The Readiness Tool

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A risk assessment framework to guide OPV-using countries on their readiness to transition to IPV-only in their routine immunization schedules

Background

In March 2025, the Strategic Advisory Group of Experts on Immunization (SAGE) of the WHO endorsed the methodology of the 'Readiness Tool'.[1] The 'Readiness Tool' is a risk assessment framework to guide OPV-using countries deciding whether to transition to IPV only routine immunization (RI) schedules in advance of global bOPV cessation. The outcome of the risk assessment is to classify each OPV-using country as having 'high', 'medium', or 'low' readiness to transition becoming IPV-only in their RI schedules. The framework was developed by Imperial College London in collaboration with the WHO HQ Polio Research team.

Overview of the "Readiness Tool"

In short, the current IPV RI schedule and reported WUENIC national coverage are reviewed and a risk assessment is conducted based on several variables of whether a 'safe' IPV-only transition is likely. The expectation of a 'safe' transition is that while importation of poliovirus and transmission may occur, a low number of poliomyelitis cases may arise, but outbreak response should be rapid and IPV immunity will prevent large numbers of poliomyelitis cases. The risk assessment captures variables associated with poliovirus importation risk; cVDPV1 and cVDPV3 emergence risk; poliovirus transmission efficiency; fragility of a country; time since the introduction of a second IPV dose into the RI schedule; the country's observed poliovirus epidemiology since the trivalent to bivalent OPV Switch in 2016; and if a given country would become an 'IPV-only island' if it transitioned (i.e. if all of its neighbours would be bOPV-using countries). This risk assessment is updated every 6-10 months. The most recent update was in November 2025.

Importantly, a final stage of review is needed following this risk assessment before a country transition to an IPV-only schedule. This includes evaluation of a country's national poliovirus outbreak preparedness and response capacity through clinical acute flaccid paralysis (AFP) and environmental surveillance quality/scope as well as ensuring that the country adheres to a SAGE-recommended IPV schedule of at least three IPV doses. For instance, some countries may be classified as having 'high readiness' but may need to incorporate an extra IPV dose into their schedule if it currently only contains two IPV doses. Furthermore, there may be other factors regions and countries would also like to consider.

Detailed methodology

The variables considered in the framework are detailed below.

WHO SAGE pre-requisites

In the pre-eradication era, SAGE recommends that countries have at least two IPV doses alongside bOPV in the national RI schedule and that countries with WUENIC DTP3 coverage >90% could be considered (**Figure 1**). The risk-scoring is binary on whether these conditions are met or not. Note that SAGE recommends that countries transitioning to IPV-only schedules introduce third IPV dose in their RI schedule.

