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Epidemiological Alert

Detection of Poliovirus (cVDPV3) in wastewater, considerations for the Region of the Americas

14 October 2024

Following the confirmation of circulating vaccine-derived poliovirus type 3 (cVDPV3) detected in wastewater samples collected in French Guiana, the Pan American Health Organization/World Health Organization (PAHO/WHO) reiterates to Member States the importance of achieving and maintaining polio vaccination coverage greater than 95% in each district or municipality to minimize the risk of an outbreak. Additionally, PAHO/WHO emphasizes the need to strengthen epidemiological surveillance of acute flaccid paralysis (AFP) and update national poliovirus outbreak preparedness and response plans. These measures ensure prompt and timely detection and response to the importation of wild poliovirus or vaccine-derived poliovirus (VDPV), or the emergence of VDPV in any country of the Region.

Summary of the situation

On 6 August 2024, the detection of vaccine-derived poliovirus type 3 (VDPV3) in an environmental sample collected in Cayenne, French Guiana, was reported to the Pan American Health Organization / World Health Organization (PAHO/WHO).

According to the report, on 2 August 2024, the Global Specialized Lab (GSL) of the Global Polio Lab Network (GPLN) at the Institut Pasteur in Paris reported to Santé Publique France and the French health authorities the detection of vaccine-derived poliovirus type 3 (VDPV3) in an environmental wastewater sample collected on 26 June 2024 in Cayenne, French Guiana. This sample was collected as part of a research project coordinated by the French research agency for emerging infectious diseases (ANRS-MIE per its acronym in French).

The sample was sent as part of a set of five environmental samples from five collection sites (one in Kourou, one in Cayenne, one in Saint George, and two leaves in Saint Laurent du Maroni), and was received on 8 July by the GPLN's GSL at Institut Pasteur in Paris. Of these, the sample collected in the city of Cayenne on 26 June 2024 tested positive for poliovirus.

The sequencing results confirmed the presence of VDPV3 with 15 mutations in the polio virus protein 1 (VP1) region. Further analysis also showed that this sequence is not genetically related to any previously identified VDPV3 strains, including those that circulated in other countries throughout 2021-2022, suggesting it might not have spread from a known source (1).

Additional samples were collected at the Leblond (Cayenne) wastewater plants and Saint Laurent du Maroni during July and August, respectively. The samples collected on 3 and 31 July tested negative, while the one collected on 6 August at the Morne Coco wastewater plant in Rémire-Montjoly tested positive by molecular techniques at the Institut Pasteur in

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French Guiana. A retrospective sample collected on 15 May 2024 in the city of Saint Georges de l'Oyapock also tested positive with the same molecular method (**Figure 1**). The sequencing results of the two additional sewage samples collected on 15 May and 6 August 2024, processed by the Institut Pasteur of French Guiana, were sent to the Institut Pasteur in Paris, where they were confirmed (1). The GSL also confirmed that the sample collected on 6 August 2024 is also positive by cell culture and genetic sequencing test is pending. The leftover positive sample collected on 15 May, previously stored at Institut Pasteur French Guiana, was destroyed per laboratory containment guidelines.

Figure 1. Geographical distribution of sampling sites and positive samples in French Guiana: Cayenne, Morne Coco, and a retrospective sample in Saint Georges de l'Oyapock water treatment site.



Source: Adapted from data provided by the France International Health Regulations (IHR) National Focal Point (NFP) and reproduced by PAHO/WHO (1).

The results for samples collected in August are pending and expected to be received soon. Sequencing results confirm that the two samples collected at the Morne Coco plant, as well as the retrospective sample from Saint Georges de l'Oyapock mentioned above, are genetically linked to the VDPV3 isolates detected on 26 June 2024. These findings confirm the presence of circulating VDPV3 in French Guiana (1).

As of the latest update, there are no reports of any suspected polio cases being identified in French Guiana.

Poliovirus vaccination is available in French Guiana through the Maternal and Child Protection (PMI) centers, the private sector, and community health prevention and care centers located in isolated areas. Off-site vaccination services are available in informal neighborhoods. A vaccination campaign is being deployed in French Guiana to coincide with European Vaccination Week (last week in April).

Public Health Response (1)

The local health authorities in French Guiana have implemented the following Public Health measures:

- To reinforce poliovirus monitoring, an adapted one-year environmental surveillance protocol is being set up by the regional health agency and the Institut Pasteur of Cayenne with advice of Institut Pasteur of Paris in connection with the recent alert. In France, poliomyelitis is a mandatory notifiable disease since 1936, and notification must be made to the regional health agencies (ARS). Santé Publique France coordinates polio surveillance. Surveillance is based on mandatory reporting of poliomyelitis cases and on a network of volunteer laboratories (since 2000) to strengthen surveillance of the circulation of enteroviruses in the population of mainland France, in collaboration with the National Reference Center for Enteroviruses and Parechovirus. Preliminary work is underway to deploy routine wastewater surveillance for poliovirus in France, including sites in French Guiana.
- Regional health agency informed general practitioners and other relevant healthcare workers to review their patient's vaccination status.
- The regional health agency published a press release regarding the situation.
- At the local level, a state-of-the-art study on available vaccination coverage data is underway.
- An action plan is being consolidated and implemented by regional health agency to respond to this detection of cVDPV3, particularly to inform clinicians and biologists, strengthen clinical and virological surveillance, launch a catch-up vaccination campaign targeting school-aged children and increasing awareness of the population to check and update their vaccination status, and communicate with the general public.

