

REPORT OF POLIO IN MINNESOTA: Questions and Answers that Clarify the Headlines

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Post-Polio Health International responds to its Members' inquiries regarding the news reports of polio in Minnesota with the following Questions and Answers.

First of all, the most up-to-date authoritative report from the Centers for Diseases Control and Prevention is "Poliovirus Infections in Four Unvaccinated Children – Minnesota, August-October 2005." (www.cdc.gov/mmwr/pdf/wk/mm54d1014.pdf)

The CDC issued this public health dispatch online in the *MMWR (Morbidity and Mortality Weekly Report, Vol. 54)* on Friday, October 14, 2005.

It has been widely reported in the press that none of the children showed any symptoms of paralytic polio. How did the fact that the child was infected by the poliovirus type 1 become known?

The child, who was never vaccinated against polio for religious reasons, was admitted to a hospital for pneumonia and to three more hospitals for recurrent infections. Health officials found the poliovirus while doing a workup to determine the cause of the child's illness. Eventually the child was diagnosed with severe combined immunodeficiency (SCID).

What kind of poliovirus is it?

The poliovirus has been identified as a Sabin oral polio vaccine-derived poliovirus (VDPV).

Is it different from the poliovirus that causes the cases of paralytic polio in countries such as Nigeria, India, and most recently, Yemen?

Yes, most polio cases in the world are caused by wild (naturally occurring) poliovirus, including the polio cases in India, Nigeria and Yemen. The first objective of the global polio eradication initiative is to stop polio caused

by wild poliovirus. After eradication is achieved, it is planned that oral polio vaccine (OPV) use will stop entirely and vaccine-derived poliovirus cases will stop soon after. It is important to mention that either inactivated polio vaccine (IPV) or OPV that protects the population from the wild poliovirus also protects against any VDPV.

How did the child who was never vaccinated acquire the poliovirus?

The mystery has not been solved, but the facts show that three unvaccinated siblings in another household in the Central Minnesota Amish community have been found to have the same VDPV type 1. None of these children have been ill and are not immunocompromised. Another child (the fifth) from a family not related to the other two has been found with the poliovirus. Public health officials are investigating not only the families of the poliovirus infected children but their community members, too. The four hospitals are being investigated along with their healthcare workers and staff members to determine the source of the VDPV.

Why is it such a mystery? Couldn't the poliovirus come from another child who was vaccinated here in the US?

No. As stated earlier, the genetic evidence identifies that the poliovirus is Sabin vaccine derived and the US has not used the Sabin oral polio vaccine (OPV) since January 2000.

Furthermore, given the degree of difference in the genetic makeup of the poliovirus in the Minnesota children from the parent Sabin poliovirus type 1 strain, it is estimated that the virus has been replicating for approximately

two years, which is older than the infant (now 8 months old). So, it is thought that the source of the poliovirus is a person who received the OPV in another country. It is unlikely the source will be found. The last outbreak of paralytic polio in the US in 1979 was traced back to the Netherlands, through Canada, in unvaccinated Amish persons.

In addition to tracking the source of the poliovirus, what are public health officials doing?

The families and community members of the Amish children and the health-care workers who may have been exposed, who are at ongoing risk, or whose immunization status is uncertain are being offered the inactivated polio vaccine (IPV).

Is the IPV the recommended polio vaccine for children and adults in the United States today?

Yes, the inactivated polio vaccine (IPV) is currently used in the United States, with a shot recommended at two months, four months and 6-18 months, and a booster at 4-6 years.

Don't the majority of parents vaccinate their children?

Yes. For example, Minnesota reports that 93% of its children aged 19-35 months are vaccinated and so are 98% of its school-aged children.

Is it correct to say that polio vaccinations are not mandatory? Or asked another way, why would the Amish children not be vaccinated?

Many states have mandatory vaccination requirement for school or daycare center attendance, but there is usually

an exception to that requirement for those persons who have a philosophical/religious objection to vaccinations.

Who should be worried about this recent discovery in Minnesota?

The vast majority of the population has nothing to worry about because they have been vaccinated. However, individuals who are unvaccinated or have incomplete polio vaccinations are at risk for developing polio when exposed to VDPV-infected persons. In another sense, we all should be worried when polio cases are reported anywhere in the world and should support the ongoing efforts to vaccinate the world's children.

Would a booster be recommended for adults who live in Minnesota as a precaution?

The Minnesota Health Department has noted that the general public in Minnesota (and, by extension, travelers to Minnesota) are not at risk from these infections in the Amish community and so it is not recommending a booster dose except to specific health-care workers that have taken care of the infant.

However, this is a good time for everyone to review their polio immunization status to be sure they have had a full series (3 or 4 doses). If the series is incomplete, a booster dose of IPV would be in order. If immunization status is not known, check with your physician to receive a full series. For details, read "Polio Vaccine: What You Need to Know" (www.cdc.gov/nip/publications/VIS/vis-IPV.pdf).

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Shift in Worldwide Polio Vaccine Approach in 2005

New monovalent oral polio vaccines (mOPVs) are now used to more rapidly interrupt the final strains of poliovirus transmission around the world. Monovalent OPV1 was first used in India in April 2005 and has subsequently been used in Egypt to interrupt endemic strains of virus. It has also been used in Yemen and Angola to stop outbreaks in these previously polio-free countries, and in Somalia to minimize the risk of an outbreak becoming a widespread epidemic.

Circulation of wild poliovirus type 2 has been interrupted since 1999. In the final stage of polio eradication, only type 1 and type 3 wild polioviruses continue to circulate. The new monovalent vaccines contain only one of the three types of polioviruses in a live-attenuated form. When outbreaks are detected, the type of polio can be determined and authorities can vaccinate children with the specific monovalent vaccine.

The principal weapon used in the Global Polio Eradication Initiative has

been the trivalent oral polio vaccine (tOPV), which includes three types of polioviruses in a live-attenuated form that gives protection against all three types of wild poliovirus. However, there is actually competition among the three viruses to cause immunity, which results in protection but not with equal efficiency for each type. ●

SOURCE: Global Polio Eradication Initiative, Monovalent oral poliovaccines, *Fact Sheet* (www.polioeradication.org)

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Should a person who is traveling out of the country obtain a booster?

In short, adults who were vaccinated with 3 or more doses of OPV or IPV as children may benefit from a single lifetime booster dose as an adult, if they are at increased risk for exposure to poliovirus through travel to a polio endemic or outbreak country. Check the list of countries on the US Department of Health and Human Services, Centers for Disease Control and Prevention's website (www.cdc.gov/travel).

What is the lesson learned by this experience?

Actually, there are three important lessons to be learned. First, it is important to vaccinate all children with polio vaccine. Secondly, all countries live under a continued threat as long as polio transmission continues in any country, and lastly, this experience reminds us of the importance of rapidly completing global polio eradication. ●

Global Polio Eradication Initiative

What is the latest?

There are **6 countries with endemic polio** (Nigeria, India, Pakistan, Niger, Afghanistan and Egypt) and **10 countries which have been re-infected** (Somalia, Yemen, Indonesia, Sudan, Ethiopia, Angola, Mali, Cameroon, Chad and Eritrea).

Where can you find the latest?

A website at www.polioeradication.org sponsored by World Health Organization, Rotary International, Centers for Disease Control and Prevention and UNICEF contains the most up-to-date information. ●