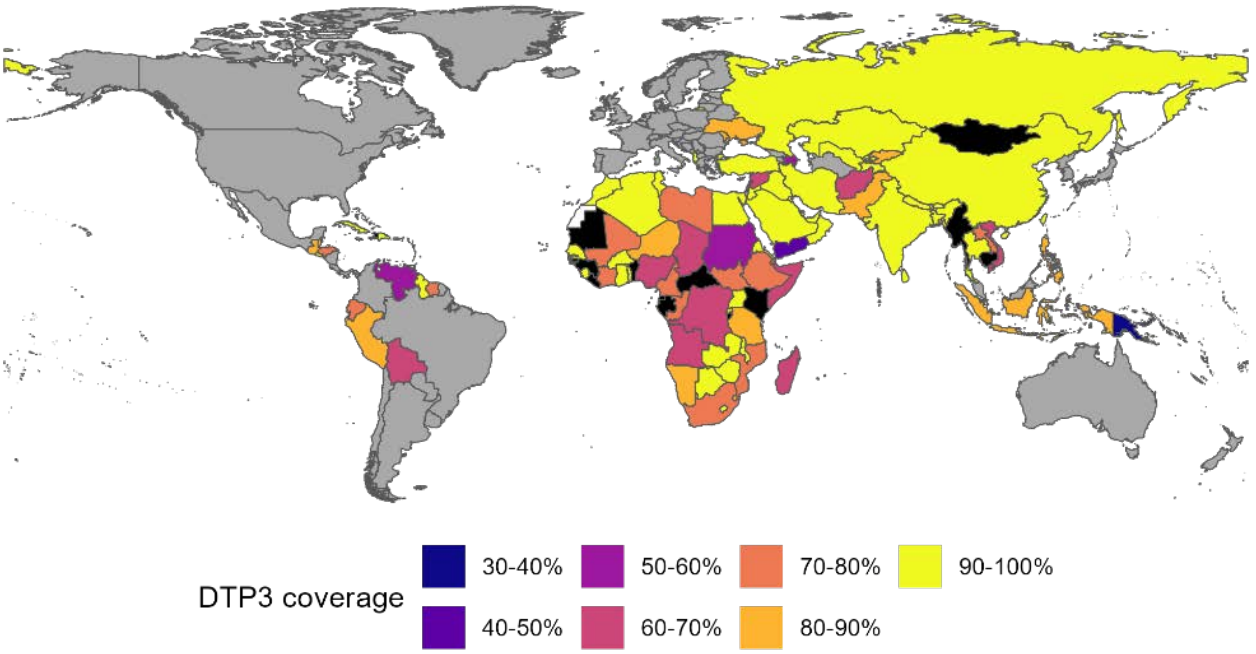

Figure 1. WUENIC DTP3 coverage of OPV-using countries in 2024 with at least two IPV doses in their RI schedules. Grey shading indicates countries that are already IPV-only using countries and black shading indicates countries that are ineligible to transition as they only have one IPV dose in their RI schedule at the time of the risk assessment.

Score representing importation risk of WPV1 and cVDPV1&3

Previous modelling has shown that the number of permanent migrants from WPV1 endemic countries (Pakistan and Afghanistan) living in each country are associated with WPV1 importation.[2] This variable takes the number of permanent migrants[3] (**Figure 2)** and scores high risk if the number is >20,000, medium risk if the number is between 2000 and 20,000, and low risk if it is lower than 2000. Similar models are designed reflecting cVDPV1 and 3 importation risk.

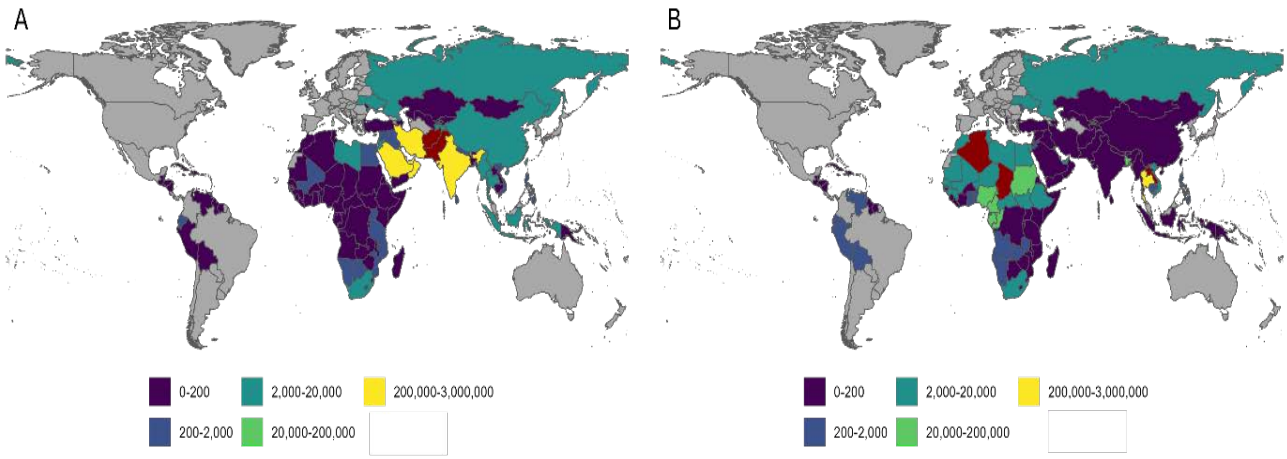

Figure 2. Permanent migration patterns from WPV1 endemic countries (A) and cVDPV1/3 outbreak countries (B). WPV1 endemic countries include Pakistan and Afghanistan (red); cVDPV1/3 outbreak countries include Algeria, Laos, Chad, Djibouti and Israel (red)at the time of the last risk assessment update, November 2025.

