

Polio jitters

The polio endgame is proving to be challenging. On June 29, 28 children in the Democratic Republic of the Congo (DRC) were paralysed by the circulating vaccine-derived polio virus Type 2 (cVDPV). The World Health Organisation (WHO) has assessed the overall public health risk at the “national level to be very high and the risk of international spread to be high”.

The outbreak, first reported from Haut-Lomami Province in June 2017, has since spread to five more provinces, the latest being Ituri Province this May. Since this province is close to Uganda, there is a heightened risk of the virus spreading within and outside Africa. According to the WHO, there is an increased risk of virus transmission during the imminent rainy season.

What is adding to the complexity has been the detection of three different cVDPV2 outbreaks in the DRC. While the first Type 2 vaccine-derived strain (from Haut-Lomami Province) has spread to three provinces, two other Type 2 strains have been detected from two other provinces. With retrospective confirmation that 21 cases of acute flaccid paralysis were caused by vaccine-derived polio virus Type 2, the government declared cVDPV2 to be a national public health emergency, in February. But efforts to immunise all children have failed; the outbreak has neither been controlled nor the spread prevented.

Thanks to intensified immunisation using oral polio vaccination (OPV), polio cases caused by the wild virus have reduced by 99.9% since 1988. However, as live, weakened viruses are used in OPV, there is a remote possibility of the virus turning virulent and causing vaccine-derived polio virus outbreaks. This is best seen in the case of Type 2 polio virus.

It is to eliminate the vaccine-derived Type 2 polio viruses that a globally synchronised switch was made in April 2016 — from OPV containing all three strains (Type 1, Type 2 and Type 3) to only two strains — Type 1 and Type 3. Prior to the switch, an inactivated polio virus vaccine that uses the killed form of all three strains was introduced in a phased manner.

Despite Type 2 not being used in OPV since April 2016, a few instances of Type 2 outbreaks were expected to occur. The vaccine-derived Type 2 capable of causing acute flaccid paralysis would have been in circulation but not been detected before. The virulent Type 2 vaccine-derived strains can cause paralysis only when immunisation coverage is not high. In the DRC, immunisation coverage has not reached the ideal mark.

The only way to stop the outbreaks is by using OPV containing only Type 2. While the renewed use of Type 2 OPV raises the risk of further shedding of Type 2 viruses, using the polio vaccine injection (which uses only killed viruses) is not recommended during an outbreak as it takes longer to protect vaccinated children.

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