

Serologic Survey Ups H1N1 Incidence 10-Fold

VITALS

Major Finding: The proportion of 5- to 14-year-olds infected with 2009 H1N1 flu in high-risk regions of England increased from 3.7% at baseline to 45.7% in September 2009.

Data Source: Serologic survey using 1,403 serum samples pre-2009 H1N1 outbreak and 1,954 from August and September 2009.

Disclosures: Lead author has none; two others have ties to Novartis, Sanofi Pasteur, Baxter, and CSI Australia.

BY MIRIAM E. TUCKER

Serologic testing revealed that about one in every three children living in high-risk areas of England was infected with 2009 H1N1 influenza during the first wave of infections—10 times more than estimated based on clinical surveillance.

The finding comes from a serologic survey sponsored by the U.K.'s National Institute for Health Research Health Technology Assessment Programme.

The survey also showed that preexisting antibody in older individuals protected them from infection.

Serologic surveillance provides a more stable method for predicting

future disease incidence than does clinical surveillance, which captures only individuals who present with symptoms, said Dr. Elizabeth Miller of the Health Protection Agency, London, and her associates. (Lancet 2010 Jan. 21[doi:10.1016/S0140-6736(09)62126-7]).

Of 1,403 serum samples taken in late 2008 and early 2009 prior to the H1N1 outbreak, the proportions with a hemagglutination inhibition titer of around 1:32—which is assumed to be protective—were 2.8% of the 359 children under 15 years of age and 23.3% of 549 adults aged 65 years and older, they reported.

The range varied from 1.8% in the 0- to 4-year-old age group to 31.3% in those aged over 80 years.

"Individuals born before 1957 might have been exposed to influenza H1 strains circulating in the first half of the 20th century, which are more closely related to current swine-origin 2009 pandemic H1N1 viruses," the investigators said.

Once the outbreak began, the proportion of samples with titers of 1:32 or more increased from 11.6% of 43 within the first week of infection to 89.1% of 55 after 21 days, Dr. Miller and her associates reported.

Of a total of 1,954 samples tested during August and September 2009, there was significant geographical variation in the number with protective titers.

Infection rates and increases were highest in London and the West Midlands: Among children aged 0-4 years in those regions, immunity increased from 1.8% at baseline to 23.1% in September 2009.

For 5- to 14-year-olds, the increase was from 3.7% to 45.7%, and for 15- to 24-year-olds, from 17.5% to 38.1%, Dr. Miller and her associates found.

In contrast, there was no increase in the proportions with protective titers among older adults.

Overall, rates of infection in the first wave were greatest in children younger than 15 years of age, with an estimated 42% of schoolchildren aged 5-14 years infected in high-incidence regions.

"This finding is consistent with the high level of susceptibility in children and the increased potential for transmission that occurs within schools. We also showed substantial differences between regions in the extent of infection during the first wave," the investigators commented.

Infection rates seen in this study are approximately 10 times greater than original clinically based estimates from the Health Protection Agency and have implications beyond England, Dr. Miller and her associates noted.

"This serological study shows the true extent of H1N1 infection in the initial wave of the pandemic in England in 2009. Its findings should be applicable to other countries that have experienced a similar first wave," they concluded. ■



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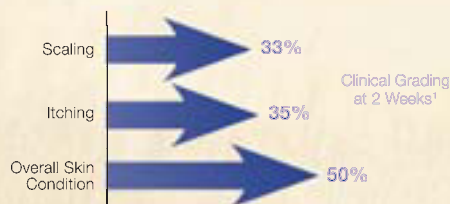
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