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This epidemiological update provides additional information on the case of flaccid paralysis with confirmation of vaccine derived poliovirus type 1 recently reported by Peru. The Pan American Health Organization / World Health Organization (PAHO/WHO) reiterates to Member States the importance of continuing efforts to achieve and maintain polio vaccination coverage greater than 95% in each district or municipality to minimize the risk of a poliomyelitis outbreak or event, strengthen epidemiological surveillance of acute flaccid paralysis (AFP) and update national poliovirus outbreak preparedness and response plans to detect and respond promptly and timely to an importation of wild poliovirus or vaccine-derived poliovirus (VDPV), or the emergence of a VDPV in any country of the Region.

Global situation summary

According to the Global Polio Eradication Initiative, 33 countries globally are defined as states infected¹ with different types of polioviruses, including two with endemic transmission of wild poliovirus type 1 (WPV1) during 2023 (Afghanistan and Pakistan) (1).

As of 5 April 2023, four countries are considered infected with WPV1 (Afghanistan, Malawi, Mozambique and Pakistan), four countries with circulating vaccine-derived poliovirus type 1 (cVDPV1) (Madagascar, Mozambique, Malawi, Democratic Republic of Congo), one country with circulating vaccine-derived poliovirus type 3 (cVDPV3) (Israel), and 29 countries with circulating vaccine-derived poliovirus type 2 (cVDPV2) (1).

Situation summary in the Region of the Americas

On 21 March 2023, the National Focal Point (NFP) for the International Health Regulations (IHR) of Peru notified PAHO/WHO of a confirmed case of vaccine-derived poliovirus type 1 (VDPV 1) (3). The case is a child who at the date of onset of symptoms was 14 months old, belonging to an indigenous community in the district of Manseriche in the Datem del Marañón province of the Loreto department, with no history of vaccination or travel history before the onset of symptoms (4).

¹At the last meeting of the International Health Regulations (IHR) Emergency Committee held on 2 February 2023, countries were classified according to the following: States infected with wild poliovirus type 1 (WPV1), circulating vaccine-derived poliovirus type 1 (cVDPV1), or circulating vaccine-derived poliovirus type 3 (cVDPV3); States infected with circulating vaccine-derived poliovirus type 2 (cVDPV2) with or without evidence of local transmission; States that are no longer infected with WPV1 or cVDPV, but remain vulnerable to WPV or cVDPV reinfection. The list of all states in each of these categories is available at: <https://bit.ly/3JETWu> (2).

On 27 December 2022, the case went to a district health center due to persistent fever, on 28 December was referred to the Loreto Regional Hospital, and on 29 December presented with paralysis in the lower limbs for which fecal samples were collected that were sent to the regional reference laboratory. The investigation and clinical evaluation of the case ruled out the possibility of an immunocompromised patient.

The Peru National Institute of Health sent case samples to the regional reference laboratory for polio, the Oswaldo Cruz-Fiocruz Foundation in Brazil (4) for genetic characterization of the virus, which confirmed the detection of vaccine-derived poliovirus serotype 1 (VDPV type 1) by real-time PCR. Confirmation was performed by nucleotide sequencing of the VP1 region of the viral genome.

On 31 March 2023, the Oswaldo Cruz-Fiocruz Foundation in Brazil reported that the complete sequence of the VP1 region of the VDPV1 viral genome showed 31 nucleotides difference compared to Sabin 1 virus (VP1) and was not genetically related to any other VDPV1 previously sequenced, including those currently circulating in countries with cVDPV1 outbreaks. This is a new VDPV1.

According to the information reported by the Peru NFP in relation to the field investigation (5), six native communities have been intervened (Atahualpa, Nuevo Belén, Chapis, Ajashín, Wee, and Palestina) and the capital of the district of Manseriche (Saramiriza), including 689 homes. Within these homes, four asymptomatic contacts of the confirmed case were identified among his relatives. In addition, a case of acute flaccid paralysis (AFP) has been identified in the town of Atahualpa, in a child under 18 months of age, which is still under investigation. A total of 9 fecal samples were collected, including those from the new AFP case, those from the 4 contacts, and others from children without polio vaccine as part of communal surveillance, and 21 environmental samples were obtained. Results are pending.

In the last 4 years Polio3 vaccination coverage in Peru has been <95%, with coverage below 80% reported in: 2020 (71.58%) and 2021 (78.77%). Of the 1,874 districts of the country, 840 (45%) report coverage with Polio3 <80%.

PAHO/WHO reminds Member States that the risk of the emergence of a circulating vaccine-derived poliovirus type 1 (cVDPV1) or circulating vaccine-derived poliovirus type 3 has increased (cVDPV3) due to low vaccination coverage. In addition, there is a continuing risk of importation of a circulating wild poliovirus type 1 (WPV1) or vaccine-derived poliovirus (VDPV), particularly circulating vaccine-derived poliovirus type 2 (cVDPV2). It is important to mention that the countries and territories of the Region have the conditions that would allow transmission to be maintained, mainly due to low vaccination coverage and poorly performing surveillance systems; this situation has been aggravated by the COVID-19 pandemic (6).

This context underscores the importance of maintaining coverage of high and homogeneous vaccination against polio to minimize the risk of poliovirus circulation and the appearance of cases of poliomyelitis and highlights the need for sensitive surveillance systems for the timely detection of an importation of WPV1/VDPV or the emergency of a VDPV.

