. A 10-year commitment has been made by the Government of Egypt and

USAID to fund research in the areas of vaccine development, improved diagnostics, drug treatment effectiveness, epidemiology, socioeconomic factors associated with schistosomiasis, and operations research.

USAID/WASHINGTON SUPPORT**Bureau for Science and Technology Support**

■ **HealthTech** (Technologies for Child Health) transferred the technology for producing the inexpensive, color-coded Birthweight™ scale to SOFTECS, a private, for-profit company in Cairo. The easy-to-interpret scale can be used by health workers or traditional birth attendants to assess low birth weight. A new solar/thermoelectric refrigeration unit for the immunization cold chain was tested as well.

■ **WIN** (Women and Infant Nutrition: A Family Focus) trained health professionals in Wellstart's Lactation Management program, which resulted in the establishment of four urban lactation centers and one mobile unit for training health professionals in lactation management.

Short-term technical assistance was reported as follows:

■ **AIDSTECH** promoted HIV/AIDS prevention education.

■ **CSAP Support** (Johns Hopkins University) supported the American University in Cairo to measure the impact of child survival programs.

■ **Demographic and Health Surveys** completed the final publication of the Egyptian demographic and health survey.

■ **Health Financing and Sustainability** assisted in a variety of areas related to private sector health care and management.

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

**DEMOGRAPHIC INDICATORS**

Total Population:	857,094,327 (90)	Annual Infant Deaths:	2,512,527 (90)
Life Expectancy at Birth:	59 Years (90)	Infant Mortality Rate:	93/1,000 (90)
Children Under 1:	25,156,357 (90)	Under 5 Mortality Rate:	139/1,000 (90)
		Total Fertility Rate:	4.2 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	N/A
DPT3:	79% (89)	ORS Access:	57% (88)	Exclusively Breastfed:	N/A
Polio3:	74% (89)	ORT Use:	23% (88)	Introduction of Solids:	N/A
Measles:	56% (89)	Contraceptive Prevalence:	40% (89)	Breastfed 1 Year or Longer:	N/A
BCG:	80% (89)	Adequate Nutritional Status:	N/A		
Tetanus2+:	67% (89)				

500 DATA NOTES

INDIA HIGHLIGHTS

■ India's Universal Immunization Program, which is sponsored by UNICEF, and supported by USAID, has phased in new geographical areas over the past five years and, as of 1990, reaches the entire country. The success of this program can be attributed to cooperation and communication among nongovernmental organizations, associations, universities, private companies, and private voluntary organizations (PVOs). In the city of Hyderabad, a group of such organizations has formed a registered society called Suraksha. The society is the central communication point for all immunization services being provided in the urban area. Partnerships such as this are being launched in other urban areas of India.

■ In-country production of vaccines is a priority as India strives to develop a self-sufficient immunization program. India is the only developing country producing BCG vaccine. DPT vaccine is currently being produced as well. The production processes for both vaccines are being evaluated, and new production techniques are being introduced to increase capacity. The Government of India is also building a polio vaccine plant, which will produce 100 million doses of vaccine per year. Other steps toward self-sufficiency include the local production of cold chain equipment and vaccine carriers. Recent tests conducted by the World Health Organization found the equipment meets international standards. To ensure continued quality control, USAID is supporting a new project that will develop the institutional capacity to monitor vaccine production and other health-related technologies.

BILATERAL PROJECTS

■ **Child Survival Health Support** is a nationwide USAID-assisted project that has worked with the Ministry of Health and Family Welfare since 1986. USAID supports UNICEF in the Universal Immunization Program, which is responsible for immunization services throughout India. The project aims to strengthen the management and delivery of diarrheal disease control, immunization, and maternal health services. In 1990, some 20,000 health workers received training in diarrheal disease control and immunization.

■ **Integrated Child Development Services** assists the Ministry of Human Resource Development in providing village-level health services to children under age five and pregnant and lactating women in four districts of India (population of 4.6 million). The rural communities receive health services in 4,500 village centers, or *anganwadis*. *Anganwadi* workers, usually young women, are trained to run preschools that provide supplementary food and perform growth monitoring activities. In 1990, 1,000 *anganwadi* workers and traditional birth attendants were trained in oral rehydration therapy (ORT), immunization, and nutrition activities. A nutrition and health education radio program was developed and is being broadcast throughout India.

■ **PVOs for Health II (PVOH II)** is a national program supporting growth monitoring, child spacing, maternal health, control of diarrheal diseases, and immunizations through grants awarded to Indian PVOs. In addition to providing essential child survival services in underserved areas, this project strengthens the capacities of indigenous PVOs. This project is a continuation of PVOH I, which provided support for 32 PVOs. PVOH II is currently evaluating new proposals from local PVOs that focus on sustainability and fund-raising objectives. The PVOs will be required to raise 25 percent of project costs.

■ **Program for the Advancement of Commercial Technology** supports the private sector in processing an anticancer drug. The drug, camptothecin, exists in high concentrations in a small forest tree found in the Western Ghats of India. The technology for producing this drug on a large scale is currently being developed.

■ **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. Three new research projects were funded and eight fellowships were awarded in 1990.

■ **Vaccine and Immunodiagnostic Development** supports the Vaccine Action Project, an Indo-U.S. collaborative vaccine development research project that explores potential vaccines beyond those currently targeted by immunization programs. The project focuses such efforts on cholera, hepatitis, rotavirus, and typhoid. Three new research proposals were funded during 1990, bringing the number of activities funded to seven.

■ **Biomedical Research Support** is helping the Government of India develop sophisticated data collection and analysis capabilities for the major diseases of India. During 1990, the project began to move from centralized to state-level activities.

USAID/WASHINGTON SUPPORT**U.S. Private Voluntary Organizations/FVA/PVC**

■ **CARE** supports oral rehydration therapy, growth monitoring, and immunization services delivered in *anganwadi* centers of Madhya Pradesh and Orissa states. These centers also provide Public Law 480 food supplements for underweight

children under age five and pregnant and lactating mothers. Since 1987, 96 percent of all *anganwadi* workers have been trained and have, in turn, trained a total of 42,700 mothers, thereby exceeding project goals by 50 percent. According to a midterm project evaluation, the ORT use rate in the project area is 55 percent, compared with only 14 percent in a control area.

■ **Rotary International** targets the 8.1 million urban children under age one for vaccination against polio. Rotary International's PolioPlus program supports the national immunization effort in a number of ways, including funding 100 percent of the polio vaccine supply. A force of 36,000 volunteers assists with such tasks as baby tracking, health education, recordkeeping, transportation, outreach, and cold chain maintenance. Over 80 percent of urban children under age one have been immunized against polio and tuberculosis. An interesting spillover effect from the PolioPlus program is the Measles Minus program (a replica of the Rotary initiative) adopted by the Lion's Club.

■ **World Vision Relief and Development** began providing child survival services in 1990.

Bureau for Science and Technology Support

■ **WHO Global Program on AIDS** assists in AIDS control activities.

Short-term technical assistance was reported as follows:

■ **AIDSTECH** assisted in HIV/AIDS prevention education.

■ **PRITECH** (Technologies for Primary Health Care) assisted in establishing a national field epidemiology training center.

■ **REACH** (Resources for Child Health) advised and trained Christian Medical College and Hospital staff in a cost analysis of providing polio vaccine.

REPUBLIC OF INDONESIA

USAID CHILD SURVIVAL
& HEALTH FACT SHEET



DEMOGRAPHIC INDICATORS

Annual Infant Deaths:	346,826 (90)
Total Population:	179,321,641 (90)
Life Expectancy at Birth:	61 Years (90)
Children Under 1:	4,711,879 (90)
Annual Infant Deaths:	346,826 (90)
Infant Mortality Rate:	70/1,000 (90)
Under 5 Mortality Rate:	108/1,000 (90)
Total Fertility Rate:	3.4 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:	DPT3: 71% (89)	Polio3: 74% (89)	Measles: 65% (89)	BCG: 81% (89)	Tetanus2+: 41% (89)
Oral Rehydration Therapy:	ORS Access: 91% (89)	ORT Use: 39% (89)	Contraceptive Prevalence: 47% (87)	Adequate Nutritional Status:	N/A
Appropriate Infant Feeding:	N/A	Exclusively Breastfed: 36% (87)	Introduction of Solids: 83% (87)	Breastfed 1 Year or Longer:	82% (87)

See DATA NOTES

INDONESIA HIGHLIGHTS

■ Indonesia experienced a 45 to 50 percent decline in infant mortality and a 35 to 40 percent drop in the child mortality rate between 1970 and 1987, according to a child survival program impact evaluation conducted by USAID in 1990. Building on pre-existing family planning and nutrition services, Indonesia integrated immunization and diarrheal disease control services to become one of the first countries to deliver all four interventions on a national scale. Today, 215,000 community-supported *posyandus*, or health posts, provide child survival services throughout Indonesia.

■ With *posyandus* now firmly established, attention is turning to sustaining and strengthening their services. Efforts include improving the quality of care, motivating volunteers, and enhancing communication. HEALTHCOM developed counseling cards to boost *posyandu* workers' effectiveness. Project Concern International and CARE are organizing supervision teams to support health volunteers.

BILATERAL PROJECTS

■ **Expanded Program on Immunization (EPI)** assisted national immunization efforts from 1979 to 1990. Immunization coverage rates for children now exceed 70 percent, with the exception of measles (65 percent). Special urban immunization strategies have been designed with assistance from REACH.

■ **Family Planning Development and Services II** has assisted the National Family Planning Cooperating Board to increase access to and promote the use of contraceptives. Ministry of Health (MOH) regulations now allow private physicians and midwives to stock and dispense oral and injectable contraceptives, previously available by prescription only.

■ **Private Sector Family Planning Project** will promote birth spacing and prevention of high risk births through the private sector.

■ **Health Sector Financing** collects and analyzes health expenditure data and advises the MOH on policy reforms to reduce health care costs. A proposed change will permit government hospitals to retain revenues and increase self-sufficiency.

■ **Faculties of Public Health** has established four regional schools of public health since 1985. Each enrolls about 200 students in courses on various aspects of public health.

■ **Village Family Planning/Mother-Child Welfare (1980-1990)** helped the National Family Planning Coordinating Board and the MOH to increase the efficiency and effectiveness of the *posyandu*. A national coordinating body was formed to oversee *posyandu* activities.

■ **PVO Co-Financing II** supports U.S. and local PVO activities, including training traditional birth attendants and health workers, strengthening support services, and facilitating communication among private health care providers.

■ **Health Training, Research and Development**, which ended in 1990, promoted oral rehydration therapy (ORT) through media campaigns and the training of health workers. Communication materials developed by HEALTHCOM have been so effective that UNICEF has expressed interest in their use in an expanded 11-province project.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations

■ **Adventist Development and Relief Agency** completed a project in 1990 that trained over 660 health volunteers in immunization, ORT, and nutrition activities, more than double the original target.

■ **CARE** assists in organizing village supervision teams that determine health priorities and supervise health

services. Strong provincial and local government support has greatly contributed to the success of this endeavor.

■ **Helen Keller International** completed two projects and is continuing to promote vitamin A awareness and distribution of vitamin A capsules in a third project. The pilot efforts of one project have resulted in a national vitamin A program.

■ **Program for Appropriate Technologies in Health** received a grant in 1990 to provide traditional child survival interventions as well as antenatal care and early ARI case detection.

■ **Project Concern International**, which implements child survival services in southeast Sulawesi and Riau, received funding in 1990 to double its project size. Better coordination among *posyandus* supervision teams has increased *posyandu* attendance and led to improved management.

■ **Project HOPE** provides leadership in human resource development at the Center for Child Survival.

■ **Save the Children Federation** supports the expansion of volunteer, community-based service delivery in three slums of Jakarta. Volunteers provide maternal and child health services during monthly health post sessions and nutrition/cooking programs. A "little doctors" training program promotes health awareness among elementary schoolchildren.

Bureau for Science and Technology Support

■ **Applied Diarrheal Disease Research** completed seven research projects on diarrheal disease control.

■ **CSAP Support** (American Medical Association, John Snow, Inc., Johns Hopkins University) assisted the Indonesian Medical Association, clinic-based child survival activities, and vitamin A supplementation studies, respectively.

■ **Demographic and Health Surveys** is designing a follow-up national survey.

■ **HEALTHCOM** (Communication for Child Survival) designed counseling cards to aid health volunteers and media materials promoting ORT use.

■ **HealthTech** (Technologies in Child Health) tested PATHwatch™/PATH-marker™ devices that measure heat exposure of measles and DPT vaccines.

■ **MotherCare** (Maternal and Neonatal Health and Nutrition) assists in designing a pregnancy surveillance system, improving the distribution of iron, and research on birth weight.

■ **PRICOR** (Primary Health Care Operations Research) conducted operations research on willingness to pay for contraceptives.

■ **REACH** (Resources for Child Health) assists in the design of an urban immunization strategy. A videotape on the immunization of brides-to-be against tetanus toxoid was also developed.

■ **TAACS** (Technical Advisor in AIDS and Child Survival) coordinates child survival activities and develops information systems.

■ **Vitamin A for Health** (Johns Hopkins University) assists in vitamin A-related studies, including use of supplements and dietary assessment.

■ **WIN** (Women and Infant Nutrition: A Family Focus) assists in promoting lactation management, support for breastfeeding women workers, and technical assistance.

Short-term technical assistance was reported as follows:

■ **AIDSTECH** assisted AIDS-related research.

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

■ **Vaccine Development and Health Research** supported research on an oral cholera vaccine.

■ **WASH** (Water and Sanitation for Health) investigated private water supply systems.



DEMOGRAPHIC INDICATORS

Total Population: 25,060,640 (90)

Life Expectancy at Birth: 62 Years (90)

Children Under 1: 809,888 (90)

Annual Infant Deaths: 62,576 (90)

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

Under 5 Mortality Rate: 107/1,000 (90)

Total Fertility Rate: 4.6 Children (87)

CHILD SURVIVAL INDICATORS

Immunization Coverage:

DPT3: 81% (90)

Polio3: 81% (90)

Measles: 73% (90)

BCG: 95% (90)

Tetanus2+: 33% (90)

Oral Rehydration

Therapy: ORS Access: 44% (89)

ORT Use: 14% (89)

Contraceptive Prevalence: 30% (87)

Adequate Nutritional Status: 80% (87)

Appropriate Infant Feeding: 47% (87)

Exclusively Breastfed: 42% (87)

Introduction of Solids: 43% (87)

Breastfed 1 Year or Longer: 68% (87)

See DATA NOTES

MOROCCO HIGHLIGHTS

■ Since the first annual National Vaccination Day in 1987, when the goal of 80 percent vaccination coverage was surpassed, Morocco has sustained a high rate of coverage for children aged 12-23 months. The support of USAID and other donors has made a significant contribution to the eradication of disease. As coverage rates have risen, the reported incidence of vaccine-preventable diseases has decreased. No new cases of polio have been reported since 1988. In addition, the number of new measles cases has declined so dramatically that the Ministry of Public Health is considering special training in the identification of measles cases to ensure that health care workers can properly diagnose measles.

■ USAID-supported child survival interventions in Morocco began in the early 1970s with an emphasis on family planning. The percentage of children spaced at least two years apart has increased from 44.5 percent to 55.3 percent since 1980. Lengthening the interval between children is central to USAID's goal of reducing high risk births. According to a recent analysis of data from the USAID-supported 1987 Demographic and Health Survey, children born in intervals longer than two to three years are only half as likely to die before their first birthday as those born less than two years after the previous child.

■ The 1987 Demographic and Health Survey data also assessed the impact of the *Visite à Domicile de Motivation Systématique* (home delivery of family planning/child survival activities) by comparing data from project and nonproject areas. In the project areas,

mothers reported more attended births, a higher use of oral rehydration salts (ORS) to treat diarrhea, a lower incidence of diarrhea, greater immunization coverage, and more use of prenatal care. The survey data also show that infant mortality declined at a much greater rate than in nonproject areas. While other factors may well have had an effect on the infant mortality rates, project services undoubtedly were a contributing factor. Child survival services are now being extended to the non-project areas.

BILATERAL PROJECTS

■ **Family Planning Support III** is a comprehensive national maternal and child health and family planning enterprise implemented and managed by the Ministry of Public Health with funding from USAID, the United Nations Fund for Population Activities, and UNICEF. The project's key child survival interventions have been extended to 75 percent of the population by visiting nurses, who 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.

■ **Family Planning Support IV**, a continuation of Family Planning Support III which will end in 1991, is working to sustain the exceptionally high rates of vaccination coverage and contraceptive prevalence while extending services to previously underserved populations in urban

slums and remote rural areas. In 1990, 12 additional provinces were included in the project area, which now covers the entire country. Sustainability of child survival interventions is a priority under Family Planning Support IV. With the reduction in other causes of death, the 1989 USAID-supported National Infant and Child Mortality Survey revealed that 56 percent of infant deaths occurred within the first 28 days. Over 60 percent of those neonatal deaths were caused by neonatal tetanus, birth trauma, and prematurity. Based on the survey findings, prenatal and delivery interventions will be given increased attention under Family Planning Support IV.

