

Co-infections not associated with worse outcomes during H1N1 pandemic

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A study at Rhode Island Hospital has found that despite complications, patients co-infected with the pandemic 2009-2010 influenza A H1N1 (pH1N1) and a second respiratory virus were not associated with worse outcomes or admission to the hospital's intensive care unit. The study is published online in the journal *PLOS ONE*.

"There is scant data in the literature regarding the incidence and impact of simultaneous infection by two respiratory viruses, particularly in adults," said senior investigator Leonard Mermel, D.O., medical director of the department of epidemiology and [infection control](#) at Rhode Island Hospital. "We compared 617 people hospitalized with [respiratory infection](#) due to a single virus to 49 people hospitalized with such infections due to two viruses (co-infection). Those with viral co-infection were younger, more often had fever/chills and shortness of breath than those with co-infection. Although patients with viral co-infection were more likely to be treated for a secondary bacterial pneumonia, they were not more likely to require ICU admission and they did not have a longer length of hospital stay."

The [pandemic](#) 2009-2010 influenza A (pH1N1) was first identified in the U.S. in April 2009 and infected patients across the country in two waves. There were an estimated 61 million cases of pH1N1; 274,000 hospitalizations; and 12,470 deaths associated with the pandemic—a significant increase in hospitalizations, and a decrease in mortality as compared to seasonal influenza averages.

Children experienced a greater burden of disease than adults during the pandemic, with a higher mortality rate. However, despite fewer cases in adults, more [adult patients](#) were afflicted with serious illness. Children also had a higher rate of co-infection, which may be due to an absence of protective antibodies or other forms of immunity that older individuals have gained over time.

A previous study at Rhode Island Hospital compared patients with pH1N1 to those infected with other [respiratory viruses](#). While patients with co-infections were excluded from the initial study, the current analysis focused on this patient population, and hypothesized that those with both pH1N1 and a [respiratory virus](#) would have worse outcomes than those with just one infection.

However, Mermel and his colleagues found that despite the risk for complications including treatment for a bacterial pneumonia, co-infection was, in fact, not associated with worse outcomes.

"Although by our measures there was no demonstration of worse outcomes, co-infected patients demonstrated a significant greater rate of patterns of viral pneumonia by chest radiographs," said principal investigator Ignacio A. Echenique, M.D., a former Rhode Island Hospital researcher who is now affiliated with Northwestern University. "These forms of pneumonia would not be expected to respond to antibiotics. Ultimately, the significance of the association of a co-infection with viral pneumonias is unclear. While hospitalized patients with respiratory virus co-infection did not experience poorer outcomes, our findings do not address whether co-infection is a risk factor for hospitalization itself."

The researchers concluded that a large, multi-center study should be conducted across various levels of care to measure the impact of co-infections on hospitalization, and to distinguish between viral and

[bacterial pneumonia](#) in co-infected patients.

Provided by Lifespan

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