Poliovirus Transmission Intensity

Previous modelling has also found under 5 child mortality to be a proxy variable for poliovirus transmission intensity; countries with lower sanitation levels and higher faecal-oral transmission will transmit poliovirus more efficiently[2] (**Figure 3**).

These data may also serve as a proxy for a functioning health system and ability to respond to an outbreak. We score countries at high risk if the UN under 5 child mortality rate is higher than 60 deaths per 1,000 live births, medium risk if it is between 20 and 60 and low risk if it is less than 20.

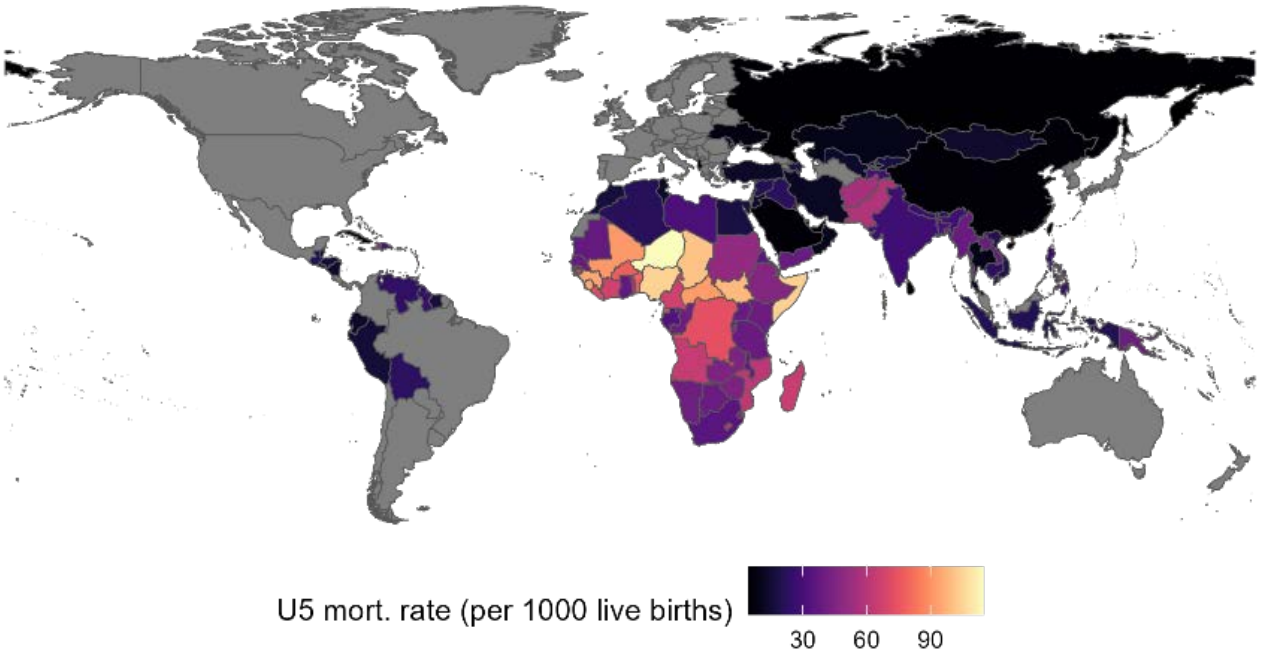

Figure 3. UN national under 5 child mortality rate in 2024.

Emergence risk of cVDPV1 / cVDPV3

A risk model of cVPDV1,3 emergence using variables on population immunity, under 5 population size, under 5 child mortality, and distance to OPV use was developed. This model was fitted to over a decade of data (2010 - 2021) on locations of VDPV emergence and was used to project risk forward in time. We score countries at high, medium, low, and very low risk of emergence.

