

**2009 H1N1 Influenza
Updated Key Points
September 3, 2009**

What's New and Updated Today

- Influenza-Related Pediatric Deaths, Background
- *MMWR* Article

Influenza-Related Pediatric Deaths, Background

- Influenza-related deaths in children are tragic.
- Because of confidentiality issues, CDC does not discuss or give details on individual cases. (Additional questions may be referred to the departments of health for each state).
- The deaths in children reported this week are a somber reminder of the importance of protecting children from the flu.
- During the past 5 years that CDC has tracked deaths among children* with influenza infections, the number of deaths reported to CDC each year has ranged from 46 to 153 deaths.
 - During the 2008-09 flu season, 110 influenza-related deaths in children have been reported to CDC since September 28, 2008. 42 of these deaths were associated with confirmed infections with the 2009 H1N1 virus.
 - During the 2007-08 flu season, 88 influenza-related deaths in children were reported to CDC.
 - During the 2006-07 season, 78 influenza-related deaths in children were reported to CDC.
 - During the 2005-06 season, 46 deaths in children were reported to CDC.
 - During the 2004-05 season, 47 deaths in children were reported to CDC.
 - During the 2003-04 season (the first year that CDC collected information on pediatric flu deaths), 153 flu-associated deaths in children were reported to CDC.

*Children are defined as people under the age of 18 years.

- Unfortunately, it's likely that more flu-related deaths in children will be reported and will occur during the 2009-10 flu season, and it's likely that these deaths will result from 2009 H1N1 infections as well as seasonal flu infections.

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- CDC will continue to work with colleagues in state and local health departments to monitor all reported influenza-related deaths among children.
- Children at highest risk from seasonal flu complications include:
 - Children younger than 5 years old.
 - Children (of any age) with chronic medical conditions like asthma, diabetes, neurologic and neuromuscular conditions or heart disease.
- Even children who are otherwise healthy can rarely have severe or fatal outcomes after influenza infection.
- The most recent numbers (reported in the August 28 FluView Report) indicated that, of the 45 children who were reported to have been tested for bacterial co-infections from a normally sterile site, 17 (37.8%) had bacterial co-infections. The following bacterial strains were identified:
- Staph infections (*S. aureus*) were identified in 11 (64.7%) of the 17 children.
 - 5 of the isolates that tested positive for staph were sensitive to methicillin (i.e., MSSA).
 - 6 of the isolates that tested positive for staph were resistant to methicillin (i.e., MRSA).
- 14 (33.3%) of the 42 children with confirmed 2009 influenza A (H1N1) infection were tested for bacterial co-infections from a normally sterile site;
 - Bacterial co-infections were identified in 3 (21.4%) of the 14 children, 2 of which were Staph infections (*S. aureus*).
 - The following bacterial strains were identified:
 - methicillin sensitive *S. aureus* (MSSA)
 - methicillin resistant *S. aureus* (MRSA)
 - *Streptococcus constellatus* (Strep)
- So, in addition to influenza, clinicians are reminded that bacterial co-infections can occur and should be considered particularly in cases of severe or worsening illness.
- CDC recommends a yearly seasonal flu vaccine as the first and most important step in protecting children against flu illness.

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- In addition this season, all children older than 6 months should receive the 2009 H1N1 vaccine and the seasonal influenza vaccine when they become available.
- CDC also recommends that people who live with or provide care for infants aged 6 months or younger also be vaccinated against seasonal and 2009 H1N1 flu to protect the child because children in this age group are too young to receive flu vaccine.
- In addition to vaccination, CDC recommends everyday actions to prevent the spread of flu and the use of antiviral drugs to treat the flu in high risk patients and patients who are severely ill (hospitalized).
- These actions include:
 - Hand hygiene and cough etiquette (washing your hands often and covering coughs and sneezes).
 - Staying away from people who are sick.
 - Staying home from work and/or school when you are sick to avoid spreading your illness to others.
 - The appropriate use of influenza antiviral medications can also help to decrease the number of severe influenza illnesses.
 - CDC has issued interim guidance on the use of antiviral drugs for clinicians treating patients with 2009 H1N1 virus infection and their close contacts.
 - This guidance is available at <http://www.cdc.gov/h1n1flu/recommendations.htm>.
- Flu-related deaths in children less than 18 years old should be reported through a state health department to the Influenza Associated Pediatric Mortality Surveillance System. The number of flu-associated deaths among children will be updated each week and can be found at <http://www.cdc.gov/flu/weekly>.

