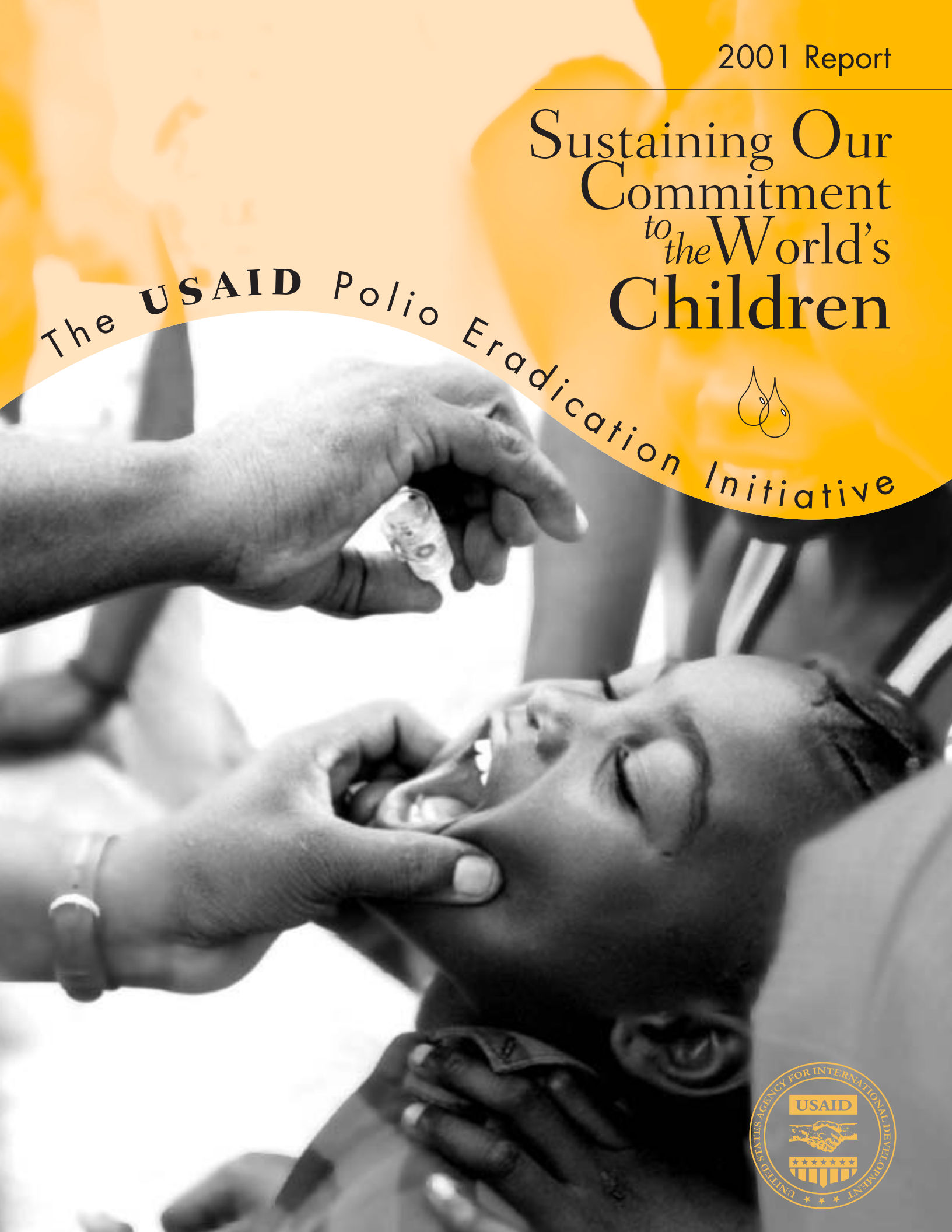
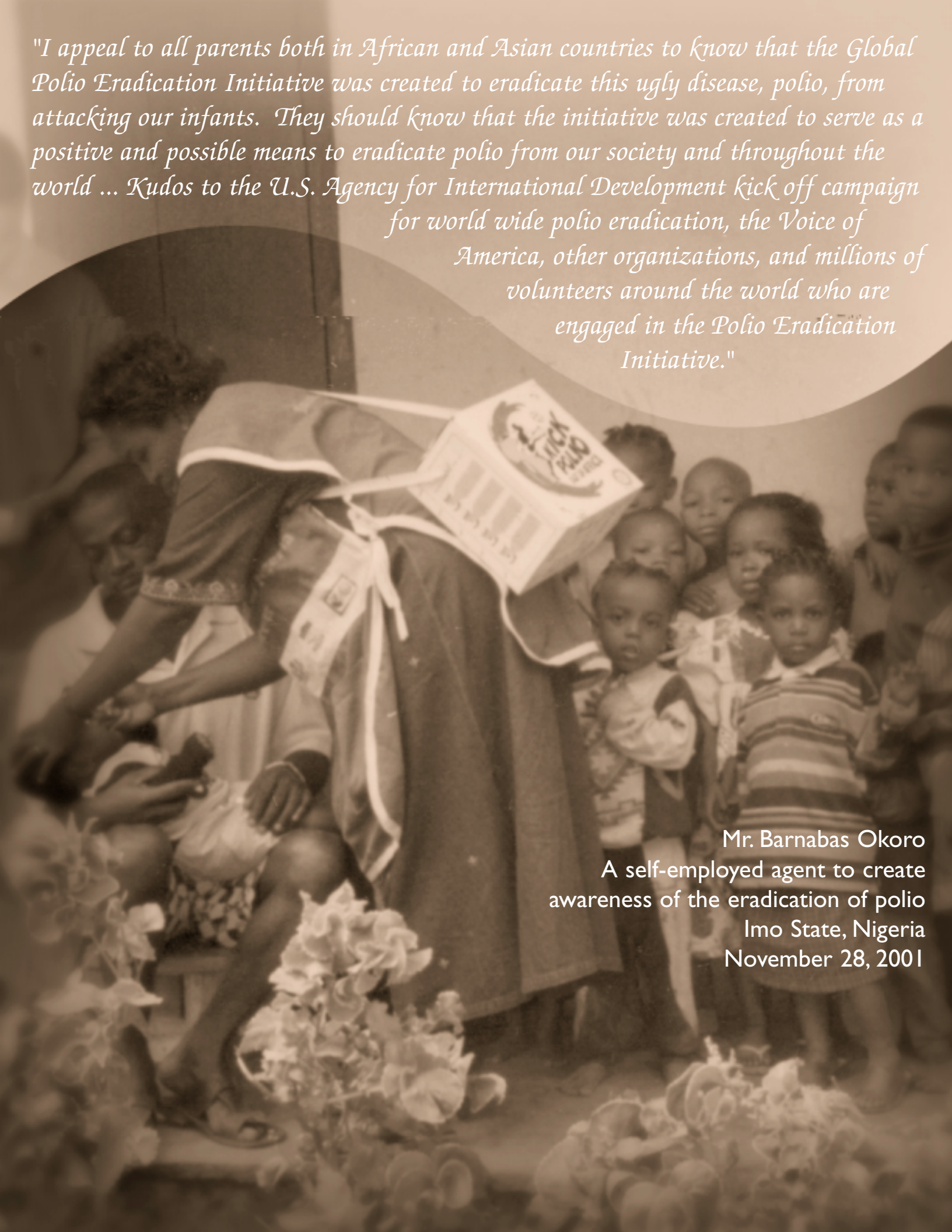
2001 Report

Sustaining Our Commitment *to the* World's Children

The **USAID** Polio Eradication Initiative



USAID
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT



"I appeal to all parents both in African and Asian countries to know that the Global Polio Eradication Initiative was created to eradicate this ugly disease, polio, from attacking our infants. They should know that the initiative was created to serve as a positive and possible means to eradicate polio from our society and throughout the world ... Kudos to the U.S. Agency for International Development kick off campaign for world wide polio eradication, the Voice of America, other organizations, and millions of volunteers around the world who are engaged in the Polio Eradication Initiative."

Mr. Barnabas Okoro
A self-employed agent to create awareness of the eradication of polio
Imo State, Nigeria
November 28, 2001

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Acronyms and Abbreviations

AFP	acute flaccid paralysis
AFRO	Africa Regional Office (WHO)
AMRO	Americas Regional Office (WHO)
ANE	Asia/Near East (USAID region)
BASICS	Basic Support for Institutionalizing Child Survival
CDC	U.S. Centers for Disease Control and Prevention
CHANGE	Behavior Change Innovations
CORE	Child Survival Collaboration and Resources
cVDPV	circulating vaccine-derived poliovirus
DR Congo, DRC	Democratic Republic of Congo
E&E	Europe and Eurasia (USAID region)
EMRO	Eastern Mediterranean Regional Office (WHO)
EPI	Expanded Program on Immunization
EURO	Europe Regional Office (WHO)
FY	fiscal year
GAVI	Global Alliance for Vaccines and Immunization
ICC	interagency coordinating committee
INCLEN	International Clinical Epidemiology Network
IPV	inactivated polio vaccine
LABNET	Global Polio Laboratory Network
LAC	Latin America/Caribbean (USAID region)
MECACAR	Middle East, Caucasus, and Central Asia Republics
MEDS	Monitoring, Evaluation and Design Support
NGO	nongovernmental organization
NID	national immunization day
OPV	oral polio vaccine
PEI	Polio Eradication Initiative
PHNIP	Population, Health and Nutrition Information Project
PHR	Partnerships for Health Reform
PVO	private voluntary organization
SEARO	South East Asia Regional Office (WHO)
SNID	subnational immunization day
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VOA/IBB	Voice of America/International Broadcasting Bureau
VVM	vaccine vial monitor
WHO	World Health Organization
WPRO	Western Pacific Regional Office (WHO)

Executive Summary

The U.S. Agency for International Development (USAID) has allocated more than $160 million to its Polio Eradication Initiative (PEI) since 1996. In 2001, USAID programmed approximately $27 million for polio eradication, making the United States one of the leading bilateral donors in the global eradication campaign. In the long term, USAID sees its investment in polio eradication as a way to help build stronger systems for immunization and other disease control programs in developing countries.

