

# Poliomyelitis Eradication Program in the Philippines

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## ABSTRACT

The countries that belong to the World Health Organization Western Pacific Region (WHO-WPRO) had been certified free of circulating wild polio virus in 2000. This was the result of good concerted efforts by the member countries in maintaining high quality of surveillance and high level of oral polio vaccine 3 (OPV3) immunization. To date, there are only three countries in the world where wild polio virus are still circulating. However, the re-emergence of the wild polio virus in polio-free countries remains a major concern, especially in the Philippines. The Philippines has been downgraded to one of the countries at high risk for polio transmission and importation by the WHO since 2012 because of our failure to meet WHO surveillance standards. This makes our country at risk not only for the re-emergence of circulating wild polio virus, but also for the occurrence of circulating vaccine derived polio virus (cVDPV).

*Key Words: acute flaccid paralysis, wild polio virus, cVDPV, virus importation*

## Introduction

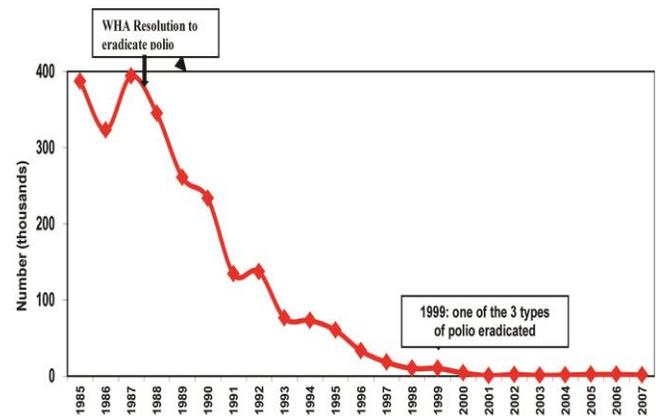
By 2015, the new Global Polio Eradication and Endgame Strategic Plan aims to bring new wild polio cases to zero. Today, there are only three polio-endemic countries in the world, namely Afghanistan, Pakistan and Nigeria.<sup>1</sup> It is therefore imperative that the nations be more vigilant in arresting transmission of the disease.

In the Philippines, eradication activities have relied on three main strategies: immunization coverage via oral polio vaccines (OPVs), national immunization days (NIDs), supplemental immunization activities (SIAs), and reporting of all cases with acute flaccid paralysis (AFP) in children below 15 years of age thru surveillance programs.<sup>2</sup>

The Philippines has been declared polio-free since 2000 but due to declining AFP surveillance performance and low immunization coverage, it continues to be categorized as high risk for poliovirus transmission, together with Papua

New Guinea, starting last 2012 to the present. The threat of the recurrence of circulating vaccine-derived poliovirus, just like what we had in 2001, and the possibility of virus importation from polio-endemic countries, where we have a good number of contract workers, just like what happened in China and Tajikistan, are major concerns for our country. Until polio is eradicated worldwide, polio-free countries and areas remain at risk. Such countries should therefore maintain high levels of routine polio immunization coverage and sensitive AFP surveillance ensuring that each and every child with AFP is adequately investigated for wild polio virus (WPV) and vaccine-derived poliovirus (VDPV).<sup>3</sup>

There has been a dramatic decrease in the number of polio cases since the World Health Assembly's resolution to eradicate polio in 1988. From 1988 to 2007, cases dropped from 350,000 cases of paralysis due to polio to less than 2,000 cases worldwide. Since the last case of indigenous polio in the Western Pacific Region in 1997, it can be easy nowadays to forget how devastating a disease polio really is (Figure 1).<sup>4</sup>



**Figure 1.** Polio Cases in 193 countries from 1985-2007 (Source: WHO Polio 2010 Database in Martin, 2010)<sup>15</sup>

## The Polio Endgame

The new Global Polio Eradication and Endgame Strategic Plan aims to bring new wild polio cases to a halt by 2015 and to entirely eradicate the poliovirus by 2018. With only three countries left, namely, Pakistan, Afghanistan and Nigeria, to which wild poliomyelitis is endemic, eradication has never been this crucial.<sup>1</sup> A significant constituent of this

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effort is the *surveillance of acute flaccid paralysis (AFP)*, the common poliomyelitis manifestation.<sup>2</sup>

**“Acute Flaccid Paralysis”**

WHO defines AFP as a “rapid onset of weakness of an individual’s extremities which may include weakness of muscles of respiration and swallowing, progressing to maximum severity within 1-10 days”.<sup>1</sup> AFP may be due to Guillain-Barré Syndrome, transverse myelitis, enterovirus 71 and poliomyelitis.<sup>5</sup>

**OPV and AFP Surveillance**

AFP Surveillance, one of the WHO key strategies for polio eradication is a laboratory-based detection of poliovirus.<sup>1</sup> Major indicators of an efficient surveillance system include<sup>6</sup>:

- a. reported annual non-polio AFP rate of  $\geq 1$  per 100 000 children below 15 years
- b.  $\geq 80\%$  of AFP cases with adequate stool collection
- c. Non-polio enterovirus isolation from  $\geq 10\%$  of stool specimens
- d.  $\geq 80\%$  of laboratory results reported within 28 days of receipt of specimens

