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Lung alert

Serological data improves estimates of infection during 2009 H1N1 pandemic

The 2009 global pandemic of swine origin influenza A H1N1 virus resulted in substantial public health and vaccination efforts. This cross-sectional serological survey from the UK Health Protection Agency estimated the level of pre-existing immunity to the virus and the incidence of infection in the population during the first wave of H1N1 in England.

Pre-pandemic serum samples (n=1403) from 2008 showed that a substantial proportion (23%) of adults aged ≥65 years had a haemagglutination inhibition titre of 1:32 or more against the 2009 H1N1 virus, a titre suggesting immunity against the infection. Only 3% of children had protective titres.

Serum samples (n=1954) taken in August and September 2009 after the first wave of H1N1 infection were used to estimate the increase in the proportion of the population with protective titres. Increases in seropositivity varied between regions. In London and the West Midlands the proportion with a protective titre increased in all age groups <25 years, with an increase of 32% in those aged <15 years. In other regions there was a 6% increase in seropositivity in children aged <15 years and no increase in the proportion of adults with a protective titre.

The study shows that the first wave of the H1N1 infection was concentrated in school-aged children who had low levels of pre-existing immunity. A significant finding was that H1N1 incidence estimates were 10 times greater than those gained from clinical surveillance. This research highlights the value of serological studies in furthering our understanding of influenza epidemiology and targeting interventions such as vaccination.

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