As the largest public health initiative in history, the campaign to eradicate polio is a successful public-private partnership. The campaign's partners include Rotary International, the World Health Organization (WHO), the United Nations Children's Fund, the U.S. Centers for Disease Control and Prevention, USAID and other bilateral donor agencies, national governments, the World Bank, the United Nations Foundation, the Bill & Melinda Gates Foundation, the Aventis Pasteur and De Beers companies, private voluntary organizations, and nongovernmental organizations (NGOs).

The eradication campaign has prevented more than 4 million cases of paralysis. When the global eradication of polio is certified and routine immunizations are no longer needed, WHO estimates that the U.S. government will save an estimated $230 million per year in vaccine costs alone. Global savings from this effort could reach $1.5 billion per year, money that could be well spent on other pressing health needs. The post-certification era is likely to have continuing costs, but the savings will be significant.

This report documents the polio eradication activities supported by USAID in 2001. It also reviews regional progress toward the global eradication goal and the remaining challenges to eliminating polio from the world.

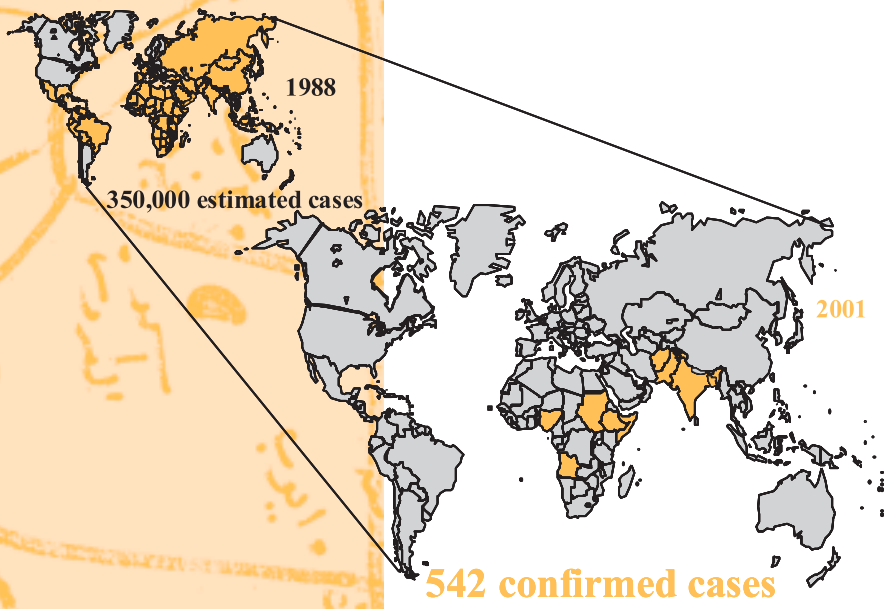
Achievements in 2001

- The number of laboratory-confirmed polio cases declined from 2,971 in 2000 to 542* in 2001, an 80 percent reduction.
- The number of countries with wild poliovirus dropped from 20 to 10.
- Synchronized multicountry national immunization days in 20 West and Central African countries, including the Democratic Republic of Congo (DR Congo) and Angola, reached more than 96 million children.
- Two traditional poliovirus reservoir countries, Bangladesh and DR Congo, did not record a single case in 2001.
- USAID health-related projects with NGOs in India and Angola were instrumental in reaching children in high-risk areas.
- All polio specimens were tested in an accredited laboratory.

Photo: Ellyn Ogden/USAID

** All poliovirus data in this document are reported from WHO as of April 17, 2002.*

Polio Eradication Progress: 1988-2001



Source: World Health Organization, April 17, 2002

Continued Progress Toward Eradication

- Since 1988, the number of polio cases has declined by more than 99 percent.
- Type 2 poliovirus has not reappeared since 1999.
- Europe will soon become the third (after the Americas and Western Pacific) of WHO's six regions to be certified polio-free.
- 135 of WHO's 147 laboratories that test and report on polio have received accreditation. All countries are served by an accredited laboratory.
- 122 countries now have national task forces to address virus containment and have started planning and implementing containment procedures.

Remaining Tasks and Challenges

USAID supports WHO's goal of global certification of polio eradication by 2005. This will require:

- **Reaching all children with oral polio vaccine (OPV).** This is an especially formidable task in areas of conflict.
- **Maintaining the political, financial, and programmatic commitments** to improve routine immunization coverage, eliminate outbreaks of vaccine-derived polio, and carry on heightened surveillance. Convincing governments to maintain these commitments will become more difficult as fewer and fewer polio cases appear.
- **Increasing the current level of funding.** WHO conservatively estimates that present funding commitments through 2005 fall $275 million short of required amounts. Should transmission extend beyond 2003, estimated resource requirements could increase by more than $150 million.

Planning for the post-certification era has already begun. Efforts are underway to minimize the risk of reintroducing the virus into populations and to prevent circulating vaccine-derived poliovirus (cVDPV) from causing polio outbreaks. The potential for cVDPV to cause outbreaks exists as long as OPV use continues. The eradication of all poliomyelitis disease thus requires the cessation of OPV use, which cannot occur until surveillance systems and a global infrastructure with virus containment procedures are fully in place. USAID is therefore working with its "Polio Partners" to support research, outline scenarios for stopping OPV use, and develop the most appropriate and effective timeframe and strategy for safely stopping polio immunizations.

I. The USAID Polio Eradication Initiative

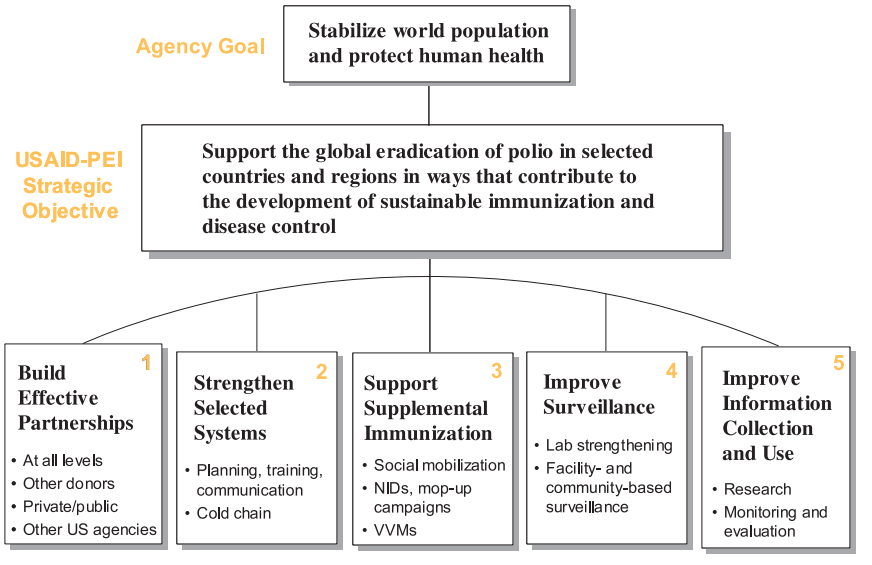
In 1988, the United States joined 165 other member nations of the World Health Assembly to adopt a global resolution to eradicate polio. Through technical assistance and financial support, USAID's Polio Eradication Initiative (PEI) supports a variety of activities that are critical to the success of this effort. Through the PEI, the Agency supports eradication activities that enhance other disease control and surveillance efforts and strengthen the foundations of national health care systems that maintain ongoing childhood immunization programs and other primary health care services.

The PEI Strategy

After 10 years of significant USAID support for polio eradication in its Latin America/Caribbean (LAC) region, USAID launched the PEI in 1996. The Initiative incorporated lessons learned from the LAC region in its strategy in Asia and Africa. These lessons included the need for close collaboration with other donors; the importance of having effective national and regional interagency coordinating committees (ICCs); the value of using specific indicators to measure program effectiveness; and the benefits of building partnerships to harness the confidence, expertise, and enthusiasm of all involved in polio eradication.

Through the PEI, USAID funds support national immunizations days (NIDs) and other special immunization campaigns that supplement routine immunization services. Support includes assistance for advocacy, communication, social mobilization, microplanning, and the logistics of "cold chain" delivery of oral polio vaccine (OPV) under temperature-controlled conditions. The PEI assists with improvements in acute flaccid paralysis (AFP) surveillance, laboratory accreditation, and research into the best ways for supplemental immunization campaigns to reach children in hard-to-reach populations or populations reluctant to accept immunization.

