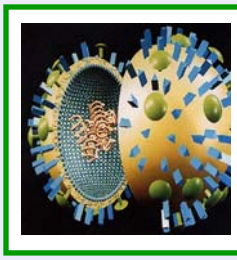

County of Los Angeles Public Health

# Pandemic Flu and You

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## Cross-Protection Identified Between Successive Waves of the 1918–1919 Influenza Pandemic

Influenza pandemic planners base their worst case scenario projections from the 1918-1919 pandemic. While aspects of that pandemic continue to be researched and debated, it is undoubtedly the worst infectious disease event to occur in the last 100 years with estimates of 20 to 40 million deaths worldwide. Its devastating effects were felt especially among the military: the pandemic coincided with World War I, is believed to have originated on a US army base, and contributed to 75% of the fatalities during the war.

But accounts from this pandemic have described vastly differing effects from its three successive waves of illness. The first wave, during spring and summer of 1918, was considered fairly mild; substantial rates of illness (high morbidity), but relatively few deaths (low mortality). The second wave, during fall of 1918, was especially lethal yielding the highest fatality rates; and then the third wave, during winter through spring 1919, was less severe, similar to the first wave.

A new study [1] examined the differences between the first two waves and determined that, despite the overall higher fatality rates of the second wave, influenza infections from the first wave likely provided immunity and cross-protection against subsequent waves of the pandemic. Using military records from both the US and Britain during 1918, researchers compared hospitalization rates among new recruits (those with less than 1 month of service) versus troops with a longer service history, who then were also likely to have been exposed to influenza during their service. Results support the premise that previous influenza exposure provides natural protective immunity against subsequent exposures and are consistent with other studies that have identified these cross protective effects during 1918 [2].

### Implications for pandemic planning:

These findings are consistent with our current understanding of influenza's communicability: individuals with previous immunologic history, either natural through past exposure or from vaccination, achieve protective cross immunity against other viral variants. And these findings have important implications for *current* pandemic planning: it illustrates the potential benefits of pre-pandemic vaccination and suggests the possible use of naturally immunized cohorts as valuable resources for response and mitigation efforts.

### Cross protection from past influenza vaccination:

Studies identifying cross protection are analogous to studies that have identified generalized protective immunity from seasonal influenza vaccination. Nearly every year, the viral components of the season's vaccine are adjusted to match the expected circulating influenza strains; but some years, like last season (2007–2008), a novel strain unexpectedly emerges and is not covered by the vaccine. However, even during these "mismatch" years, influenza vaccination still provides significant beneficial protective immunity, especially in reducing severe outcomes such as influenza-related hospitalizations and deaths [3–5].

## Everyone benefits from flu vaccination!

In past seasons, influenza vaccination focused on reaching those most vulnerable—but the best protection doesn't stop there. **The Los Angeles County Department of Public Health and the CDC urge everyone* to get their flu shot!** As shown in a new study [6] universal vaccination is not only important for personal protection, but also prevents the spread of disease to others, improving the health of our whole community. Similarly, a recent study demonstrated the broad-reaching benefits of vaccinating pregnant women [7]; not only were the moms protected, but their babies also showed a significant reduction in influenza-related illness. The benefits of flu vaccination for pregnant women is 2 for 1!

**To find a flu shot in your area:**
**call the LA County information line at 211**
**or visit www.lapublichealth.org/ip/index.htm**

* Influenza vaccination is not recommended for: children younger than 6 months in age, people with a severe allergy to chicken eggs, and people with a history of Guillain-Barré syndrome.

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