MMWR Article: "Surveillance for Pediatric Deaths Associated with 2009 Pandemic Influenza A (H1N1) Virus Infection – United States, April-August 2009"

- On Thursday, September 3, 2009, the *Morbidity and Mortality Weekly Report (MMWR)* published an article entitled "Surveillance for Pediatric

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Deaths Associated with 2009 Pandemic Influenza A (H1N1) Virus Infection – United States, April-August 2009.”

- This article is available at <http://www.cdc.gov/mmwr/>.
- This report analyzed data related to pediatric deaths reported to CDC from April to August, 2009.
- Any child, even previously healthy children and especially those with chronic medical conditions, can have a severe illness or even death from 2009 H1N1 influenza. All children aged 6 months and older should receive 2009 H1N1 vaccine when it becomes available. A health care provider should be consulted when children younger than 5 years old or children of any age with high-risk medical condition develop an illness consistent with influenza.
- As of August 8, 2009, 477 deaths with laboratory confirmed 2009 H1N1 flu in the United States had been reported to CDC, including 36 children younger than 18 years of age. These 36 deaths were reported to CDC from 15 state and local health authorities.
- Based on studies from previous influenza outbreaks, children aged younger than 5 years or with certain chronic medical conditions are at increased risk for complications from influenza.
- 67% percent of children who died with 2009 H1N1 influenza had at least one high-risk medical condition.
- Notably, among children with high-risk medical conditions, more than 90% had neurodevelopmental conditions, such as developmental delay and cerebral palsy.
 - 59% percent of the children with neurodevelopmental conditions had more than one neurodevelopmental condition and
 - 41% also had a pulmonary problem.
- A study of influenza-associated child deaths during the 2003-04 influenza season also found that a considerable proportion of children had a neurodevelopmental condition.
- 10 of 23 children who were reported to have been tested for bacterial infections had a bacterial co-infection. This included all 6 children who were tested and were 5 years and older and did not have a recognized high-risk medical condition. This finding reinforces other data from seasonal influenza pediatric death surveillance that bacteria and

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- influenza co-infections can cause severe disease in children who may have been previously healthy.
- These deaths are a somber reminder of the importance of protecting children from the flu – especially those at high risk from serious flu-related complications.
 - Children at highest risk from flu complications include:
 - Children younger than 5 years old, including children younger than 6 months of age who are too young to be vaccinated.
 - Children (of any age) with chronic medical conditions like asthma or other lung problems, diabetes, weakened immune systems, kidney disease, heart problems and neurodevelopmental and neuromuscular disorders.
 - It is important that parents recognize the signs of 2009 H1N1 early, so that they can consult with their child's health care provider. This is especially important for those children known to be at higher risk for influenza-related complications.
 - Symptoms of seasonal flu and 2009 H1N1 flu include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. Some people also may have vomiting and diarrhea. Some people may have respiratory symptoms and not have a fever.
 - All children older than 6 months and caregivers of children younger than 6 months should receive the 2009 H1N1 vaccine when available.
 - Even children who have always been healthy before or had the flu before can get a severe case of flu. Call or take your child to a doctor right away if your child of any age has:
 - Fast breathing or trouble breathing
 - Bluish or gray skin color
 - Not drinking enough fluids
 - Severe or persistent vomiting
 - Not waking up or not interacting
 - Being so irritable that the child does not want to be held
 - Flu-like symptoms improve but then return with fever and worse cough
 - Has other conditions (like heart or lung disease, diabetes, or asthma) and develops flu-like symptoms, including a fever and/or cough.