Results Framework for the USAID Polio Eradication Initiative



The PEI has five strategies within its results framework:

- Building effective partnerships
- Strengthening health systems
- Supporting supplemental immunization
- Improving AFP surveillance and laboratory investigation
- Improving information collection and use of data

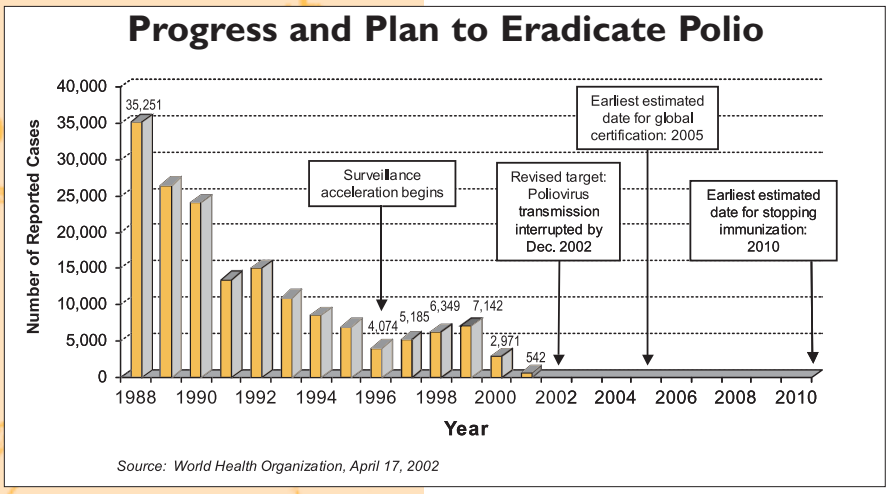
Building effective partnerships: More and more countries have ICCs that bring together resources to implement polio eradication activities. The ICCs take a proactive approach to identifying areas to be strengthened and targeting resources to these areas. Through this effort at coordination, USAID has gained recognition as a leader in providing technical expertise and facilitating collaborative activities.

Strengthening health systems: USAID supports activities to enhance national capacity to provide polio immunizations through high-quality routine and supplemental immunization systems. This support includes training, supervision, logistics, planning, cold-chain assessment and management, and program management for polio and other childhood illnesses. USAID seeks to use the skills, infrastructure, staff, and laboratory capacity developed under polio eradication to strengthen routine immunization and other health care systems. Where feasible, USAID supports vitamin A supplementation and immunizations against measles during NIDs or through the Expanded Program on Immunization (EPI) of the World Health Organization (WHO).

Supporting supplemental immunization: USAID resources are used to plan and implement supplemental polio immunization campaigns. These activities include NIDs, subnational immunization days (SNIDs), and targeted "mop up" activities in high-risk areas to reach children still unvaccinated at the end of larger campaigns or in response to an identified case.

Improving AFP surveillance and laboratory investigation: Surveillance pinpoints where and how wild poliovirus is circulating. Tests can determine the strain and genetic sequencing of the virus, which tells epidemiologists where the virus originated. USAID strengthens and expands existing surveillance systems to detect, report, and respond to outbreaks of polio and other infectious diseases. USAID also provides substantial support to WHO's Global Polio Laboratory Network, or LABNET.

Improving information collection and use of data: Improved surveillance reporting provides timely data to program managers and donors. USAID supports data and information



collection to monitor, evaluate, and continuously improve the quality of polio eradication programs. Monitoring and evaluation are supported by USAID grants to WHO, the United Nations Children's Fund (UNICEF), the International Clinical Epidemiology Network (INCLEN), and the Child Survival Collaboration and Resources (CORE) Group of private voluntary organizations (PVOs).

Polio Partners

The spearheading "Polio Partners" are Rotary International, WHO, UNICEF, and the U.S. Centers for Disease Control and Prevention (CDC). In 2001, the public-private partnership also included the United Nations Foundation; the Bill & Melinda Gates Foundation; the World Bank; Aventis Pasteur; De Beers; the Voice of America/International Broadcasting Bureau (VOA/IBB); the governments of Australia, Canada, Denmark, Japan, the Netherlands, Sweden, and the United Kingdom; PVOs; and non-governmental organizations (NGOs).

USAID and the Polio Partners work with governments in Africa, South and Southeast Asia, the Near East, and Europe and Eurasia to promote and strengthen eradication efforts and improve links with other immunization services. The Partners provide technical advice and report on polio and EPI coverage at country, regional, and international meetings. They are also exploring ways to align the polio eradication program infrastructure with broader immunization and disease prevention programs.

As the global campaign approaches the benchmark of interrupting wild poliovirus transmission in many countries, funding gaps remain. WHO estimates that $1 billion in external funding is needed for global eradication activities from 2002 through 2005, and that a shortfall of $275 million exists for country programs alone. These are conservative estimates, and actual funding requirements could be much higher. Through the PEI, USAID will continue to work with the Polio Partners to find ways to close this gap with funding from new donors and the private sector.

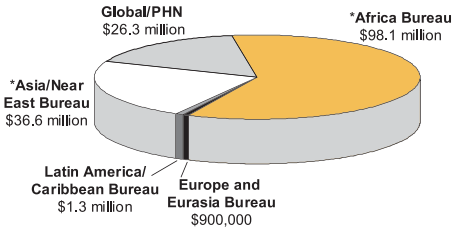
PEI Funding

In fiscal year (FY) 1996, USAID allocated $20 million for the PEI. From FYs 1997 through 2000, an additional $25 million for the Initiative was allocated each year. The allocation grew to over $27 million in FY 2001, for a total allocation of more than $160 million since PEI's inception. USAID Missions have provided additional funds from bilateral child survival funds to support the PEI and fill country-level gaps. USAID assistance focuses on those countries in Africa, South Asia, the Near East, Europe, and Eurasia where polio remains or until recently was endemic.

Most USAID resources directly support country-level programs. Regional and global activities also receive assistance. In FY 2001, USAID's contribution was distributed as follows:

- $17 million in support to the Africa region
- $4.8 million in support to the Asia and Near East (ANE) region
- $200,000 in support to the Europe and Eurasia (E&E) region
- $172,000 in support to the LAC region
- More than $5 million in global funds to support international, regional, and country eradication activities

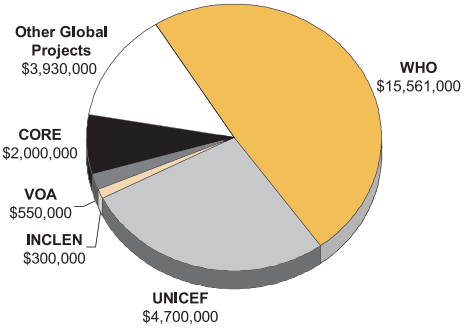
USAID PEI Funds for FYs 1996-2001



Total: $163.2 million

**Includes earmark and bilateral funds.*
Source: USAID, Center for Population, Health and Nutrition, 2001

Distribution of USAID PEI Funding by Implementing Organization, FY 2001*



Total: $27 million

**Earmark funds only.*
Source: USAID PEI, 2001

2001: Achievements and Program Developments

Ten countries – Afghanistan, Angola, Egypt, Ethiopia, India, Niger, Nigeria, Pakistan, Somalia, and Sudan – reported wild poliovirus transmission in 2001, down from 20 countries in 2000. These countries are the focus of the final phase of polio eradication. Five of these countries have reported high-intensity indigenous transmission: India, with 268* cases, Pakistan (116 cases), Nigeria (56), Afghanistan (11), and Niger (6). Four of the 10 priority countries – Afghanistan, Angola, Somalia, and Sudan – are at war or experiencing internal conflicts and thus pose especially difficult obstacles to immunization campaigns.

Among other countries reporting poliovirus in 2001, Bulgaria and Georgia had "imported" cases from other endemic countries. These cases delayed WHO's Europe region from being certified polio-free in 2001 as originally anticipated.

**All cases in this document are reported as of April 17, 2002.*

What Is Polio?

Polio is an infectious viral disease caused by the poliovirus. The virus is spread from person to person, usually through fecal contact. Transmission is most intense in densely populated areas with poor sanitation. In one in 200 cases, the virus kills the nerve cells that activate the muscles. The dead nerve cells cannot be replaced, and the result is usually lifelong paralysis or, in some cases, death.