PAHO/WHO is working with the national authorities of the respective countries to support surveillance, prevention and preparedness efforts.

Guidance for national authorities

PAHO/WHO reiterates to Member States the need to continue efforts to achieve optimal levels of population immunity through high and homogeneous vaccination coverage, and through sensitive epidemiological surveillance that allows the timely detection and investigation of all acute flaccid paralysis (AFP) cases.

Following is a reminder of the considerations on vaccination, surveillance, and outbreak response plans.

Vaccination

The PAHO/WHO Technical Advisory Group (GTA as per its acronym in Spanish) on Vaccine-Preventable Diseases in July 2022 (7) urged countries to achieve 95% coverage with three doses of polio vaccine, and strongly recommended that governments invest resources to achieve and sustain this goal. This vaccination coverage target also applies to IPV1 and IPV2.

In municipalities where vaccination coverage is less than 80%, the routine program should be strengthened and catch-up vaccination activities should be carried out to close the coverage gaps, including the accumulation of those susceptible to type 2 poliovirus mainly due to the late introduction of the IPV2 vaccine.

Countries that have not introduced IPV2 should do so as soon as possible.²

Surveillance

It is important that all countries/territories in the region strengthen surveillance of AFP cases to facilitate a timely response for the detection of an import or emergence of VDPV:

- Detection and reporting of cases of AFP in children under 15 years of age: Train health personnel at all levels in the detection and notification of AFP. The number of AFP cases reported each year is used as an indicator of a country's ability to detect polio. A country's surveillance system must be sensitive enough to detect at least one case of AFP for every 100,000 children under the age of 15 years.
- AFP surveillance should include adolescents and adults in whom poliomyelitis is suspected: These cases should be investigated following the same processes defined in AFP surveillance in children under 15 years of age.
- Collection and transport of stool samples for analysis: At the onset of paralysis, poliomyelitis may be difficult to differentiate from other forms of AFP such as Guillain Barré syndrome (GBS), transverse myelitis, or traumatic neuritis. All cases of AFP in children under 15 years of age, or in persons over 15 years of age with suspected polio, should be investigated within 48 hours of notification and a stool sample must be obtained within 14 days of onset of paralysis for the detection of the presence of poliovirus. Samples must be kept refrigerated (+2 to +8 degrees Celsius) to preserve

² The vaccination schedule recommended by the TAG is available on page 65. Pan American Health Organization. XXVI Meeting of the Technical Advisory Group (GTA) on Vaccine-Preventable Diseases. Vaccines bring us closer, from July 14 to 16, 2021. Washington, DC: PAHO; 2021. Available in Spanish from: <https://bit.ly/3QKN3Jt>.

them in good condition and must arrive at the laboratory within 72 hours of collection. Otherwise, they must be frozen (at -20 degrees Celsius) and then shipped frozen. When it is not possible to collect the case stool sample within 14 days of onset of paralysis, or if the sample does not arrive in suitable conditions to the laboratory, it is recommended to collect stool samples from 3-5 close contacts of the AFP case. These contacts must be under 5 years of age and without recent vaccination history (within the last 30 days) with oral polio vaccine.

- Laboratory confirmation: The sample is inoculated into cell cultures where the virus can infect and replicate. The isolated virus is subsequently typified by molecular assays, starting with RT-PCR to determine the serotype followed by another RT-PCR assay to determine whether it is a wild virus or resembles a vaccine virus, then genetic sequencing tests are performed to confirm the genotype. The genetic sequence obtained is compared with a reference bank of known polioviruses, making it possible to identify whether the virus is genetically related to other previously reported polioviruses. Genetic sequence information allows inferences to be made about the geographic origin of the virus isolated from the sample.

Outbreak response plan

Countries/territories are urged to have an updated outbreak response plan³ aligned with the standard procedures published by WHO in March 2022⁴, to be prepared to respond in a timely manner to a polio event or outbreak.

³ Pan American Health Organization. 14th Meeting of the Regional Commission for the Certification (RCC) of the Polio Endgame in the Region of the Americas – Meeting report 6-8 July 2022. Mexico City: PAHO; 2022. Available from: <https://bit.ly/3ex8xdH>.

⁴ World Health Organization, Global Polio Eradication Initiative. Standard operating procedures. Response to a poliovirus event or outbreak. Version 4. March 2022. Geneva: WHO; 2022. Available from: <https://bit.ly/3GMOeUc>.

References

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7. Pan American Health Organization. IX Ad Hoc Meeting of the PAHO Technical Advisory Group (TAG) On Vaccine-Preventable Diseases, 25 July 2022. Washington, DC: PAHO; 2022. Available from: <https://bit.ly/3Hf3wCy>.

Additional information

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- WHO - Global eradication of wild poliovirus type 3. Available from: <https://bit.ly/33YW8EK>
- WHO - Polio Factsheet. Available from: <https://bit.ly/2m1wqig>
- Global Polio Eradication Initiative - WHO Global Circulating Vaccine-derived Poliovirus (cVDPV) as of 22 March 2022. Available from: <https://bit.ly/39gVSJR>
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- WHO - Statement of the Thirty-second Polio IHR Emergency Committee. Geneva. 24 June 2022. Available from: <https://bit.ly/3B4LX6>
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