The Government of Morocco has been able to maintain high vaccination coverage rates through highly visible, but costly, vaccination campaigns carried out with considerable support from donor organizations. The Ministry of Public Health is now shifting to a maintenance phase and will provide immunizations through fixed vaccination centers (or "contact points") and mobile teams. Over 1,000 fixed centers have been established since 1987, which brings the total to 1,800. This new system will lower recurrent costs and will make maintaining the cold chain required for vaccines more practical than it is using the door-to-door method.

The expansion of social marketing projects is another means Morocco is using to increase program sustainability. Morocco's first major social marketing project, for the PROTEX condom, has exceeded projected sales, and the program is being expanded to include advertising and marketing support to promote an oral contraceptive. Social marketing for ORS packets is also planned. Private sector involvement in health care, which met with some ministry reluctance at first, is now expanding in a number of ways.

The success of private sector involvement in the vaccination campaigns has persuaded ministry officials of the value of this approach. Private sector advertising firms have redefined how the public views personal health through a variety of campaigns, including those for vaccination and diarrhea treatment. Private physicians, clinics, and pharmacies are now included as part of the local health resource base, and formal agreements have been negotiated with private firms that are willing to provide family planning services. These successful ventures with the private sector have given provincial health directors the confidence to explore more ways to involve the private sector and thus increase sustainability.

■ **Sector Support Training** enabled seven physicians and administrators to receive valuable long-term graduate training in epidemiology and maternal health in 1990.

USAID/WASHINGTON SUPPORT

Bureau for Science and Technology Support

■ **TAACS** (Technical Advisor in AIDS and Child Survival) is working with the Maternal Health Division of the Ministry of Public Health to address issues related to all aspects of child survival and prenatal care and delivery services in particular.

Short-term technical assistance was provided as follows:

■ **AIDSTECH** assisted in the preparation of an educational program for high risk women that focused on specific prevention measures.

■ **REACH** (Resources for Child Health) reviewed private sector health investment and service delivery in Morocco.

REPUBLIC OF NEPAL

DEMOGRAPHIC INDICATORS

Total Population:	19,143,169 (90)
Life Expectancy at Birth:	52 Years (90)
Children Under 1:	663,569 (90)
Annual Infant Deaths:	89,467 (90)
Infant Mortality Rate:	123/1,000 (90)
Under 5 Mortality Rate:	187/1,000 (90)
Total Fertility Rate:	5.7 Children (90)

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:	80% (88)
ORT Use:	14% (89)
Contraceptive Prevalence:	18% (90)
Adequate Nutritional Status:	N/A

Appropriate Infant Feeding:	N/A
Exclusively Breastfed:	N/A
Introduction of Solids:	N/A
Breastfed 1 Year or Longer:	N/A

See DATA NOTES

USAID CHILD SURVIVAL & HEALTH FACT SHEET



NEPAL HIGHLIGHTS

■ A study of the control of acute respiratory infections (ARI) in Nepal's Jumla district, begun in 1986, shows that successful case management of childhood pneumonia can be undertaken at the community level. This groundbreaking program trained community health workers to diagnose and treat childhood pneumonia with antibiotics. Nearly 30,000 cases were treated between 1986 and 1989. As the program matured and lessons learned were incorporated, childhood deaths progressively decreased. A major discovery was that over 90 percent of ARIs occurred among children under age two. This resulted in a shift in program focus from all children under age five to those under age two. Strong communication with mothers on the importance of prompt medical attention for children with a cough or difficult breathing has had a notable impact throughout the program. Interestingly, a 28 percent decrease in mortality from all causes of death was documented in the third year of the study, even though pneumonia case management was the only service provided.

■ The Ministry of Health (MOH) has recently established a corps of women community health volunteers to increase the provision of services to women by women. Traditionally, women have been hesitant to use the health care system because most of the health personnel are men; cultural beliefs restrict communication between the sexes. Women health volunteers will ease women's entry into the health care system. Volunteers will work in coordination with village health workers, referring individuals requiring a higher level of care to appropriate health services, educating mothers about health, supplying simple drugs, and treating minor wounds. Save the Children Federation has integrated women

volunteers into its project, and in some cases the volunteers double as sales agents promoting the use of oral rehydration salts (ORS), oral contraceptives, and condoms.

BILATERAL PROJECTS

■ **Integrated Rural Health/Family Planning Services**, completed in 1990, supported the Government of Nepal's efforts in diarrheal disease control, immunization, birth spacing, and malaria and ARI control throughout rural Nepal. USAID supported a major research project on ARI. A parastatal firm, Contraceptive Retail Sales Company, has been privatized with assistance from USAID and is providing condoms and oral contraceptives for sale through this project.

■ **Child Survival and Family Planning Services**, which began in 1990, is designed to improve MOH management of health and family planning service delivery and to improve the quality and expand the coverage of child health care, family planning services, and malaria control. The project is assisting the government to integrate health services and decentralize decision making so that its limited health manpower and financial resources will be used more efficiently. This is being done through expanded health and family planning service delivery, enhanced planning and management of service delivery, strengthened malaria control measures, and social marketing of contraceptives.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency** began providing child survival services in Nepal in 1990.

■ **Freedom from Hunger Foundation** works with the Family Planning Association of Nepal to support diarrheal disease control, immunization, breastfeeding, growth monitoring, nutrition, maternal health, and child spacing. Mobile teams provide services while screening for children at high risk for malnutrition or with diarrhea. Follow-up home visits are made to all high risk children to ensure proper use of ORS and to teach mothers about basic nutrition. The project targets 22,000 residents living in Sindhupalchok district in north-eastern Nepal. During 1990, project activities also included the training of traditional birth attendants to identify high risk pregnancies, an additional immunization day, and follow-up visits by female health volunteers to the homes of children who had not completed their immunizations.

■ **Save the Children Federation** is building on a solid foundation previously established through its integrated rural development project in Gorkha district, which provides comprehensive primary health care services. The project supports development of a social marketing program to promote the use of ORS and temporary contraceptives. Activities are carried out in conjunction with Contraceptive Retail Sales Company, which supplies oral contraceptives, condoms, and ORS packets. Sales agents make ORS and contraceptives available, instruct mothers to ensure proper usage, and make follow-up visits. The sales agents also educate families about alternative family planning methods and how contraceptives can be obtained. Use of ORS and contraceptives is promoted through demonstrations at the Gajjatra Festival (women's day), video programs, audio cassette dramas, a school poster contest, village leader meetings, village talk programs, and dances and songs. Correct preparation of ORS has risen from 30 to 50

percent in 1990 as a result of promotional efforts and sales agent follow-up. Raising public awareness of contraceptives and ORS has also increased the credibility of the sales agents.

Bureau for Science and Technology Support

■ **Vitamin A for Health** (Johns Hopkins University) is conducting studies to assess the role of vitamin A supplementation in reducing mortality and morbidity among infants, children, and mothers. A study of the safety of vitamin A supplementation for infants under six months of age is also under way.

Short-term technical assistance was provided as follows:

■ **CSAP Support** (CIHI/ISTI) assisted in an assessment of USAID's contribution to nutrition activities.

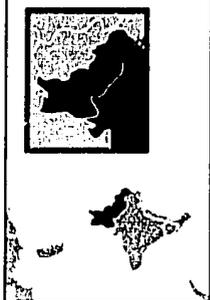
■ **ORT Help** trained Peace Corps volunteers in child survival interventions.

■ **PRITECH** (Technologies for Primary Health Care) assisted in the evaluation of training needs for MOH district-level managers.

■ **REACH** (Resources for Child Health) provided assistance in vitamin A activities in the Jumla district.

■ **Vector Biology and Control** evaluated Nepal's Malaria Control Division and found that it successfully limited new cases of malaria despite diminishing resources.

■ **VITAL** (Vitamin A Field Support Project) assisted in a preliminary investigation of the feasibility of integrating vitamin A supplementation with the Expanded Program on Immunization.



DEMOGRAPHIC INDICATORS

Total Population:	122,625,894 (90)	Annual Infant Deaths:	564,268 (90)
Life Expectancy at Birth:	57 Years (90)	Infant Mortality Rate:	103/1,000 (90)
Children Under 1:	5,048,989 (90)	Under 5 Mortality Rate:	156/1,000 (90)
		Total Fertility Rate:	6.2 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	N/A
DPT3:	83% (90)	ORS Access:	71% (89)	Exclusively Breastfed:	N/A
Polio3:	83% (90)	ORT Use:	42% (87)	Introduction of Solids:	N/A
Measles:	75% (90)	Contraceptive Prevalence:	8% (84-5)	Breastfed 1 Year or Longer:	N/A
BCCG:	87% (90)	Adequate Nutritional Status:	84% (85)		
Tetanus2+:	70% (90)				

See DATA NOTES

PAKISTAN HIGHLIGHTS

■ Since 1982, when USAID stepped up its support for primary health care in Pakistan, the immunization coverage rate for children aged 12 to 23 months has increased from only 8 to over 80 percent in 1990, with the exception of measles, which dropped to 75 percent.

■ Sales of oral rehydration salts (ORS) doubled in 1990, partially because Pakistan rescinded a regulation that considered ORS a pharmaceutical and limited its distribution to chemist shops. Now, hundreds of thousands of groceries and general stores have become potential distribution points for ORS. The 70 percent of the population (mostly rural) that does not have access to chemists will now have access to ORS. This policy change provides a great incentive for private sector development and distribution of ORS. Land O' Lakes, Inc., and Pakistani dairy producers, with assistance from PRITECH, have already developed premixed ORS and upgraded packaging technology. Lever Brothers, which has a large distribution network in Pakistan, is discussing distributing Searle Pharmaceutical's new ORS to its 100,000 outlets.

BILATERAL PROJECTS

■ **Primary Health Care**, completed in 1990, built a solid foundation of quality child survival services. Although results are difficult to quantify, the project evaluation team found that a marked decline in child deaths associated with diarrheal diseases, diphtheria, whooping cough, polio, and measles can be attributed directly to the activities supported by the Primary Health Care project. Since 1982, immunization coverage rates have risen more than 89 percent. Thirteen training schools were built and furnished, and 3,700 health technicians (an unprecedented 40 percent were female) were trained in child

survival interventions. An additional 2,898 medical officers received management training. Training efforts have resulted in increased acceptance of primary health care strategies and an awareness of the cost-effectiveness of preventive programs.

■ **Child Survival** project, with assistance from USAID, the Canadian International Development Agency, UNICEF, and World Health Organization promotes diarrheal disease control, immunization, child spacing, nutrition, breastfeeding, and other services. Since 1988, the project has contributed greatly to the growing accessibility and use of ORS throughout the country. PRITECH has strongly encouraged and facilitated private sector involvement in ORS production, marketing, and distribution.

■ **Malaria Control II** integrated malaria control with general health services to increase the cost-effectiveness of vector control. Costly door-to-door case detection is being replaced by surveillance-based, passive detection in health facilities. Houses and villages are being targeted for spraying in areas where the surveillance data reveal high malaria endemicity. Surveillance activities are complemented by the dissemination of health education messages.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency** established an expanded maternal and child health services program, which is partially supported with local funds. Mobile teams visit 357 villages to immunize women and children. In 1990, the project trained community health workers and traditional birth attendants, who now provide education in the use of oral rehydration salts/home mix, nutrition, and family planning. Fifty-eight percent of children

aged 12 to 23 months are immunized; 67 percent of mothers have received two doses of tetanus vaccine. The project's evaluation found that 95 percent of children with diarrhea were properly fed or breastfed throughout the episode. Project expansion in 1990 provided coverage for an additional 100 villages.

■ **Aga Khan Foundation** provides child survival services in the Northern Areas and Chital district of Pakistan. In 1990, the project increased its target population by 70 percent, and it is now serving 185,000 persons. Most services are provided by 540 trained community health workers and traditional birth attendants, and through 32 village health centers. The services provided by health workers are governed by village organizations, which set policy and prioritize services. One village organization devised a way to encourage mothers to have the traditional birth attendant present at birth and compensate the traditional birth attendant: A flat rate is charged for three antenatal visits and delivery, but if the traditional birth attendant is not called in to assist the delivery, the rate is doubled.

■ **World Vision Relief and Development** began providing child survival services in the outskirts of Islamabad in 1990.

Bureau for Science and Technology Support

■ **Applied Diarrheal Disease Research** project supports studies in vitamin A deficiency, dietary management, and health-seeking behavior. One study tested an inexpensive and acceptable rice-based diet for children suffering from persistent diarrhea.

■ **Demographic and Health Surveys** assisted the National Institute of Population Studies in a national survey.

■ **PRICOR** (Primary Health Care Operations Research) developed tools basic health unit workers can use for patient management, including two memory aids (a reference guide and an outpatient dispensary slip). A follow-up study showed a 63 percent increase in patients who knew when to return for the next immunization based on health worker instruction.

■ **PRITECH** (Technologies for Primary Health Care) has been instrumental in increasing the production, distribution, and marketing of ORS by the private sector. PRITECH has provided training in market research to private producers of ORS and served as a catalyst for action between the government and commercial sectors.

■ **WIN** (Women and Infant Nutrition: A Family Focus) promoted breastfeeding by helping to improve the knowledge and practices of health care workers.

Short-term technical assistance was provided as follows:

■ **AIDSTECH** conducted an HIV infection and AIDS needs assessment.

■ **CSAP Support** (CIHI/ISTI) assisted in information management.

■ **Health Financing and Sustainability** project assisted in setting up a health financing study to investigate cost-saving and cost-sharing schemes.

■ **ORT Help** participated in a maternal health needs assessment.

■ **REACH** (Resources for Child Health) evaluated the field trial for SoloShot™, a nonreusable syringe designed to prevent the transmission of infection through reuse of contaminated syringes, and found it to be easier to use than the conventional syringe.

■ **Vector Biology and Control** participated in the evaluation of the Malaria Control II project.

YEMEN ARAB REPUBLIC

USAID CHILD SURVIVAL
& HEALTH FACT SHEET

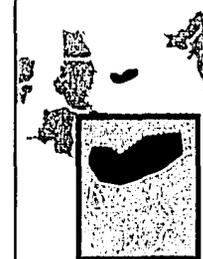
DEMOGRAPHIC INDICATORS

Annual Infant Deaths:	61,000 (89)
Total Population:	9,274,000 (89)
Life Expectancy at Birth:	44 Years (89)
Children Under 1:	408,000 (89)
Infant Mortality Rate:	136/1,000 (89)
Under 5 Mortality Rate:	183/1,000 (90)
Total Fertility Rate:	8.7 Children (89)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	N/A
DPT3:	89% (90)	ORS Access:	16% (89)	Exclusively Breastfed:	N/A
Polio3:	89% (90)	ORT Use:	6% (88)	Introduction of Solids:	N/A
Measles:	74% (90)	Contraceptive Prevalence:	4% (89)	Breastfed 1 Year or Longer:	N/A
BCG:	99% (90)	Adequate Nutritional Status:	N/A		
Tetanus2+:	18% (90)				

See DATA NOTES



YEMEN HIGHLIGHTS

Over the past three years, progress in immunization coverage has been most noteworthy. Current estimates are that national coverage for DPT3 (diphtheria, pertussis, tetanus) has jumped from 14 percent in 1987 to 89 percent in 1990. Success is largely attributed to UNICEF's coordination of multisectoral participation in immunization campaigns and effective use of mass media. One particularly effective component of the Expanded Program on Immunization is a monthly journal providing coverage information, by governorate, to all immunization workers. The journal promotes a sense of friendly competition among the regions using colorful graphs to compare governorate coverage rates.

Recruiting and training female trainers/supervisors and primary health care workers are extremely difficult in Yemen because only a small percentage of women are literate and have completed the requisite level of schooling. Because most Yemeni women will not visit a male health worker without an escort, female health workers are generally more effective than their male counterparts in reaching women with primary health services. As a result, extra effort has been made to recruit female trainers/supervisors and primary health care workers. Currently, 50 percent of the trainers/supervisors are women, a significantly higher percentage than was anticipated at the start of the training program. About 22 percent of the 180 health workers now being trained are women.

BILATERAL PROJECTS

Accelerated Cooperation for Child Survival works to train primary health care workers and to develop a health services delivery system. In 1990, a training curriculum was completed by the Ministry of Health with assistance from HEALTHCOM and REACH. Trainers/supervisors who completed their training in 1989 began to train a cadre of primary health care workers in September 1990. The year-long training program focuses on oral rehydration therapy, immunization, nutrition, and the prevention and treatment of acute respiratory infections. Once trained, the primary health care workers will staff health centers in four governorates, which will provide 44 percent of the Yemeni population with access to preventive and curative services.

With the assistance of HEALTHCOM, the Directorate General of Health Education is undertaking the design of health communication programs, based in part on the findings of surveys of knowledge, attitudes and practices among the target population. HEALTHCOM will also be assisting the ministry with the implementation of its new state-of-the-art communication system, which includes media production equipment.

The project is investigating the feasibility of private sector involvement in health care delivery. An innovative approach to increasing vaccination coverage through the private sector is being tried in the Sada Governorate. Licensure regulations for private clinics now require that clinics provide immunization services. Although it is too soon for measurable results, an increase in the number of health facilities providing immunizations could certainly expand vaccination coverage.