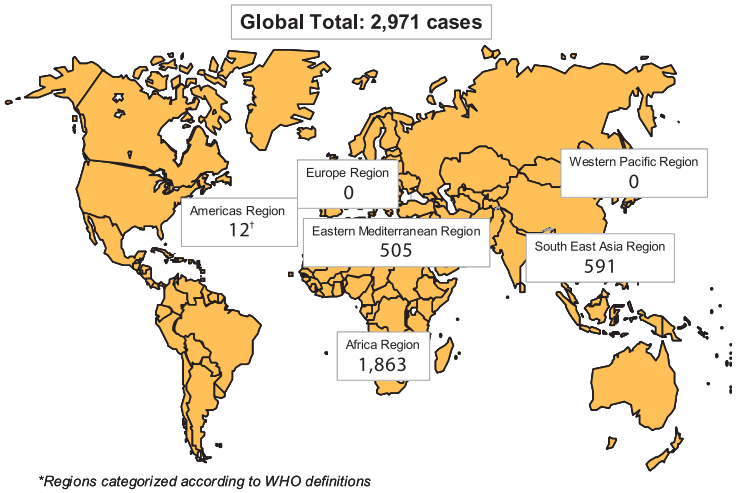
"Silent" Infection. Polio infects silently and is difficult to recognize. More than 95 percent of cases occur in children less than 5 years old. Although paralysis is the most visible sign of polio infection, it occurs in less than 1 percent of all cases. Instead, most infected children have mild flulike symptoms or no symptoms at all. Even these children are infectious, however, and more than 200 children can be silently infected before the first visible case of paralysis emerges. This is why one case of paralysis is considered a sign of a polio outbreak. Polio is particularly difficult to recognize in infants and young children who are not yet walking.

Reporting and Surveillance. In some countries, families hesitate to bring a paralyzed child to a health facility because they think nothing can be done or they prefer the advice of traditional healers. They may not bring their children to a health facility for weeks or months, if at all. Since two stool samples must be collected within 14 days of the onset of paralysis to confirm poliovirus transmission, reporting delays can delay responding to confirmed cases with supplemental immunizations to protect other children and prevent further transmission. Polio programs also must guard against the tendency of some governments not to acknowledge and report cases. A confirmed polio case should not be perceived as a program failure but as a rallying point for an intensive, targeted response to curtail the outbreak.

Routine vs. Supplemental Immunization. Routine polio immunization for infants, as recommended by WHO, consists of a dose of OPV at birth and then at 6, 10, and 14 weeks of age. In polio-endemic areas, supplemental immunizations are given to every child under 5, regardless of prior immunization history. To ensure each child receives a minimum of two doses per year, two rounds of supplemental immunizations must be held annually for at least three years, until no polio cases have been detected for three consecutive years. High levels of routine immunization coverage and surveillance then must continue in order to minimize the possibility of polio reappearing. If routine immunization coverage drops, more rounds of supplemental immunizations will be necessary to keep immunity levels high. In 1999, the World Health Assembly resolved that supplemental immunizations be intensified by adding rounds in endemic and recently endemic countries.

Photo: Neal Halsey

2000 Confirmed Number of New Polio Cases*



*Regions categorized according to WHO definitions
†Vaccine-derived cases
Source: WHO Global Polio Eradication Initiative, April 17, 2002

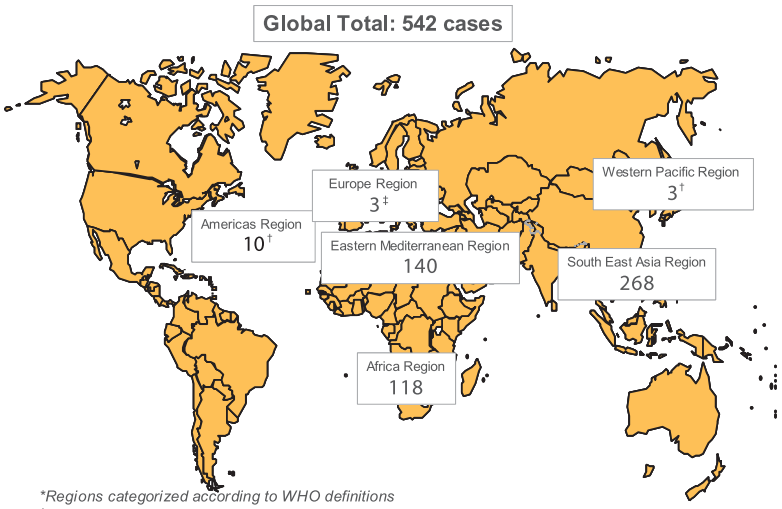
The region's 51 countries have been free of indigenous wild poliovirus for three years, and regional certification is now expected in June 2002. The Dominican Republic, Haiti, and the Philippines had outbreaks of circulating vaccine-derived poliovirus (cVDPV), and Mauritania reported cases of wild poliovirus of unknown origin. In Zambia, three imported cases of wild poliovirus occurred in January 2002 in refugee children whose family had migrated from Angola in 2001.

According to WHO, more than 300 supplemental immunization days were held worldwide in 2001. A record number of 575 million children in 94 countries received OPV through intensified supplemental immunization activities. These included house-to-house and child-to-child efforts, which are the most intensive phase of polio eradication. Between July and September, 16 million children were immunized during synchronized NIDs in Angola, the Republic of Congo, the Democratic Republic of Congo (DR Congo), and Gabon. In October and November, another 80 million children were immunized during synchronized NIDs in 16 West African countries. Polio teams mapped cross-border regions to cover each village and set up immunization posts at border crossings. They also immunized children in refugee camps. Tens of thousands of volunteers and health workers participated in these momentous child health events.

In 2001, USAID's PEI stepped up efforts to help countries improve their surveillance and laboratory investigation by training and deploying community-level surveillance officers and supporting increased effectiveness, efficiency, and accuracy in detecting suspected AFP cases and analyzing stool samples. The PEI is closely monitoring recently endemic countries where surveillance may remain weak, as well as countries where routine immunization programs and supplemental immunization activities are not keeping pace with local needs.

In addition, USAID's Boost Immunization Initiative continued to help immunization programs improve routine immunization coverage in many countries, particularly in Africa. Through the Global Alliance for Vaccines and Immunization (GAVI), USAID and other donors are building bridges from polio to other health programs in order to strengthen the capacity developed for polio eradication for use in other immunization and disease control efforts.

2001 Confirmed Number of New Polio Cases*



*Regions categorized according to WHO definitions
†Vaccine-derived cases
‡Imported cases
Source: WHO Global Polio Eradication Initiative, April 17, 2002

Photo: Ellyn Ogden/USAID

2002 and Beyond

The coming years are critical. Large numbers of vaccination teams are needed to reach all children under 5. Gaining and maintaining access to every child continues to be a major challenge, especially in countries in conflict. Children missed in previous vaccination efforts can increase target population estimates by as much as 40 percent, with resource requirements increasing accordingly.

Routine immunization levels need to be raised in many African and South Asian countries to ensure that all children are fully immunized by age 1 and that populations are protected against reintroduction of the poliovirus. Keeping countries focused on certification is proving to be a challenge in countries with competing health priorities and limited resources.

Surveillance is improving in Asia and Africa, but many areas, even non-endemic areas, still need to focus on meeting and maintaining global standards. More surveillance officers and higher-quality surveillance programs are needed in many countries. The WHO laboratory network must be fully functional and accredited to identify and analyze all cases.

Photo: Richard Franco

In 2001, the continuing presence of cVDPV in the Dominican Republic, Haiti, and the Philippines underscored the need for all countries, including those that have been polio-free for several years, to maintain high immunization coverage and ensure certification-standard surveillance. Surveillance and research have confirmed that it is possible for vaccine virus to mutate back to virulence by circulating among populations with low vaccination coverage. USAID-funded research into people who carry and excrete poliovirus and people with rare B-cell deficiencies who shed poliovirus may clarify the situation and help determine how and when polio immunizations may be stopped.

Planning for the secure containment of laboratory specimens of poliovirus will require more intensive efforts, especially in developed countries. The eradication of polio raises the threat of poliovirus being released into increasingly or fully susceptible populations by accident or through acts of biological warfare or bioterrorism. Compared with smallpox and other infectious pathogens, polioviruses are considered poor agents for biological warfare because the vast majority of infections would not result in paralysis. Release of poliovirus into a highly susceptible population would nonetheless cause great public anxiety. Plans and budgets must be in place to control outbreaks should they occur, whether through a laboratory accident or through bioterrorism. A stockpile of vaccine is now considered a necessity in the event of an emergency.

II. Progress Through Effective Partnerships

This section highlights the 2001 activities and accomplishments of USAID, the Polio Partners, and other participating organizations in achieving five objectives: building partnerships, strengthening systems, supporting supplemental immunization, improving surveillance, and improving information collection and use.

Strategies and Results: Partnerships

Partnership activities in 2001 included:

- **Programs of the CORE Group.** PVOs belonging to the CORE Group, a network of 35 U.S.-based PVOs that work in USAID health and nutrition projects, have established programs in the most hard-to-reach places in Angola, Bangladesh, India, Nepal, and Uganda. CORE PVOs are represented on the national ICC in all five countries. They help with district-level planning and training, monitoring and evaluation, social mobilization, advocacy, and assistance to families with paralyzed children. CORE Group PVOs supplement USAID funding with a matching contribution of 25 percent, bringing additional resources to the program. CORE launched activities in DR Congo and Ethiopia in 2001, applying lessons from other countries.
- **WHO Support for Africa NIDs.** WHO's Regional Office for Africa helped 20 West and Central African countries, including the conflict countries of DR Congo and Angola, conduct synchronized multi-country NIDs. The synchronized NIDS featured cross-border activities between countries and reached more than 96 million children in an extraordinary display of multinational cooperation and coordination.
- **WHO's Operation MECACAR Plus.** In WHO's Europe and Eastern Mediterranean regions, Operation Middle East, Caucasus, and Central Asia Republics (MECACAR) Plus carried on the activities of the former Operation MECACAR. This coordinated program of NIDs in 18 high-risk countries vaccinates up to 65 million children under age 5 each year.
- **UNICEF.** With USAID support, UNICEF procured cold-chain equipment and provided other logistics and communications support for country-level operations. These activities help to ensure successful supplemental immunization activities, increase demand for immunization, and promote AFP surveillance. UNICEF/India provides funds to Rotary India for social mobilization on behalf of USAID.
- **U.S.-Japan Cooperation.** Under the U.S.-Japan Common Agenda for Cooperation in a Global Perspective, USAID and the Government of Japan are working together on behalf of the PEI. Japan Overseas Cooperation Volunteers and Peace Corps volunteers are helping with community-level AFP surveillance in many countries.

