MedicalXpress

Mumps vaccine coverage should be improved, study finds

August 24 2010

Although immunity to mumps is high in the United States, mumps vaccine coverage must be maintained and improved to prevent future outbreaks, according to a new study, now available online, in the September 1, 2010 issue of *The Journal of Infectious Diseases*.

Mumps—a viral illness found in most parts of the world—can cause serious complications, including deafness, sterility, meningitis, and encephalitis. Since 1977, mumps vaccination has been recommended in the U.S. and is given as part of the MMR (measles-mumps-rubella) vaccine. Two doses are currently recommended for children. By 2000, the annual number of reported U.S. mumps cases had declined to less than 500. But in 2006, the country's largest mumps outbreak in 20 years began on college campuses in Iowa and resulted in more than 6,000 reported cases. This event raised questions about how to prevent future outbreaks and about the feasibility of eliminating mumps.

To measure the U.S. population's immunity to mumps, Preeta K. Kutty, MD, MPH, and other researchers at the Centers for Disease Control and Prevention (CDC) obtained blood samples from 6- to 49-year-old participants in a nationwide health survey and tested the samples for antibodies to mumps. Serum samples were tested and survey data were collected during 1999-2000 from more than 15,000 people. Researchers found that 90 percent of the participants had antibodies to mumps; this is on the lower end of what is needed to protect the overall population through "herd immunity"—the proportion of the population that needs to be vaccinated to stop transmission of mumps.

Among study participants old enough to have had mumps as children (those born between 1949 and 1966), 92 to 93 percent had mumps antibodies. Among those likely to have been vaccinated (those born after 1976), 90 percent had mumps antibodies. For those born during 1967 to 1976, the percentage of those with antibodies was even lower: 85 to 86 percent. There were also differences in relation to race, ethnic origin, birthplace, and sex.

Although the percentage of persons with mumps antibodies was on the lower end of what is considered necessary for herd immunity, the study authors note that the incidence of mumps has declined by 96 percent or more since the pre-vaccine era. However, to maintain this success against this serious viral infection, the study authors believe it is crucial to maintain or, preferably, improve vaccine coverage to prevent or control future outbreaks.

The findings emphasize the "importance of achieving and maintaining a high rate of vaccination in the community, continuing surveillance for mumps, promptly reporting known and suspected cases of mumps to public health officials so that they can take immediate steps to stop further spread of the virus, and studying and understanding the changing factors that affect the introduction and spread of mumps in the U.S.," Dr. Kutty said.

In an accompanying editorial, Patricia Quinlisk, MD, MPH, state epidemiologist and medical director with the Iowa Department of Public Health, agreed with the study authors, noting that over time, immunity to mumps may diminish. This can occur even after a second dose of the MMR vaccine, which was recommended, starting in 1989, for children entering school. To ensure individual lifelong immunity and appropriate levels of herd immunity, Quinlisk suggested that a third dose may be needed or that the second dose should be delayed until later in adolescence. The study's findings "will help us to understand and use the

public health strategies that will best control mumps today," Dr. Quinlisk wrote.

More information:
http://www.journals.uchicago.edu/doi/full/10.1086/655394

Provided by Infectious Diseases Society of America