Acute Flaccid Paralysis (AFP) Surveillance

What is it and why are we doing it?

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Acute Flaccid Paralysis (AFP) Surveillance

Nationwide AFP (acute flaccid paralysis) surveillance is the gold standard for detecting cases of poliomyelitis. The four steps of surveillance are:

1. finding and reporting children with acute flaccid paralysis (AFP)
2. obtaining and sending stool and throat samples to the NVRL for analysis
3. isolating and identifying poliovirus in the laboratory
4. mapping the virus to determine the origin of the virus strain.

The HSE-HPSC, in collaboration with the National Virus Reference Laboratory (NVRL), requests that all hospital paediatricians investigate and report all AFP cases in children <15 years of age in order to identify the cause of paralysis so that polio can be excluded.

Background

The global effort to eradicate polio has become the largest public health initiative in history and is spearheaded by the World Health Organisation (WHO). Polio is one of only a limited number of diseases that can be eradicated. This is because polio only affects humans, an effective, inexpensive vaccine is available and immunity is life-long. Usually humans, even if infected, do not carry the virus for long-term, there is no animal or insect reservoir and the virus can only survive for a short time in the environment.

The maximum benefits of this global eradication of polio will only be realised when immunisation against poliovirus will no longer be required. Prior to stopping polio immunisation it will be necessary to certify the absence of wild poliovirus circulation from every country in the world. A strategic plan has been developed by the Global Polio Eradication Initiative (GPEI) in consultation with national health authorities, global health initiatives, scientific experts, donors and other stakeholders, in response to a directive of the World Health Assembly. The Polio Eradication and Endgame Strategic Plan 2013–2018 has four main objectives:

1. Detect and interrupt all poliovirus transmission

2. Strengthen immunization systems and withdraw oral polio vaccine

3. Contain poliovirus and certify interruption of transmission

4. Plan polio's legacy

Non-polio AFP Surveillance

Acute flaccid, or floppy, paralysis is defined as any case of new onset of hypotonic weakness in a child aged less than 15 years of age. This includes possible illness due to Guillian-Barré syndrome, transverse myelitis, traumatic neuritis, viral infections caused by other enteroviruses, toxins and tumours. Isolated facial paralysis is not included. In the early stages of the disease polio may be difficult to differentiate from other forms of AFP. Therefore, to insure that no case of polio goes undetected surveillance targets a symptom (AFP) rather than a specific disease (e.g. polio).

AFP surveillance is the intelligence network that underpins the entire eradication initiative. The objective of AFP surveillance is to detect poliovirus wherever it may still circulate. It is also the key to detecting re-importation of poliovirus into polio-free areas. The quality of AFP surveillance forms the basis of the documentation needed for certification of polio-free status. Without high quality surveillance, it is impossible to prove the successful interruption of wild poliovirus transmission.

Ireland was certified polio free (together with the other countries in the European region) in 2002.

At least one case of non-polio AFP is expected for every 100,000 children under-15 years of age. Therefore in Ireland in 2019 we expect to see approximately 10 cases each year in this age group.

AFP surveillance in the Republic of Ireland - 2018

Since 2012 AFP surveillance in Ireland is voluntary. However, all clinicians are requested to report any child <15 years of age who is investigated for AFP (regardless of cause) to HPSC. HPSC, together with the NVRL and clinicians seeks to maintain informal AFP surveillance at certification standard. Each year the National Polio Elimination Committee review AFP cases reported in the previous year. In 2018, six cases of AFP in children < 15 years of age were reported to HPSC. This is substantially less than expected and suggests under-reporting of AFP to HPSC. None of the cases were attributed to polio virus.

What is needed for AFP surveillance?

The NVRL is the laboratory for all virological samples associated with AFP investigation. All AFP cases being investigated should have the following samples obtained and sent to the NVRL:

1. Stool samples (two samples, 24 hours apart, within two weeks of paralysis onset) and
2. Throat or nasopharyngeal swab

An AFP surveillance form should be completed and sent to HPSC immediately. HPSC will follow up with the clinician for further information if needed. Information collected includes clinical, diagnostic, vaccination and virological information.

Note: A patient of any age, presenting with AFP and who has a history of travel to areas where polio virus transmission has been reported, should be notified immediately to the local Medical Officer of Health and HPSC.

Key points in AFP surveillance

(1) **Surveillance should be sensitive enough to detect at least one case of non-polio AFP for every 100,000 children under-15 years of age.** This parameter is used as a measure of the sensitivity of the surveillance system in operation in each country.

(2) **At least two stool samples, taken 24 hours apart and within 14 days of the onset of illness should be collected from at least 80% of these cases.** These stool samples should be sent to the NVRL under reverse cold chain conditions for appropriate virological investigation (for further details contact NVRL at 01 2697611).

(3) **A nasopharyngeal or throat swab for virological investigation** at the time of clinical presentation

(4) **Detailed investigation of suspected polio cases should include clinical, epidemiological and virological examination**

(5) **All information relating to AFP cases will be reviewed by the National Polio Certification Committee.**

Additional information on the polio eradication initiative and AFP surveillance is available at http://www.who.int/topics/poliomyelitis/en/

For additional queries on AFP reporting please contact either HPSC at 01 8876 5300 or NVRL at 01 2697611

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