"In our effort to eradicate this crippling disease, it is crucial that every child be immunized against polio, no matter where they live. One poliovirus infection threatens all children who aren't protected – at the village level, in the province, and in neighboring countries."

Dr. Jean-Marie Okwo-Bele
WHO Africa Region Office
February 11, 2002

Photo: WHO

Vaccinators administer OPV during Angola's 2001 NIDs campaign.

Photo: Shahnaz Aziz/VOA

Voice of America reporter interviews polio eradication staff in India.

Strengthening Health Systems

In 2001, national ICCs added GAVI-supported activities to their agendas to improve routine immunizations. Cold-chain equipment and transportation funds procured for polio eradication increasingly are used in an integrated manner to enhance EPI activities. EPI services are increasing their use of polio program data on zero-dose children to identify high-risk areas for other diseases. Lessons learned from polio eradication about vaccine forecasting and distribution helps countries reduce vaccine wastage and achieve more efficient resource management. Innovations in service delivery for polio immunizations (such as the use of vaccine vial monitors that indicate if vaccine has been damaged by heat exposure) can be used in routine immunization programs.

Technical assistance for polio eradication spills over to other areas. In Africa, more than 150 international consultants and 320 national consultants were recruited at a cost of $4 million to help prepare polio NIDs campaigns. Their technical assistance in planning the disbursement of funds, importation of cold-chain equipment, communications and logistics, and administrative support also help planning activities for other health programs such as Integrated Management of Childhood Illness.

Communication activities to promote polio immunizations and surveillance strengthen the overall capacity of health systems to mobilize communities and promote other health issues. USAID-supported programs play a key role in expanding the broader use of communication approaches, particularly the promotion of evidence-based, data-driven strategy development. Data collected through case investigation and independent monitoring are used to fine-tune communication and social mobilization efforts. VOA/IBB, WORLDNET Television, and the CHANGE and BASICS II projects have helped countries improve community mobilization and outreach to isolated communities. BASICS II has also synthesized and distributed the lessons learned from a five-country assessment of communication strategies for polio and other immunization activities.

In 2001, VOA/IBB and WORLDNET Television expanded their coverage of polio activities. Sixty-four reporters traveled to 39 countries to publicize NIDs and explore barriers hindering the eradication effort. VOA/IBB's 16 language services produced more than 1,000 news reports, stories, promotions, and public service announcements. In Africa, 24 television stations broadcast a two-hour, four-part series examining different elements of the polio eradication effort. The series was also broadcast via satellite. VOA/IBB investigated polio eradication efforts on both sides of the conflict in **Sudan**, traveling to northern and southern Sudan for the first time in 15 years.

During the post-September 11 conflict in **Afghanistan**, VOA's Pashto and Dari language services expanded their coverage with a comprehensive profile of Afganistan's nationwide eradication effort. Finally, USAID continued to support the Polio Partners' semiannual Communications Partners meetings to share lessons learned from polio eradication programs worldwide.

Supplemental Immunization Activities

In 2001, supplemental immunization activities were conducted in 94 countries. USAID staff traveled to many priority countries to monitor the quality and effectiveness of the planning and implementation of these activities and provide rapid feedback and guidance.

Supplemental immunization activities in 2001 used surveillance data, estimates of the number of zero-dose children, rapid assessment survey techniques, and reports from monitors to further target high-risk areas. Programs made better efforts at mapping local areas and took greater care to involve community religious leaders and use vaccinators from the community who speak the local language. NGOs were often asked to take the lead in communities that resist immunization.

Accomplishments in supplemental immunization activities included the following:

- **Angola** conducted three rounds of NIDs in all accessible areas and one SNID round in high-risk areas. Social mobilization activities were marked by collaboration among NGOs, the private sector, churches, and the Boy Scouts. Small-scale cross-border activities took place in border areas with DR Congo, the Republic of Congo, and Zambia.
- In October, **Nigeria** conducted an immunization campaign in 16 of the country's 36 states to curb the incidence of wild poliovirus transmission. The last remaining focus of intense transmission is in the northern Nigeria/southern **Niger** border region, where wild poliovirus types 1 and 3 were isolated in 2001.
- CARE, one of the CORE PVOs operating in **Bangladesh**, identified more than 41,500 zero-dose children during two rounds of NIDs and distributed the list to other partners so they could identify children in their respective areas. The Ministry of Health used the information in logistics planning for supplemental immunization activities and to ensure that adequate amounts of vaccine were available.
- In **India**, CORE Group PVOs helped reach Muslim families in the high-risk state of Uttar Pradesh. At the request of the Ministry of Health, the PVOs and their local partners provided support for social mobilization and marshalling volunteers to counsel Muslim families who were resisting immunizations for their children. In Calcutta, a local NGO partner of a CORE PVO was asked to cover slum wards because of its outstanding record of service. The high quality of the volunteers' work led the health department to assign them the task of cross-checking missed children during mop-up efforts.

Photo: Richard Franco

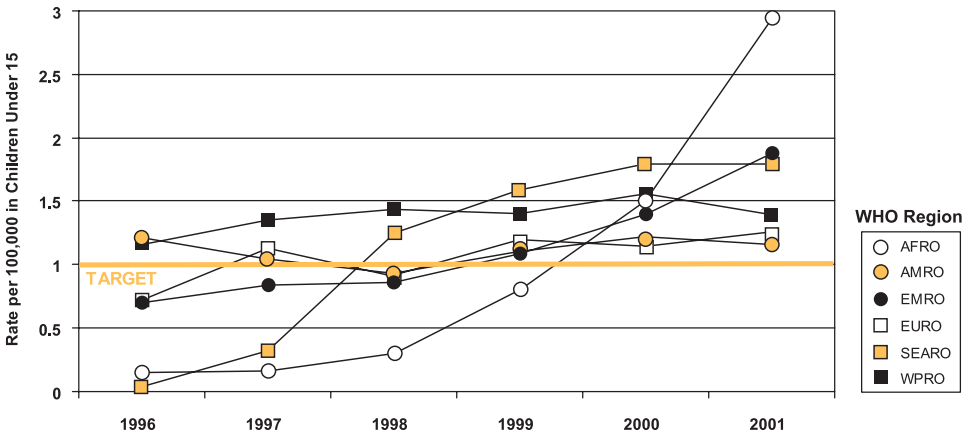
A vaccinator marks a boy's hand as he receives OPV during 2001 NIDs in India.

AFP Surveillance and Investigation

AFP surveillance and investigation at the community, facility, and laboratory levels continued to improve worldwide. PEI assistance supported national and local surveillance efforts and expanding analysis to district and block levels.

USAID continued to support WHO's LABNET. WHO established LABNET to ensure that stool specimens from AFP cases undergo appropriate processing for viral isolation. The laboratories confirm the presence or absence of polio in collected specimens and provide supporting data required for certification. Several laboratories

Non-Polio AFP Rate by WHO Region, 1996-2001*



*Target non-polio AFP rate > 1.0

Source: World Health Organization, April 17, 2002

now are able to perform genetic sequencing, which helps pinpoint a virus' origin and determine if it is indigenous or imported. LABNET has the potential to be transferable to other public health endeavors. Many individual laboratories have been transformed from small research facilities into state-of-the-art public health laboratories that can support national health programs.

By the end of 2001, LABNET was operational in all six WHO regions and comprised 84 national laboratories, 40 subnational laboratories, 16 regional reference laboratories, and seven global specialized laboratories. Of the 147 laboratories, 135 are fully accredited, six are provisionally accredited, and four are pending an accreditation review. USAID assistance to the accreditation process and review visits has been essential to upholding standards and maintaining quality practices required for accurate certification of polio eradication.

Photo: Ellyn Ogden/USAID

Polio surveillance team in Ethiopia follows up on suspected AFP cases.

Information Collection and Use

USAID continued to work closely with UNICEF and WHO to support data collection, operations research, communications evaluation, and other information, education, and communication activities. For example:

- USAID continued to support the implementation of surveys, rapid assessments, and data collection in nearly all countries receiving USAID assistance.
- In Brazil, Ethiopia, Guatemala, Haiti, Mexico, Pakistan, and Zimbabwe, a USAID-funded Johns Hopkins University research project continues to study the extent and duration of poliovirus shedding among immunodeficient children.

