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## H1N1 Flu Linked to Serious Bacterial Infections in Children

*Vaccination and Antiviral Drugs Play Key Role in Preventing H1N1-Related Pneumonia, Reports The Pediatric Infectious Disease Journal*

Philadelphia, Pa. (October 25, 2010) - The H1N1 influenza pandemic has led to a sharp increase in the number of children with a serious "secondary" bacterial infection called empyema in children, suggests a study in the October issue of [The Pediatric Infectious Disease Journal](#). The journal is published by [Lippincott Williams & Wilkins](#), a part of [Wolters Kluwer Health](#), a leading provider of information and business intelligence for students, professionals, and institutions in medicine, nursing, allied health, and pharmacy.

"Cases similar to those described here are likely to continue until the pandemic is over and thus represent an opportunity for prevention," the researchers write, led by Dr. Krow Ampofo of University of Utah Health Sciences Center, Salt Lake City. They emphasize the importance of keeping children up to date with recommended influenza and pneumococcal vaccines, and prompt antiviral drug treatment for patients who develop influenza signs and symptoms.

### H1N1 Linked to Increased Rate of Empyema in Children

The researchers analyzed data on children diagnosed with empyema at Primary Children's Medical Center in Salt Lake City from 2004 to 2009. Empyema is an infection involving the pleural tissues surrounding the lungs, most often occurring as a complication of pneumonia. Empyema is a serious condition, frequently requiring a chest tube or surgery to drain infected fluid from the chest.

During the last three months of the study period—the spring and summer of 2009—there was a severe outbreak of H1N1 influenza in Utah. During this time, 604 children were diagnosed with H1N1 infection. Of these, 117 were hospitalized—a rate of 19 percent.

From May through June, 2009, there was a significant rise in the number of children with empyema, compared to previous years. Twenty-one cases were diagnosed—nearly double the average of 10.8 cases during the same time of year in 2004 to 2008.

Cases of empyema peaked in June, 2009, when 12 cases are diagnosed. This compared to an average of 3.5 children with empyema per month in June of other years. (In a typical year, most cases of empyema occur during the winter months, when seasonal influenza and other respiratory diseases are at their peak.)

All of the children diagnosed with empyema during from May to June, 2009, had a "flu-like illness" before hospitalization. Most children with confirmed influenza were infected with H1N1. The most common bacterial causes of empyema were strep bacteria, including pneumococcal bacteria (*Streptococcus pneumoniae*).

In patients with influenza, pneumonia and other secondary bacterial infections can occur. Empyema is an uncommon but serious complication of pneumonia. Data on 2009 H1N1 pandemic in the United States suggest that secondary

bacterial infections contribute to many deaths in patients with H1N1. With proper treatment for empyema, there were no deaths among the children in the Utah study.

The study can't prove any cause-and-effect relationship between H1N1 and the increase in children with empyema. However, the reported "temporal association" suggests that doctors should be alert for pneumonia, empyema, and other secondary bacterial infections in children with H1N1. Young children (along with older adults, pregnant women, and people with certain medical conditions) are a high-risk group for serious complications of H1N1 influenza.

"There is an urgent need to better understand bacterial complications of pandemic influenza," Dr. Ampofo and colleagues write. "In the interim, influenza vaccines, antiviral agents, and pneumococcal vaccines should be used to prevent cases of secondary bacterial pneumonia whenever possible."

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#### **About *The Pediatric Infectious Disease Journal***

*The Pediatric Infectious Disease Journal*® (<http://www.pidj.com>) is a peer-reviewed, multidisciplinary journal directed to physicians and other health care professionals who manage infectious diseases of childhood. The journal delivers the latest insights on all aspects of infectious disease in children, from state-of-art diagnostic techniques to the most effective drug therapies and other essential treatment protocols. *The Pediatric Infectious Disease Journal* is official journal of the Pediatric Infectious Diseases Society and the European Society for Paediatric Infectious Diseases.

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