The Accelerated Cooperation for Child Survival project will also be helping to modernize the National Epidemiology and Disease Control Program. A technical advisor in AIDS and child survival will assist in the design of a system to track the incidence and prevalence of various diseases. The program will assist in upgrading the government's central laboratory and developing strategies to investigate disease outbreaks.

Tihama Primary Health Care, which ended in 1990, assisted the government in developing a primary health care system in coastal Tihama province that offered a range of maternal and child health services. During the life of the project, USAID, in conjunction with the Ministry of Health and the Pathfinder Fund, worked to upgrade midwifery training at the country's Health Manpower Institute. Physicians, nurses, and community health workers were trained in child survival interventions. The project also strengthened the process of maintaining the vaccine cold chain and supported immunization activities at fixed centers and through mobile vaccinators. An additional class of midwives is being trained under the Accelerated Cooperation for Child Survival project. Lessons learned in Tihama will be applied to improve the model for service delivery in the other three provinces.

USAID/WASHINGTON SUPPORT

Bureau for Science and Technology Support

Demographic and Health Surveys is planning the upcoming Yemeni national demographic and health survey.

HEALTHCOM (Communication for Child Health) assisted the government in the Accelerated Cooperation for Child Survival project by working with the Directorate General of Health Education to strengthen its capacity to plan, develop, implement, and evaluate effective child survival communication programs nationwide.

REACH (Resources for Child Health) assisted the government with the Accelerated Cooperation for Child Survival project by conducting training-of-trainers workshops and helping to expand the project to include six more primary health care training centers. A resource center for child health training and reference materials was organized by REACH. Procurement of additional resources continued throughout the year.

TAACS (Technical Advisor in AIDS and Child Survival) provided assistance to develop the National Epidemiology and Disease Control Program.

Short-term technical assistance was provided as follows:

AIDSTECH promoted AIDS education and prevention activities.

ORT Help trained Peace Corps volunteers in potable water activities.

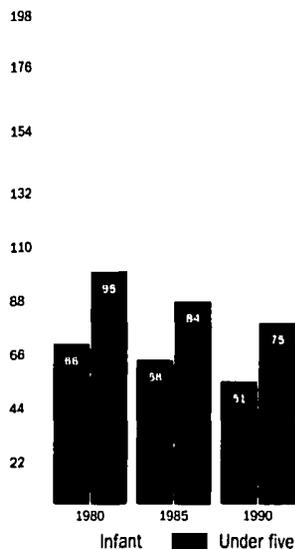
LATIN AMERICA AND CARIBBEAN REGIONAL PROGRESS TOWARD CHILD SURVIVAL GOALS

In 1985, in the middle of what has subsequently been called a lost decade for the Latin America and Caribbean (LAC) region, USAID reassessed its goals for the health sector and set a five-year course concentrating on life-saving preventive services for children. Six countries were designated as child survival emphasis countries: Bolivia, Ecuador, Guatemala, Haiti, Honduras, and Peru. In addition to the targets adopted throughout USAID for immunization coverage, use of oral rehydration therapy (ORT), and access to oral rehydration salts (ORS), the LAC Bureau set a target to reduce infant mortality to 60 per 1,000 live births. During 1985-1990, the child survival program in the LAC region concentrated on immunization and ORT services. Other program components included the control of acute respiratory infections, birth spacing, and promotion of optimal breastfeeding practices.

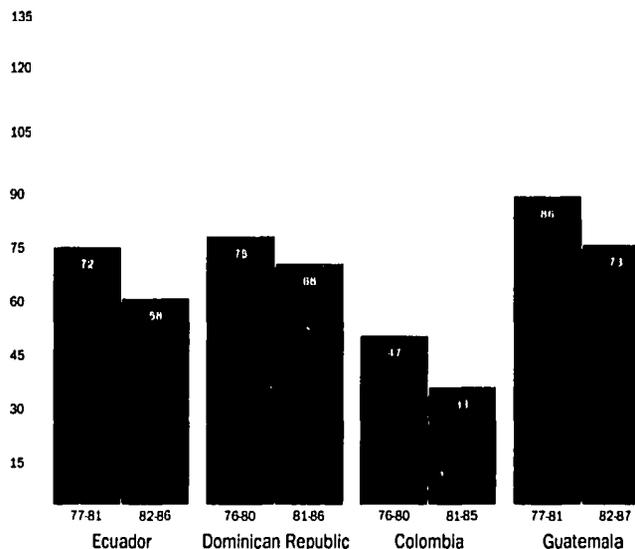
Improvements in health status in the region since 1985 have been remarkable given the context of declining per capita economic growth rates and increasing debt burdens. The target of reducing infant mortality to 60 per 1,000 live births has been achieved in Ecuador (51) and El Salvador (58) and is close to being reached in the Dominican Republic (61) and Honduras (61). Average infant mortality for USAID-assisted countries in the region reached an all-time low of 51 per 1,000 live births in 1990. Vaccine coverage rates for diphtheria, pertussis, and tetanus are nearing 80 percent. Under the Pan American Health Organization's Accelerated Immunization Project, which is supported by USAID, polio vaccine coverage increased substantially, and polio has been almost completely eliminated

43 MORTALITY TRENDS

220 Deaths per 1,000 live births
In the Latin America and Caribbean region



150 Deaths per 1,000 live births in selected countries in the Latin America and Caribbean region



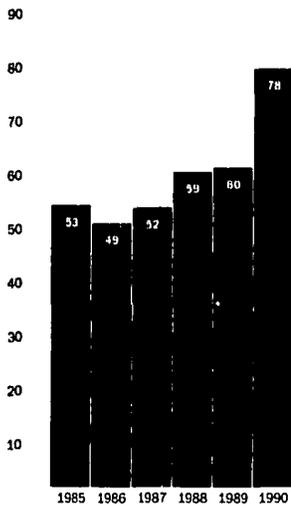
from the Americas. Access rates to ORS in Belize, El Salvador, Guatemala, Jamaica, Mexico, Paraguay, and Uruguay are 80 percent or over. Regional ORT use is almost 51 percent, which exceeds the 1990 target of 45 percent. Concurrent with the implementation of interventions to increase child survival, the LAC Bureau has focused on strengthening logistic systems, improving information and epidemiologic surveillance systems, establishing communication networks, improving management, and encouraging decentralization of health services.

Despite the declines in infant mortality and improvements in immunization coverage and access to ORT, the health of the majority of the people living in Latin America remains poor. Although overall levels of infant mortality, service coverage, and life expectancy compare favorably with those of other regions, progress in the LAC region as a whole masks wide disparities among countries, and, within countries, among urban, peri-urban, and rural areas. The infant mortality rate in Guatemala is more than four times that of Costa Rica. Regional immunization coverage is almost 80 percent, but countries such as Bolivia and Haiti still have a long way to go to achieve 80 percent coverage and to develop the systems needed to sustain good coverage levels. Honduras has sustained an ORT use rate above 45 percent since 1987. And in 1990, Ecuador reported an ORT use rate of 70 percent. El Salvador is approaching the target, but a number of countries lag far behind.

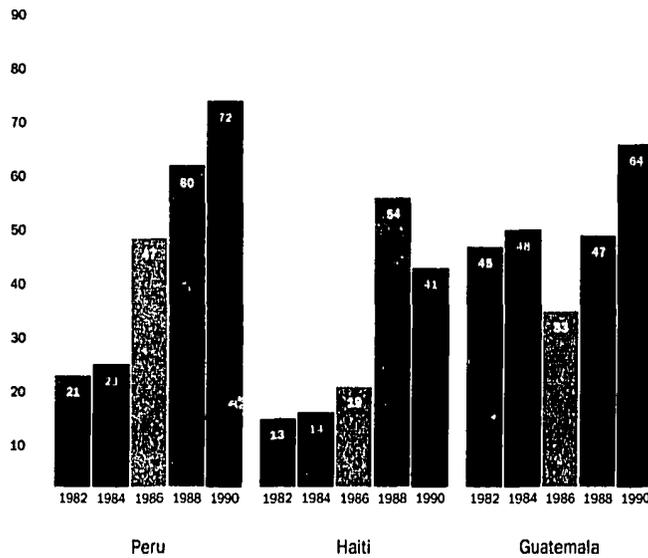
The population in Latin America and the Caribbean is becoming increasingly urban. The World Bank predicts that 90 percent of the poor in the region will live in cities by the end of the 1990s. The resulting strain on already inadequate water and sanitation facilities, coupled with the lack of environmental controls, will likely result in increased respiratory and gastrointestinal morbidity and mortality in the region. Moreover, as populations become more urban and traditional practices are forsaken, infants and children may lose the protective benefits of breastfeeding because mothers begin early introduction of other fluids and solid foods so they can be free to work outside the home.

44 DPT3 COVERAGE

100 Percent vaccinated by 12 months of age in the Latin America and Caribbean region

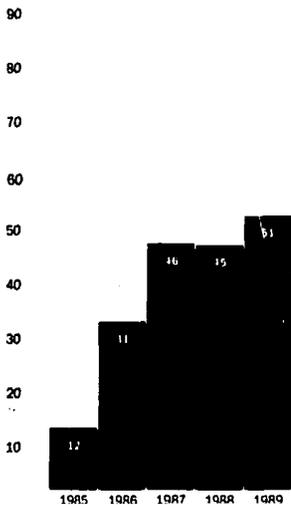


100 Percent vaccinated by 12 months of age in selected countries in the Latin America and Caribbean region

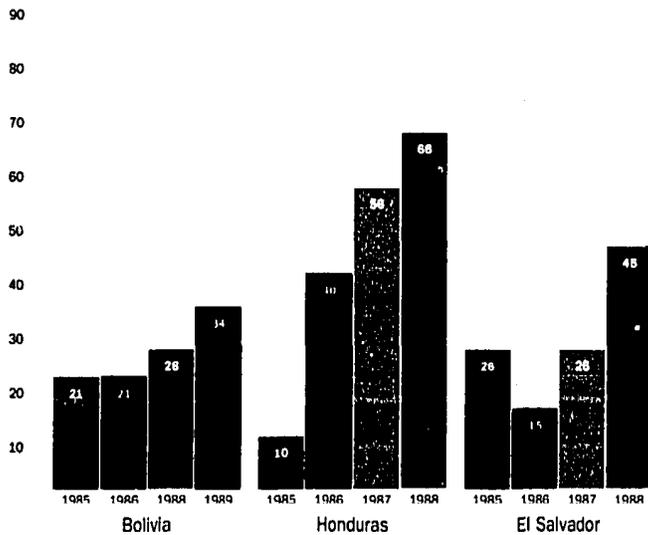


45 ORT USE

100 Percent of children under age five in the Latin America and Caribbean region



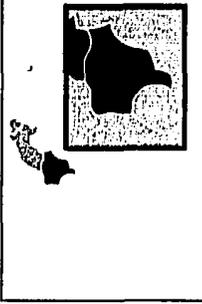
100 Percent of children under age five in selected countries in the Latin America and Caribbean region



USAID will continue to focus child survival efforts in Latin America and the Caribbean on expanded immunization and control of diarrheal diseases, but with an approach that increasingly addresses other factors that affect child survival. Immunization programs must evolve and become institutionalized so that national vaccination days are not seen as the optimal means of achieving desired coverage rates. Private and public health facilities should have vaccines and trained personnel available to provide vaccinations at any given opportunity. Without more permanent mechanisms for immunization, gains made in polio eradication, for example, could be lost. In the next decade, immunization efforts should focus on improving coverage for both measles and neonatal tetanus.

New diarrheal disease control targets set for 1995 emphasize correct treatment of diarrhea. To achieve these targets, donor and host government coordination will have to be improved. In general, more emphasis must be placed on involving host governments, donors, health maintenance organizations, private physicians, pharmacists, local voluntary organizations, and members of the advertising industry in child survival activities if sustainability is going to be achieved. Possible strategies include focusing on preventive health care, generating long-term private sector commitments, and charging appropriate user fees.

The data presented here suggest that efforts to date have been effective in attaining the child survival goals outlined in 1985. The challenge for the 1990s is to ensure that current programs are strengthened and that interventions are not only institutionalized and made more sustainable but expanded to cover the individuals yet to be reached.



DEMOGRAPHIC INDICATORS

Total Population: 7,313,632 (90)	Annual Infant Deaths: 31,249 (90)
Life Expectancy at Birth: 54 Years (90)	Infant Mortality Rate: 101/1,000 (90)
Children Under 1: 285,993 (90)	Under 5 Mortality Rate: 157/1,000 (90)
	Total Fertility Rate: 5.9 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:	Oral Rehydration Therapy:	Appropriate Infant Feeding:
DPT3: 41% (90)	ORS Access: 40% (88)	51% (89)
Polio3: 50% (90)	ORT Use: 34% (89)	Exclusively Breastfed: 55% (89)
Measles: 53% (90)	Contraceptive Prevalence: 12% (89)	Introduction of Solids: 39% (89)
BCG: 48% (90)	Adequate Nutritional Status: 81% (89)	Breastfed 1 Year or Longer: 71% (89)
Tetanus2+: 20% (89)		See DATA NOTES

BOLIVIA HIGHLIGHTS

- In Bolivia, private voluntary organizations (PVOs) have played a significant role in improving immunization coverage against diphtheria, pertussis, and tetanus. In 1990, when the national coverage rate was 41 percent, Freedom from Hunger, Project Concern International, and Esperanza achieved DPT3 coverage rates of 48, 69, and 79 percent, respectively, in their project regions.
- USAID is working to ensure that child survival programs will have lasting benefits. PROCOSI, a federation of 10 U.S. and Bolivian PVOs created with USAID assistance in 1988, recently became a registered association. In addition to coordinating child survival activities and providing financial and technical assistance to member PVOs, PROCOSI has fielded 50 technical consultancies, conducted 20 workshops, and established a technical resource center.

BILATERAL PROJECTS

- **Community and Child Health** assists the Ministry of Health (MOH) with child survival activities in the rural and peri-urban areas of La Paz, Cochabamba, and Santa Cruz. The project is developing a component to control Chagas' disease, an endemic health problem in Bolivia.
- **ORT and Child Growth Monitoring**, administered by Caritas (a local PVO), PRITECH, and Catholic Relief Services, promoted child survival interventions through mothers' clubs and radio programs. An evaluation found that participants treated 42 percent of diarrhea cases properly.
- **Self-Financing Primary Health Care**, with PROSALUD, a local PVO, offers health and child survival interventions through a network of private clinics. In 1990, the project built six new health centers.
- **Child Survival PVO Network**, implemented by Save the Children Federation (SCF) and PROCOSI,

coordinates PVO resources and collaboration with the MOH. The project is working to strengthen PVO health information systems.

- **ORS Packets** assisted the MOH with procuring, distributing, and marketing oral rehydration salts (ORS) packets nationwide.
 - **Radio Education** builds on Bolivia's successful use of radio to convey health messages to children in three departments. A weekly radio program, "Diarrhea Prevention and Oral Rehydration Therapy," was aired in 1990.
 - **Child Survival and Rural Sanitation**, through CARE, a U.S.-based PVO, assists the MOH in providing water and sanitation services and education to over 60,000 people in five departments. In 1990, over 100 water systems were constructed.
 - **AIDS Prevention and Control** works with the MOH to educate communities and health care providers about AIDS. In 1990, the project assessed perinatal transmission of the AIDS virus.
 - **Improving the Impact of PL 480 Resources**, implemented by the Adventist Development and Relief Agency, Caritas, and Food for the Hungry, provides technical assistance and training to private sector groups engaged in child survival activities.
 - **Reproductive Health**, working with the MOH and local nonprofit groups in three major cities, is a new project designed to prevent high risk births through promotion of contraceptives and breastfeeding.
- REGIONAL PROJECTS**
- **Accelerated Immunization** works to improve child survival in the Americas by reducing vaccine-preventable diseases. A television special was aired to promote the Andean Vaccination Day in April 1990.
 - **Andean Peace Scholarships** sponsors short- and long-term study in the United States for students from

Andean nations. In 1990, 22 Bolivian physicians participated in a four-week course in applied epidemiology.

USAID/WASHINGTON SUPPORT

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- **Andean Rural Health Care** works with the MOH and local organizations to integrate child survival programs into the primary health care network serving 10,000 people in the La Paz department. Services are being expanded under a 1990 grant.
- **Esperanza** sponsors primary health care interventions in remote areas of the Chaco region. Immunization coverage rose 15 percent in 1990 through health worker efforts.
- **Food for the Hungry** currently promotes oral rehydration therapy (ORT), immunization, and proper nutrition through mother centers in 89 rural communities. Acceptance of ORT solutions has been greater than anticipated, and the project has raised its goal for ORT use from 65 to 75 percent.
- **Foster Parents Plan** provides child survival services in the cities of Sucre and Altiplano through two grants awarded in 1990.
- **Freedom from Hunger** assists the government in introducing child survival interventions into 40 communities. The introduction of vegetable gardens and greenhouses to women's groups has improved eating habits.
- **Project Concern International** works with local health authorities in rural areas of Cochabamba and Potosi to provide child survival services through trained community health workers, nurses, and doctors. In 1990, 224 medical personnel were trained.
- **Save the Children Federation**, under two grants, is establishing community-based health care systems in adjoining areas of Inquisivi province. Under another grant, SCF

works to improve vitamin A status through vitamin A distribution, cooking groups, and vegetable gardens.