- In DR Congo, Mali, Mozambique, Nigeria, and Zambia, USAID-funded projects (BASICS II, CHANGE, and Johns Hopkins University's Population Communication Services) are working with polio partners to improve planning and monitoring and evaluation. The projects are also helping to guide regional and national initiatives for communication activities related to polio and routine immunizations. These projects increase advocacy for immunization, strengthen routine immunization programs, and establish and monitor community surveillance activities using the Community Surveillance Kit developed by the CHANGE project.
- USAID supported WHO's polio eradication Web site (http://www.polioeradication.org/) and *Polio News* newsletter, which has a global distribution of 3,500. USAID also supported the *EURO Polio Page* newsletter and weekly surveillance reports of WHO's Regional Office for Europe; AFP weekly reports and the *Indian AFP Alert* of the WHO South East Asia Regional Office; and monthly surveillance reports of the WHO Africa Regional Office.
- The USAID-funded Partnerships for Health Reform (PHR) published its study of PEI's impact on donor financing. PHR is about to complete an analysis of the cost of phasing in injectable polio vaccine for possible use in the post-eradication era.
- The Population, Health and Nutrition Information Project (PHNIP) continued to serve as USAID's PEI Secretariat. PHNIP documents and disseminates lessons learned, maintains the polio and photography archives, and produces Mission information kits, the annual PEI report, and other PEI materials.
- USAID's Monitoring, Evaluation and Design Support (MEDS) project supported an external review of the PEI. MEDS also coordinates the PEI International Polio Observers.
- USAID's Quality Assurance Project is developing a tool to validate laboratory containment procedures.

The Global Picture and Regional Highlights

The interruption of polio transmission is more than 99 percent complete; only 10 endemic countries remain. Five of these are low-transmission countries where polio transmission could be interrupted by mid-2002 if (in the case of Egypt and Ethiopia) political commitment to eradication is sustained, or (in Angola, Somalia, and Sudan) eradication efforts are able to continue in areas of conflict. Continued polio transmission in 2003 is probable in the high-transmission areas of India, Pakistan/Afghanistan, and Nigeria/Niger. In these areas, high-density populations, high birth rates, pockets of marginalized minority populations, poor sanitation, and low routine immunization coverage make it difficult to stop poliovirus transmission.

Regardless of their certification status, all six WHO regions observed some form of polio in 2001. Instances of poliovirus transmission occurred in Bulgaria and Georgia as a result of importation from northern India. Zambia also had imported cases in Angolan refugee children. Mauritania reported poliovirus of uncertain origin. The Philippines reported a cVDPV outbreak, and the Dominican Republic and Haiti continued to report cases resulting from the 2000–2001 cVDPV outbreak.

Africa: Impressive Declines

In 2001, 118 virologically confirmed cases of poliomyelitis were reported, compared with 147 in 2000 and 246 in 1999. The quality of AFP surveillance significantly improved. No wild poliovirus was detected during 2001 in DR Congo. At the end of November 2001, only four countries in the region were considered endemic. All polio network laboratories are accredited.

NIDs received special emphasis in Angola, Ethiopia, and Nigeria, and will continue in 2002. SNIDs were conducted mainly in countries of East and Southern Africa, with all participating countries achieving at least 80 percent coverage. Some countries, however, chose not to conduct supplemental immunization activities, contrary to the Polio Partners' technical recommendations. All supplemental immunization activities in polio-endemic countries used the house-to-house approach, with great improvements in quality.

Synchronized NIDs with cross-border activities were conducted in 16 West African countries. During three rounds of synchronized NIDs in Angola, the

"In DRC, Angola, Somalia – and other countries where there's war – not only do you need the vaccine, not only do you need the campaign, but you've got to try to get the parties to agree to stop fighting, at least for that period of time . . . The clock is ticking and we cannot afford to fail our children."

Carol Bellamy
UNICEF Executive Director
July 5, 2001

Photo: C. McNab/WHO

President Joseph Kabila and Minister of Health Mashako Mamba of the DR Congo give OPV to children in Kinshasa during the 2001 Central Africa synchronized NIDs campaign.

Republic of Congo, DR Congo, and Gabon, 16.3 million children were vaccinated, 1.7 million receiving OPV for the first time. In 2002, São Tomé and Príncipe will join the group of West African countries that synchronize NIDs.

In East Africa, five countries participated in limited coordinated cross-border activities. Since January 2001, border districts in Djibouti, Ethiopia, Sudan, Kenya, and Somalia have shared data about wild polioviruses and surveillance indicators. These activities will continue and expand during 2002.

Polio eradication activities in Africa's areas of conflict made progress but face continuing challenges. **Angola's** long military conflict has been the greatest constraint to polio eradication in the country and continued to prevent uniform OPV coverage in all areas. The number of cases dropped from 53 in 2000 to one in 2001, but polio cases among Angolan refugee children in Zambia highlight the country's presence as a continuing polio reservoir. The **DR Congo** held NIDs in July, August, and September, reaching approximately 11 million children despite limited access to some health zones because of poor security. Even with improved surveillance, no polio cases were virologically confirmed in 2001. The major outstanding issue is the high number of stools collected. The DR Congo remains under close observation because of poor case identification and reporting in various zones that are not sufficiently covered. The program expects surveillance quality to improve and increase confidence.

The Africa region's overriding priority in 2002 will be to interrupt poliovirus transmission. Emphasis will be placed on improving the quality of NIDs and surveillance in Angola, Nigeria, and Niger; increasing the quality of synchronized NIDs in West and Central Africa and the Greater Horn of Africa countries; and improving access to all children in countries in conflict. Countries in East and Southern Africa must pay increased attention to possible importations, cVDPV, and maintaining certification-standard surveillance and high levels of immunity.

South East Asia: India Sole Remaining Reservoir Country

WHO's South East Asia region accounted for half of the global total of polio cases in 2001. Recently endemic countries such as Bangladesh reported no cases. Virus circulation was limited to India, where transmission of wild poliovirus occurred in 63 districts, down from 89 in 2000. The region's 268 cases of wild poliovirus were concentrated in northern India's Uttar Pradesh and Bihar states. Across the region, OPV delivery, surveillance, and laboratory capacity are maintained at near certification standards. There are, however, weaknesses in the ability of programs to reach all children. Renewed emphasis will be placed on training and mobilizing vaccinators and community leaders in supplemental immunization activities.

In 2001, USAID grants to WHO, UNICEF, and INCLEN were used to strengthen partnerships, planning, surveillance,

laboratory, and immunization systems; conduct NIDs and mop-up campaigns; provide training; improve social mobilization and information collection; and provide country-specific program support in Bangladesh, India, Indonesia, and Nepal. WHO's South East Asia Regional Office asserts that USAID's contributions to polio eradication in the region have been invaluable.

India continues to make progress toward polio eradication. Although the number of cases increased in 2001 to 268 from 265 in 2000, the geographic area of transmission became more limited, as did the genetic diversity of the virus – fewer strains are circulating. Several states with high-quality, sensitive AFP surveillance have emerged as polio-free with no evidence of poliovirus transmission. The non-polio AFP rate in 2001 was 1.87 per 100,000 children under age 15. Ninety-four percent of AFP cases were investigated within 48 hours of notification, well above the global target of greater than 80 percent, and 99 percent of primary isolation results were reported from national polio laboratories within 28 days of receipt. These data were consistently used to prioritize and guide program activities, with areas of highest risk being redefined and targeted appropriately.

The Indian government has focused its efforts on implementing intensified supplemental immunization activities to address persistent polio transmission in Uttar Pradesh and Bihar. These two states reported 243 of the region's 268 cases. Surveillance data indicate that 83 percent of these cases occurred among children less than 24 months of age and of those, 70 percent were from Muslim communities. During the low-transmission season, preemptive mop-up activities targeted 33 million children in 63 high-risk districts in these states and West Bengal. These campaigns were coordinated with border districts in Nepal. After further virus transmission was detected, another 15 mop-up activities targeted 47 million children.

USAID support has been critical to the success of the National Polio Surveillance Project, the Indian Polio Laboratory Network, intensified activities in Uttar Pradesh and Bihar, and technical assistance for mop-up immunization campaigns. Rotary International's PolioPlus Program, WHO, and CORE PVOs are other key players in India.

In **Bangladesh**, no polio cases were detected in 2001. The country's outstanding progress is a result of the government's implementation of the three critical strategies for polio eradication – routine immunizations, NIDs, and AFP surveillance. The USAID-funded Immunization and Other Child Health project, which began in June 1999, has made a significant contribution to this success. USAID also funds most of WHO's surveillance, laboratory, and communication activities in the country.

Indonesia has had no wild virus isolated since 1995. USAID supports technical assistance from WHO that focuses on strengthening management capacity at the national and provincial levels and assisting strategic planning, social mobilization, monitoring and evaluation, and supervision. Despite these efforts, AFP performance indicators declined in 2001, mainly as a result of the country's continuing political, social, and economic turmoil (as well as a declining motivation to pursue polio eradication in view of the absence of cases). Indonesia is planning to conduct NIDs in the fall of 2002 to reduce the number of susceptible children.

