Overview of Poliomyelitis in the African Region and Current Regional Plan of Action

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The African Region of the World Health Organization includes a diverse membership of 48 countries and territories that has made substantial progress toward controlling poliomyelitis. The coverage with three doses of oral poliovirus vaccine among 1-year-old children reached 58% in 1995, a substantial increase from 49% in 1993, and the incidence of poliomyelitis decreased from 5126 cases in 1980 to 1597 in 1995. To interrupt poliovirus circulation, 29 countries planned to conduct either national immunization days (25 countries) or subnational immunization days (4 countries) during 1996. To ensure the success of these efforts, high-level political commitment has been obtained in many countries, and the campaign to “Kick polio out of Africa” is supported by some of the most respected African politicians. Provided the necessary resources can be obtained from internal and external sources, the African Region may be able to achieve the eradication of poliomyelitis by the year 2000 or shortly thereafter.

In 1985, the members of the Pan American Health Organization adopted the goal of regional elimination of poliomyelitis from the Western Hemisphere by the year 1990 [1]. Following the implementation of the three basic eradication strategies in countries in which polio is endemic—including the achievement and maintenance of high routine immunization coverage with oral poliovirus vaccine (OPV), the use of supplemental immunization activities, including national immunization days (NIDs), and the development of sensitive systems of epidemiologic and laboratory surveillance, including the use of the standard case definition—cases of poliomyelitis decreased rapidly [2, 3]. In 1991, the last case of poliomyelitis associated with wild poliovirus isolation was detected in Peru [4]. In 1994, the region was certified by an international commission as free of wild poliovirus [5, 6].

In 1988, the World Health Assembly, the governing body of the World Health Organization (WHO), adopted the goal of global polio eradication by the year 2000 [7]. The African Region of WHO embraced the goal of regional polio eradication in 1989. This report describes the progress achieved thus far and outlines some of the remaining challenges to achieving the eradication of poliovirus from the African Region by the year 2000.

Background

The African Region of WHO consists of 46 countries and 2 territories. In addition, 7 countries are located in Africa, primarily North and East Africa, but are members of the Eastern Mediterranean Region of WHO.

Poliomyelitis remains endemic in most of the countries of the African Region. However, the reported annual incidence of poliomyelitis cases has declined by ~70%, from ~5126 cases in 1980 to 1597 in 1995 [8] (figures 1 and 2). In 1995, 897 cases (representing 59% of reported cases) were notified by countries in “difficult circumstances” (Angola, Ethiopia, Nigeria, and Zaire). These 4 countries represent 37% of the population of the region. However, by use of population size, vaccination coverage, vaccine efficacy, and poliomyelitis attack rate, it is estimated that 12,000 cases of poliomyelitis continue to occur each year in the region.

Polio outbreaks were reported in Namibia in 1993–1995 [9–11] and the Central African Republic in 1994. The outbreak in Namibia was attributed to the importation of wild poliovirus from neighboring Angola, where polio remains endemic [12]. The largest outbreak ever recorded in the region occurred in Zaire, with >400 cases between April and June 1995.

A total of 11 (23%) of the 48 member countries and territories, constituting 10% of the regional population, reported no polio cases for the last 4–10 years. These countries are mainly small island nations and several countries in southern Africa, where a polio-free zone is emerging.

In 1995, 17 (35%) countries and territories reported at least 75% coverage in children by 1 year of age with three doses of OPV (OPV3). This group of countries represents 17% of the regional population; they are situated primarily in southern and eastern Africa, and several are island nations. These countries are characterized by a good health infrastructure and well-functioning national immunization programs.

Despite the encouraging progress toward polio eradication, especially in southern and eastern Africa, the risk of a poliomy-
elitis outbreak, such as the outbreaks occurring in Namibia in 1993 and 1994-1995, remains high. The current OPV3 coverage of 70%-90% in these countries, combined with an estimated vaccine efficacy with three or four doses of OPV of ~80%-85%, results in a substantial accumulation of susceptible children annually [13, 14].

The WHO Regional Committee for Africa endorsed the global eradication goal at its 39th session in 1989. But it was
only in September 1995 that member governments unanimously adopted a resolution urging them to initiate the implementation of specific eradication strategies, including national immunization days, not later than 1997 [15].

