

Immunising children against seasonal influenza can protect unvaccinated community against influenza

Results of a clinical trial conducted in a largely self-contained religious community during the 2008-09 influenza season show that immunising children against seasonal influenza can significantly protect unvaccinated community members against influenza as well. The study was conducted to determine if immunised children could act as a barrier to limit the spread of influenza to the wider, unvaccinated community, a concept known as herd immunity.

Researchers recruited volunteers from 46 Canadian Hutterite religious colonies that have limited contact with surrounding, non-Hutterite populations. A total of 947 children between 36 months to 15 years of age participated in the trial; 502 children in 22 colonies received 2008-09 seasonal influenza vaccine, while 445 youth in the other colonies received hepatitis A vaccine. The hepatitis A vaccine served as a control vaccine for comparison.

Findings offer 'experimental proof'

In the six months after the children were vaccinated, 119 of 2326 unvaccinated community members (who were of all ages) developed laboratory confirmed cases of influenza. Of these, 80 of 1055 were from colonies where children received hepatitis vaccine, while 39 of 1271 were from colonies where children received the influenza vaccine.

The researchers found that influenza vaccination was 61% effective at indirectly preventing illness—that is, protecting via herd immunity—in unvaccinated individuals if they lived in a colony where approximately 80% of the children had received flu vaccine. The findings, they write, "...offer experimental proof to support selective influenza immunisation of school-aged children—to interrupt influenza transmission. Particularly, if there are constraints in quantity and delivery of vaccine, it may be advantageous to selectively immunise children in order to reduce community transmission of influenza."

Mark Loeb, M.D., of McMaster University, Hamilton, Ontario, led the trial. The research was funded in part by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, and by the Canadian Institutes for Health Research.

An illustration showing how vaccination generates herd immunity is available at www3.niaid.nih.gov/topics/communityImmunity.htm