CDC Influenza Division Key Points
October 24, 2014

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Summary Key Messages

- The most recent FluView report indicates that seasonal influenza activity remains low in the United States at this time, but there are early signs that activity is increasing including the first reported flu pediatric death of the 2014-2015 season.
- This death in a child is a somber reminder of how serious flu can be.
- Flu activity is expected to increase in the coming weeks.
- CDC recommends a three-pronged approach to fighting flu:
    - First, take time to get a flu vaccine.
    - Second, take everyday preventive actions like covering coughs and sneezes, staying away from sick people and washing your hands often to help stop the spread of respiratory viruses like flu, respiratory syncytial virus (RSV), rhinovirus and enterovirus D68.
    - Third, antivirals should be used as recommended as a second line of defense to treat flu illness.
- Annual flu vaccination is the first and most important step in protecting against flu and its potentially serious complications.
- Getting vaccinated before influenza activity begins helps protect you once the flu season starts in your community.
- It takes about two weeks after vaccination for the body's immune system to fully respond and for you to be protected.
- Make plans to get vaccinated this fall, ideally during October.
- You need this season's influenza vaccine for optimal protection against the flu. (Immunity from vaccinations declines over time.)
- Flu vaccination can reduce flu illnesses, doctors' visits, and missed work and school due to influenza, as well as prevent flu-related hospitalizations and deaths.

- Flu vaccination can help protect people who are at greater risk of getting seriously ill from flu, like older adults, people with chronic health conditions and young children (especially infants younger than 6 months old who are too young to get vaccinated).
- Seven influenza vaccine manufacturers have projected that as many as 151 million to 156 million doses of influenza vaccine will be available for use in the United States during the 2014-2015 influenza season.
- As of October 17, 117.8 million doses of influenza vaccine had been distributed in the United States, which means that more vaccine has been distributed than at this time last season.
- There are several flu vaccine options available for the 2014-2015 flu season.
- Flu shots made to protect against three different flu viruses (called "trivalent" vaccines) are available this season. There also are flu shots and nasal spray vaccines made to protect against four different flu viruses (called "quadrivalent" vaccines).
- About half of the total influenza vaccine supply will be quadrivalent, while the other half will be trivalent.
- CDC has not expressed a preference for which flu vaccine people should get this season except for one.
- Starting in 2014-2015, CDC recommends use of the nasal spray vaccine for healthy* children 2 years through 8 years of age when it is immediately available and if the child has no contraindications or precautions to that vaccine.

  *"Healthy" in this instance refers to children 2 years through 8 years old who do not have an underlying medical condition that predisposes them to influenza complications.

- If the nasal spray vaccine is not immediately available and the flu shot is, vaccination should not be delayed and a flu shot should be given.
- Some children 6 months through 8 years of age getting vaccinated for this first time will require two doses of flu vaccine. The second dose should be given at least 28 days after the first dose. Your child's doctor or other health care professional can tell you whether two doses are recommended for your child.
- And remember that influenza antiviral drugs are a second line of defense to treat flu illness.
- Antiviral drugs can treat flu illness and prevent serious flu complications. These drugs work best when started soon after influenza symptoms begin (within 2 days), but persons with high-risk conditions can benefit even when antiviral treatment is started after the first two days of illness.
- A doctor or health care professional can determine if a patient needs flu antiviral drugs.

- Influenza vaccination and rapid antiviral treatment are especially important for people at high risk for flu complications.
- People at high risk for serious flu complications include: people with underlying chronic medical conditions such as asthma, diabetes, heart disease, or neurological conditions; pregnant women; those younger than 5 years or older than 65 years of age; or anyone with a weakened immune system. A full list of high risk factors is available at http://www.cdc.gov/flu/about/disease/high_risk.htm.
- As always, people who are at high risk for influenza complications should see a health care professional promptly if they get flu symptoms, even if they have been vaccinated this season.
- More information about everyday preventive actions that help fight flu is available at http://www.cdc.gov/flu/protect/habits.htm.
- Flu symptoms include fever, cough, sore throat, runny or stuffy nose, muscle or body aches, headache, chills and fatigue.