Implementation of Polio Eradication Strategies

Polio eradication will be achieved in the African Region by increasing the levels of routine immunization with OPV, implementing supplemental OPV immunization in the form of NIDs and “mopping-up” activities, and having effective acute flaccid paralysis (AFP) surveillance.

Concept of epidemiologic blocks. The WHO Regional Office developed the concept of an epidemiologic block to ensure that the regional strategies for polio eradication are implemented according to the epidemiologic situation, programmatic needs, and operational realities of each country or geographically contiguous cluster of countries. Each epidemiologic block is formed by countries that share geographic proximity, as well as similar programmatic, epidemiologic, or health infrastructure characteristics. Technical support for country program development is being provided through intercountry Expanded Programme on Immunization (EPI) epidemiologists, under the coordination and direction of the Regional Office.

Routine OPV immunization. In 1995, vaccination coverage with OPV3 among 1-year-olds reached 58%, compared with 54% in 1994 (figure 1). Seventeen countries and territories reported OPV3 coverage levels of ≥75%. Ten countries reported OPV3 coverage levels <50%, compared with 14 countries in 1994.

Further improvements in coverage are expected in several countries, especially in the most populated countries (Ethiopia, Nigeria, Zaire), where access to and use of immunization services have been negatively affected by a variety of causes, mainly the collapse of health delivery systems at the periphery.

Supplemental immunization activities. Supplemental immunization activities were initiated in 1995 with successful implementation of NIDs in Algeria, Mauritania, and Namibia. Angola and South Africa held subnational immunization days (SNIDs) in 1995. Botswana, Tanzania, and Zaire conducted limited supplemental polio immunization as outbreak prevention or response measures.

In the African Region, 29 countries (60%) planned to implement NIDs between June 1996 and January 1997 (figure 3). Of these, 4 countries (Eritrea, Ethiopia, Mozambique, Zaire) are planning to conduct SNIDs in urban areas prior to the implementation of full-scale NIDs in 1997.

The Regional Office developed a guide to assist countries in the development and preparation of their action plans and resource needs for NIDs. A series of planning and follow-up NID workshops and visits of WHO intercountry EPI epidemiologists have been organized to facilitate preparation for NID implementation. Regional coordination meetings are being held to assess the progress of NID preparations.

At the country level, at this writing (mid 1996), most member states planning NIDs in 1996 have already had one or more national level meetings to coordinate activities among the partner organizations involved in planning and implementing the NIDs. In several of these countries, a formal ongoing national Interagency Coordinating Committee has been formed as an outgrowth of the NID planning process, with participation by all EPI partners, such as Rotary International, US Agency for International Development (USAID), UNICEF, WHO, and other organizations (Japan International Cooperation Agency, Danish International Development Agency, French Cooperation Agency, World Bank).

AFP surveillance. Thirty (63%) of the 48 countries and territories of the African Region currently report cases of AFP to the Regional Office. However, 12 countries, mainly those from the southern and eastern African epidemiologic blocks, have established routine AFP reporting and collection of stool specimens from AFP cases. These AFP surveillance activities were introduced in the 12 countries as a result of implementation of surveillance assessments and district level surveillance workshops. Marked progress in AFP surveillance has been achieved in some countries of Africa, particularly in the southern and eastern African epidemiologic blocks. For example, of 35 AFP cases reported in Zimbabwe in 1995, 90% had stool specimens collected from the patients, and no wild poliovirus was isolated. One case was lost to follow-up at 60 days after onset of symptoms and was therefore classified as a case of confirmed poliomyelitis [16].

Several other countries, including South Africa, Tanzania, Togo, Uganda, and Zambia, are in the process of implementing AFP surveillance. In Uganda, most AFP cases with collected stool specimens from the patients were from Kampala and other areas close to Entebbe, where the national reference laboratory is situated. A similar situation has been observed in other countries establishing AFP surveillance, such as Ivory Coast and The Central African Republic, with stool specimens collected mainly from patients residing or seeking care in the capital cities, where the national reference laboratory is generally located.

