Five in Minnesota Test Positive for Poliovirus

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A small outbreak of poliovirus infection has been reported among unvaccinated children living in rural Minnesota. All cases to date have been linked to the live attentuated virus used in the oral polio vaccine, according to the Minnesota Department of Health and the Centers for Disease Control and Prevention.

Because oral polio vaccine (OPV) is known to cause paralysis in about 1 in every 13 million doses, its use was discontinued in Canada in 1997 and in the United States in 2000.

An injected inactivated polio vaccine (IPV) is used instead, in accordance with recommendations by the CDC's Advisory Committee on Immunization Practices and the American Academy of Pediatrics Committee on Infectious Diseases. But other countries around the world continue to use OPV. Health workers presume that a person vaccinated with OPV in another country was the original source of the outbreak, according to the CDC report.

The five Minnesota children reported to have poliovirus infection are members of a remote Amish community in central Minnesota. The Amish often decline to vaccinate their children. None of the children exhibited the flaccid paralysis that accompanies poliovirus infection in 1 of every 200 cases. The first four cases are described by the CDC (MMWR 2005;54:1053-5) and the fifth case was reported at press time.

The polio outbreak was discovered by chance on Sept. 29, 2005, during testing of a stool sample from a 7-month-old infant with severe combined immunodeficiency disease. Subsequent testing of other community members uncovered infections from the same viral strain in three unvaccinated siblings from an unrelated family, and a fifth unvaccinated child from a third family. All three families are members of the same small Amish community, which includes about 200 members in 24 families.

Partial sequencing of the viral capsid identified it as a type 1 poliovirus derived from one of the three strains in the Sabin oral poliovirus vaccine (OPV). The viral sequence differed from the original vaccine strain by 2.3%. This vaccine is known to mutate at a rate of about 1% per year, suggesting that it's been circulating for 2-3 years.

Although the source of the infection likely was someone who received OPV abroad, none of the infected children or their family members had a recent history of international travel or contact with foreigners, and the central Minnesota Amish community in which the infections occurred has little association with outsiders.

Public health officials have been going door to door in the affected community offering vaccinations. IPV offers protection against the OPV-derived vaccine strain of polio. As of Oct. 14, 2005, fewer than 20 children in the affected community have been vaccinated against polio since this outbreak of disease. ■

Increase in Drug-Resistant Flu Called 'Alarming'

The increase in amantadine- and rimantadine-resistant H3N2 influenza A viruses over the past decade is alarming, Rick A. Bright, Ph.D., of the Centers for Disease Control and Prevention, Atlanta, and his colleagues reported.

Between the 1994-1995 and 2003-2004 flu seasons, the proportion of resistant H3N2 viruses increased from 0.4% to 12.3%, a study of more than 7,000 influenza A field isolates showed. Most (84%) of the resistant viruses were isolated since the 2003 flu season, and 61% of those were from people in Asia, the investigators found (Lancet 2005;366:1175-81).

Furthermore, between the 2003-2004 season and the first 6 months of the 2004-2005 season in the United States, resistance among comparable isolates increased from 2% to 15%. The high incidence of drug-resistant H3N2 viruses circulating in regions that also have a high incidence of avian influenza (H5N1)—which is also resistant to amantadine and rimantadine—suggests that these drugs should be used with greater caution.

—Sharon Worcester