Detailed Information on these findings has been shared with national health authorities via [the International Health Regulations \(IHR\) National Focal Points on 3 October 2024.](#)

Guidance for national authorities

PAHO/WHO reiterates to the 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 (TAG) on Vaccine-Preventable Diseases (2022) and the Regional Certification Commission for the Polio Endgame in the Americas (2023 and

2024) have consistently urged countries to achieve 95% coverage with three doses of polio vaccine (2, 3, 4). It is strongly recommended that governments invest resources to achieve and sustain this goal. This vaccination coverage target also applies to the first and second IPV doses (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.

One country in our region remains to incorporate IPV2 into its immunization schedule; **prompt implementation is advised (4)**.

In situations where under-vaccinated communities are in situations of vulnerability or in hard-to-reach areas, polio vaccination operations (including the co-administration of IPV and OPV) should add the administration of all antigens included in the national immunization program for children younger than five years. These operations should include active case search operations for suspected VPD cases in health facilities and in the community. These actions will minimize the risk of new events or outbreaks and reduce viral transmission where an event or outbreak has already occurred (5).

Surveillance

It is important that all countries/territories in the region strengthen the surveillance of AFP cases to facilitate a timely response for the detection of an importation or emergence of a poliovirus of programmatic interest (i.e., wild poliovirus or cVDPV):

- 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.
- Active case search should be carried out at health facilities and communities (6). If an AFP case is found, it should be notified to the surveillance system and investigated. These active case search can be integrated with other vaccine preventable diseases (7).
- 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 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 preferable 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 viral genotype. The genetic sequence obtained is compared with a reference bank of known polioviruses sequences, making it possible to identify whether the virus is genetically related to other previously reported sequences. Genetic sequence information would allow 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 plan aligned with the most recent standard operating procedures published by WHO currently version 4.0 of March 2022, to be prepared to respond in a timely manner to a polio event or outbreak (4, 8).

References

1. France International Health Regulations National Focal Point (IHR NFP). E-mail information dated 6 August 2024. Paris; 2024. Unpublished.
2. Pan American Health Organization. IX Ad Hoc Meeting of the PAHO Technical Advisory Group (TAG) On Vaccine-Preventable Diseases, 25 July 2022. Washington, D.C.: PAHO; 2022. Available from: <https://iris.paho.org/handle/10665.2/56566>
3. Pan American Health Organization. XXVI Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases. Vaccines bring us closer. Washington, D.C.: PAHO; 2021. Available from: <https://iris.paho.org/handle/10665.2/54833>
4. Pan American Health Organization. 14a Reunión de la Comisión Regional de Certificación (RCC) de la Erradicación de la Poliomielitis en la Región de las Américas: Informe final. Mexico City: PAHO; 2022. Available from: <https://iris.paho.org/handle/10665.2/59379>
5. Pan American Health Organization. X Ad Hoc Meeting of the PAHO Technical Advisory Group (TAG) on Vaccine-Preventable Diseases, 31 May 2023. Washington, D.C.: PAHO; 2023. Available from: <https://iris.paho.org/handle/10665.2/57896>
6. Pan American Health Organization. Poliomyelitis Eradication. Field Guide. Washington, D.C.: PAHO; 2006. Available from: <https://iris.paho.org/handle/10665.2/735>
7. Pan American Health Organization. Orientaciones para la búsqueda activa de casos de parálisis flácida aguda, sarampión y rubéola. Washington, D.C.: PAHO; 2024. Available from: <https://iris.paho.org/handle/10665.2/61108>
8. World Health Organization, Global Polio Eradication Initiative. Standard operating procedures. Response to a poliovirus event or outbreak. Version 4. Geneva: WHO; 2022. Available from: <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

- World Health Organization. Polio Global Eradication Initiative. Geneva; WHO; 2024. Available from: <https://polioeradication.org/>.
- World Health Organization. Global eradication of wild poliovirus type 3. 24 October 2019. Geneva; WHO; 2019. Available from: <https://www.who.int/news-room/feature-stories/detail/two-out-of-three-wild-poliovirus-strains-eradicated>
- World Health Organization. Polio Factsheet. Geneva; WHO; 2024. Available from: https://www.who.int/health-topics/poliomyelitis#tab=tab_1
- World Health Organization. GPEI guidelines on Classification and reporting of VDPV. August 2016. Geneva; WHO; 2016. Available from: https://polioeradication.org/wp-content/uploads/2016/09/Reporting-and-Classification-of-VDPVs_Aug2016_EN.pdf

- World Health Organization. Statement of the Thirty-ninth Meeting of the Polio IHR Emergency Committee. Geneva. 13 August 2024. Geneva; WHO; 2024. Available from: <https://www.who.int/news/item/13-08-2024-statement-of-the-thirty-ninth-meeting-of-the-polio-ihr-emergency-committee>
- World Health Organization. Global Polio Eradication Initiative - GPEI: Outbreak Countries. Geneva; WHO; 2024. Available from: <https://polioeradication.org/where-we-work/polio-outbreak-countries/>.
- World Health Organization. Global Polio Eradication Initiative - GPEI: Surveillance. Geneva; WHO; 2024. Available from: <https://polioeradication.org/who-we-are/strategic-plan-2013-2018/surveillance/>
- PAHO/WHO - 13th Meeting of the Regional Certification Commission for the Polio Endgame in the Region of the Americas Report. December 2021. Washington, D.C.: PAHO/WHO; 2021 Available from: <https://www.paho.org/en/documents/13th-meeting-regional-certification-commission-polio-endgame-region-americas-report>
- PAHO/WHO - Reports of the Technical Advisory Group (TAG) meetings. Washington, D.C.: PAHO/WHO; 2024. Available from: <https://www.paho.org/en/technical-advisory-group-vaccine-preventable-diseases>