Laboratory network. Since 1993, training courses have been held in two of the Regional Reference Laboratories (the Noguchi Institute for Medical Research, Accra, Ghana, and the Pasteur Institute, Bangui, Central African Republic) to develop the critical mass of competent laboratory technicians who will provide support to polio surveillance. As of 1995, the regional polio reference laboratory network consisted of three Regional Reference Laboratories (Central African Republic, Ghana, South Africa), four recognized National Reference Laboratories (in Kenya, Uganda, Zambia, and Zimbabwe), and five candidate National Reference Laboratories (one in Senegal, Ivory Coast, and Cameroon, and two in Nigeria).

Achievements and Future Action by Epidemiologic Block

Central block. This group includes 6 countries (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea,
G. The OPV3 coverage in this block averaged 42% in 1995 (ranging from 18% in Chad to 64% in Equatorial Guinea). OPV3 coverage has reached 50% in Cameroon, whose population is almost twice as large as the population in the remaining 5 countries making up this block. Inadequate development of health systems at the district level is one of the main reasons for the low performance of immunization programs in this block. Surveillance activities are largely inadequate, although surveillance can be improved rapidly in the 3 countries where >50% of the population lives in cities. Most of these countries initiated NIDs in 1996.

Countries in difficult situations. This group includes 4 countries (Angola, Ethiopia, Nigeria, Zaire) and represents 37% of the regional population. Civil strife and the withdrawal of donor support have seriously undermined the immunization programs in these countries. Average OPV3 coverage is 37% (with Ethiopia reporting 57%, Zaire 36%, Nigeria 29%, and Angola 23%). Angola conducted two rounds of NIDs in August and September 1996 as part of a series of yearly NIDs that will be pursued over the next few years to interrupt poliovirus circulation. Similarly, Ethiopia conducted SNIDs in 1996 to gain experience for NIDs to be implemented beginning in 1997. Nigeria planned to conduct its first NIDs toward the end of 1996. In 1995, Zaire carried out extensive mass administration of OPV to stop the spread of the large polio outbreak that affected its central regions and conducted SNIDs with OPV involving the capital city and other large cities in 1996. NIDs are planned for implementation starting in 1997. Three of these countries are establishing national reference laboratories to support the surveillance of polio.

Eastern block. This block comprises 7 countries (Burundi, Eritrea, Kenya, Rwanda, Tanzania, Uganda, Zambia). High levels of immunization coverage have been sustained in most countries, particularly Tanzania, Kenya, and Uganda, with an average coverage with OPV3 of 79%. OPV3 coverage ranged from 90% in Rwanda to 35% in Eritrea. Supplemental immunization activities in the form of outbreak immunization response were successfully carried out in Tanzania in 1995. AFP surveillance is under development, especially in Tanzania and Uganda, but does not yet fully meet the demands of the polio eradication program [3, 5, 6, 17]. Two National Reference Laboratories are functional in Kenya and Zambia. Four Eastern block countries (Kenya, Tanzania, Uganda, Zambia) implemented the first of a series of NIDs in 1996 to interrupt the circulation of polioviruses. Surveillance activities will be expanded to involve all districts in AFP surveillance.
Southern block. Eight continental countries and 8 island nations form this block. High levels of immunization coverage and low or zero polio incidence have been achieved in most of these countries. Excluding islands, average OPV3 coverage in this block was 73% in 1995, with the highest figure (98%) reported in Malawi and lowest (57%) in Mozambique. AFP surveillance has reached its optimal level of development in 5 continental countries. One Regional and one National Reference Laboratory are operational. Botswana, Namibia, and South Africa successfully implemented supplemental polio immunization activities in 1995 in the form of either NIDs or SNIDs. Based on available surveillance data suggesting the virtual absence of polio in most countries, indications are that many countries in this block will discontinue NIDs after 1996 and will depend on AFP surveillance to target additional supplemental immunization activities.

Western block. Although a few of the 15 countries in this block have achieved and sustained high immunization coverage, this grouping was based on similar programmatic needs to strengthen and expand routine immunization services at the district level. In 1995, this block recorded an average of 54% coverage with OPV3, with Gambia reporting the highest figure of 97% and Niger 23%. Mauritania and Algeria successfully implemented NIDs in 1995. Seven countries (with mature immunization programs) planned to conduct NIDs in 1996. The remaining countries will be implementing NIDs starting in 1997. AFP surveillance activities were introduced in several of these countries in 1996.