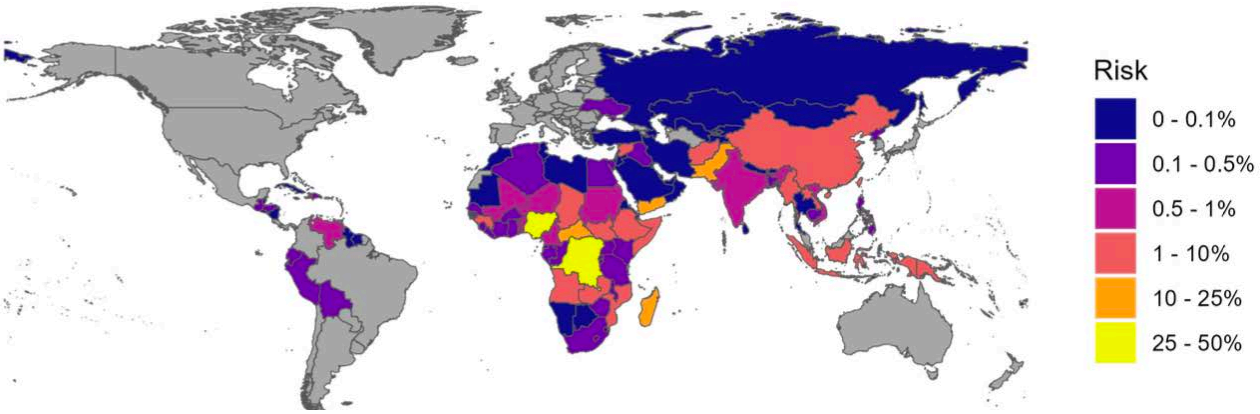

Figure 4. Estimated cVDPV1/3 emergence risk in OPV-using countries

cVDPV2 transmission since the Switch in 2016

We score countries as high risk if they have reported ≥4 cVDPV2 poliomyelitis cases since the switch, medium risk if they have detected transmission but <4 cases, and low risk if there have been no detections. (**Figure 5**)

