



Pan American
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Americas

Epidemiological Update

Detection of a circulating vaccine-derived poliovirus type 2 (VDPV2) in the United States: Considerations for the Region of the Americas

13 September 2022

On 13 September 2022, the United State of America announced that polioviruses found in New York, both from the case of paralytic polio in an unvaccinated adult in Rockland County and in several wastewater samples from communities near the patient's residence, meet the World Health Organization (WHO)'s criteria for circulating vaccine-derived poliovirus (cVDPV). Given this situation, the Pan American Health Organization / World Health Organization (PAHO/WHO) reiterates to Member States the need to join efforts to maintain and strengthen epidemiological surveillance of acute flaccid paralysis (AFP) for the rapid detection of cases, achieve polio vaccination coverage of >95%, and have an up-to-date response plan for polio outbreaks or events.

Situation summary

As a result of surveillance conducted in the United States of America, on 21 July 2022, the New York State Department of Health reported the identification in Rockland County of a case of paralytic poliomyelitis in an unvaccinated immunocompetent 20-year-old male. The patient initially presented with fever, neck stiffness, gastrointestinal symptoms, and limb weakness. Initial sequencing confirmed by the United States Centers for Disease Control and Prevention (CDC) indicated it was a vaccine-derived poliovirus type 2 (VDPV2).¹

The detection of this case prompted the Pan American Health Organization / World Health Organization (PAHO / WHO) to publish an Epidemiological Alert on 21 July 2022² with guidelines for national authorities in the Region of the Americas. On 10 June 2022, PAHO/WHO had warned of the risk of the emergence of vaccine-derived poliovirus and urged Member States to implement effective and timely measures.³

¹ Polio Global Eradication Initiative. Report of polio detection in the US. Statement. 21 July 2022. Available at: <https://bit.ly/3BfTHhi>; Rockland County. Press Release. Case of Polio in Rockland County. 21 July 2022. Available at: <https://bit.ly/3DdodNJ>; New York State, Department of Health. New York State Department of Health and Rockland County Department of Health Alert the Public to A Case of Polio In the County. 21 July 2022. Available at: <https://on.ny.gov/3U1AaMu>

² Epidemiological Alert: Detection of vaccine-derived poliovirus type 2 (VDPV2) in the United States: Implications for the Region of the Americas. 21 July 2022, Washington, D.C.: PAHO/WHO; Available at: <https://bit.ly/3DikBtI>

³ Epidemiological Alert: Poliovirus outbreak risk. 10 June 2022, Washington, D.C.: PAHO/WHO; Available at: <https://bit.ly/3cypDaf>

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On 13 September, the United States Centers for Disease Control and Prevention (US CDC) reported polioviruses detected in environmental samples collected on 3 August and 11 August contained more than five nucleotide changes and that they were related to the case reported in Rockland County. This situation evidences the transmission of the virus and meets the criteria to be classified as circulating VDPV2 (cVDPV2).⁴

PAHO/WHO is working together with the US-CDC to follow up on this event.

Guidance for national authorities

Due to the confirmation of cVDPV2, 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

PAHO/WHO recommends all countries achieve and maintain high levels of polio vaccine coverage ($\geq 95\%$), both nationally and sub nationally. Countries that have not introduced the second dose of polio vaccine (IPV2) should do so as soon as possible.

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 immunity gaps, including the accumulation of those susceptible to type 2 poliovirus due to the late introduction of the IPV2 vaccine.

Surveillance

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

- 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, even in countries where the disease no longer occurs. 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.
- Expand AFP surveillance to adolescents and adults with symptoms consistent with poliomyelitis: These cases should be investigated following the same processes defined for AFP surveillance in children under the age of 15 years.

⁴ US Centers for Disease Control and Prevention. United States confirmed as country with circulating vaccine-derived poliovirus. Media Statement. 13 September 2022. Available at: <https://bit.ly/3eN21jk>

- 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 to preserve 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 stool sample within 14 days of paralysis onset, 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 typed by molecular assays, starting with RT-PCR to determine the serotype and whether it is a wild virus or 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 up-to-date outbreak response plan in place⁵ in line with the standard operating procedures published by WHO in July 2022⁶, in order to be prepared to respond in a timely manner the occurrence of an imported WPV1 or vaccine-derived poliovirus case or to the emergence of vaccine-derived poliovirus.

⁵ PAHO/WHO. 14th Meeting of the Regional Certification Commission (RCC) for the Polio Endgame in the Region of the Americas - Meeting report 6-8 July 2022. Mexico City, Mexico. 8 September 2022. Available at: <https://bit.ly/3ex8xdH>

⁶ Polio Global Eradication Initiative. WHO. Standard Operating Procedures. Responding to a Poliovirus Event or Outbreak. Version 4. March 2022. Available at: <https://polioeradication.org/wp-content/uploads/2022/09/Standard-Operating-Procedures-For-Responding-to-a-Poliovirus-Event-Or-Outbreak-20220905-V4-EN.pdf>

Additional information

- Global Polio Eradication Initiative. Available at: <https://bit.ly/3NFEPQD>
- WHO - Global eradication of wild poliovirus type 3. Available at: <https://bit.ly/33YW8EK>
- WHO - Polio Factsheet. Available at: <https://bit.ly/2m1wajg>
- Global Polio Eradication Initiative - WHO Global Circulating Vaccine-derived Poliovirus (cVDPV) as of 22 March 2022. Available at: <https://bit.ly/39gVSJR>
- WHO - GPEI guidelines on Classification and reporting of VDPV. Available at: <https://bit.ly/3QcmUCB>
- WHO - Statement of the Thirty-first Polio IHR Emergency Committee. Available at: <https://bit.ly/3xoMkEo>
- WHO - Statement of the Thirty-second Polio IHR Emergency Committee. Geneva. 24 June 2022. Available at: <https://bit.ly/3B4LX6>
- Global Polio Eradication Initiative - GPEI: Outbreak Countries. Available at: <https://bit.ly/3xmb4gz>
- Global Polio Eradication Initiative - GPEI: Surveillance. Available at: <https://bit.ly/3zvoucM>
- PAHO/WHO - 13th Meeting of the Regional Certification Commission for the Polio Endgame in the Region of the Americas Report. Available at: <https://bit.ly/3HakAbj>
- PAHO/WHO - Reports of the Technical Advisory Group (TAG) meetings. Available at: <https://bit.ly/3aKuW5p>