Program Management

In 1995, efforts were pursued to strengthen the management of national immunization programs, with the posting of 7 WHO/EPI medical and technical officers at national and inter-country levels (making a total of 16 EPI staff in the field). In addition, WHO held two “entry-level” training courses for newly appointed National EPI Managers.

Since 1994, a field guide for EPI disease surveillance and control, specific for the region, was developed and used in several countries. Late in 1995, the Regional Office also developed guidelines for supporting countries in their preparations of technical proposals for conducting NIDs. Three intercountry workshops were planned in each epidemiologic block during 1996 to address preparation for NIDs and other specific issues related to EPI development in the epidemiologic blocks.

The Regional Interagency Coordination Committee and Regional Task Force on Immunization in Africa have continued to meet regularly since their creation in 1994. The 1995 annual regional meeting endorsed the plan for implementation of NIDs in 1996.

Social Mobilization and Advocacy for Polio Eradication

After the last session of the Regional Committee, the Regional Director sent to all Health Ministers for their follow-up copies of the resolution agreed upon by all member countries to pursue the implementation of NIDs for polio eradication [15]. The agenda of the 46th session scheduled for September 1996 included a session on the evaluation of implementation of this resolution at country and regional levels.

The Regional Director has established a Committee for a Polio-Free Africa to promote polio eradication activities in countries of the African continent. President Nelson Mandela of South Africa has been invited to become its chairman. Invitations also have been extended to General Amadou Toumani Toure, former Head of State of Mali; Archbishop Desmond Tutu of South Africa; Jimmy Carter, former US President; Salim A. Salim, Secretary General of the Organization of African Unity; Jocelyne Lissouba, First Lady of Congo; Konadu Agyemang Rawlings, First Lady of Ghana; and other prominent figures to participate as members of the committee.

Polio eradication was included in the agenda of the Summit of the Organization of African Unity, which was held in Yaounde during 8–10 July 1996. A declaration and a resolution for support of polio eradication was adopted by heads of state and governments.

A social mobilization campaign called “Kick Polio out of Africa” has been launched to promote NIDs and other polio eradication activities in the African Region. The campaign was scheduled to begin in August 1996 in South Africa with the participation of the members of the Committee for a Polio-Free Africa and other dignitaries. A famous African singer, Koffi Olomide, and “Best Football Player in Africa in 1995,” George Weah, served as Kick Polio out of Africa ambassadors. A campaign logo and other materials have been designed and will be used in African countries to publicize NIDs.

Resource Requirements for Polio Eradication

The estimated needs to support polio eradication in Africa through the year 2000 are US$210 million. These costs include budgets for NID operations, surveillance development, and program management. The 1996 budgets of about US$40 million will be financed by governments, Centers for Disease Control and Prevention, Japan International Cooperation Agency, Rotary International, UNICEF, USAID, and WHO. It is expected that the European donors and other private organizations will join the antipolio coalition.

Comment

The African Region has made substantial progress toward the elimination of polio since WHO resolved in 1988 to eradicate polio worldwide by the year 2000 [8]. Notably, polio is now a rare disease in southern Africa and has been reduced in other countries of the region. However, surveillance is not sufficiently sensitive, nor has the quality been evaluated adequately to determine whether wild poliovirus transmission has been interrupted [18, 19]. Despite serious problems with the
health care delivery infrastructure in many countries of sub-Saharan Africa, some countries have already been able to implement the proven polio eradication strategies [20], and most of the others have made plans to do so during 1996–1997. The African Region plans to strengthen surveillance for polio and conduct NIDs in all countries in the region by the end of 1997. This presents an important challenge for the initiative. Deficiencies in infrastructure for health, communications, and transportation will increase cost and operational difficulties. Low routine immunization coverage with OPV in certain countries may contribute to free circulation of wild polioviruses. To date, most of the costs of the global polio eradication initiative have been borne by the countries themselves. As the eradication initiative accelerates in the poorest and most difficult countries of Africa, a larger percentage of the costs will have to be provided by external sources. If the necessary resources can be obtained, both from the governments of the African countries and from bilateral and multilateral partner organizations that are committed to the polio eradication initiative, the African Region may be able to achieve the eradication of poliomyelitis by the year 2000 or shortly thereafter.

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References