



UK Health
Security
Agency

Polio vaccine booster campaign launched in London in response to detection of poliovirus in sewage

Briefing pack for UKHSA stakeholders
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What has happened?

On June 22 the UKHSA announced that, working with the MHRA, it had identified poliovirus type 2 (PV2) in sewage samples collected from the London Beckton Sewage Treatment Works between February and June.

The virus had evolved to a 'vaccine-derived' poliovirus type 2 (VDPV2), which on rare occasions can cause serious illness, such as paralysis, in people who are not fully vaccinated.

The detection of a VDPV2 suggested that there has been some spread between closely-linked individuals in north and east London who were shedding the type 2 poliovirus in their faeces.

The virus has only been detected in sewage samples and no associated cases of paralysis have been reported.

A public health message was cascaded to health professionals through the CAS Alert system reminding them to report and investigate all suspected cases of acute flaccid paralysis due to an infectious cause.

NHS London started an active call-recall of un/under-vaccinated children aged less than 5 years. All areas were asked to strengthen plans to improve uptake of the routine childhood immunisation programme and catch-up children who missed out.

New findings

Further sewage sampling has identified at least one positive sample of the poliovirus currently present in the sewage of these London boroughs:

Barnet, Brent, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest.

The level of virus found and the high genetic diversity among the isolates suggests some level of virus transmission in these boroughs which may extend to adjacent areas.

It suggests that transmission has gone beyond a close network of a few individuals.

In addition, a there is a potential genetic link has been identified between type 2 polioviruses detected in London, the USA and Israel which is being further investigated.

What is being announced tomorrow?

All children in London aged one to nine will be offered an additional dose of polio vaccine as an urgent incident response measure.

That will be either an extra, booster dose or just to bring them up to date with their routine vaccinations.

Sewage sampling has been stepped-up across London – with plans to sample several other sites across England.

No patients have been diagnosed with polio. The risks to the general population are still assessed as low due to high vaccine coverage rates overall.

JCVI advice and London polio vaccine booster rollout

The Joint Committee on Vaccination and Immunisation (JCVI) has advised that an inactivated polio vaccine (IPV) booster dose should be urgently offered to all children aged one to nine in London.

This will help ensure that there is a high level of protection from paralysis and interrupt transmission.

The aim is to:

- prevent cases of paralysis due to poliovirus
- interrupt transmission of Vaccine Derived Polio Virus type 2 (VDPV2) in the community

The NHS in London will contact parents when it's their child's turn to come forward for a booster or catch-up polio dose.

The programme will start with the areas most impacted where the poliovirus is being transmitted which also have some of the lowest vaccination rates. This will be followed by rollout across all boroughs.

NHS London – polio booster delivery

There will be a multi-pronged approach to the booster offer and delivery in London – with most of the vaccinations being offered through general practice, with additional support from other providers as agreed for each borough.

This will be supported by targeted outreach to under-vaccinated communities.

NHSE London is working with Integrated Care Boards, local authorities and community organisations to ensure an equitable approach to the campaign offer, in line with the needs of local communities.

The booster campaign will be evaluated and JCVI will review evidence and consider whether further action may be needed.

Outside of London - messages

The message for families is to check their children's Personal Child Health Record (or "Red Book") and if they are not up to date to catch their children up as soon as possible.

Local health economy partners should work together to ensure high uptake in the routine childhood immunisation programme, and robust catch-up of children who have missed out.

It is essential all areas have robust interventions in place to improve uptake in under-vaccinated communities and reduce inequalities in uptake.

GP practices should also check that 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 offer of polio, MMR and many other vaccinations is evergreen, and anyone who is not up to date with their immunisations should contact their GP surgery to catch-up.

Sewage findings: what do we know?

The London Beckton Sewage Works covers a population close to 4 million across north and east London.

Some 116 type 2 poliovirus isolates have been identified in 19 sewage samples collected between 8 February and 5 July. Most isolates are vaccine-like and only a few have sufficient mutations to be classified as vaccine-derived poliovirus.

All isolates are related to the Sabin 2 vaccine strain and show the same genetic structure, which suggests a common origin.

Why is vaccine-derived poliovirus in sewage?

In countries where polio still circulates the oral polio vaccine (OPV) is used as it is more effective at controlling transmission and outbreaks.

OPV contains a weakened live virus which grows in the gut. It can be shed in faeces for a few weeks after vaccination.

People vaccinated with OPV can pass it on to close contacts, mainly through inadequate hand hygiene. OPVs tendency to spread is, in some circumstances, a desired characteristic to help spread immunity.

In communities with low vaccination uptake, the OPV virus spread can be prolonged. Over time the virus will eventually mutate and re-acquires some properties of the natural polio virus which allow it to cause harm (paralysis).

Polio vaccines

There are two types of polio vaccine: Oral polio vaccine (OPV) and Inactivated Polio Vaccine (IPV). The latter is part of the UK's routine vaccination schedule.

The UK is considered to be polio-free with low-risk for transmission from importations. However, there has been a decline in vaccine coverage for most childhood immunisation programmes over the past decade; made worse by COVID-19 disruption.

Vaccine coverage for some groups in England is well below the 95% WHO target.

In London it is consistently below 95%.

How often is virus detected in sewage?

Finding between one and three 'vaccine-like' polioviruses each year in routine UK sewage samples is normal.

These are one-offs from individuals vaccinated overseas with OPV, who have then travelled to the UK and briefly 'shed' traces of the vaccine-like poliovirus.

But this type 2 poliovirus has persisted in the sewage in London since February and has now evolved to a 'vaccine-derived' poliovirus type 2.

VDPV2 is of greater concern as it behaves more like naturally occurring 'wild' polio and may, on rare occasions, lead to cases of paralysis in unvaccinated individuals.

Recent history of polio

‘Wild’ polio was last contracted in the UK in 1984. The UK was declared polio-free in 2003.

A polio case was diagnosed in New York last month in an unvaccinated adult male who developed paralysis.

The Global Polio Laboratory Network confirmed that the VDPV2 isolated from the case is genetically linked to two Sabin-like type 2 isolates, collected from environmental samples in early June in both New York and greater Jerusalem, Israel, as well as to the recently detected VDPV2 from environmental samples in London.

Mild case symptoms

Most people with polio won't have symptoms.

A small number will experience a flu-like illness 5 to 21 days after infection.

The early symptoms are the same as a wide range of more common viral infections and include fever, sore throat, headache, abdominal pain, aching muscles, nausea and vomiting

Symptoms usually pass within a week without medical intervention.

More serious outcomes

In between 1/100 to 1/1,000 infections, the virus attacks the nerves in the spine and base of the brain. This can cause paralysis, usually in the legs, which develops over hours or days.

If the breathing muscles are affected, it can be life threatening.

There is no treatment specifically for polio; it can only be prevented by immunisation.

Before the introduction of the routine immunisation programme for polio about 8,000 cases of paralytic polio were diagnosed in the UK in epidemic years.