Bureau for Science and Technology Support

- **CSAP Support** (Johns Hopkins University) provided a Child Survival Fellow to work with PROCOSI to develop child survival programs.
 - **Demographic and Health Surveys** conducted an in-depth health survey.
 - **MotherCare** (Maternal and Neonatal Health and Nutrition), which works to improve maternal health and neonatal survival, is developing projects in Cochabamba and Inquisivi.
 - **PRITECH** (Technologies for Primary Health Care) provides a communicator and pediatrician to PROCOSI and short-term assistance.
 - **TAACS** (Technical Advisor in AIDS and Child Survival) is assisting the MOH in developing a Chagas' disease control program.
 - **WIN** (Women and Infant Nutrition: A Family Focus) supports the Well-start Lactation Management Education Program by training health workers to promote optimal breastfeeding. Participants have developed a national working group for the promotion of breastfeeding.
- Short-term technical assistance was reported as follows:**
- **AIDSCOM** assisted in AIDS education and communication.
 - **AIDSTECH** developed AIDS prevention programs.
 - **Nutrition Education and Social Marketing Field Support** trained in the Rapid Assessment Procedure related to infant feeding practices.
 - **REACH** (Resources for Child Health) strengthened neonatal tetanus control strategies.
 - **Vector Biology and Control** supported vector-borne disease control.
 - **WASH** (Water and Sanitation for Health) worked in water and sanitation.

DEMOGRAPHIC INDICATORS

Annual Infant Deaths: 17,224 (90)	Infant Mortality Rate: 51/1,000 (87)
Total Population: 10,587,226 (90)	Under 5 Mortality Rate: 83/1,000 (90)
Life Expectancy at Birth: 66 Years (90)	Total Fertility Rate: 3.8 Children (89)
Children Under 1: 325,675 (90)	

CHILD SURVIVAL INDICATORS

Immunization Coverage:	DPT3: 69% (90)
	Polio3: 66% (90)
	Measles: 62% (90)
	BCG: 89% (90)
	Tetanus2+: 23% (89)

Oral Rehydration Therapy:	Appropriate Infant Feeding: 24% (87)
ORS Access: 54% (89)	Exclusively Breastfed: 27% (87)
ORT Use: 70% (89)	Introduction of Solids: 15% (87)
Contraceptive Prevalence: 42% (89)	Breastfed 1 Year or Longer: 56% (87)
Adequate Nutritional Status: 76% (87)	

See DATA NOTES



ECUADOR HIGHLIGHTS

■ In Esmeraldas province of Ecuador, REACH has been working with local government officials, local leaders, and the Red Cross to eliminate neonatal tetanus deaths by strengthening local immunization capabilities and targeting women of reproductive age. As a result of this collaborative effort, deaths due to neonatal tetanus have declined from 345 per 100,000 in 1983 to 27 per 100,000 in 1988.

■ A recent survey in Manabi province found that 70 percent of mothers use oral rehydration therapy (ORT) during their children's episodes of diarrhea. Other indicators of good management of diarrheal disease in the home were also found. Sixty-nine percent of mothers continued to feed their child during diarrheal episodes and 90 percent continued breastfeeding.

BILATERAL PROJECTS

■ **Integrated Rural Health Delivery Systems**, completed in December 1989, provided training and services supporting Ecuador's national child survival program. Hospital-based oral rehydration units established by the project in all 21 of Ecuador's provincial hospitals continue to operate. Preliminary results of a national maternal and child health survey indicate a significant drop in the national infant mortality rate.

■ **Child Survival**, a continuation of the Integrated Rural Health Delivery Systems project, works to increase the effective use of vaccinations, ORT, nutrition education, and treatment for acute respiratory infections (ARI) in several highland and coastal provinces. Regional training courses in ARI are being developed to train health personnel in each province.

■ **OPG: Private Sector Health Delivery Model**, implemented by MAP International, a U.S.-based private voluntary organization (PVO),

works to establish financially self-reliant community organizations to provide maternal, child, and other health services to 30,000 people in two communities in El Oro province. In 1990, 20 traditional healers and health workers received training in financial management.

■ **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 four-year project is to improve the health of infants and children by strengthening the capacity of the Ecuador Institute of Sanitation Works to assist rural communities in installing and maintaining safe water supply systems and latrines. In 1990, the project focused on training personnel and establishing departments in management development, hygiene education, training, appropriate technology research, and operation and maintenance.

REGIONAL PROJECTS

■ **Accelerated Immunization** works to improve child survival in the Americas by reducing vaccine-preventable diseases. A one-hour television special was aired in Ecuador and other Andean countries to promote the April 1990 Andean Vaccination Day. With the support of the Interagency Coordinating Committee, the Ministry of Health (MOH) successfully negotiated having vaccines included within their free medicine program.

■ **Andean Peace Scholarships** sponsors students from Andean nations for short- and long-term study in the United States in health services, policy, and administration. The project supported the development and implementation of a health services management course designed for 18 MOH technical and administrative health professionals.

USAID/WASHINGTON SUPPORT

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■ **Catholic Relief Services** works through 70 women's clubs in the regional capitals of Cuenca, Lataunga, and Portoviejo to improve the nutritional status of children under age six through promotion of ORT and immunizations and provision of growth monitoring and other nutrition services. Project beneficiaries receive technical assistance and credit to increase agricultural production. Drought in two provinces resulted in greater emphasis on animal husbandry activities. Some 160 health workers were trained in child survival interventions in 1990.

■ **Project HOPE** operates a service delivery project in the Manabi and Azuay provinces that seeks to increase child survival through nutrition education and access to immunizations, ORT, and other health services. Over 3,500 mothers and students attended training sessions conducted by community health volunteers in 1990. Focus groups and interviews are used to identify health knowledge, attitudes and practices so that educational components can be modified to suit the target population.

Bureau for Science and Technology Support

■ **AIDSCOM** provides assistance in AIDS education and prevention.

■ **AIDSTECH** assists laboratory technicians in blood screening and HIV testing procedures, and the MOH in AIDS surveillance activities.

■ **Applied Diarrheal Disease Research** is developing a study on the epidemiology of invasive diarrhea in day care centers.

■ **MotherCare** (Maternal and Neonatal Health and Nutrition) is evaluating the direct impact of the kangaroo-mother approach to caring for low birth weight babies on declines in neonatal morbidity and mortality.

This cost-effective alternative to incubators for nurturing premature and low birth weight infants involves carrying the infant closely bound to the mother's breast.

■ **REACH** (Resources for Child Health), through a long-term technical advisor, is supporting MOH immunization efforts in the northern coastal Esmeraldas province. The project trains physicians, nurses, community health workers, schoolteachers, and community leaders in immunization.

■ **TAACS** (Technical Advisor in AIDS and Child Survival) assisted the MOH in developing a national strategy to reduce maternal mortality, and the USAID mission in designing a project component on health care financing.

■ **WIN** (Women and Infant Nutrition: A Family Focus), supports the Wellstart Lactation Management Education program to promote optimal breastfeeding by improving the knowledge and practices of health care workers.

Short-term technical assistance was reported as follows:

■ **Health Financing and Sustainability** provided technical assistance in health care financing and sustainability.

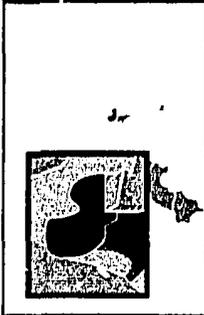
■ **HEALTHCOM** (Communication for Child Survival) provided technical assistance to strengthen communication and promotion activities in immunization, ORT, and other child survival interventions.

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

■ **PRITECH** (Technologies for Primary Health Care) worked with the MOH to improve its management information system.

■ **Vector Biology and Control** supported malaria control efforts.

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



DEMOGRAPHIC INDICATORS

Total Population:	9,197,345 (90)	Annual Infant Deaths:	19,542 (90)
Life Expectancy at Birth:	63 Years (90)	Infant Mortality Rate:	72/1,000 (87)
Children Under 1:	351,593 (90)	Under 5 Mortality Rate:	90/1,000 (90)
		Total Fertility Rate:	5.5 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:	DPT3: 64% (90)	Oral Rehydration Therapy:	Appropriate Infant Feeding:	N/A
Polio3: 72% (90)	Measles: 68% (90)	ORS Access: 80% (89)	Exclusively Breastfed:	N/A
BCG: 53% (90)	Tetanus2+: 18% (89)	ORT Use: 24% (89)	Introduction of Solids:	N/A
		Contraceptive Prevalence: 19% (87)	Breastfed 1 Year or Longer:	N/A
		Adequate Nutritional Status: 55% (87)		

See DATA NOTES

GUATEMALA HIGHLIGHTS

■ A USAID-supported private voluntary organization (PVO) has prompted important regional-level policy changes. Because neonatal tetanus is a major cause of death in newborns, Project HOPE-supported vaccination campaigns in the San Marcos department added tetanus toxoid vaccination for women. This resulted in a 43 percent increase in the number of women receiving at least two doses of tetanus toxoid, the minimum number needed to protect newborns. This success prompted the regional health ministry to add tetanus toxoid in 1990 vaccination campaigns.

■ Child survival activities have slowed due to a financial review of the Ministry of Health (MOH). Despite this setback, the Expansion of Family Planning Services project, which assists local groups in developing maternal/child health projects, met with over 40 potential grantees and funded 11 projects in 1990.

BILATERAL PROJECTS

■ **Immunization and ORT Services for Child Survival** works with the MOH to improve immunization coverage and use of oral rehydration therapy (ORT). In 1990, the project supported establishment of the MOH's Health Management Information System.

■ **Expansion of Family Planning Services** assists the International Planned Parenthood Federation affiliate, APROFAH, and local organizations to provide child survival interventions nationwide. In 1990, the project developed a proposal format and instruction guide to assist local groups in designing maternal/child health programs.

■ **Water, Women and Health**, administered through CARE, a U.S.-based PVO, constructs and maintains water and sanitation systems for rural communities. In 1990, 24 health workers and numerous families received hygiene education.

■ **Community-Based Health and Nutrition Systems** works with the MOH to develop water and sanitation systems for rural communities in six departments. Completed in 1990, the project built over 16,000 latrines and 168 water systems.

REGIONAL PROJECTS

■ **Accelerated Immunization** works in the Americas to reduce vaccine-preventable diseases. In 1990, studies were conducted on improving coverage in Guatemala.

■ **ORT, Growth Monitoring and Nutrition Education**, jointly sponsored by the Institute of Nutrition for Central America and Panama (INCAP) and the MOH, works to improve maternal and child health in Central America. The project is conducting operations research on local monitoring of health programs.

■ **Technical Support for Food Assistance** supports INCAP in increasing the effectiveness of food assistance in Central America and Panama. In 1990, interagency coordination was strengthened through the development of a computerized information system.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **CARE** works to improve community health education training methods in the departments of Alta Verapaz and Baja Verapaz. Findings from a survey conducted on dietary practices and diarrheal disease were incorporated into the training curriculum for health care workers.

■ **Foster Parents Plan** works to improve maternal and child health through community organization in rural communities. Immunization coverage rates in the project area substantially exceed national rates.

■ **International Eye Foundation** assists the National Committee for the Blind and Deaf to prevent nutritional blindness through vitamin

A distribution, community gardens, and nutrition education. The project is expanding its services through a child survival grant awarded in 1990.

■ **La Leche League International** promotes optimal breastfeeding through women's groups in Guatemala City. To promote colostrum as baby's first vaccine, the project added colostrum to the MOH's immunization coverage logo and produced the design on posters now hanging in 40 health centers.

■ **Project Concern International** assists the MOH in expanding health services to women and children in two isolated cities. In Santiaguillo, community health volunteers promote health services through home visits and educational meetings.

■ **Project HOPE** works with the government to provide child survival services to rural communities in San Marcos and Quezaltenango departments. Project HOPE developed adhesive labels printed with a liter gauge and instructions for preparing oral rehydration salts (ORS), which were applied to plastic bottles and distributed to families throughout the project area. The project was awarded a grant to expand vitamin A activities.

Bureau for Science and Technology Support

■ **AIDSCOM** assists the Association in Guatemala for Sex Education and the Regional Center for Audiovisuals in AIDS in training private sector health care personnel.

■ **CSAP Support** (Johns Hopkins University) provided a Child Survival Fellow to work on maternal and neonatal mortality and morbidity.

■ **HEALTHCOM** (Communication for Child Survival), completed in 1990, assisted the MOH in promoting immunization and ORS. In 1990, HEALTHCOM designed a liter bag to be used for ORS preparation.

■ **MotherCare** (Maternal and Neonatal Health and Nutrition) works

to improve maternal and neonatal health by training traditional birth attendants. MotherCare is assisting in the development of the Quezaltenango demonstration project, which will focus on the management of high risk maternal and neonatal events.

■ **Nutrition Education and Social Marketing Field Support**, which supports communication training capabilities, assists INCAP in developing a water and sanitation communication strategy.

■ **PRICOR** (Primary Health Care Operations Research) provides technical assistance to INCAP in health systems development.

■ **Project SUPPORT** works in diarrheal disease control.

■ **WIN** (Women and Infant Nutrition: A Family Focus) supports the Well-start Lactation Management Education program by training health care workers to promote optimal breastfeeding. Through the Clearinghouse on Infant Feeding and Maternal Nutrition, WIN assists INCAP's nutrition clearinghouse.

Short-term technical assistance was reported as follows:

■ **AIDSTECH** worked to improve clinical management of sexually transmitted diseases.

■ **Applied Diarrheal Disease Research** supported studies on dietary management of diarrhea.

■ **CSAP Support** (CIHI/ISTI) provided technical assistance in health information systems.

■ **Milwaukee International Health Training Center** provided technical assistance in nutrition.

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

■ **PRITECH** (Technologies for Primary Health Care) supported diarrheal disease control activities.

■ **REACH** (Resources for Child Health) provided technical assistance in immunization.



DEMOGRAPHIC INDICATORS

Annual Infant Deaths: 26,055 (90)	Infant Mortality Rate: 112/1,000 (90)
Total Population: 6,512,698 (90)	Under 5 Mortality Rate: 161/1,000 (90)
Life Expectancy at Birth: 55 Years (90)	Total Fertility Rate: 6.4 Children (90)
Children Under 1: 214,395 (90)	

CHILD SURVIVAL INDICATORS

Immunization Coverage:	
DPT3: 41% (90)	
Polio3: 40% (90)	
Measles: 31% (90)	
BCG: 72% (90)	
Tetanus2+: 23% (88)	

Oral Rehydration Therapy:	Appropriate Infant Feeding:	N/A
ORS Access: 48% (89)	Exclusively Breastfed:	N/A
ORT Use: 24% (89)	Introduction of Solids:	N/A
Contraceptive Prevalence: 9% (89)	Breastfed 1 Year or Longer:	N/A
Adequate Nutritional Status:		N/A

See DATA NOTES

HAITI HIGHLIGHTS

■ National immunization coverage has improved significantly over the past decade. Coverage rates for polio3 increased from 4 to 54 percent between 1981 and 1989. Between 1984 and 1988, measles coverage rose from 8 to 63 percent, and DPT3 coverage from 13 to 54 percent.

■ A Haitian private voluntary organization (PVO), the Centers for Health and Development (CDS), with USAID assistance, has developed an effective model for delivering quality health and child survival services to disadvantaged urban populations. The CDS originally worked in Cité Soleil, a poor area of the capital city of Port-au-Prince, where use of oral rehydration therapy (ORT) and immunization coverage are now well above national averages. The CDS urban health model is now being expanded to other cities in Haiti. Nearly 500,000 people are being reached through six model health centers operating in Cité Soleil, La Saline, Gonaïves, and Cap-Haïtien.

BILATERAL PROJECTS

■ **Expanded Urban Health Services** is an extension of the successful integrated health services model developed by CDS in Cité Soleil into other low-income urban areas. In 1990, CDS achieved 60 percent vaccination coverage for BCG, DPT3, polio3, and tetanus toxoid, and 58 percent ORT use in the project region.

■ **Voluntary Agencies for Child Survival**, administered by University Research Corporation, provides technical assistance to local and U.S.-based PVOs to strengthen their child survival programs. The project focuses on institutional development to improve service delivery.

■ **Community Water System Development**, implemented by CARE, a U.S.-based PVO, ended in 1990. The project developed water systems and

provided hygiene education to families and community leaders in rural communities of the South and Grande Anse departments. Due to the success of the project, the State Potable Water Service has adopted a policy for community-managed water systems

■ **Presidential Training Initiative for the Islands Caribbean**, which sponsored short- and long-term training in the United States, ended in 1990. Three Haitians completed two-year programs in nursing, health education, and medical technology, respectively.

■ **CLASP II**, a continuation of the Presidential Training Initiative, sponsored training for over 150 professionals in its first year.

