# Immediate actions in response to detection of a 'circulating' vaccine derived polio virus type 2 (VDPV2) in London sewage samples

Immediate actions for the NHS:

**A. Polio clinical and laboratory surveillance**

Regulation 2(1)(b) of the Health Protection (Notification) Regulations 2010 place a duty on registered medical practitioners (RMPs) to report any suspected infections that present or could present significant harm to human health. This covers reporting of acute flaccid paralysis and acute flaccid myelitis (AFP/AFM) not explained by a non-infectious cause. In addition, under Schedule 1 of the Health Protection (Notification) Regulations 2010, suspected cases of acute poliomyelitis are notifiable.

Where AFP/AFM cases are not explained by a non-infectious cause, appropriate microbiological testing to exclude polio as a causative agent is an integral component of clinical management and polio surveillance.

**Case definition:** acute flaccid paralysis/myelitis is characterised by rapid onset of weakness of an individual's extremities, often including weakness of the muscles of respiration and swallowing, progressing to maximum severity within 10 days. The term 'flaccid' indicates weakness accompanied by hyporeflexia or areflexia in the affected limb(s).

**Clinicians should perform the following actions** for patients meeting the above case definition:

i. report the case of AFP/AFM to your local Health Protection Team by telephone during working hours (same day/ next day)
ii. inform your local virology/ microbiology on call clinician
iii. collect the following samples and send to the UKHSA Virus Reference Department for poliovirus isolation and further characterisation via your local laboratory – see full details in AFP/AFM guidance:
    a. 2 stool samples 48 hours apart
    b. throat swabs / nasopharyngeal aspirate (NPA) and
    c. cerebrospinal fluid (CSF) (if collected)
iv. complete an enhanced surveillance questionnaire and email it to phe.afp@nhs.net
v. in addition, testing stool samples for enteroviruses is indicated for all acute neurological illness presentations including meningitis – see national polio guidance.

Local and Regional NHS, Independent Sector and UKHSA Laboratories and Virologists/ Microbiologists should:

i. have a local standard operating procedure to ensure that the correct samples (listed above), for detection of polio and non-polio enteroviruses, are collected from all suspected cases of

AFP/AFM not expaliend by a non-infectious cause, and sent promptly to the UKHSA Virus Reference Department

ii. refer all local enterovirus positive samples (from all patients) to the Enteric Virus Unit (EVU) for further characterisation

**B. Polio vaccination check and offer**

Primary care colleagues and school aged immunisation providers should:

- opportunistically check that patients are up to date with their polio-containing vaccines and provide catch-up vaccination to anyone who is un/under vaccinated. This is particularly important in practices where vaccine coverage for the primary DTaP/IPV/Hib/HepB course is below 85%
- check immunisation status of newly registered children and adults with a particular emphasis on new migrants, asylum seekers and refugees and administer vaccines to bring them up to date with the UK schedule at the earliest opportunity

In London an Inactivated Polio Vaccine (IPV) Booster campaign has been launched targeting children aged 1 to 9 years of age.

**Background and interpretation**

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 in multiple 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, the virus has evolved and now meets the classification of a vaccine-derived poliovirus (VDPV2), which means that it can cause paralysis in unvaccinated individuals.

An average of 1 to 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 are genetically related which has prompted the need to investigate the extent of transmission of this virus in Northeast 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 OPV in 2004, several countries, including Pakistan, Afghanistan and Nigeria have continued to use OPV containing type 2 virus for outbreak control.

A national enhanced incident response has been declared by UKHSA and an Incident Management Team established. The World Health Organization (WHO) has now formally confirmed that the UK has a 'circulating' VDPV2 based on the detection of the same isolate for more than 60 days, and evidence that the virus detected in London is genetically linked to the poliovirus detected in Israel and the US.

UKHSA National Polio Guidelines outline public health actions for consideration when a 'circulating' vaccine-derived poliovirus type 2 [Level 3 (A)] is detected in environmental samples.

The environmental surveillance has been expanded in an attempt to assess the extent of VDPV2 transmission in and outside of London.

**Polio immunisation coverage**

The UK is committed to global polio eradication and key to achieving this is maintaining high vaccine coverage (>= 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.

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