Eastern Mediterranean: Moving Closer to Eradication

In 2001, WHO's Eastern Mediterranean region had 140 laboratory-confirmed cases of polio, all wild poliovirus. Poliovirus transmission has been interrupted in 18 of the region's 23 countries and is now localized in five countries – Afghanistan, Egypt, Pakistan, Somalia, and Sudan.

Photo: M. Agboutwalla/Project HOPE

A child with polio is fitted for a brace at a health center in Pakistan.

Photo: Ellyn Ogden/USAID

Health workers in Egypt review microplans for upcoming NIDs.

Polio eradication efforts in **Afghanistan** have made remarkable progress. The intensity and geographic range of wild poliovirus was substantially curtailed in 2001, despite the country's long borders with Pakistan, a high-transmission country. Afghanistan conducted two fall rounds of NIDs after the crisis of September 11 and the withdrawal of international staff from the country. The post-September 11 hostilities significantly disrupted AFP surveillance in several regions as international and national staff were evacuated or relocated from surveillance and reporting sites and U.N. flights for specimen transportation ceased. The immediate program priority is to rapidly reestablish the AFP surveillance system as areas become accessible. USAID will support this effort.

As one of the 10 remaining polio-endemic countries, **Egypt** poses some particular challenges to polio eradication. In 2001, the Egyptian government requested that a WHO technical advisory group study Egypt's unique circumstances and outline recommendations to improve program quality and achieve eradication as rapidly as possible. Environmental sampling data have demonstrated that widespread transmission (all governorates tested positive), substantial genetic diversity of the virus, and year-round transmission combine to pose a particular challenge to eradication. These data are in stark contrast to data provided by the suboptimal AFP surveillance system, which exists only in limited geographic transmission areas, suggesting that the system is undoubtedly missing paralytic cases. To address these concerns, in 2001 Egypt conducted three rounds of NIDs and eight more rounds of targeted SNIDs over a 12-month period in high-risk areas of Upper Egypt. These intensified NIDs and other mass campaigns were characterized by detailed microplanning, multisectoral involvement, intensified supervision, greater focus on high-risk areas, and, most importantly, house-to-house vaccine delivery. Monitoring and evaluation activities have demonstrated that these intensified campaigns are very effective in increasing the coverage of children under 5 years of age, and more need to be conducted in high-risk areas. Egypt is an ideal home for the poliovirus and extraordinarily high-quality program performance is needed to eradicate the disease.

Despite a decline in the intensity of polio transmission, **Pakistan** reported 116 cases in 2001. Supplemental immunization efforts in the country increased. The country conducted a three-round spring campaign, followed by SNIDs in high-risk districts and a two-round fall campaign. **Somalia** and **Sudan**, the region's other endemic countries, conducted four NIDs and SNIDs campaigns. **Iraq** conducted two rounds of NIDs in the spring and two in the fall.

Regional activities for certification of polio eradication are gaining momentum. The Regional Commission for

Certification has received national documentation reports from countries with high-quality AFP surveillance that have not reported any cases of poliomyelitis for several years. The Commission has favorably reviewed reports from Bahrain, Cyprus, Iran, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and the United Arab Emirates. The Commission has begun to implement a regional plan for containment.

Philippine Daily Inquirer, Jan. 27, 2002

A cartoon from the Philippines portrays the Department of Health slaying the polio dragon.

Europe: Certification Delayed by Importations

Containment and surveillance are key challenges in WHO's Europe region as it prepares to become the next certified polio-free region. The 873 million people in the region's 51 countries have been free of indigenous polio for three years. Up to 65 million children under age 5 have been vaccinated each year. Supplemental immunization activities that vaccinated 5.5 million children in the Russian Federation, Tajikistan, Turkey, Turkmenistan, and Uzbekistan received special emphasis. In 2001, 36 of 37 polio laboratories had attained full accreditation status.

Imported cases were detected in Bulgaria and Georgia in 2001, slightly delaying the region's expected polio-free certification. In **Bulgaria**, three polio cases were confirmed in March and April. The outbreak is an example of months-long transmission of imported virus in a country that had been polio-free since 1982. In **Georgia**, polio eradication continues to suffer from the effects of political and economic difficulties. Routine immunization services and surveillance activities are not provided evenly throughout the country. In a district with persistently low immunization coverage, a case of nonparalytic polio was confirmed in an unvaccinated child.

USAID funds supported surveillance visits and supervision; communications and laboratory equipment and services; and transportation for fecal specimen collection. More than 600 field staff and clinicians were trained in workshops in many of the Newly Independent States. Funds from Rotary International and CDC helped teams in Tajikistan, Turkmenistan, and Uzbekistan with surveillance, supervision, and monitoring.

Surveillance in the Europe region is approaching the standards required for certification. Maintaining optimal surveillance performance, however, will require continued training in selected areas and logistical support for supervision and surveillance. WHO's Regional Office for Europe is working with GAVI to provide further funding for such activities. In addition, improvements are needed in communications and data exchange from national and subnational laboratories to EPI personnel, regional laboratories, and AFP surveillance centers.

Western Pacific: Three cVDPV Cases Confirmed in the Philippines

Less than one year after WHO's 37-country Western Pacific region received polio-free certification, three cVDPV-associated AFP cases were reported between March and July in the Philippines. In a rapid and appropriate response to interrupt further transmission, the Philippine government and the Polio Partners implemented a large-scale three-round vaccination campaign. A mop-up activity was conducted on December 8, 2001, followed by a SNID campaign on January 19, 2002, and a NID on February 2, 2002. Seventy percent of the vaccine needed for the mop-up and SNID activities was already in country, and UNICEF provided

Photo: Neal Halsey

Infant in Haiti receives OPV during 2001 NIDs.

14.5 million additional doses. Low routine immunization coverage appears to be an important cause of cVDPV, and social mobilization activities and a high-profile press campaign have stepped up the effort to heighten public awareness of the importance of routine immunization.

Americas: cVDPV Outbreaks Highlight Need to Maintain Immunization Coverage

A vaccine-derived polio outbreak occurred in the **Dominican Republic** (11 confirmed cases) and **Haiti** (one confirmed case) in mid-2000 because of low polio immunization levels. Nineteen cases of paralysis and two deaths resulted from the outbreak. Vaccine-derived virus continued to circulate on the island of Hispaniola with three more cases confirmed in the Dominican Republic and seven in Haiti. NIDs were held in Haiti in March, June, and August 2001, and in the Dominican Republic in May 2001 and January 2002. The outbreak confirmed that vaccine-derived virus can circulate and cause paralysis. It also reaffirmed the need for the global polio eradication strategy to include:

- High polio immunization coverage in all countries until OPV immunization ceases
- Certification-standard AFP surveillance with genetic sequencing of all polioviruses
- Global coordination of the cessation of OPV immunization after certification
- Eventual containment of Sabin strains of the virus

III. Challenges

"The overriding lesson is the need for urgency – urgency to finish the job . . ."

Dr. Gro Harlem Brundtland
WHO Director-General
Ministerial Meeting at the World Health Assembly
May 15, 2001

USAID and its Polio Partners face continuing challenges. All children in polio reservoir countries must be immunized to prevent poliovirus from further circulating and entering neighboring countries. Reaching all children in conflict-ridden countries and regions is an equally serious challenge that requires flexibility and innovative, decentralized approaches. The investigation network must continue to improve and provide high-quality surveillance data pinpointing where poliovirus occurs and originates. The data must then be used to tailor and fine-tune eradication efforts aimed at interrupting polio transmission in remaining high-risk areas.

At the same time, polio-free areas must be kept polio-free through continuing routine immunization coverage. Communities must be mobilized to support both supplemental and routine immunization efforts. A sufficient supply of affordable OPV must be ensured. Each laboratory in the global laboratory network must be fully accredited. The final steps toward certification, virus containment, and possibly ending immunizations must be carefully planned and implemented.

Reaching the "Unreached"

In 2002, the global campaign will focus on fine-tuning supplemental immunization activities so that they become more efficient and effective in applying community-specific innovations – such as use of local guides, extended vaccination hours, and more convenient immunization sites – to contact previously unreached populations. Attitudinal, behavioral, and operational barriers to immunization, and solutions to the problems they pose, must be identified. Community-level microplanning for all NIDs, SNIDs, and mop-up activities emphasizing the child-to-child approach must incorporate such innovations and solutions. Improved social mobilization and collaboration with local political and religious leaders will help increase coverage, as will improvements in vaccinators' interpersonal communication skills. To enhance such efforts, targeted activities in 2002 will seek improvements in community-level technical and administrative capacity. USAID and the Polio Partners will help

Photo: S. Torfinn/WHO

This little boy lives on a small grassy island in the Congo River. By reaching such inaccessible areas, vaccination teams identify children and families for future health services.

Photo: Richard Franco

Logistics workers in India store OPV in coolers for cold-chain transport.

participating organizations improve their planning, build stronger public-private partnerships, and develop and implement better community-level communication and social mobilization activities.