REGIONAL PROJECT

■ **Accelerated Immunization** works to improve child survival in the Americas by reducing vaccine-preventable diseases. The project has been vital in improving national immunization coverage rates, strengthening the Ministry of Health's (MOH) institutional capacity to provide immunization services, and providing a framework for effective donor coordination.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

■ **Adventist Development and Relief Agency (ADRA)** provides immunization, growth monitoring and nutrition, diarrheal disease control, and high risk birth services to nearly 40,000 residents in poor areas of Port-au-Prince. ORT use in Bergamoth, a town where the project has consistently provided services, is 88 percent, which attests to the success of ADRA's ORT training and promotion program.

■ **Foster Parents Plan** is providing immunization, ORT, and other child survival services in the Croix-des Bouquets district through a grant awarded in 1990.

■ **Helen Keller International** works with the CDS in Cité Soleil to provide vitamin A services to 25,000 women and children. In 1990, the project developed a social marketing program promoting increased consumption of vitamin A.

■ **Save the Children Federation** works to prevent vitamin A deficiency in the city of Maïssade, located in the central plateau region. Educators teach mothers and other child caretakers about child nutrition and how to prepare locally available, nutritious foods. Forty-four health workers and nutrition monitors received training to increase their awareness of eye diseases and the role of vitamin A in preventing nutritional blindness.

■ **VITAP (Vitamin A Technical Assistance Program)** provided technical support to PVO vitamin A activities.

■ **World Relief Corporation** supports a multipurpose program in the southern region to improve the health of 15,000 women and children. Thirteen child survival rally posts and dispensaries have been established to date. Thirty-four volunteer health workers were trained to educate mothers and other community members about ORT, growth monitoring, and other child survival interventions. In 1990, the project achieved a BCG immunization coverage rate of 95 percent.

■ **World Vision Relief and Development (WVRD)** provides immunizations and other child survival services to the women and children of La Gonâve Island at rally posts. An island-wide survey revealed progress in both immunization coverage and ORT use rates – coverage rates for DPT3, polio3, and measles were estimated at approximately 70 percent for children aged 12 to 23 months; ORT use was 44 percent. Under a separate vitamin A grant, WVRD trained over 150 health workers in vitamin A intervention strategies.

Bureau for Science and Technology

■ **AIDSCOM** works with local PVOs in designing and implementing AIDS education campaigns.

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

■ **CSAP Support (CIHI/ISTI)** provides assistance in information systems.

■ **CSAP Support (Johns Hopkins University)**, through a Child Survival Fellow, provides research assistance to the USAID-supported Child Health Institute in the areas of diarrheal disease, immunization, and nutrition.

■ **MotherCare (Maternal and Neonatal Health and Nutrition)** provides technical assistance in maternal and neonatal health and optimal breastfeeding.

■ **REACH (Resources for Child Health)** works to strengthen national immunization efforts through improved management of the Expanded Program on Immunization (EPI) and cold chain logistics.

■ **WHO Global Program on AIDS** assists in AIDS control efforts.

Short-term technical assistance was reported as follows:

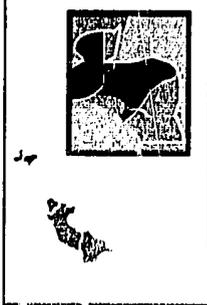
■ **Health Financing and Sustainability** worked in health care financing.

■ **Historically Black Colleges and Universities**, through Florida A&M University, conducted research on medicinal plants.

■ **ORT Help** trained Peace Corps volunteers in diarrheal disease control and immunization.

■ **Vector Biology and Control** supported malaria and chloroquine-resistance research activities.

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



DEMOGRAPHIC INDICATORS

Total Population:	4,698,362 (89)	Annual Infant Deaths:	11,014 (89)
Life Expectancy at Birth:	62 Years (87)	Infant Mortality Rate:	61/1,000 (87)
Children Under 1:	172,848 (89)	Under 5 Mortality Rate:	97/1,000 (90)
		Total Fertility Rate:	5.6 Children (89)

CHILD SURVIVAL INDICATORS

Immunization Coverage:		Oral Rehydration Therapy:		Appropriate Infant Feeding:	N/A
DTP3:	77% (90)	ORS Access:	55% (89)	Exclusively Breastfed:	N/A
Polio3:	85% (90)	ORT Use:	66% (88)	Introduction of Solids:	N/A
Measles:	91% (90)	Contraceptive Prevalence:	33% (87)	Breastfed 1 Year or Longer:	N/A
BCG:	60% (90)	Adequate Nutritional Status:	77% (87)		
Tetanus2+:	16% (89)				

See DATA NOTES

HONDURAS HIGHLIGHTS

At the request of the United Nations High Commission for Refugees, the Honduran Division of Health Education, supported by USAID, provided educational materials and trained health workers in diarrheal disease control in refugee camps. After only two months of assistance, monthly infant deaths in the camps were dramatically reduced.

In an important move toward a sustainable and more decentralized health care system with local decision-making responsibility, a presidential decree was issued allowing health facility managers to generate and use fee income. The Health Sector II project has worked with the Honduran government to encourage and strengthen local management of health services through training in programming, administration, and health information systems.

BILATERAL PROJECT

Health Sector II supports the health care system by providing technical assistance in the areas of nutrition, diarrheal disease management, acute respiratory infections (ARI), immunizations, high risk births, water and sanitation, and vector-borne diseases. The project has also supported the capacity of the Ministry of Health (MOH) to deliver sustainable child survival services through the reorganization and computerization of the medical supply system and successful implementation of microcomputers for managing and analyzing child survival information at the regional level. In cooperation with the MOH, the project is working to reduce the impact of ARI on infants and children by revising treatment protocols, retraining health personnel, and developing a mass media campaign with the assistance of HEALTHCOM.

REGIONAL PROJECTS

Accelerated Immunization works to eradicate wild poliovirus, increase complete immunization coverage, and improve service delivery in the Americas. The project provides Honduras with assistance in program operation and surveillance.

ORT, Growth Monitoring and Nutrition Education, a joint effort of the MOH and the Institute of Nutrition for Central America and Panama (INCAP), is working to increase effective use of oral rehydration therapy (ORT), growth monitoring, and appropriate feeding practices in Central America and Panama through the development and promotion of various technologies. In Honduras, the project is conducting operations research in ARI and oral rehydration.

Technical Support for Food Related Assistance, administered by INCAP, works to increase the effectiveness of food assistance.

USAID/WASHINGTON SUPPORT

U.S. Private Voluntary Organizations/FVA/PVC

CARE is working to improve service delivery and strengthen community and home health practices in 100 rural communities in western Honduras through a child survival grant awarded in 1990.

International Eye Foundation, through a 1990 vitamin A grant, is working to prevent nutritional blindness and improve the nutritional status of children through vitamin A distribution and nutrition education in northwest Tegucigalpa.

La Leche League International trains and certifies breastfeeding advocates to establish and lead local breastfeeding mother support groups in the Cortés region and provides technical assistance to private voluntary organizations (PVOs) that promote breastfeeding. In 1990, the program trained 73 physicians, nurses,

and other private sector health workers in breastfeeding promotion and related interventions.

Project HOPE supports government child survival activities in Tegucigalpa through a community-based system of health promotion and service delivery. Through the identification and referral system used by community health volunteers in the project region, complete immunization coverage of over 12,000 children under age two increased from 58 to 93 percent between 1987 and 1990.

Save the Children Federation trains health workers to promote and provide child survival services in the Intibuco and Choluteca departments. Home visits to pregnant mothers and malnourished children helped to teach mothers about prenatal care and proper feeding and to encourage the use of health centers. With the support of Save the Children, the MOH was able to immunize 96 percent of the children under age five with the full childhood series and 82 percent of women in their childbearing years with two doses of tetanus toxoid. In project areas, 78 percent reported using oral rehydration salts (ORS) in the last episode of diarrhea.

World Relief Corporation provides diarrheal disease control, immunization, nutrition, and other child survival services through trained health workers and radio programs in rural communities of the Francisco Morazán and Olancho departments. In the project's first year, 60 health workers were trained, and 10 health committees were established to address health issues. World Relief Corporation and MOH staff conducted the first vaccination campaigns for two isolated Xicaque Indian tribes.

Bureau for Science and Technology Support

HEALTHCOM (Communication for Child Survival) is collaborating with the MOH in the use of face-to-

face communication and alternative media, such as puppet shows and murals, to increase community participation in primary health care. HEALTHCOM has also worked with the MOH to strengthen diarrheal disease control programs through the promotion of LITROSOL, a locally produced ORS product. With assistance from HEALTHCOM, pilot production of ORS has begun by a private laboratory, QUIMIFAR. A new immunization campaign was designed by HEALTHCOM and the MOH to address missed vaccination opportunities. Currently, HEALTHCOM advisors are working with the MOH to develop a new ARI mass media campaign and a family planning communication strategy.

Nutrition Education and Social Marketing Field Support is assisting the MOH in the design, implementation, and evaluation of a mass media and interpersonal communication strategy promoting optimal breastfeeding practices, growth monitoring, and maternal nutrition.

TAACS (Technical Advisor in AIDS and Child Survival) is providing assistance to the MOH and USAID in rural water and sanitation, health, and child survival.

WIN (Women and Infant Nutrition: A Family Focus) supports the Wellstart Lactation Management Education program to promote optimal breastfeeding by improving the knowledge and practices of health care workers.

Short-term technical assistance was reported as follows:

AIDSCOM provided technical assistance in AIDS education and awareness.

AIDSTECH conducted an AIDS needs assessment.

ORT Help trained Peace Corps volunteers in water and sanitation.

Vector Biology and Control supported biological larvae control and malaria and dengue fever programs.



DEMOGRAPHIC INDICATORS

Total Population: 21,550,320 (90)
 Life Expectancy at Birth: 63 Years (90)
 Children Under 1: 612,625 (90)

Annual Infant Deaths: 49,176 (90)
 Infant Mortality Rate: 76/1,000 (86)
 Under 5 Mortality Rate: 111/1,000 (90)
 Total Fertility Rate: 3.7 Children (90)

CHILD SURVIVAL INDICATORS

Immunization Coverage:
 DPT3: 72% (90)
 Polio3: 73% (90)
 Measles: 64% (90)
 BCG: 83% (90)
 Tetanus2+: 9% (89)

Oral Rehydration Therapy:
 ORS Access: 23% (88)
 ORT Use: 25% (89)
 Contraceptive Prevalence: 24% (86)
 Adequate Nutritional Status: 78% (84)

Appropriate Infant Feeding: 28% (86)
 Exclusively Breastfed: 31% (86)
 Introduction of Solids: 24% (86)
 Breastfed 1 Year or Longer: 66% (86)

See DATA NOTES

PERU HIGHLIGHTS

■ **USAID, UNICEF, and the Pan American Health Organization** joined together to conduct two national vaccination campaigns, which brought coverage rates back up to 60 percent by the end of 1990. (Due to a five-month public sector strike and a change of government, vaccination coverage rates had slipped from 60 percent to 30 percent in the early months of 1990.)

■ Based on USAID-funded research on high risk targeting, the Ministry of Health (MOH) has developed a new national nutrition and child survival program, Food and Nutrition for High Risk Families. The program will use a high risk targeting approach to extend child survival interventions to families with children at high risk for malnutrition.

■ USAID's commitment to working with local private voluntary organizations (PVOs) has had a lasting impact. The health promoter network established by PRISMA, a local PVO, has formed a legal association that represents the community and solicits funds and other resources for health and child survival activities.

BILATERAL PROJECTS

■ **Child Survival Action**, funded in part by PL 480, provides child survival services through the MOH and the Social Security Institute. In 1990, the project assisted in the establishment of oral rehydration units in eight regional hospitals.

■ **Reduction in Child Mortality**, implemented by PRISMA, is a nutritional surveillance program that accompanies a food distribution effort serving 57,000 people in the Lima and Cajamarca departments. Completed this year, the program developed a malnutrition risk assessment guide.

■ **Integrated Food, Nutrition and Child Survival** is a joint project of the MOH and PRISMA promoting optimal breastfeeding, growth

monitoring, and other nutrition-related activities nationwide. In 1990, over 500 health professionals attended project-sponsored workshops on the management of diarrhea.

■ **Integrated Health and Family Planning**, which provided health education and family planning to women in the Lima area, ended in 1990. Administered by APROPO, a local PVO, the project trained 2,000 community health workers and pharmacists in preventing high risk births.

■ **Private Sector Nutrition for Child Survival**, administered by Peru's Nutritional Research Institute, ended in 1990. Culturally acceptable diets developed by the project are currently being promoted by the MOH's oral rehydration units.

■ **Nutrition and Food for Work**, implemented by the Adventist Development and Relief Agency and partially funded by PL 480, works with local PVOs in nine departments to provide child survival services and training through community-based mother-child centers.

■ **AIDS Education and Prevention** provides educational and preventive services to high risk populations.

■ **Upper Huallaga Area Development**, administered by the local PVO, Profamilia, provides child survival services to three provinces. The project trains community leaders in child spacing and water and sanitation services.

■ **Narcotic Education and Public Awareness** increases public knowledge of the health, social, political, and economic problems related to illicit drug production, trafficking, and abuse.

■ **Food Assisted Integrated Development**, implemented by CARE, a U.S.-based PVO, trains family members in diarrheal disease control, immunization and hygiene. The project, which receives PL 480 funds, is also involved in supplementary feeding programs. In 1990, the project trained 320 nurses and health workers.

■ **CRS-Strengthening of Caritas/Peru**, implemented by Catholic Relief Services, a U.S.-based PVO, is a new project building on the activities of the Caritas Feeding Program to improve maternal and child health nationwide through nutrition and maternal health services.

REGIONAL PROJECTS

■ **Accelerated Immunization** works to improve child survival in the Americas by reducing vaccine-preventable diseases. A one-hour television special was aired in Peru and other Andean nations to promote the Andean Vaccination Day held in April 1990.

■ **Andean Peace Scholarships** sponsors short- and long-term study in the United States for students from the Andean nations. In 1990, 20 women participated in an eight-week course on community development and leadership.

■ **LAC Training Initiatives II**, completed in 1990, was part of a regional project sponsoring expatriate training for health professionals.

USAID/WASHINGTON SUPPORT

Bureau for Science and Technology Support

■ **AIDSCOM** is working to change behavior through communication and counseling on the AIDS virus.

■ **AIDSTECH** supports AIDS education, prevention, and HIV testing and screening activities.

■ **Applied Diarrheal Disease Research** supports research on persistent diarrhea, soup-based rehydration solutions, early dietary management of acute diarrhea, and training for clinical management of diarrhea.

■ **PRICOR** (Primary Health Care Operations Research), in collaboration with PRISMA, a U.S.-based PVO, is conducting research on the delivery of child survival services that will provide the basis for the devel-

opment of new training strategies. In 1990, PRISM instituted the "monitoring and training" visit concept, which couples quality assessment with targeted in-service training.

■ **Project SUPPORT**, working to expand local production of oral rehydration salts (ORS), developed a promotion campaign for the private sector.

■ **WIN** (Women and Infant Nutrition: A Family Focus) supports the Well-start Lactation Management Education program in conducting research on the effect of training hospital personnel in lactation management on mothers' breastfeeding practices and in developing a national breastfeeding training center. WIN, through the International Center for Research on Women, also supported research on the prevention of maternal malnutrition through a community kitchen.

Short-term technical assistance was reported as follows:

■ **Health Financing and Sustainability** reviewed health care financing in public and private institutes in Arequipa department.

■ **MotherCare** (Maternal and Neonatal Health and Nutrition) worked with PRISM to improve pregnancy outcomes through improved maternal health.

■ **Nutrition Education and Social Marketing Field Support** developed breastfeeding promotion materials and counseling cards for health workers.

■ **PRITECH** (Technologies in Primary Health Care) supported programs for the control of diarrheal disease and acute respiratory infections.

■ **TAACS** (Technical Advisor in AIDS and Child Survival) directed an epidemiological training and surveillance program.

■ **Vaccine Development and Health Research** provided technical assistance in immunization.