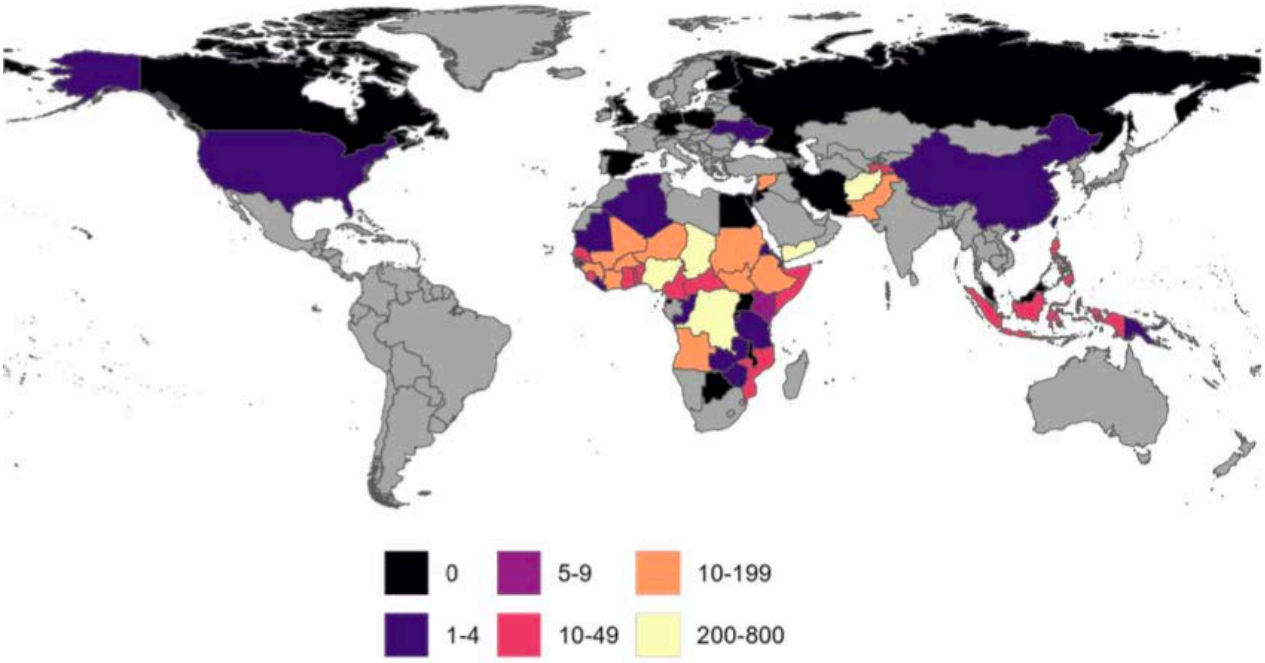

Figure 5. Number of serotype-2 circulating vaccine-derived poliomyelitis (cVDPV2) cases reported since 2016. Grey shading indicates countries where no cVDPV2 detections have been reported whilst countries coloured with '0' reported cases indicate those with silent circulation reported.

Fragility and geographic situation

Countries that are undergoing humanitarian crises will likely have certain cohorts of children with missed immunisation (i.e. coverage gaps) and will possibly experience challenges conducting outbreak response if poliovirus is detected after transitioning to IPV only. We use data from the Inter-Agency Standing Committee, Humanitarian Action Operations indicating if countries have a Humanitarian response plan in 2024 and 2025.[4] If the country is listed to have a humanitarian response plan or flash appeal it is listed as high-risk and otherwise as low risk.

The last factor taken into consideration is geographic situation in terms of avoiding creation of "IPV-only Islands" surrounded by OPV using countries which would represent risk of cVDPV importation. Regional approach is encouraged rather than unilateral decisions by individual countries.

Readiness Tool Outcomes: Definition of IPV-only 'Readiness'

At the end of the assessment, countries are categorised as having high, medium or low 'readiness' to safely transition to an IPV-only schedule.

- Countries are categorised as having 'high' readiness if none of the described measures of risk are high (i.e., importation of WPV1/cVDPV1/cVDPV3, under 5 child mortality rate, cVDPV1/3 emergence risk, cVDPV2 since the Switch, time since IPV2 introduction, and fragility), DTP3 WUENIC coverage is greater than 90%, the country would not become an IPV-only island, and at least two doses of IPV are in the national schedule – noting the requirement of including a third dose of IPV if the country moves to an IPV-only schedule).

- Countries are categorised as having 'low' readiness if they have had cVDPV1, cVDPV3 or WPV1 transmission in the last three years, at least one of the described measures of risk are high, DTP3 WUENIC coverage is <78%, expert review considers the country as 'low' or that national RI schedule only includes 1 IPV dose.
- All other countries have 'medium' readiness.

Please see **Table 1** for the per country outcome based on this assessment as of November 2025 (note biannual updates will be ongoing).

Table 1. Country outcomes of the "Readiness Tool" (most recent version: 2, November 2025)