FluView Activity Update

- According to this week's FluView report, overall seasonal influenza activity remains low across the United States, but there are early signs that activity is increasing, including the first reported pediatric flu death of the 2014-2015 season.
- Below is a summary of the key flu indicators for the week ending October 18, 2014:
    - For the week ending October 18, the proportion of people seeing their health care provider for influenza-like illness (ILI) was below the national baseline. This week, Region 2 (NJ, NY, PR) reported ILI activity above their region-specific baseline level. The increase in ILI activity in Region 2 was due primarily to high ILI activity in Puerto Rico. The other nine regions reported activity levels below region-specific baselines.
    - Puerto Rico experienced high ILI activity. One state (Louisiana) experienced low ILI activity. 49 states and New York City experienced minimal ILI activity. The District of Columbia did not have sufficient data to calculate an activity level. ILI activity data indicate the amount of flu-like illness that is occurring in each state.
    - Guam reported widespread geographic influenza activity. Puerto Rico and five states (Alaska, Connecticut, Florida, North Carolina, and Texas) reported local activity. The U.S. Virgin Islands and 36 states reported sporadic influenza activity. The District of Columbia and nine states reported no influenza activity. Geographic spread data show how many areas within a state or territory are seeing flu activity.

- Data regarding influenza-associated hospitalizations for the 2014-2015 influenza season is not yet available for this season.
- The proportion of deaths attributed to pneumonia and influenza (P&I) based on the 122 Cities Mortality Reporting System is below the epidemic threshold.
- Two influenza-associated pediatric deaths were reported to CDC during the week ending October 18. One death occurred during this season (the week ending October 4, 2014) and was associated with an influenza A (H3) virus. This is the first influenza-associated pediatric death reported for the 2014-2015 season.
    - The other death occurred during the 2013-2014 season and was associated with an influenza B virus. This brings the total number of pediatric deaths reported for the 2013-2014 season to 109.
- Nationally, the percentage of respiratory specimens testing positive for influenza viruses in the United States during the week ending October 18 increased once again to 4.8%. For the most recent three weeks, the regional percentage of respiratory specimens testing positive for influenza viruses ranged from 1.1% to 8.0%.
- Influenza A (H3N2), 2009 influenza A (H1N1), and influenza B viruses have all been identified in the U.S. this season. During the week ending October 18, 268 (66.5%) of the 403 influenza-positive tests reported to CDC were influenza A viruses and 135 (33.5%) were influenza B viruses. Of the 99 influenza A viruses that were subtyped, 97% were H3 viruses and 3% were 2009 H1N1 viruses.
- One infection with an influenza A (H3N2) variant virus (H3N2v) was reported to CDC during the week ending October 18, 2014 by Wisconsin. The patient is reported to have had close contact with swine in the week prior to illness onset. No ongoing human-to-human transmission has been identified. This is the first H3N2v infection reported for the 2014-2015 influenza season, which began on September 28, 2014.
- No antigenic characterization data is available for specimens collected after October 1, 2014.
- No antiviral resistance data is available for specimens collected after October 1, 2014.

FluView is available – and past issues are archived – on the CDC website.

Note: Delays in reporting may mean that data changes over time. The most up to date data for all weeks during the 2014-2015 season can be found on the current FluView.

Vaccine Supply

- Seven influenza vaccine manufacturers have projected that as many as 151 million to 156 million doses of influenza vaccine will be available for use in the United States during the 2014-2015 influenza season.
    - This projection is similar to that provided by manufacturers before influenza vaccine distribution began for this year, with the difference being that the high end of the range is reduced by approximately 4 million doses.
- Of the overall flu vaccine supply projected for the 2014-2015 season, manufacturers estimate that 76 million doses will be available as quadrivalent flu vaccines.
    - Of the total quadrivalent flu vaccine supply, as many as 18 million doses of the nasal spray influenza vaccine (LAIV) have been projected by the manufacturer to be available.
- Some manufacturers have reported delays in shipments that were originally anticipated in early fall; including those who develop flu vaccine approved for children in the U.S.
- Despite these early season shipping delays, however, manufacturers anticipate the majority of their flu vaccine distribution will occur by the end of October. While this is slightly later than vaccine was shipped last year, it is not an unusual pattern for seasonal flu vaccine distribution overall.
- These delays may impact certain vaccine products more than others, thus impacting some providers more than others. We understand that this can be very frustrating for providers and their patients who are experiencing these delays.
- Manufacturers anticipate the majority of their flu vaccine distribution will occur by the end of October; however, some providers will continue to receive shipments beyond October.
- As of October 17, 2014, manufacturers reported having shipped 117.8 million doses of flu vaccine.
- Some points to keep in mind:
    - All nasal spray flu vaccine offered during the 2014-2015 season will be quadrivalent vaccine.
    - Both quadrivalent and trivalent flu shots will be available.
    - Don't delay getting a flu vaccine if you want a quadrivalent vaccine and it is not available. Most of the flu vaccine offered this year will be trivalent. The important thing is to get vaccinated against the flu.
    - More quadrivalent flu vaccine is expected to be available during future seasons.

