EPI POLIO GLOBAL ERADICATION INITIATIVE

THE POLIO ERADICATION ENDGAME

BRIEF ON IPV INTRODUCTION, OPV WITHDRAWAL AND ROUTINE IMMUNIZATION STRENGTHENING

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PAHO Note: This version includes recommendations from PAHO's Technical Advisory Group on Vaccine-preventable Diseases for the Region of the Americas. Parts of the original text of this document were eliminated or adjusted to align with TAG recommendations.

The *Polio Eradication and Endgame Strategic Plan 2013-2018* was drawn up in response to the May 2012 World Health Assembly declaring the completion of poliovirus eradication to be a programmatic emergency for global public health.

Under this endgame plan to achieve and sustain a polio-free world, the use of oral polio vaccine (OPV) must eventually be stopped worldwide, starting with OPV that contains type 2 poliovirus (OPV type 2). At least one dose of inactivated polio vaccine (IPV) must be introduced as a risk mitigation measure.

The steps involved are:

1. **By end 2015, introduce at least 1 dose of IPV into all routine immunization systems**, at least 6 months before the switch from trivalent oral polio vaccine (tOPV) to bivalent oral polio vaccine (bOPV, containing types 1 and 3 poliovirus).
2. **During 2016, switch from tOPV to bOPV, which does not contain type 2 virus, in routine immunization and polio campaigns.**
3. **Plan for the eventual withdrawal of all OPV.**

The tOPV to bOPV switch is necessary because:

- **No wild poliovirus type 2 has been recorded over the past years and the risk of paralytic polio disease due to the type 2 component of OPV now outweighs its benefits.**
- Since OPV is a live attenuated vaccine, in rare cases it can cause paralytic disease in two ways: as Vaccine Associated Paralytic Poliomyelitis (VAPP) or in outbreaks of circulating Vaccine-Derived Poliovirus (cVDPV). The vast majority of cVDPV outbreaks and a substantial proportion of the total VAPP cases are due to the type 2 component of OPV.
- Replacing tOPV with bOPV is key to ensuring the eradication of type 2 poliovirus.
- The switch from tOPV to bOPV will serve as a 'dry run' for the withdrawal of the other types of OPV.

IPV needs to be introduced on an accelerated timeline so that OPV type 2 can be withdrawn.

- IPV should be introduced at least 6 months before the switch from tOPV to bOPV, i.e., by the end of 2015. Countries using only OPV in their routine immunization programs should be prepared for a switch from tOPV to bOPV in 2016.
- The countries at highest risk for cVDPV emergence, wild poliovirus transmission and importations of either will be prioritized for earliest IPV introduction.
- Introducing at least 1 dose of IPV will ensure that a substantial proportion of the population is protected against type 2 polio after OPV type 2 withdrawal. It will also boost immunity to the remaining type 1 and 3 poliovirus serotypes.
- Introducing IPV will boost population immunity against polio and mitigate paralysis risks in the case of outbreaks by 'priming' the population against type 2 poliovirus and ensuring better immune responses to OPV if needed.
- IPV introduction sets the stage for ending OPV use entirely in 2019-2020.

In the endgame, polio eradication activities and strengthening routine immunization can be mutually beneficial.

- IPV will be introduced through routine immunization delivery systems.
- Strengthening routine immunization is necessary to achieve and maintain high population immunity against polioviruses, especially type 2, after OPV type 2 is withdrawn. The magnitude, number and length of both wild poliovirus (WPV) and cVDPV outbreaks are closely correlated with weaknesses in routine immunization systems.
- This is an opportunity for the global polio eradication initiative to use its infrastructure to contribute more systematically to strengthening routine immunization systems.
- One of the goals is to improve infant routine immunization coverage in a group of focus countries which have some of the lowest routine immunization coverage levels in the world and the greatest proportion of the world's unvaccinated children. The third dose of DTP-containing vaccine will be used to measure routine immunization coverage improvements.

This is a priority area for WHO, GAVI, UNICEF and other key immunization stakeholders, who are mapping out a plan to support countries in introducing IPV and strengthening their routine immunization programmes. Areas of work include:

- **Immunization schedule**
    - A WHO Position Paper on polio vaccines published on 28 February 2014 confirms that WHO no longer recommends an OPV-only vaccination schedule. For all countries using OPV only, at least 1 dose of IPV should be added to the schedule. The paper is available here: http://www.who.int/wer/2014/wer8909.pdf
    - In November 2013, the Strategic Advisory Group of Experts (SAGE) made a formal recommendation on the immunization schedule: for countries to add 1 dose of IPV to their routine schedule.

- In April of 2014, the Pan American Health Organization's (PAHO) Technical Advisory Group on Vaccine-preventable Diseases (TAG) issued the following recommendations for the Region of the Americas:
  - When introducing IPV, countries should consider sequential schedules. Ideally, countries should consider two IPV doses followed by two OPV doses. However, if a country is considering only one IPV dose, this should be with the first DTP dose and followed by three OPV doses.
  - Countries should not consider moving directly to an IPV only schedule at this time, unless they meet the criteria previously recommended by TAG and WHO (low risk of transmission and importation, high homogeneous coverage, and good sanitation).

Vaccination Schedule recommended for the introduction of inactivated poliovirus vaccine (IPV) in combination with the oral poliovirus vaccine (OPV).

Schedule	Basic			Booster	
	1st	2ng	3rd	1st	2nd
First option	IPV	IPV	OPV	OPV	OPV
Alternate option	IPV	OPV	OPV	OPV	OPV

This schedule, in addition to preparing the countries for the switch from tOPV to bOPV, has the additional advantage of lowering the incidence of VAPP cases, considering that in our Region; around 50% of VAPP cases are associated with the first dose of OPV and around 20% are associated with the second dose of OPV.