Country name	WHO region	Readiness	Country name	WHO region	Readiness	Country name	WHO region	Readiness
Cabo Verde	AFRO	High	Nigeria	AFRO	Low	Nauru	WPRO	Low
Seychelles	AFRO	High	Rwanda	AFRO	Low	Philippines	WPRO	Low
Antigua and Barbuda	AMRO	High	Sierra Leone	AFRO	Low	Papua New Guinea	WPRO	Low
Cuba	AMRO	High	South Sudan	AFRO	Low	Solomon Islands	WPRO	Low
Guyana	AMRO	High	Chad	AFRO	Low	Tonga	WPRO	Low
Saint Kitts and Nevis	AMRO	High	Togo	AFRO	Low	Viet Nam	WPRO	Low
Trinidad and Tobago	AMRO	High	United Republic of Tanzania	AFRO	Low	Vanuatu	WPRO	Low
Saint Vincent and the Grenadines	AMRO	High	Uganda	AFRO	Low	Botswana	AFRO	Low
Afghanistan	EMRO	Low	Zambia	AFRO	Low	Gambia	AFRO	Low
Albania	EURO	High	Bolivia (Plurinational State of)	AMRO	Low	Lesotho	AFRO	Low
Kazakhstan	EURO	High	Dominica	AMRO	Low	Mauritania	AFRO	Low
Russian Federation	EURO	High	Dominican Republic	AMRO	Low	Namibia	AFRO	Medium
Uzbekistan	EURO	High	Ecuador	AMRO	Low	Senegal	AFRO	Low
Bhutan	SEARO	Medium	Honduras	AMRO	Low	Sao Tome and Principe	AFRO	Medium
Sri Lanka	SEARO	High	Haiti	AMRO	Low	Eswatini	AFRO	Low
Nepal	SEARO	Medium	Saint Lucia	AMRO	Low	South Africa	AFRO	Medium
Angola	AFRO	Low	Nicaragua	AMRO	Low	Zimbabwe	AFRO	Low
Burundi	AFRO	Low	Suriname	AMRO	Low	Bahamas	AMRO	Medium
Benin	AFRO	Low	Venezuela (Bolivarian Republic of)	AMRO	Low	Belize	AMRO	Medium
Burkina Faso	AFRO	Low	Bahrain	EMRO	Medium	Barbados	AMRO	Medium
Central African Republic	AFRO	Low	Djibouti	EMRO	Low	Grenada	AMRO	Medium
Cote D'Ivoire	AFRO	Low	Egypt	EMRO	Low	Guatemala	AMRO	Medium

Country name	WHO region	Readiness	Country name	WHO region	Readiness	Country name	WHO region	Readiness
Cameroon	AFRO	Low	Iran (Islamic Republic of)	EMRO	Low	Jamaica	AMRO	Medium
Democratic Republic of the Congo	AFRO	Low	Iraq	EMRO	Low	Peru	AMRO	Medium
Congo	AFRO	Low	Jordan	EMRO	Low	El Salvador	AMRO	Low
Comoros	AFRO	Low	Kuwait	EMRO	Low	Saudi Arabia	EMRO	Low
Algeria	AFRO	Low	Lebanon	EMRO	Low	Somalia	EMRO	Low
Eritrea	AFRO	Low	Libya	EMRO	Low	Sudan	EMRO	Low
Ethiopia	AFRO	Low	Morocco	EMRO	Low	Syrian Arab Republic	EMRO	Low
Gabon	AFRO	Low	Oman	EMRO	Low	Tunisia	EMRO	Medium
Ghana	AFRO	Low	Pakistan	EMRO	Low	United Arab Emirates	EMRO	Low
Guinea	AFRO	Low	Qatar	EMRO	Low	Yemen	EMRO	Low
Guinea-Bissau	AFRO	Low	Azerbaijan	EURO	Low	Kyrgyzstan	EURO	Medium
Equatorial Guinea	AFRO	Low	Bangladesh	SEARO	Low	Republic of Moldova	EURO	Medium
Kenya	AFRO	Low	Indonesia	WPRO	Low	Tajikistan	EURO	Medium
Liberia	AFRO	Low	Maldives	SEARO	Low	Turkiye	EURO	Medium
Madagascar	AFRO	Low	Myanmar	SEARO	Low	Ukraine	EURO	Medium
Mali	AFRO	Low	Timor-Leste	SEARO	Low	India	SEARO	Low
Mozambique	AFRO	Low	Cambodia	WPRO	Low	Thailand	SEARO	Medium
Malawi	AFRO	Low	Lao People's Democratic Republic	WPRO	Low	China	WPRO	Medium
Niger	AFRO	Low	Mongolia	WPRO	Low	Kiribati	WPRO	Medium

Conclusion

As of November 2025, thirteen countries are scored to have ‘high’ readiness to transition to IPV-only. The risk assessment will be dynamic over time and updates will be published every six months. Before a country at ‘high’ readiness considers transitioning to an IPV-only schedule, as detailed above, an outbreak detection and response preparedness assessment should be done and at least 3 doses of IPV should be part of the RI schedule. The scoring will be updated every 6 – 10 months.

References

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3. United Nations Population Division. International Migrant Stock. doi: https://www.un.org/development/desa/pd/content/international-migrant-stock https://www.un.org/development/desa/pd/content/international-migrant-stock

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