

# More H1N1 Seen After Seasonal Flu Vaccination

BY DIANA MAHONEY

Vaccination for the seasonal flu may have rendered people more susceptible to pandemic H1N1 infection, according to results from four observational studies.

In the four epidemiologic studies, conducted by Canadian investigators, prior receipt of the 2008-2009 trivalent inactivated influenza vaccine (TIV) was associated with an increased risk of pH1N1 illness in the spring and summer of 2009, wrote Dr. Danuta M. Skowronski of the British Columbia Centre for Disease Control, Vancouver, and colleagues.

The observational findings raise the possibility of a real biologic effect that warrants further investigation, the authors wrote (PLoS Med. 2010 April 6 [doi: 10.1371/journal.pmed.1000258]).

The investigations, which involved a total of 2,700 people with and without pH1N1, were undertaken following an outbreak of pH1N1 in a rural British Columbia school the spring of 2009 in which fever and cough illness occurred more often among individuals previously vaccinated for the seasonal flu.

The first study compared the frequency of prior vaccination with the 2008 TIV between individuals with influenza-like illness who tested positive for seasonal or pH1N1 influenza and those who tested negative for both. An analysis of the data showed that prior vaccination with TIV significantly reduced the risk of reported seasonal influenza but was associated with a 68% increased risk for pH1N1 infection and a 123% increased risk among participants younger than age 50 years, the authors wrote.

Similar case-control studies conducted in Quebec- and Ontario-based populations found that those who had received prior TIV were, respectively, 1.5 and 2 times more likely to experience pH1N1 illness than controls who had not received prior vaccination.

Prior TIV administration among participants in a third study involving a prospectively studied cohort found that household transmission study was associated with a significantly increased risk of laboratory-confirmed pH1N1, they said.

Among the possible biologic mechanisms to explain the association, the authors hypothesized that repeat immunization may effectively block “the more robust, complex, and cross-protective immunity afforded by prior infection,” which has been suggested by previous studies. Additionally, the possibility of a direct immune mechanism might explain the results, though they stressed that the various proposed mechanisms “must each be viewed as speculative since our epidemiologic studies were not designed to assess them.”

In an accompanying editorial, Cecile Viboud, Ph.D., of the National Institutes of Health, Bethesda, Md., and Lone Simonsen, Ph.D., of George Washington University in Washington, warn that “it would be premature to conclude that TIV increased the risk of

2009 pandemic illness,” considering the fact that contemporaneous observational studies have produced conflicting results. The “perplexing experience,” they wrote, “should teach us how to best react to disparate and conflicting studies and prepare us for the next public health crisis, so that we can better manage future alerts of unexpected risk factors” (PLoS Med. 2010 April 6 [doi: 10.1371/journal.pmed.1000259]). ■

## VITALS

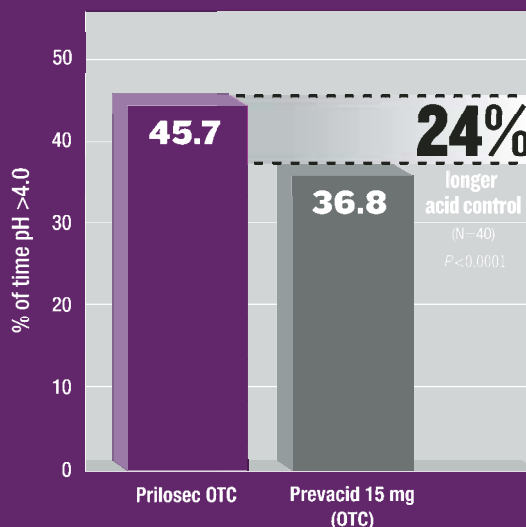
**Major Finding:** Prior vaccination for 2008 seasonal influenza was associated with a 68%- to 123%-increased risk for pandemic H1N1 infection. In two additional studies, prior 2008 seasonal influenza vaccine was tied to a 1.5 to 2 times higher risk for H1N1 infection.

**Data Source:** Four epidemiologic studies by a network of Canadian researchers comparing occurrence of H1N1 infection in participants who were received prior seasonal influenza vaccination and those not previously vaccinated.

**Disclosures:** Dr. Skowronski and coauthors received research grant funding from GlaxoSmithKline and Sanofi-Pasteur for separate studies. One coauthor also received speaking honoraria from GlaxoSmithKline and Sanofi-Pasteur.

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