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Polio eradication in the African Region on course despite public health emergencies☆,☆☆,☆☆☆

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ABSTRACT

The World Health Organization, African Region is heading toward eradication of the three types of wild polio virus, from the Region. Cases of wild poliovirus (WPV) types 2 and 3 (WPV2 and WPV3) were last reported in 1998 and 2012, respectively, and WPV1 reported in Nigeria since July 2014 has been the last in the entire Region. This scenario in Nigeria, the only endemic country, marks a remarkable progress. This significant progress is as a result of commitment of key partners in providing the much needed resources, better implementation of strategies, accountability, and innovative approaches. This is taking place in the face of public emergencies and challenges, which overburden health systems of countries and threaten sustainability of health programmes. Outbreak of Ebola and other diseases, insecurity, civil strife and political instability led to displacement of populations and severely affected health service delivery. The goal of eradication is now within reach more than ever before and countries of the region should not relent in their efforts on polio eradication. WHO and partners will redouble their efforts and introduce better approaches to sustain the current momentum and to complete the job. The carefully planned withdrawal of oral polio vaccine type II (OPV2) with an earlier introduction of one dose of inactivated poliovirus vaccine (IPV), in routine immunization, will boost immunity of populations and stop cVDPVs. Environmental surveillance for polio viruses will supplement surveillance for AFP and improve sensitivity of detection of polio viruses.

1. Introduction

Since the World Health Assembly adopted the goal of global polio eradication, efforts have been made by WHO and partners, other stakeholders and national governments in the African Region to reach this goal as quickly as possible [1–5]. Attainment of the goal of eradication rests on four pillars of the GPEI strategy, namely strengthening immunization systems to ensure high coverage with polio vaccines through routine childhood immunization, robust surveillance for AFP, supplementary immunization, and "mop-up" immunizations.

Enormous human, financial and material resources were committed globally to polio eradication, starting in 1988, and with great hopes of achieving the goal by 2000—unfortunately the goal proved elusive. Inadequate political commitment, civil strife, insecurity and a myriad of other challenges undermined operations. The programme had to contend with anti-vaccine campaigns in northern Nigeria, and many other countries, fuelling polio virus transmission, with paralysis of many and the re-establishment of transmission in hitherto liberated zones. This was worsened by the 2012–2013 outbreaks in Somalia and Syria, which signalled technical challenges too [6].

The trend in the early 2000s showed dramatic reduction in number of polio cases, with many countries and continents free from the disease. However, the scenario quickly changed between 2002 and

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☆☆☆ This has not been presented in any meeting as a full manuscript. However, periodic reviews of the trend and epidemiology of polio in the African Region has been present to governing bodies like the Taskforce on Immunization to monitor programme implementation.
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2005, when resurgence and importation occurred in 21 countries globally [7]. At this time success seemed distant, especially with pockets of wild polio virus in several countries in Africa and elsewhere [1]. This reality gave eradication experts cause for concern [8].

In the African Region poliomyelitis was endemic in most of the countries less than two decades ago [5]. In 1995, 897 cases (representing 59% of reported cases) were notified by countries in "difficult circumstances", namely Angola, Ethiopia, Nigeria, and Democratic Republic of Congo (DRC), represented 37% of the population of the region. It was estimated that 12,000 polio cases occurred each year in the region. Polio outbreaks were reported in Namibia in 1993–1995 [8–10] and the Central African Republic in 1994 [5]. The outbreak in Namibia was attributed to the importation of wild poliovirus from neighbouring Angola, where polio remained endemic [11,12]. The largest outbreak ever recorded in the region occurred in DRC with >400 cases between April and June 1995. Only 11 countries and territories, constituting 10% of the region's population, did not report polio cases in the 1990s. These are mainly small island nations and several countries in southern Africa, where a polio-free zone was emerging.

The WHO Regional Committee for Africa endorsed the global eradication goal at its 39th session in 1989. But it was not until September 1995 that governments unanimously adopted a resolution urging them to initiate the implementation of specific eradication strategies, including national immunization days not later than 1997 [13]. Given the seeming resilience of the virus and failure to contain it many years after 2000, some critics argued that though the control of polio through immunization programmes has been a superb public health achievement, it was now time to admit failure. They noted that the additional efforts of the GPEI have been supportive but a mixed blessing for expanded programme on immunization (EPI) [14]. They advocated the development of an exit strategy for the GPEI that should focus on polio control through improved EPI embedded in globally strengthened primary health care. However, a rethink of the process added some innovative strategies into the polio eradication initiative in 2008. This paper reviews the status of polio eradication efforts following the implementation of innovations as part of the eradication strategies in the African Region since 2008.