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



**APPENDIX I: FISCAL YEAR 1990
CHILD SURVIVAL ACTION PROGRAM**

COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
AFRICA REGION						
BENIN	Rural Water Supply: Provides safe water through construction of wells in rural areas and improves and promotes health education and improved sanitation practices through communicating with mothers.	0	0	0	245	0
BOTSWANA	Population Sector Program Support: Assists the government to develop and implement a national population policy including high risk birth management.	0	0	0	34	0
BURKINA FASO	Health Financing and Family Health: Addresses maternal and child health issues with nutrition education, training health workers in ORT, social marketing of condoms for AIDS control and improved health services delivery.	0	0	0	166	0
	FY 90 Child Survival and Vitamin A Grant to AFRICARE: Targets children and mothers in Ganzourgou province with child survival interventions focusing on training trainers, and strengthening community support through education and communication.	575	0	40	0	0
CAMEROON	Health Constraints to Rural Production: Tulane University provides technical assistance on schistosomiasis control and graduate degrees to Cameroonian students studying epidemiology, parasitology and completing their research in Cameroon.	0	0	0	185	0
	Reform of Health Delivery System: Focuses on policy reforms to support rural health care services through the involvement of the private sector.	0	0	0	2340	0
CHAD	Child Survival Project: 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 Charirefecture.	0	0	0	1850	0
KENYA	Family Planning Services and Support: 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	682	0
	PVO Co-Financing: U.S. and local voluntary organizations promote health and child survival services in Kenya.	0	0	0	436 ¹	0
	Corat/Community Based Child Survival: Local churches work to expand immunization coverage through community-based child survival and related health services.	0	0	0	379	0
	FY 90 Child Survival Grant to AMREF: Expands child survival services among the urban poor of six densely populated slum villages in Nairobi with a target population of about 40,000 mothers and children.	750	0	0	0	0
MALAWI	Services for Health, Agriculture, Rural Enterprise: Supports PVO's in key development sectors, including primary health care, child spacing and AIDS.	0	0	0	225	0
	Promote Health Interventions for Child Survival: This is a new project to expand maternal and child health services, including provision of potable water.	0	631	0	3196	0
	FY 90 Child Survival and Vitamin A Grants to Adventist Development Relief Agency: Provides health and child survival services to over 100,000 women and children living in Nsanji district in the Southern Region.	500	0	50	0	0
	FY 90 Child Survival and Vitamin A Grants to Project HOPE: Supplements child survival services in the private sector of Thyolo District in the Southern region focusing on over 50,000 women and children.	50	0	50	0	0

FY 90 CHILD SURVIVAL FUNDING

CSF: Child Survival Fund; **HE:** Health; **ARDN:** Agriculture, Rural Development and Nutrition; **DFA:** Development Fund for Africa; **ESF:** Economic Support Fund; All numbers are in thousands of dollars.

COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
MALAWI	FY 90 Child Survival and Vitamin A Grants to World Vision Relief and Development: Supports the government's primary health care and child survival services to women and children in the Lilongwe District in the Central Region.	400	0	25	0	0
MALI	Integrated Family Health Services: Through the Ministry of Public Health and Social Affairs, the project strengthens and integrates child survival services in 15 maternal/child health and family planning clinics.	0	0	0	1920	0
	PVO Co-Financing: World Vision International implements a nutrition surveillance system in a remote desert area which includes over 60,000 children.	0	0	0	950	0
	FY 90 Child Survival Grant to CARE: Supports immunization programs for 32,000 children in the Macina Region of Central Mali.	700	0	0	0	0
	FY 90 Child Survival Grant to PLAN: Foster Parents Plan, through a new grant, plans to expand child survival activities to rural village communities in the Banamba area of Mali.	400	0	0	0	0
MOZAMBIQUE	Assistance for Traumatized Orphans: Provides assistance to war affected children through a grant to Save the Children Federation.	0	0	0	1300 ²	0
	Child Survival Pilot: 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
	PVO Support Program: Expands PVO involvement in emergency activities including health and child survival services to affected children.	0	0	0	1800	0
	FY 90 Child Survival Grant to World Vision Relief and Development: Provides child survival services including immunization, ORT, nutrition education and trains community health workers in Tete and Zambezia Provinces.	550	0	0	0	0
NIGER	Health Sector Support: Tulane University provides technical assistance and in-service training to strengthen local health service delivery systems that include child survival initiatives.	0	0	0	1296	0
	FY 90 Vitamin A Grant to Helen Keller International: Supports operations research to determine most effective methods for vitamin A capsule distribution.	0	0	160	0	0
SENEGAL	Project Development and Support: Provides for technical assistance in design and evaluation of health and child survival programs.	0	0	0	69	0
SWAZILAND	Primary Health Care: 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	211	0	195	0
TOGO	Health Sector Support for Child Survival: Assists the Ministry of Health to plan and administer primary health care services, including child survival interventions.	0	0	0	467	0
UGANDA	Physical Rehabilitation for the Disabled: Health Volunteers Overseas, a private voluntary organization, trains physical rehabilitation workers and supports the renovation of a prosthetics workshop which addresses the needs of children as well as adults.	0	30	0	0	0
	Oral Rehydration Therapy: Continues support through UNICEF for purchase of ORS packets for children to be distributed through health clinics and dispensaries.	0	0	0	200	0

FY 90 CHILD SURVIVAL FUNDING

CSF: Child Survival Fund; HE: Health; ARDN: Agriculture, Rural Development and Nutrition; DFA: Development Fund for Africa; ESF: Economic Support Fund; All numbers are in thousands of dollars.

COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
UGANDA	Support to Uganda Orphans: Relocates orphans in their home villages and provides health services to those injured and in need as a result of past civil strife.	0	300 ³	0	0	0
ZAIRE	Family Planning Services: Targets urban women of reproductive age for child spacing activities to increase infants' chances for survival.	0	0	0	774	0
	Basic Rural Health II: Eglise du Christ au Zaire, a local private voluntary organizations, promotes child survival through community-supported primary health care systems in 90 rural health zones.	0	0	0	1851	0
	School of Public Health: 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	743	0
REGIONAL	Africa Child Survival Initiative-CCCD: A multi-donor effort by the U.S. Centers for Disease Control, UNICEF, WHO, and others combats childhood diseases in 9 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 capabilities in those countries.	0	50	0	15247	0
	Africa Development Support: Provides technical assistance to missions and regional offices for design, implementation and evaluation of health and child survival programs.	0	0	0	74	0
	Operations Level Management: MEDEX supports the design, testing and institutionalization of management-development technologies within the MOHs in Botswana and Lesotho.	0	0	0	782	0
	Private Voluntary Organizational Support: Strengthens U.S. and Africa PVO activities including those engaged in child survival programs.	0	0	0	398	0
	Small Projects Assistance: Supports small health and child survival activities in Mali and Senegal.	0	0	0	50	0
	AAAS Malaria: Supports a regional technical advisor for malaria.	0	0	0	152	0
	Bednets Tanzania: Supports the use of mosquito nets enhanced by treatment with a repellent or insecticide as a protection against malaria.	0	0	0	1500	0
AFRICA REGION SUBTOTAL		3925	1222	325	39906	0

ASIA REGION

BANGLADESH	Family Planning and Health Services: 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.	3000	2500	0	0	0
INDIA	Child Survival Health Support: A USAID grant supports UNICEF and local organizations to assist the Ministry of Health in major expansion of child survival initiatives by promoting ORT, immunization and the control of acute respiratory infections.	2000	0	0	0	0
	Private and Voluntary Organizations for Health II: Assists local private and voluntary organizations expand health and child survival services.	1200	720	0	0	0

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INDIA	Quality Control for Health Technologies: Supports creation of an independent biological testing laboratory to improve the quality of preventive health care by ensuring safe and effective vaccines are delivered to children and mothers.	0	3400	0	0	0
	FY 90 Child Survival Grant to World Vision Relief and Development: Promotes expanded immunization coverage to pregnant women and children under five in villages and hamlets in northern Maharashtra State.	550	0	0	0	0
INDONESIA	PVO Co-Financing II: Supports U.S. and local private voluntary organizations to integrate nutrition and other child survival activities with their Title II food distribution programs.	0	657	0	0	0
	Health Sector Financing: Collects and analyzes health expenditure data for policy reform to reduce health care costs.	0	491	0	0	0
	FY 90 Vitamin A Grant to Helen Keller International: Promotes vitamin A capsule distribution and vitamin A awareness in support of a new national control and prevention of vitamin A deficiency program.	0	0	508	0	0
	FY 90 Child Survival and Vitamin A Grant to Project HOPE: Initiated a new project to expand child survival services including vitamin A education and distribution.	300	0	50	0	0
	FY 90 Child Survival Grant to Program for Appropriate Technology in Health (PATH): Works through a model immunization program in Lombok Island to introduce appropriate health technologies to improve maternal and child survival services. Focuses on Hepatitis B.	800	0	0	0	0
NEPAL	Child Survival and Family Planning Services: Stresses activities which will provide higher quality and greater impact for rural services in maternal and child health and family planning.	0	1562	0	0	0
	PVO Co-Financing II: Provides U.S. and local private and voluntary agencies with support for health and child survival activities.	0	30	9	0	0
	FY 90 Child Survival Grant to Adventist Development Relief Agency: Provides child survival services through a new project initiated this year.	575	0	0	0	0
SOUTH PACIFIC REGIONAL	OPG: PVO Co-Financing: Provides U.S. and local private voluntary agencies with grant support to expand child survival and health activities.	0	0	46	0	0
	Project Development and Implementation Support: Provides technical assistance for design and evaluation of health and child survival projects.	0	154	0	0	0
	PNG Child Survival Support: Assists the Foundation for 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.	0	1100	0	0	0
PAPUA NEW GUINEA	FY 90 Child Survival Grant to Project Concern International: Trains village birth attendants and maternal child health mobile teams in delivery and promotion of child survival interventions on the northeast coast of Papua New Guinea.	800	0	0	0	0
SRI LANKA	PVO Co-Financing II: Strengthens private organizations' ability to contribute to expanding health services through the many pluralistic institutions in Sri Lanka.	0	65	0	0	0
REGIONAL	Laos Prosthetics: Supports U.S. PVO and local NGO activities to address the needs of civilian victims of civil strife, including children, through provision of prosthetic devices to the handicapped.	0	10	0	0	850

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
REGIONAL	ASEAN Human Resources Development: Enhances regional cooperation in health and child survival through the building of institutions and the development of human resources.	0	255	0	0	0
ASIA SUBTOTAL		9225	10805	613	0	850
EUROPE AND NEAR EAST REGION						
AFGHANISTAN	Health Sector Support: Management Sciences for Health provides training and medical supplies cross-border to health care units which support immunization and primary care services to Afghan mothers and children.	0	946	0	0	1525
	PVO Support: Expands child survival and health program activities through grants to U.S. and local private voluntary organizations for services within Afghanistan.	0	1378	0	0	0
EGYPT	Science and Technology for Development: 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	500
MOROCCO	Family Planning/Child Survival Support IV: Continues support for the Ministry of Health's programs for immunization, control of diarrheal diseases, birth spacing and nutrition through information campaigns and mobilization of the private sector.	1000	2325	0	0	0
PAKISTAN	NWFP Area Development: Promotes health education and child survival message campaigns in Gadoon-Amazai area.	0	0	0	0	52
	FY 90 Child Survival Grant to Adventist Development Relief Agency: Expands health services delivery using mobile teams to reach villages with immunizations for women and children and trains community health workers and traditional birth attendants to support child survival activities.	400	0	0	0	0
	FY 90 Child Survival Grant to World Vision Relief and Development: Strengthens preventative health care services in 27 villages focusing on immunization, ORS preparation and use and training mothers on appropriate weaning and feeding practices.	550	0	0	0	0
PHILIPPINES	Targeted Child Survival Program: Administered through the Department of Health, provides decentralized support for the control of diarrheal disease, immunization, breastfeeding, growth monitoring, maternal health, vitamin A supplementation, high risk birth management and acute respiratory infections.	5000	7879	0	0	0
	PVO Co-Financing III: Expands child survival and health program activities through grants to U.S. and local private voluntary organizations.	0	67	0	0	0
	Enterprise in Community Development: Focuses on primary health care, including child survival programs implemented by local communities.	0	0	72	0	0
YEMEN	Accelerated Cooperation for Child Survival: The Ministry of Health, with assistance from the REACH and HEALTHCOM projects, is expanding child survival activities in five governorates.	0	289	0	0	0
REGIONAL	Regional Cooperation: Includes support for immunization activities through mutually agreed upon projects between Israel and its Arab neighbors, especially Egypt.	0	0	0	0	647

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
REGIONAL	Regional Technical Services in Vitamin A: Provides field support to countries in design, evaluation and implementation of vitamin A programs.	0	0	623	0	0
	Medical Supplies and Equipment: Supports private sector initiatives to strengthen health services available through small rural private clinics and hospitals.	0	0	0	0	1991
	Romanian Children's Relief: Provides basic supplies, including food and medicine for handicapped children in institutions throughout Romania.	0	320	0	0	0
EUROPE AND NEAR EAST REGION SUBTOTAL		6950	13204	695	0	4715
LATIN AMERICA AND CARIBBEAN REGION						
BELIZE	Child Survival Support: Project HOPE, 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.	700	0	0	0	0
	Increased Productivity through Better Health: The Ministries of Health and Natural Resources seek to reduce the morbidity and mortality of women and children by controlling the incidence of malaria, dengue fever and gastrointestinal diseases.	156	78	0	0	0
BOLIVIA	Chapare Regional Development: Improves health and child survival services through a narcotics awareness program to farm families in the cocoa-growing Chapare region.	0	0	242	0	0
	Program Development and Support: Support design and evaluation of child survival projects.	225	0	0	0	0
	Child Survival PVO Network: 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 population.	0	0	100	0	0
	OPG: Planning Assistance: Provides technical assistance for design and evaluation of health and child survival projects.	0	0	112	0	0
	Community and Child Health: 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.	3673	2214	0	0	0
	OPG Water and Health Services: 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.	500	0	0	0	0
	Reproductive Health: Extends delivery of voluntary family planning services for high risk birth management.	1000	0	0	0	0
	FY 90 Child Survival Grant to Andean Rural Health Care: Develops community-based primary health care programs emphasizing child survival in both rural and periurban areas of the country.	700	0	0	0	0
	FY 90 Child Survival Grant to Foster Parents Plan (PLAN) (Aitiplano): Continues and expands child survival programs focused on diarrheal disease control through Oral Rehydration Therapy, expanded program of immunization, nutrition through growth monitoring, and the control of acute respiratory infection, especially pneumonia.	425	0	0	0	0

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BOLIVIA	FY 90 Child Survival Grant to Foster Parents Plan (Sucre): Expands child survival programs to more than 140 communities, both urban and rural, surrounding Sucre, with immunizations, diarrheal disease control, nutrition and control of acute respiratory infection.	450	0	0	0	0
DOMINICAN REPUBLIC	Special Development Activities: Supports development of water and sanitation activities through local organizations.	0	3 ⁵	0	0	0
	PVO Co-Financing: Assists U.S. and local private voluntary organizations to extend health and child survival services.	0	345	0	0	0
ECUADOR	Special Development Activities: Supports development of water and sanitation activities through local organizations.	0	6 ⁶	0	0	0
	Private Sector Health Delivery Model - OPG: MAP International provides maternal and child health services through accessing service demand and helping to develop cost-recovery schemes for local service organizations.	0	28	0	0	0
	Child Survival: A new project to increase and institutionalize the delivery of child survival services through public and private systems.	3292	919	0	0	0
	Water and Sanitation Technical Assistance: Assists rural communities to install cost-effective safe water supplies and latrines to improve family health through education and appropriate use of the facilities provided.	0	219	0	0	0
EL SALVADOR	Community-Based Integrated Rural Development: In cooperation with the Ministry of Health, Save the Children Federation provides village families in eastern and northern regions of the country with immunization, ORT, nutrition education and potable water.	0	485	263	0	0
	Family Health Services/MCH: Expands the activities of the Salvadoran Demographic Association which provides services to study effective means of preventing high risk births.	0	525	0	0	0
	Maternal Health/Child Survival Services: Promotes rural preventative health and child survival services through private and voluntary organizations.	0	3772	0	0	0
	Public Services Restoration/Rehabilitation: Includes expanded investments in potable water and sanitation systems to improve services through community involvement.	0	1155	0	0	1168
GUATEMALA	Program Development and Support: Supports the design and evaluation of child survival projects.	46	0	0	0	0
	Expansion of Family Planning Services: 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.	2200	0	0	0	0
	Rural Water, OPG: 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	157	0	0	0
	FY 90 Vitamin A Grant to International Eye Foundation: Improves infant and child health and survival by increasing the level of vitamin A intake in the target population of three geographic areas.	0	0	458	0	0
	FY 90 Vitamin A Grant to Project HOPE: Delivers Vitamin A services to children under six, pregnant women and nursing mothers in San Marcos and Quetzaltenango.	0	0	186	0	0
HAITI	Special Development Activities: Supports development of water and sanitation activities through local organizations.	0	2 ⁷	0	0	0