AFP surveillance and immunization have kept poliomyelitis at bay. But since 2008, there was a decline in our national OPV third dose coverage from 91% to 83% (Figure 2). To produce the required herd immunity, at least 95% OPV3 coverage should be achieved. According to the Philippine National Epidemiology Center (NEC), AFP reporting rate has also declined from 1.44 in 2010, to 1.38 in 2011, and further decline noted in 2012 (0.66) and 2013 (0.49), with some improvement in 2014 (0.91). Only 6 out of the 17 regions were able to achieve the AFP rate of 2 per 100 000 children below 15 years old, indicating possible failure of finding true polio cases and impending resurgence of polio cases.<sup>7</sup>



**Figure 2.** OPV1 and OPV3 Coverage, Philippines, 2005-2010 (Source: DOH, n.d.)<sup>16</sup>

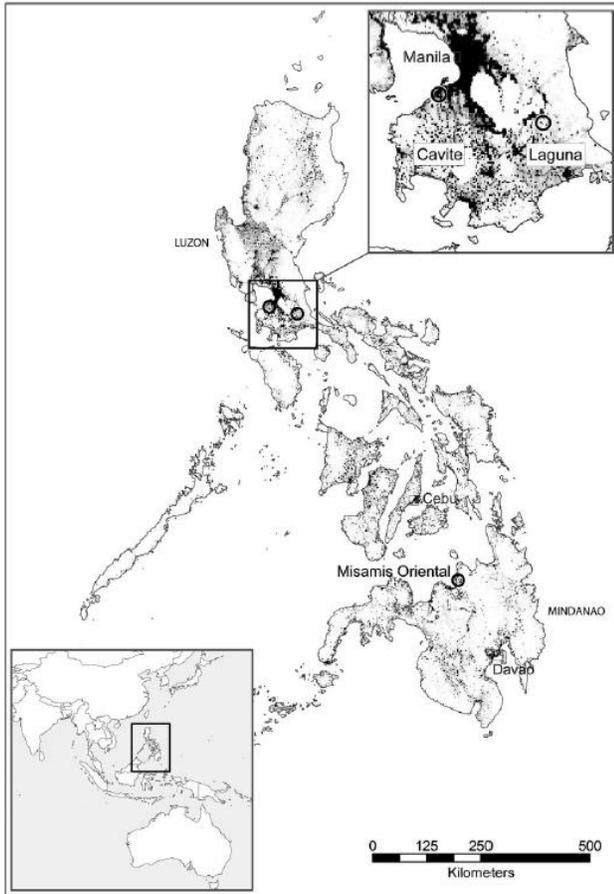
**Status of Polio Immunization in the Philippines**

Routine immunization with OPV began in 1983 while four national immunization days (NIDs) were started in 1992. On the same year, acute flaccid paralysis (AFP) surveillance began.<sup>2</sup> Through the AFP and virologic surveillance improvement, the *last wild polio case was detected in 1993*, bestowing Philippines a *polio-free status on October 29, 2000* by the Regional Certification Commission on Polio Eradication of the Western Pacific Region.<sup>8</sup>

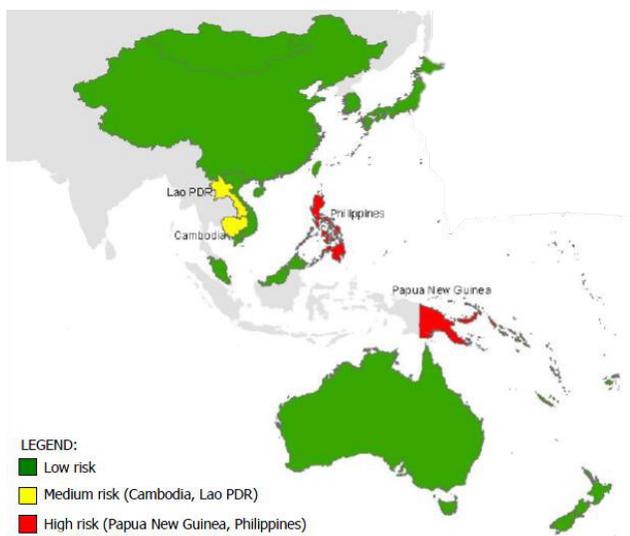
The cornerstone of the World Health Organization (WHO) program for global poliomyelitis eradication is the immunization with oral poliovirus vaccine (OPV). However, paralytic poliomyelitis may occur in areas with population immunity gaps, especially in countries certified to be polio-free. In the Philippines, such gaps occur in areas where high population densities and poor hygiene and sanitation are apparent, coupled by tropical conditions, and aggravated by low immunization coverage. In 2001, a highly-evolved type 1 circulating vaccine-derived poliovirus (cVDPV) was isolated from four different cases (Figure 3): three of which were from AFP-afflicted children, living in Misamis Oriental, Laguna and Cavite, respectively; while the fourth case was from a healthy contact of one of the poliomyelitis patients in Cavite. To contain this problem, the DOH conducted local and nationwide OPV campaigns in December 2001 to March 2002, thus expanding population immunity and arresting cVDPV circulation.<sup>9</sup>

