



Briefing Note Serial number 2022/050

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Event: Identification of Vaccine Derived Polio Virus type 2 (VDPV2) in London sewage samples

Notified by UKHSA Immunisation and Vaccine Preventable Disease Division
UKHSA Polio Reference Service
National Institute for Biological Standards and Control (NIBSC),
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Background and Interpretation:

This is an update on [Briefing Note 2022/040](#) published on 05/05/2022.

The WHO Global Specialised Polio Laboratory located at the National Institute for Biological Standards and Control (NIBSC) conducts routine environmental surveillance for wild type and vaccine-like polio viruses as part of the UK's commitment to the WHO global polio eradication programme.

Vaccine-like type 2 poliovirus (PV2) isolates were found in sewage samples collected from the London Beckton Sewage Treatment Works between February and June 2022. This sewage treatment plant covers a large catchment area across North and East London and a population close to 4 million.

During this period, as expected, there has been some virus evolution. The virus isolated in the most recent samples contained six and seven VP1 nucleotide changes from the Sabin 2 vaccine strain respectively and therefore is now classified as a vaccine-derived poliovirus (VDPV2).

An average of 1-3 poliovirus isolates per year have been detected from UK sewage samples in recent years. However, these have all been single detections which are unrelated to each other. In this instance, the isolates identified between February and June 2022 are genetically related. This has prompted the need to investigate the extent of transmission of this virus in North East London.

The most likely scenario is that a recently vaccinated individual entered the UK before February 2022 from a country where oral polio vaccine (OPV) has been used for supplementary immunisation campaigns. While the UK stopped using this type of live vaccine in 2004, several countries, including Pakistan, Afghanistan and Nigeria have continued to use OPV containing type 2 virus for [outbreak control](#).

UKHSA [National Polio Guidelines](#) outline public health actions for consideration when one or more vaccine-related poliovirus type 2 [Level 2 (C)] is detected in environmental samples. A national standard incident has been declared by UKHSA and an Incident Management Team established.



Environmental surveillance

NIBSC are carefully analysing London Becton environmental samples both by cell culture and molecular assays and sequencing the virus whole-genome for any relevant genetic markers. The environmental surveillance is being enhanced in an attempt to further localise a targeted geographical area in which to focus interventions.

Clinical and laboratory surveillance

Health professionals are strongly encouraged to fully investigate and report any suspected cases of Acute Flaccid Paralysis / Acute Flaccid Myelitis (AFP/AFM) cases as part of national surveillance for polio. Any patient presenting with acute flaccid paralysis, should:

- i. be reported by calling the UKHSA national duty doctor line (020 8200 4400) between 9am and 5.30pm 7 days a week
- ii. have the following samples collected and sent to the UKHSA Virus Reference Department for poliovirus isolation and further characterization:
 - a. **two stool samples 48 hours apart**
 - b. throat swabs / naso-pharyngeal aspirate (NPA) and
 - c. cerebro-spinal fluid (CSF) (if collected)
- iii. have an enhanced surveillance questionnaire completed by their responsible clinician

In addition, stool samples are encouraged for all acute neurological illness presentations including meningitis. Characterisation of circulating enteroviruses is an essential component of enhanced polio surveillance. Current sample referral levels are low and coverage may not be representative of the present burden of enteroviruses. **Local and regional laboratories should refer all local enterovirus positive samples to the Enteric Virus Unit (EVU).**

Please refer to the [National Polio Guidance](#) for further details.

Polio immunisation coverage

The UK is committed to global polio eradication and key to achieving this is maintaining high vaccine coverage ($\geq 95\%$) in the routine childhood immunisation programme. It is essential to maintain high uptake at the national, regional and local levels in order to reduce the risk of importations (including of vaccine-like poliovirus) leading to transmission in under-vaccinated communities and paralytic presentations occurring.

Communications

The UKHSA has notified WHO and issued two related IHR alerts. A public health alert is being circulated to the NHS via the CAS system which will cover the information in this briefing note. Targeted communications will also be circulated to relevant clinical networks such as local NHS and regional microbiologists and virologists, paediatric neurologists and immunologists. A press notice sharing the findings, current risk level and encouraging the public to ensure routine polio immunisations are up to date has been issued.

Implications and recommendations for UKHSA Regions

UKHSA Regions, particularly Health Protection Teams (HPTs) are asked to share this briefing note with local health services and clinicians, in particular microbiology colleagues and Infectious Disease physicians, Local Authority Directors of Public Health and acute Trusts.

Health Protection Teams should:

- remind hospital clinicians of the need to appropriately investigate all acute neurological illness presentations according to national guidance
- remind local laboratories that:
 - a. they should refer all local enterovirus positive samples to the Enteric Virus Unit
 - b. stool samples are the best sample for the detection of polioviruses, in addition to CSF and respiratory samples for other enteroviruses.



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- c. all enterovirus positive stool samples should be referred to UKHSA Colindale for further typing work

In addition, HPTs should use all available opportunities to highlight the importance of maintaining high vaccine coverage for the routine childhood immunisation programme with local partners, such as Screening and Immunisation Teams / Local Authorities DsPH and Public Health teams / Clinical Commissioning Groups / Integrated Care Systems / primary care health professionals.

Particular actions to focus on are:

- a) the need to catch up children under 5 years who missed out on routine vaccines due to the COVID-19 pandemic. This is particularly important in practices and local authorities where vaccine coverage for the primary DTaP/IPV/Hib/HepB course is below 85%
- b) the importance of primary care colleagues checking newly registered children and adults are up to date with their routine immunisations, especially new migrants, asylum seekers and refugees.

Implications and recommendations for UKHSA sites and services

Consultants in Public Health Infection and Regional Heads of Laboratory Operations are requested to forward this briefing note to their local NHS Laboratories / microbiologists and any clinical colleagues who may be involved in testing for suspected cases of AFP.

In addition, can they remind local laboratories that:

- a. they should refer all local enterovirus positive samples to the Enteric Virus Unit
- b. stool samples are the best sample for the detection of polioviruses, in addition to CSF and respiratory samples for other enteroviruses

Implications and recommendations for local authorities

All LAs should work with local partners to highlight the need to:

- a) catch up children who missed out on their routine immunisations due to the COVID-19 pandemic. This is particularly important in practices and local authorities where vaccine coverage for the primary DTaP/IPV/Hib/HepB course is below 85% UKHSA Briefing Note Issued
- b) check newly registered children and adults are up to date with their routine immunisations with a particular emphasis on new migrants, asylum seekers and refugees.

The National IMT, in liaison with the NHS and other partners is developing plans for targeted IPV catch-up in London.

References/ Sources of information

1. UKHSA National Polio Guidelines: <https://www.gov.uk/government/publications/polio-national-guidelines>
2. Acute Flaccid Paralysis/ Acute Flaccid Myelitis guidance is available here: <https://www.gov.uk/government/collections/acute-flaccid-paralysis-syndrome>
 - a. How to report cases of acute flaccid paralysis/ acute flaccid myelitis (including advice on samples to be collected and submitted for investigation)
 - b. Information for management of case patients (including infection control advice)
 - c. Surveillance forms for prospective and retrospective notification (and a link to online select survey form)
 - d. Information for patients