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
HAITI	Economic Stabilization Assistance: Strengthens economic reform and facilitates efforts to reach targeted mothers and children with health and child survival services.	1086	0	0	0	0
	Voluntary Agencies for Child Survival: Technical assistance to numerous local and U.S. private voluntary organizations to strengthen their child survival interventions including training health workers and physicians.	2899	2413	100	0	0
	Expanded Urban Health Services: 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.	1000	320	0	0	0
	FY 90 Child Survival Grant to Foster Parents Plan (PLAN): Improves the delivery of basic health services, especially to children and women of child bearing age, in the poorest and most disadvantaged areas of PLAN/Croix-des-Bouquets, one of the largest plains and agricultural areas in the country.	375	0	0	0	0
HONDURAS	Health Sector II: The Ministry of Health provides comprehensive health care services emphasizing child survival interventions and rural water and sanitation services.	2321	658	0	0	0
	FY 90 Child Survival Grant to CARE: Targets 100 rural communities to improve health service delivery and community and home health practices using voluntary community health promoters to communicate with families on nutrition education, prevention and control of diarrheal disease, and prevention and detection of acute respiratory infections.	450	0	0	0	0
	FY 90 Vitamin A Grant to International Eye Foundation: Improves infant and child health and survival by increasing the level of vitamin A intake in the target population which includes 20,000 children under the age of six and their caretakers.	0	0	373	0	0
JAMAICA	AIDS/STD Prevention and Control: Supports child survival, including health education, through the Ministry of Health's AIDS prevention program.	0	111	0	0	0
NICARAGUA	Assistance for Displaced Children: A new project, with assistance provided by the National Association of the Partners of the Americas, seeks to help displaced orphans.	0	1400	0	0	0
PERU	Narcotics Education and Public Awareness: Targets mothers and women of reproductive age with educational messages through drug education and public awareness programs.	0	0	0	0	105
	Upper Huallaga Area Development: Includes assistance to community supported water and sanitation systems.	0	0	0	0	18
	OPG Food Assisted Integrated Development: A grant to CARE provides child survival interventions including growth monitoring and nutrition education to mothers and children through a community kitchen feeding program.	119	0	190	0	0
	Nutrition and Food for Work: Local private voluntary organizations, with assistance from ADRA, provide ORT, immunization, nutrition, high risk birth management and water and sanitation services in fourteen departments of Peru.	308	0	259	0	0
	Integrated Food, Nutrition and Child Survival: 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.	212	0	0	0	0
	Accelerated Immunization: Grant to 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.	1591	0	0	0	0

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
REGIONAL	Intercountry Technology Transfer: Multiple implementing agents adapt existing technologies to support improvements in delivering health and child survival interventions, including vitamin A research, in the advanced developing countries of the region.	640	55	0	0	0
	Health and Nutrition Technical Services Support: Supports health, child survival, vitamin A and other nutrition activities, HIV/AIDS prevention and water and sanitation services in the region.	2406	0	0	0	0
	Program Development and Support: Supports design and evaluation of child survival projects.	47	0	0	0	0
	Andean Peace Scholarship: Provides long and short term training in the United States, including health and child survival skills development for health professionals.	0	31	0	0	0
ROCAP	Program Development and Support: Provides technical assistance for design and evaluation of child survival projects.	18	0	0	0	0
LATIN AMERICA AND CARIBBEAN REGION SUBTOTALS		26839	14896	2283	0	1291
GLOBAL						
GLOBAL	Project Development and Support: Provides technical assistance for design and evaluation of health and child survival projects.	0	33	0	0	0
	Housing and Urban Programs: Includes support for basic water and sanitation infrastructure as a component of urban support activities.	0	392	0	0	0
	Technical Support/Child Survival for PVOs: Johns Hopkins University, NCIH, PRITECH and ARS provides technical assistance to private voluntary organizations in management and evaluation of child survival programs.	993	269	0	0	0
	Child Survival Grant to Rotary Foundation: Incremental funding of a grant to Rotary International supports its worldwide immunization program.	1209	0	0	0	0
	Matching Grants to PVOs: Grants to U.S. private voluntary organizations to implement health and child survival programs in developing countries.	0	1561	0	40	0
	Ocean Freight Reimbursement for PVO Health and Child Survival Activities: Supports U.S. private and voluntary organizations through reimbursement of cost for shipping donated goods in support of health and child survival projects.	0	100	0	0	0
	PVO Vitamin A Support Grant to Helen Keller International: Provides technical assistance to private and voluntary organizations in the design, monitoring and implementation of their vitamin A programs.	0	0	40	0	0
	FY 90 Child Survival Grant to Save the Children Federation: As part of a multi-country grant, supports the development of health data to manage and evaluate child survival activities.	229	0	0	0	0
	Integrated Studies and Systems: Supports special studies on child survival related programs.	0	170	175	0	0
	Operations Research in Primary Health Care II (PRICOR): 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	1005	0	0	0

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
GLOBAL	MEDEX NURSECARE Support: 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.	500	0	0	0	0
	Diagnostic Technology for Community Health (DIATECH): 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	101	0	0	0
	Child Survival Action Program-Support (CSAP-Support): 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.	1589	786	0	322	0
	Communication for Child Survival (HEALTHCOM): 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.	1000	0	0	0	0
	Communication and Marketing for Child Survival (HEALTHCOM II): 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.	1075	0	0	0	0
	Technologies for Child Health (HealthTech): PATH develops low-cost, appropriate tools for child survival programs, especially immunization.	1465	653	0	0	0
	ORT Health Education and Long-Term Planning (ORT-HELP): Multiple implementing agencies support information exchange among developing country leaders and health providers on all aspects of diarrheal disease control.	1003	400	0	0	0
	Maternal and Neonatal Health and Nutrition (MotherCare): John Snow, Inc. and other agencies provide worldwide field and applied research support to improve maternal and neonatal care, behavior and pregnancy outcomes.	2550	0	0	0	0
	Technical Advisors in AIDS and Child Survival (TAACS): 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.	1968	1493	0	0	0
	Supply, Production and Promotion of ORT (Project SUPPORT): PATH provides technical assistance for promoting local manufacturing, quality control and distribution of ORS through the private sector.	1358	0	0	0	0
	Technologies for Primary Health Care (REACH): John Snow, Inc. provides worldwide field support for disease control programs emphasizing immunization interventions.	165	0	0	0	0
	Technologies for Primary Health Care II: Through Management Sciences for Health, this project follows on PRITECH, serving as a central resource for technical assistance in implementing ORT/diarrheal disease control programs worldwide.	3506	248	0	0	0
	Vaccine Development and Health Research: 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.	5	1195	0	0	0
	Applied Diarrheal Disease Research (ADDR): Harvard University supports country-specific applied research on priority diarrheal disease problems.	0	1110	0	0	0

FY 90-CHILD SURVIVAL FUNDING

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COUNTRY	PROJECT TITLE	CSF	HE	ARDN	DFA	ESF
GLOBAL	Diarrheal Disease Research: 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	2700	0	0	0
	Tropical Disease Research: Supports the World Health Organization Special Program for Research and Training in Tropical Diseases to find better more economical methods for the diagnosis, treatment, prevention, and control of six major tropical diseases all of which affect women and children.	0	500	0	0	0
	Applied Research and Child Survival (ARCSS): Undertakes applied research to improve the cost-effectiveness and quality of health care efforts in developing country health programs, particularly child survival services.	200	379	0	0	0
	Water and Sanitation for Health III (WASH): Camp Dresser and McKee International Inc. and a consortium of other specialized organizations provide technical assistance on a broad range of services to help plan, implement and evaluate rural and urban water and sanitation programs.	0	869	0	0	0
	Vector Biology and Control: Provides technical assistance and applied field research in the areas of vector biology, epidemiology and operations for vector-borne disease control programs in developing countries.	0	514	0	0	0
	Demographic and Health Surveys (DHS): 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.	0	450	0	0	0
	Health Resources Support: Assists in implementation and evaluation of health and child survival programs through an agreement with the U.S. Department of Health and Human Services.	281	265	0	0	0
	Health Care Financing and Sustainability: Abt Associates, Inc. and other implementing agencies provide technical assistance, conduct applied research and disseminate information on health care financing and sustainability issues.	900	0	0	0	0
	Technology and Resources for Child Health (REACH II): John Snow, Inc. provides expertise for immunization and acute respiratory infection programs through operations research, cost analysis and disease surveillance.	934	50	0	0	0
	Milwaukee International Training Center: Provides non-degree training for developing country health workers and professionals through short-term training courses in Milwaukee.	0	100	0	0	0
	Combatting Iron Deficiency: Nutrition Foundation and Kansas University support efforts to reduce the incidence of iron deficiency anemia in mothers and children.	210	0	0	0	0
	Women and Infant Nutrition (WIN) - A Family Focus: Provides an integrated package of appropriate feeding services and technical assistance to improve the nutritional status of women, infants and children.	1598	380	0	0	0
	Vitamin A for Health: 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	4405	0	0
	Nutrition Education and Social Marketing: The Academy for Educational Development supports host country efforts to design, implement and evaluate nutrition education programs.	0	524	135	0	0
	Food and Nutrition Monitoring: International Science and Technology Institute, 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.	30	142	485	0	0

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GLOBAL	Functional Implications of Marginal Malnutrition: A Collaborative Research Support Program (CRSP) provides information on the effect of marginal food intake on human performance in developing countries.	0	15	0	0	0
	HBCU Research Grants: Grants to Historically Black Colleges and Universities support biomedical and operational research activities related to child survival initiatives.	0	940	0	0	0
	Training Evaluation and Support Services: Provides vital links among missions, participants, the training providers and the American host community.	0	216*	0	0	0
	Food Aid Institutional Development: Provides assistance for growth monitoring and maternal health activities.	0	0	1334	0	0
	Foreign Disaster Assistance: Provides emergency relief services for women and children.	244	0	0	0	0
	Small Projects Assistance: Supports small health and child survival activities, including training for Peace Corps volunteers.	0	332	0	0	0
GLOBAL SUBTOTALS		23012	17892	6575	362	0
GRAND TOTALS		69951*	58019	10493	40268	6856

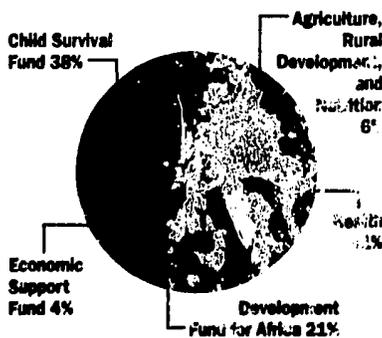
N.b. Amounts listed are estimates that can be attributed to child survival, but may be a small proportion of project totals.

*In addition, \$2,728,000 of Child Survival Fund allocations were reserved for earmarked non-child survival activities in Cambodia, Eastern Europe, and Lebanon.

1. Includes \$117,000 from Education account and \$119,000 from Selected Development account for Kenya.
2. Includes \$1,000,000 from Selected Development account for Mozambique.
3. Includes \$300,000 from Selected Development account for Uganda.
4. Includes \$15,000 from Selected Development account for regional activities.
5. Includes \$3,000 from Selected Development account for Dominican Republic.
6. Includes \$6,000 from Selected Development account for Ecuador.
7. Includes \$2,000 from Selected Development account for Haiti.
8. Includes \$216,000 from Education account for centrally-funded activities.

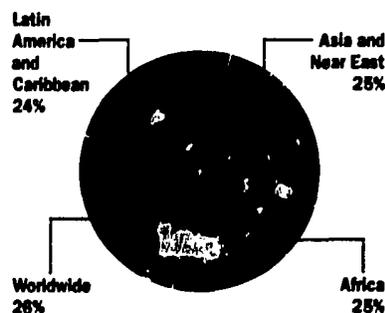
46 USAID FUNDING BY ACCOUNT

Total funding for child survival
FY 90: \$185,587,000

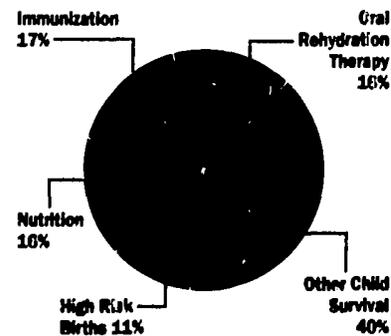


47 USAID FUNDING BREAKDOWNS

Total funding by regional distribution
FY 90



Total funding by intervention
FY 90





APPENDIX II: USAID HEALTH AND CHILD SURVIVAL PROJECT SUPPORT ACTIVE IN FY 90

AFRICA REGION																
	Kenya Malawi	Mali Niger	Nigeria Senegal	Sudan Zaire	Berlin Botswana	Burkina Faso Burundi	Cameroon Cen.Afr.Rep.	Chad Cote d'Ivoire	Gambia Ghana	Guinea Lesotho	Liberia Madagascar	Mauritania Mozambique	Rwanda Sierra Leone	Somalia Swaziland	Tanzania Togo	Uganda Zambia Zimbabwe
BILATERAL	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■			■ ■	■ ■		■ ■	■ ■	■ ■
REGIONAL																
Africa Child Survival Initiative - CCCD			■	■		■	■	■		■ ■	■			■	■	■
HIV/AIDS Prevention (HAPA) Operations Level Management Development (MEDEX)	■ ■	■	■	■	■	■				■			■		■	■ ■ ■
PRIVATE VOLUNTARY ORGANIZATIONS	■ ■	■ ■ ■	■	■ ■		■ ■	■	■			■	■ ■			■ ■	■ ■
CENTRAL PROJECT SUPPORT																
AIDSCOM		■	■			■ ■	■	■	■				■	■	■	■ ■ ■
AIDSTECH Applied Diarrheal Disease Research	■ ■	■ ■	■ ■ ■	■ ■	■	■ ■	■ ■	■ ■	■ ■	■ ■		■ ■	■ ■	■ ■	■ ■	■ ■ ■ ■
CSAP Support Demographic and Health Surveys	■ ■	■	■ ■	■	■		■		■		■	■	■		■ ■	■ ■
HBCU Research Grants HEALTHCOM	■		■ ■	■	■					■						
Health Financing and Sustainability	■													■		
Health Resources Support HealthTech	■ ■											■				■
Maternal/Neonatal Health and Nutrition									■							■ ■
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	■ ■		■				■	■	■			■	■ ■	■	■	■ ■ ■
Women and Infant Nutrition	■		■ ■	■									■	■		■

ASIA REGION						
	Bangladesh	India	Indonesia	Nepal	Papua N.G. Sri Lanka	Thailand
BILATERAL	■	■	■	■	■	■
REGIONAL					■	
PRIVATE VOLUNTARY ORGANIZATIONS	■	■	■	■	■	■
CENTRAL PROJECT SUPPORT						
AIDSCOM					■	■
AIDSTECH	■	■	■		■	■
Applied Diarrheal Disease Research	■		■			■
CSAP Support	■		■	■		■
Demographic and Health Surveys	■		■			
HEALTHCOM			■		■	
Health Financing and Sustainability						
HealthTech			■			■
Maternal/Neonatal Health and Nutrition	■		■			■
ORT Help			■			
PRICOR II			■			■
PRITECH II	■	■	■	■		
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		■			■	■
Women and Infant Nutrition			■			■

EUROPE AND NEAR EAST REGION										
	Egypt	Morocco	Pakistan	Yemen	Afghanistan	Jordan	Lebanon	Oman	Philippines	Tunisia
BILATERAL	■	■	■	■	■	■	■		■	■
REGIONAL	■	■	■	■	■	■			■	
PRIVATE VOLUNTARY ORGANIZATIONS			■		■	■	■		■	
CENTRAL PROJECT SUPPORT										
AIDSCOM										■
AIDSTECH	■	■	■						■	
Applied Diarrheal Disease Research			■							
CSAP Support	■		■						■	
Demographic and Health Surveys	■	■	■	■		■				
HEALTHCOM			■		■	■			■	
Health Financing and Sustainability	■		■		■	■				
HealthTech	■									
Maternal/Neonatal Health and Nutrition						■				
ORT Help			■							
PRICOR II			■						■	
PRITECH II			■						■	■
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		■							■	
Women and Infant Nutrition	■		■						■	

LATIN AMERICA AND CARIBBEAN REGION

	Colombia	Costa Rica	Cuba	Dominican Rep	Ecuador	El Salvador	Guatemala	Honduras	Jamaica	Mexico	Nicaragua	Paraguay	St. Kitts/Nevis	St. Lucia	St. Vincent	Trinidad	Uruguay	Venezuela
BILATERAL																		
REGIONAL																		
Andean Peace Scholarships																		
Development/Transfer in Health																		
Health and Nutrition Technical Service																		
Intercountry Technology Transfer																		
LAC Accelerated Immunization																		
ROCAP																		
Food Assistance Program																		
ORT Growth Monitoring and Nutrition Education																		
REGIONAL DEVELOPMENT OFFICE/CARIBBEAN																		
AIDS Communication and Technical Assistance																		
Malaria and Essential Drugs Technology																		
Pharmaceuticals Management																		
PRIVATE VOLUNTARY ORGANIZATIONS																		
CENTRAL PROJECT SUPPORT																		
AIDSCOM																		
AIDSTECH																		
Applied Diarrheal Disease Research																		
CSAP Support																		
Demographic and Health Surveys																		
HBCU Research Grants																		
HEALTHCOM																		
Health Financing and Sustainability																		
Maternal/Neonatal Health and Nutrition																		
Nutrition Education and Social Marketing																		
ORT Help																		
PRICOR II																		
PRITECH II																		
Project Support																		
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																		
Women and Infant Nutrition																		

APPENDIX III: PARTICIPATION IN USAID'S HEALTH AND CHILD SURVIVAL PROGRAMS



U.S. PRIVATE VOLUNTARY ORGANIZATIONS

Participating in USAID's Health and Child Survival Program

- Adventist Development and Relief Agency
- African Medical and Research Foundation
- Africare
- Aga Khan Foundation/USA
- Americares Foundation
- Andean Rural Health Care
- CARE
- Catholic Relief Services
- Center for Economic Development and Population Activities
- Christian Service Society
- Church World Service
- Coordination in Development Inc.
- Esperança Inc.
- Experiment in International Living
- Eye Care International
- Food for the Hungry International
- Foster Parents Plan
- Foundation for Peoples of the South Pacific
- Freedom From Hunger Foundation
- Hadassah/USA
- Health Volunteers Overseas
- Helen Keller International
- International Child Care, Inc.