Ensuring the Supply of OPV

OPV must be produced in sufficient quantity and quality, and at an affordable price, so that there are no vaccine shortages. Vaccine supply issues continue to arise as obstacles to immunization campaigns. In 2001, Nigeria and Indonesia were victims of vaccine shortages. In place of a national immunization day, Nigeria was able to conduct SNIDs in only 16 states, and Indonesia had to delay scheduled SNIDs. Improved forecasting of vaccine requirements is also necessary to ensure that adequate supplies are shipped to areas of unexpected polio outbreaks, such as those that occurred in the Philippines and Zambia.

Improving Surveillance

Improved community- and facility-based surveillance are USAID priorities. Making communities aware of the need to report cases of paralysis is a critical part of this effort. Surveillance systems need to target children who do not visit health clinics and establish reliable communication channels, timely stool collections, and effective logistics for transporting stool samples to laboratories. They must communicate laboratory results back to communities for program action and inform families, especially mothers, of the final diagnosis. These tasks can pose major challenges in remote regions with difficult terrain and poor communications and transport. Many countries will continue to need support in improving and maintaining surveillance systems after they achieve polio-free status.

Improving Routine Immunization Rates

USAID is addressing routine immunization coverage at a number of levels. Agency funding for its Boost Immunization Initiative and for GAVI is supporting routine immunization activities. In June 2001, the GAVI Board adopted the 2005 target for achieving a certified polio-free world as a GAVI milestone, thus strengthening the link between polio eradication and routine immunization and enabling countries to capitalize on gains made in polio eradication. USAID is encouraging ICCs to expand their PEI-related activities to include support for routine immunizations and to stress to local partners the importance of promoting routine immunizations during NIDs and social mobilization efforts. A renewed focus on routine immunizations will serve to strengthen the connection between polio eradication and broader activities of health care systems.

Improving and Sustaining Health Systems

Polio eradication has had a great impact on the improvement of health systems management, community relations, social mobilization, and intersectoral collaboration. However, the positive synergies

and linkages between polio eradication and other health programs need to be more vigorously exploited. The lessons of polio eradication need to be applied against diseases such as measles and maternal and neonatal tetanus. Countries can strengthen their health systems by expanding AFP surveillance activities to include other diseases, by conducting vitamin A supplementation during routine immunization contacts, and by including other health services in polio eradication training and supervision. Strengthening and sustaining immunization programs, surveillance systems, and laboratory networks requires a well-defined strategic approach. WHO is developing a transition plan that will provide guidance to and objectives for such an approach. The need is evident to use specific data to measure progress and for ICCs to review and improve tools such as checklists and guides and strengthen linkages among implementing partners. A top priority is sustaining the surveillance infrastructure to detect outbreaks of polio and other diseases well into the future.

Working in Conflict Areas

In five of the 10 endemic countries – Afghanistan, Angola, DR Congo, Somalia, and Sudan – recent or current conflicts have caused massive population movements, weakened or destroyed infrastructure, and threatened immunization workers. Efforts to declare truces or cease-fires on "Days of Tranquility" and establish safe corridors for polio workers and target populations will be needed to help ensure that no children miss being immunized. Such efforts can draw on the past successes of the U.N. Secretary-General, international agencies, and national authorities in cooperatively promoting temporary cease-fires and supporting logistics operations. Among the Polio Partners, WHO, UNICEF, CDC, Rotary, and USAID have brokered cease-fires in the past. Their efforts, and those of others, must continue. When conflict

Photo: VOA

Vaccination efforts in Sudan continue despite the ongoing civil war.

situations arise in countries without a USAID Mission (such as Afghanistan, Somalia, Sri Lanka, and Sudan), USAID can assist through the Polio Partners and local NGOs. USAID and the Polio Partners are also exploring new means of supporting polio eradication in conflict areas. In the past year, cross-border immunization campaigns between Liberia and Sierra Leone and in border areas of Angola, DR Congo, the Republic of Congo, Gabon, and Zambia demonstrated the feasibility of this approach.

Political and Financial Commitment

As polio eradication draws closer, keeping countries focused on the goal of certification is proving to be a greater challenge than expected. Some countries with competing health care priorities have been reluctant to continue their support for supplemental activities targeting small segments of their populations for more than three years. This support is crucial, however, because the wild poliovirus can easily be transmitted back into areas with low immunization levels. Program commitments to routine immunization and ongoing surveillance are also crucial, because low-level polio transmission can continue undetected for more than three years in areas with suboptimal surveillance. As long as poliovirus transmission continues, so too does the risk of reinfection in polio-free areas. Countries must budget for and accelerate eradication activities, establish multisectoral approaches to eradication and surveillance, and be prepared to respond to unexpected polio outbreaks. Many countries, especially the poorest, will require significant funding support. While USAID and the Polio Partners are advocating for increased local commitments of resources from both government and private sources, funding gaps remain. GAVI's adoption of the 2005 milestone for global certification should strengthen international advocacy and fundraising capacity, but WHO still estimates that a minimum of

$275 million in addition to funds already pledged is needed to meet the costs of country-level eradication activities through 2005. Certification- and containment-related activities at the regional and global levels will increase this shortfall. The cost of not meeting these needs is substantial – should all remaining polio-endemic countries have continued transmission into 2003, the cost of eradication will increase by a minimum of $150 million.

Virus Containment

The final step in polio eradication is to contain all hospital, laboratory, and medical sources of poliovirus. Containment committees have been formed in 122 countries to address these issues. Containment efforts begin before eradication, with the identification and inventory of all sources of poliovirus and establishment of biosafety level 2 procedures. One year after the last virus is reported, level 3 procedures will be instituted, and viruses may be transferred to central locations or rendered "noninfectious." After immunizations end, level 4 procedures, the highest safety level for hazardous agents, will be put into effect. These are complex and expensive tasks, especially in developed countries. They are also necessary, because once childhood polio immunizations end, immunity against polio will gradually decline and finally cease. Any chance reintroduction of wild poliovirus into the community from a laboratory, accidentally or intentionally, could then have devastating global effects.

The End of Immunizations

The question of stopping immunizations is receiving careful consideration but is yet unanswered. In 2001, the Global Technical Consultative Group for Poliomyelitis Eradication identified four conditions that must be met with certainty before OPV immunizations can cease: 1) wild poliovirus transmission must have been interrupted; 2) wild virus stocks in laboratories must be appropriately contained; 3) vaccine-derived viruses do not continue to circulate and cause disease; and 4) a global stockpile of vaccine, with a clear strategy for its use, is available if needed.

Uncertainty still surrounds the issues of vaccine-derived polio outbreaks and the world's future vaccine supply requirements. USAID is already supporting research into carriers and shedders of vaccine virus. The mechanism by which vaccine-derived virus becomes virulent circulating virus, and the conditions in which this occurs, must also be determined. The use of inactivated polio vaccine (IPV) would greatly reduce the likelihood of poliovirus being reintroduced into populations, but it has several drawbacks. IPV coverage must be very high – nearly 100 percent – because, unlike OPV, it does not provide "herd" immunity in unimmunized people. Only trained people can administer it, and needle disposal is an issue. It is also more expensive than OPV, with limited manufacturing capacity.

Continuing long-term production of OPV is another important and timely issue as polio vanishes. USAID is work-

ing closely with the Polio Partners, ICCs, and vaccine manufacturers to address OPV production needs in the post-certification era. Manufacturers need information on which to base their plans for continued OPV production following the elimination of wild-type poliovirus transmission. There is a concern that companies will stop producing OPV as they increase production of other more profitable vaccines. In fact, increases in OPV production may be necessary to create vaccine stockpiles for use in responding to outbreaks. The question of how long the protective immunity granted by polio vaccine lasts, even in a polio-free world, also remains unanswered. For the foreseeable future, continued OPV use is recommended.

The costs of the "endgame" of polio eradication are being assessed using possible scenarios and timeframes for stopping immunizations. A global commitment from all Polio Partners and countries to reach a consensus on a coordinated approach is required. Time is needed to collect and analyze data, answer outstanding research questions, and address operational and programmatic considerations. Only then can technical experts, the scientific and medical communities, donors, governments, manufacturers, and other stakeholders reach a well-considered, worldwide consensus on stopping immunizations.

Next Steps

The technical feasibility of interrupting wild poliovirus transmission is well established. If current levels of participation are maintained or, in some cases, accelerated, most chains of transmission will be interrupted by the end of 2002, although it is likely a few countries will still have wild poliovirus transmission in 2003. WHO's Europe region anticipates being eligible for polio-free status in June 2002, pending a final determination of the Regional Commission for Certification. The remaining regions will not be eligible for certification until three years have passed with no recurrence of virologically confirmed wild polio under high levels of surveillance. Once all regions are certified, and after a period of vigilant surveillance, decisions on when and how to discontinue polio immunizations will be determined by the status of laboratory containment activities, occurrences of vaccine-derived polio outbreaks, and other factors.

Eradicating polio will be one of the 21st century's greatest gifts to the world's children. It poses many challenges but will bring significant benefits. It will eliminate the disease and the social and cultural isolation experienced by polio-stricken children and their families. According to WHO, the savings of polio eradication are potentially as high as $1.5 billion annually – funds that could be used to address other public health priorities. In 2002, USAID and the Polio Partners will continue to collaborate in this major investment in global health.

Photo: Ellyn Ogden/USAID

Photo: C. McNab/WHO

A boy in Somalia participates in a social mobilization campaign.

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

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