2. Wild polio virus transmission in the African Region: 2008–2012

The number of cases of WPV reported in all the countries over the period 2008 to 2014 is depicted in Table 1. In 2008, there was a renewed commitment to polio eradication at the regional and the global levels in response to the transmission in the African Region. Between the 2008 and 2012 there was better implementation of core strategies, increased accountability, and implementation of innovative approaches. Oral polio vaccine coverage in targeted age groups rose constantly, indicating greater acceptance of the vaccine, with reduction in the number of cases. Substantial progress was made in the fight against polio in the African Region from 2008 to 2012, with cases of WPV dropping from 912 reported in 2008 in 12 countries to 128 cases in 3 countries. Nigeria, the only endemic country in the Region, accounted for 95.3% (122 of the 128) of the cases in the Region in 2012. Circulation was interrupted in 3 countries with re-established transmission—Angola, the Democratic Republic of the Congo, and Chad by the end of 2012. The 2008–2010 outbreaks in West Africa were rapidly contained. Angola, which had re-established polio transmission in 2011, has remained polio virus free for more than three years now; the Democratic Republic of Congo (DRC) has been polio-free for almost three years and Chad for more than 2 years.

Table 1
Number of wild polio virus in countries of the African Region between 2008 and 2014.

Countries with WPV	Years						
	2008	2009	2010	2011	2012	2013	2014
Angola	29	29	33	5	0	0	0
Benin	6	20	0	0	0	0	0
Burkina Faso	6	15	0	0	0	0	0
Burundi	0	2	0	0	0	0	0
Cameroon	0	3	0	0	0	4	5
Central Africa Republic	3	14	0	4	0	0	0
Chad	37	64	26	132	5	0	0
Congo	0	0	441	1	0	0	0
Cote d'Ivôire	1	26	0	36	0	0	0
Democratic Republic of Congo	5	3	100	93	0	0	0
Ethiopia	3	0	0	0	0	9	1
Equatorial Guinea	0	0	0	0	0	0	5
Gabon	0	0	0	1	0	0	0
Ghana	8	0	0	0	0	0	0
Guinea	0	42	0	3	0	0	0
Kenya	0	19	0	1	0	14	0
Liberia	0	11	2	0	0	0	0
Mali	1	2	4	7	0	0	0
Mauritania	0	13	5	0	0	0	0
Niger	12	15	2	5	1	0	0
Nigeria	798	388	21	62	122	53	6
Senegal	0	0	18	0	0	0	0
Sierra Leone	0	11	1	0	0	0	0
Togo	3	6	0	0	0	0	0
Uganda	0	8	4	0	0	0	0
Total	912	691	657	350	128	80	17

Source: AFP and laboratory for the African Region.

Similarly, the 2010/2011 large outbreak in the Republic of Congo involving mainly adults (331/445) and with very high case fatality rate of around 43% was contained within six months after multiple vaccination rounds with oral polio vaccine of the entire population. This outbreak underscored the need to maintain high vaccination coverage to prevent outbreaks, the need for high-quality surveillance to rapidly identify and respond to any potential cases and the need for continuous risk assessments in polio-free countries [15].

3. Wild polio virus transmission in the African Region 2013–2014

Notwithstanding the progress made from 2008 to 2012, challenges persisted and by 2013 new setbacks emerged. However, polio teams at all levels were relentless in their push against WPV using innovative approaches tailored to the specific challenges being encountered, especially in Nigeria. Considerable progress was made as wild polio virus transmission declined progressively from 2012, and by the end of 2014 the number of reported cases had decreased significantly to only 17 from 4 countries namely; Cameroon, Ethiopia, Equatorial Guinea, and Nigeria (Fig. 1). In Ethiopia only a single case was reported with onset on 5 January 2014. In central Africa, Cameroon and Equatorial Guinea each reported five cases, with onset in the most recent cases on 9 July and 3 May 2014, respectively (Fig. 1). In Nigeria, the only country in which poliomyelitis is endemic, there has been a significant reduction in the number of wild polio cases, with only six reported cases in 2014. By 2014, the landscape of the African Region was again assuming a picture free from polio (Fig. 2).

Between 2013 and 2014, Nigeria achieved an 89% reduction in transmission with just 6 cases of WPV1 reported in 2 states (Kano and Yobe) compared to 53 cases in 9 states in 2013. Geographically the spread of transmission was restricted to just 5 infected local government areas (LGAs) from 27 in 2013, a reduction of 87%. The

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