- International Eye Foundation
- International Medical Corps
- International Voluntary Services Inc.
- La Leche League International
- Medical Assistance Program International
- Minnesota International Health Volunteers
- National Council for International Health
- Organization for Rehabilitation through Training
- Pan American Development Foundation
- Parents Resources Institute for Drug Education
- Pathfinder Fund
- Planning Assistance
- Population Services International
- Program for Appropriate Technology in Health
- Project Concern International
- Project HOPE
- Rotary International
- Salvation Army World Service Organization
- Save the Children Federation
- World Rehabilitation Fund, Inc.
- World Relief Corporation
- World Vision Relief and Development

U.S. UNIVERSITIES

Participating in USAID's Health and Child Survival Program

- Atlanta University
- Boston University
- Case Western Reserve University
- Charles R. Drew University
- Clark College
- Cornell University
- Florida A&M University
- Florida State University
- Georgetown University
- Hannemann University
- Harvard University
- Howard University
- Johns Hopkins University
- Kansas University
- Lincoln University
- Medical College of Pennsylvania
- Meharry Medical College
- Miami University
- Michigan State University
- Morehouse College
- Morgan State University
- Morris Brown College
- New York University
- Prairie View A&M College
- Rutgers University
- Southern University
- Stanford University
- State University of New York

- Tennessee State University
- Texas Southern University
- Tufts University
- Tulane University
- Tuskegee University
- Uniformed Services University of the Health Sciences
- University of Arizona
- University of California at Los Angeles
- University of California at San Francisco
- University of District of Columbia
- University of Hawaii
- University of Illinois
- University of Kentucky
- University of Maryland
- University of Michigan
- University of Missouri
- University of New Mexico
- University of North Carolina at Chapel Hill
- University of Pennsylvania
- University of Rochester
- University of South Carolina
- University of Southern California
- University of Virginia
- University of Washington
- Virginia Polytechnical Institute



**USAID Health and Child
Survival Fact Sheet
INDICATOR DEFINITIONS**

**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).

■ **Under 5 Mortality:** The estimated number of children born in a given year who will die before reaching age 5 per thousand live births in that same year. The under five mortality may also be calculated by direct or indirect methods.

■ **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 1:** 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 Mothers:** 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 (ORS) 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 children 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 breastfeeding but also receiving complementary weaning foods.

■ **Breastfed 1 Year or Longer:** An estimate of the proportion of children breastfed for at least one year. In this report, all values presented for this indicator are the proportion of children 12 to 14 months of age at the time of the survey still receiving breast milk.

SOURCES AND COMMENTS on USAID's Health and Child Survival Fact Sheet Indicators

■ Data on the child survival indicators were submitted by USAID missions on a form disseminated along with the above mentioned questionnaires. These forms are referred to as the FY 1990 Mission Response Forms.

■ The primary source for the demographic indicators is: World Population Prospects: 1990 U.N. Tape #PRO206, (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 source for Under 5 Mortality data is Mortality of children under age 5: World Estimates and Projections, 1950-2025, ST/ESA/SER.A/105, 1988 published by the same Section (and, for convenience, also referred to as WPP).

■ 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 data for 1990 are provisional as this report went to press prior to the formal publication of the semi-annual WHO report. The provisional data were provided courtesy of UNICEF.

■ 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

- Population and Infant Mortality Rate; the 1989 Census, as yet unpublished but reported by USAID/Kenya.
- Under 5 Mortality and Life Expectancy at Birth; WPP.
- Total Fertility Rate; DHS, 1989.
- Children Under Age 1 and Annual Infant Deaths are derived from WPP and the Population and Infant Mortality Rates reported in the census.

■ **Vaccination Coverage Rates** WHO.

■ **Oral Rehydration Therapy** Access, WHO; Use, DHS, 1989.

■ **Contraceptive Prevalence** (Modern methods, 15-44): DHS, 1989.

■ **Nutrition** DHS, 1989.

MALAWI

■ **Demographics** WPP

■ **Vaccination Coverage Rates** WHO.

■ **Oral Rehydration Therapy** WHO.

■ **Contraceptive Prevalence** (Modern methods, 15-49): Unpublished 1984 Family Formation Survey.

■ **Nutrition** Adequate Nutritional Status; the "National Sample Survey of Agriculture, 1980/81", National Statistics Office, Zomba, Vol. III, 1984 as recorded in the WHO Anthropometry Data Base.

MALI

■ **Demographics**

- Population, Under 5 Mortality, and Life Expectancy at Birth; 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.
- Total Fertility Rate; DHS, 1987.
- Children Under Age 1 and Annual infant Deaths are derived from WPP and the Population and Infant Mortality Rates reported in the DHS.

■ **Vaccination Coverage Rates** Rapport D'Evaluation De La Couverture Vaccinale Au Mali, MSP-AS, UNICEF, PNUD/OMS, Bamako, February, 1990.

■ **Oral Rehydration Therapy**

- Access, WHO.
- Use is reported in "Connaissances, Attitudes Et Pratiques Des Mères En Matière De Thérapie De Rehydratation Par Voie Orale", a study financed by PRITECH/USAID carried out by the Programme National De Lutte Contres 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, 15-44): DHS, 1987.

■ **Nutrition** All indicators; DHS, 1987.

NIGER

■ **Demographics**

- Under 5 Mortality and Total Fertility; WPP.
- All others are from the General Population Census as reported by USAID/Niger.

■ **Vaccination Coverage Rates** WHO.

■ **Oral Rehydration Therapy** WHO.

■ **Contraceptive Prevalence** (Neither methods nor age group specified): "Columbia University KAP: 1987" as reported by USAID/Niger.

■ **Nutrition**

Adequate Nutritional Status; "Le Système de Santé et la Politique de Développement Sanitaire au Niger," May 1989 as reported by USAID/Niger.

NIGERIA

■ **Demographics** WPP.

■ **Vaccination Coverage Rates** WHO.

■ **Oral Rehydration Therapy** WHO.

■ **Contraceptive Prevalence** (Modern methods, 15-49): The CPR is from the World Fertility Survey as cited in World Population Profile: 1989 published by the U.S. Department of Commerce, Bureau of the Census.

SENEGAL

- **Demographics**
WPP.
- **Vaccination Coverage Rates**
WHO
- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1986.
- **Nutrition**
All indicators; DHS, 1986.

SUDAN

- **Demographics**
a) All but Total Fertility; WPP.
b) Total Fertility Rate; DHS, 1989, Preliminary report.
- **Vaccination Coverage Rates**
a) Rates for the antigens administered to children; DHS, 1989, Preliminary Report.
b) TT2+; WHO
- **Oral Rehydration Therapy**
Access, WHO; Use, DHS, 1989, Preliminary Report.

- **Contraceptive Prevalence**
(Modern methods, 15-49): DHS, 1989, Preliminary Report.

ZAIRE

- **Demographics**
WPP (IMR, NPP '88).
- **Vaccination Coverage Rates**
WHO.
- **Oral Rehydration Therapy**
WHO.

BANGLADESH

- **Demographics**
a) All but Total Fertility; WPP.
b) Total Fertility Rate; Bangladesh Fertility Survey, 1989 as reported by USAID/Bangladesh.

■ **Vaccination Coverage Rates**

- National EPI Coverage Survey, February 1991.
- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, < 50): Contraceptive Prevalence Survey, 1989 as reported by USAID/Bangladesh.
- **Nutrition**
Adequate Nutritional Status; National Survey, 1989 done by the Bangladesh Bureau of Statistics with UNICEF.

INDIA

- **Demographics**
WPP
- **Vaccination Coverage Rates**
WHO.
- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, age unspecified): Family Planning Practices in India: Third All India Survey as reported by USAID/India.

INDONESIA

- **Demographics**
a) Total Population; Census done by the Central Bureau Of Statistics (PBS), 10/90 as reported by USAID/Indonesia.
b) Infant Mortality Rate, Under 5 Mortality and Life Expectancy at Birth are all from WPP.
c) Children Under Age 1 and Annual Infant Deaths are derived from the Population reported from the census and the WPP.
d) Total Fertility Rate; DHS, 1987.

- **Vaccination Coverage Rates**
WHO

- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1987.

- **Nutrition**
All indicators, DHS, 1987.

NEPAL

- **Demographics**
WPP
- **Vaccination Coverage Rates**
WHO
- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, age unspecified): Surveys done by the Ministry of Health and New Era as reported by USAID/Nepal.

EGYPT

- **Demographics**
a) Total Population, Children Under Age 1 and Annual Infant Deaths; the Statistical Yearbook, CAPMAS, 1989, as reported by USAID/Egypt.
b) Infant Mortality Rate; statistics published by the Ministry of Health/Egypt, as reported by USAID/Egypt.
c) Under 5 Mortality and Life Expectancy at Birth; WPP.
d) The Total Fertility Rate; DHS, 1988.

- **Vaccination Coverage Rates**
WHO.

- **Oral Rehydration Therapy**
a) Access, WHO
b) Use, KAP study, as reported in the 1990 Health and Child Survival Project Questionnaire, National CDJ Project.

- **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1988.

- **Nutrition**
Adequate Nutritional Status; DHS, 1988.

MOROCCO

- **Demographic**
a) Total Population, Under 5 Mortality and Life Expectancy; WPP.
b) Infant Mortality Rate and Total Fertility Rate; DHS, 1987.

- c) Children Under 1 and Infant Deaths are derived from the Population and Crude Birth Rates reported in the WPP and the Infant Mortality Rate from the DHS, 1987.

- **Vaccination Coverage Rates**
WHO.

- **Oral Rehydration Therapy**
WHO.

- **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1987.

- **Nutrition**
All indicators; DHS, 1987.

PAKISTAN

- **Demographics**
WPP.
- **Vaccination Coverage Rates**
WHO.
- **Oral Rehydration Therapy**
WHO.
- **Contraceptive Prevalence**
(Modern methods, 15-49): Contraceptive Prevalence Survey as cited in World Population Profile, 1989 published by the U.S. Department of Commerce, Bureau of the Census.

- **Nutrition**
Adequate Nutritional Status; National Nutrition Survey, 1985-1987 carried out by the Government of Pakistan as cited in the FY 1989 USAID Mission Response Form.

YEMEN

- **Demographics**
a) All except Under 5 Mortality 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) Under 5 Mortality; WPP.

- **Vaccination Coverage Rates**
WHO.

- **Oral Rehydration Therapy**
WHO.

■ **Contraceptive Prevalence**
(Neither methods nor age specified): Central Planning Organization (YARG) and the Population Strategy Team, as cited in USAID/Yemen facsimile 967-2-251578.

BOLIVIA

■ **Demographics**
WPP. (The DHS, 1989 reports an IMR of 96.)

■ **Vaccination Coverage Rates**
WHO.

■ **Oral Rehydration Therapy**
Access, WHO; Use, DHS, 1989.

■ **Contraceptive Prevalence**
(Modern methods, 15-49): DHS, 1989.

■ **Nutrition**
All indicators; DHS, 1989.

ECUADOR

■ **Demographics**
a) Total Population, Under 5 Mortality and Life Expectancy at Birth; 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) Children Under 1 and Infant Deaths are derived from the WPP and the Infant Mortality Rate from Rutstein, et. al.

d) Total Fertility Rate; Preliminary results from "Encuesta Nacional Demografica y de Mortalidad Materno y Infantil," 1989 as reported by USAID/Ecuador.

■ **Vaccination Coverage Rates**
a) Rates for the antigens administered to children; WHO.
b) TT2+; EPI National Program Monitoring System as reported in a 1990 Health and Child Survival Project Questionnaire.

■ **Oral Rehydration Therapy**
WHO.

■ **Contraceptive Prevalence**
(Modern methods, 15-49): Preliminary results from "Encuesta Nacional Demografica y de Mortalidad Materno y Infantil," 1989 as reported by USAID/Ecuador.

■ **Nutrition**
a) Adequate Nutritional Status; National Nutrition Survey, 1987, Ministry of Health.
b) All others; DHS, 1987

GUATEMALA

■ **Demographics**
a) Total Population, Under 5 Mortality, Life Expectancy at Birth and Total Fertility; WPP.

b) Infant Mortality Rate; DHS, 1987.
c) Children Under 1 and Infant Deaths are derived from the WPP and the Infant Mortality Rate from DHS, 1987.

■ **Vaccination Coverage Rates**
WHO.

■ **Oral Rehydration Therapy**
WHO.

■ **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1987.

■ **Nutrition**
Adequate Nutritional Status; DHS, 1987.

HAITI

■ **Demographics**
a) Total Population, Under 5 Mortality and Life Expectancy at Birth; WPP, 1990.

b) Infant Mortality Rate; WPP, 1988 (In a personal communication, the United Nations acknowledged that they had reversed a decision made in preparing WPP, 1990 and now preferred a trend forecast more similar to that of 1988)

c) Children Under 1 and Infant Deaths are derived from the WPP

and the Infant Mortality Rate from WPP, 1988.

d) 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, 15-44): Enquête Nationale Haitienne sur la Contraception (ENHAC): Résultats Préliminaires, Institut Haitien de l'Enfance and U.S. Centers for Disease Control, Atlanta, 1990.

HONDURAS

■ **Demographics**
a) Total Population; projection based on the National Census, 1988, Ministry of Planning, Coordination and Budget as reported by USAID/Honduras.

b) Infant Mortality Rate, Life Expectancy and Total Fertility; National Epidemiological and Health Survey, 1987, Science and Technology Unit, Ministry of Health.

c) Under 5 Mortality, WPP.

d) Children Under 1 and Infant Deaths are derived from the projection of Population, the National Epidemiological and Health Survey, 1987 and WPP.

■ **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 (ASHON-PLAFA), 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% and a use rate for Herbal Remedies, including various home solutions, of 18.2%.

■ **Contraceptive Prevalence**
(Modern methods, 15-49): National Epidemiological and Health Survey, 1987.

■ **Nutrition**
Adequate Nutritional Status; National Nutrition Survey: 1987, as cited in USAID/Honduras Cable/00525.

PERU

■ **Demographics**
a) All except Infant Mortality Rate; WPP.

b) Infant Mortality Rate; DHS, 1986.
c) Children Under Age 1 and Infant Deaths are derived from the WPP and the Infant Mortality Rate from DHS, 1986.

■ **Vaccination Coverage Rates**
a) Rates for the antigens administered to children; WHO.
b) TT2+; USAID/Peru reports this figure as coming from the Ministry of Health and notes that it reflects the number of women given two doses of Tetanus Toxoid during the calendar year and not the percentage of women protected.

■ **Oral Rehydration Therapy**
WHO.

■ **Contraceptive Prevalence**
(Modern methods, 15-44): DHS, 1986.

■ **Nutrition**
a) Adequate Nutritional Status; Encuesta Nacional de Nutrición y Salud (ENNSA), 1984.
b) All others; DHS, 1986.

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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.

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■ **Figure 3**
DHS surveys.

Notes: Rates are for the five years preceding the survey.

■ **Figure 4**
WPP.

Notes: Graph includes countries receiving USAID assistance in health at any time during the period 1985-1990.

■ **Figure 5**
United States Agency for International Development and U.S. Department of Health and Human Services. 1990. Africa Child Survival Initiative. Combatting Childhood Communicable Diseases, 1989-1990 Bilingual Annual Report. Atlanta, GA: Centers for Disease Control.

■ **Figure 6**
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■ **Figure 8**
USAID Health Information System, Center for International Health Information.

Notes: Regional charts are based on data compiled as a part of the USAID Health Information System project. Major sources include the World Health Organization, DHS and USAID missions.

■ **Figure 9**
Expanded Program on Immunization, World Health Organization, DHS (1987), and data compiled as a part of the USAID Health Information System project.

■ **Figure 10**
Expanded Program on Immunization, World Health Organization and the Pan American Health Organization.

■ **Figure 11**
DHS surveys.

■ **Figure 12**
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■ **Figure 13**
Figure provided by the Program for Appropriate Technology in Health.

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■ **Figure 15**
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■ **Figure 16**
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■ **Figure 19**
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■ **Figure 20**
Figure adapted from narrative in: M. Claeson and M.H. Merson. 1990. Global progress in the control of diarrheal diseases. The Pediatric Infectious Disease Journal 9(5):345-355.

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■ **Figure 25**
Notes: Estimated median impact on infant mortality was calculated from DHS data.

■ **Figure 26**
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USAID'S ROLE

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Information for health-related USAID activities are drawn from FY 1990 USAID Health and Child Survival Questionnaires, routine reporting mechanisms such as annual project reports as well as special reports and evaluations from USAID cooperating agencies. Funding information for FY 1985 through 1990 is taken from the USAID Health Information System maintained by the Center for International Health Information of the International Science and Technology Institute, Inc., Arlington, VA.

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