Aside from cVDPV, possible re-emergence of wild poliovirus is a continuous threat. In 2005, outbreaks were recorded in Indonesia. Due to the proximity of Autonomous Region of Muslim Mindanao and Zamboanga City to Indonesia, where population movement is often unmonitored, the region is rendered susceptible for transmission. Moreover, these places belong to the regions of the Philippines with sub-optimal immunization.<sup>10</sup> In 2010, the polio-free European region detected an importation of the virus when an outbreak occurred in Tajikistan with the wild virus traced from India.<sup>11</sup> In 2011, China, which has been polio-free for more than a decade, confirmed a wild poliovirus outbreak with virus importation from Pakistan. Such outbreaks demonstrate the need to maintain high population immunity until polio has been eradicated worldwide.<sup>1</sup>

As of October 23, 2012 and up to the present, the country belongs to the roster of high risk countries in the Western Pacific Region for poliovirus importation (Figure 4).<sup>12</sup> Wild poliovirus could easily be imported in the country via international travels, geographical proximity, and thru overseas Filipino workers coming from the polio endemic countries, as polio can strike at any age; although the World Health Organization (WHO) reports that children under three represent 50% of all cases.<sup>13</sup> There are an estimated 1300 overseas Filipino workers (OFWs) in Pakistan, 7100 in Nigeria and 1700 in Afghanistan.<sup>14</sup>



**Figure 3.** Distribution of acute flaccid paralysis cases associated with type 1 cVDPVs in the Philippines in 2001 (Shimizu *et al.*, 2004)



**Figure 4.** Risk assessment for wild poliovirus importation in the Western Pacific Region (Source: GPEI, 2012)

Risk assessment of the Philippines in terms of wild poliovirus importation is mainly based on inadequate AFP surveillance and also subnational immunization coverage gaps. AFP surveillance should therefore be re-invigorated in all polio-free countries. In 2014, to ensure the success of the country’s polio eradication program, the National Guillain Barre’ Surveillance initiative was launched by the Department of Health (DOH) together with the different medical subspecialty societies, such as the Philippine Neurological Association (PNA), the Philippine Pediatric Society (PPS) and their subspecialty societies.

Eliminating poliovirus in the Philippines has never been this crucial! Every Filipino should be an advocate of the “Polio Eradication Program”. Let this be our great legacy not only to the Filipino children but to the children of the world, and to the future generation! The End Game is near! Let us help make it happen!

**Acknowledgments**

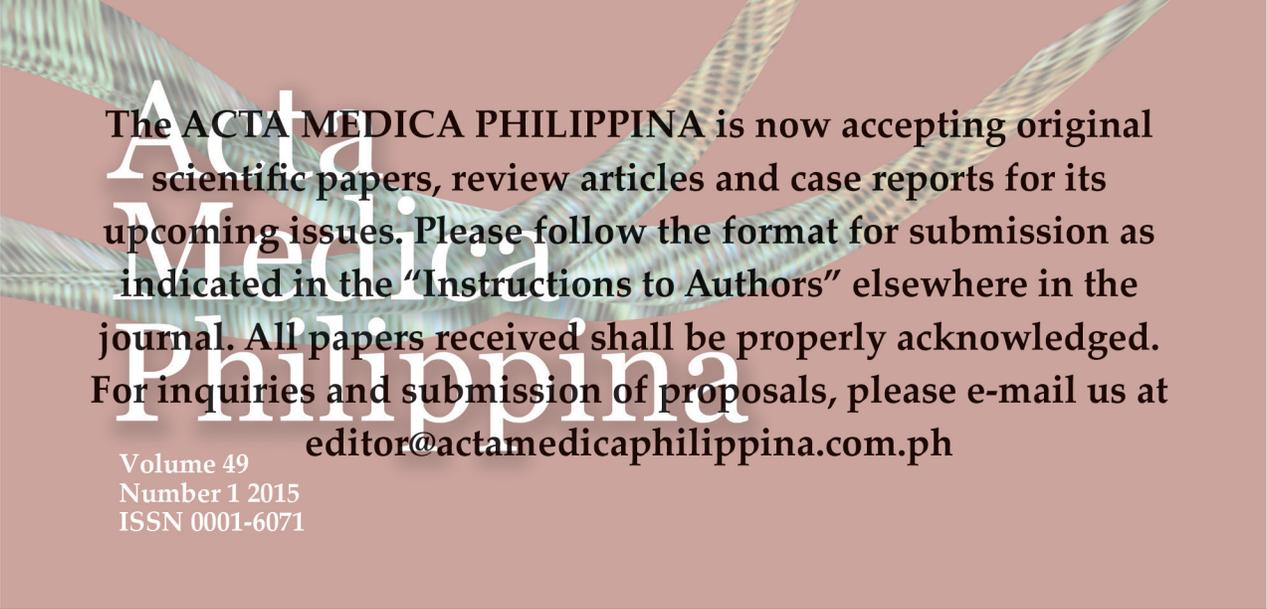
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