  For the latest information on flu vaccine supply, including projections and doses distributed, visit http://www.cdc.gov/flu/professionals/vaccination/vaccinesupply.htm.

Influenza-Associated Pediatric Deaths

- Two influenza-associated pediatric deaths were reported to CDC for the week ending October 18, 2014 (Week 42). One of these deaths is the first pediatric death reported for the 2014-2015 flu season. The other occurred during the 2013-2014 season.
- Because of confidentiality issues, CDC does not discuss or give details on individual pediatric death cases.
- Additional information regarding pediatric deaths is available through FluView Interactive.
- A pediatric death is a death in a person who is a U.S. resident and younger than 18 years old resulting from a clinically compatible illness with influenza that is confirmed by an appropriate laboratory test.
- During the 2013-2014 influenza season, a total of 109 influenza-associated pediatric deaths were reported to CDC.
- A review of the available pediatric death reports from the 2013-2014 season indicates that:
    - Of the 106 deaths in which the child's medical history was known, 54% occurred in children who had underlying medical conditions that placed them at high risk of developing serious flu-associated complications. However, 46% had no recognized underlying health problems.
    - The proportions of pediatric deaths that occurred in unvaccinated children and among children with underlying medical conditions that placed them at high risk from flu complications are largely consistent with what has been seen in the past.
- Since 2004, when flu-associated pediatric deaths became a nationally notifiable condition, the number of deaths reported to CDC each season has ranged from 37 (2011-2012 season) to 171 (2012-2013 season).
- During the 2009 H1N1 pandemic — April 15, 2009 to October 2, 2010 — 358 pediatric deaths were reported to CDC.
- These deaths are a somber reminder of the danger flu poses to children.
- The single best way to protect children against seasonal flu and its potential severe consequences is to have them receive a seasonal flu vaccine each year.

- Among children, vaccination is especially important for those younger than 5 years of age and those of any age with an underlying medical condition like asthma; a neurological, neuromuscular or neurodevelopmental disorder; or immune suppression. These children are at higher risk of serious complications if they get the flu.
- Yearly vaccination also is especially important for people who come in contact with high risk children in order to protect the child (or children) from the flu.
- Even previously healthy children can become seriously ill if they get the flu. Data on laboratory-confirmed influenza hospitalizations collected through FluSurv-Net during the 2013-2014 flu season indicated that 42% of children hospitalized with the flu had no identified underlying medical conditions.
- Flu-associated deaths in children younger than 18 years old should be reported through the Influenza-Associated Pediatric Mortality Surveillance System. The number of flu-associated deaths among children reported during the 2014-2015 flu season is updated each week and can be found at http://www.cdc.gov/flu/weekly/.
- Additional information about the pediatric deaths, including basic demographics, underlying conditions and week and place of death, for the 2014-2015 season as well as past influenza seasons, is available through the Influenza Associated Pediatric Mortality application of FluView Interactive at http://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html.

Human Infection with influenza A (H3N2) variant virus ("H3N2v")

- This week's FluView included a report of a human infection with an influenza A (H3N2) variant virus (H3N2v) in the United States. Flu viruses that normally circulate in pigs are called "variant" viruses when they are found in people. (For more information on H3N2v, see "Background" section below.)
- The reported case was in a child from Wisconsin who had exposure to pigs on a residential farm. The child has since recovered.
- No evidence of human-to-human transmission of H3N2v or any increases in flu-like illness in the community have been reported.
- Confirmatory PCR testing and genetic sequencing of the virus was conducted by CDC.
- Genetic sequencing showed this virus has a combination of internal genes that has been observed previously in people: this H3N2v virus has the nucleoprotein (NP) and the matrix (M) gene from the 2009 H1N1 virus. (For more information on the internal genes of previous human infections with H3N2v viruses, see "Background" section below.)
- This virus is has the same genetic composition as viruses previously isolated from pigs in the U.S. earlier this year.

- Further laboratory testing to fully characterize this virus is ongoing.
- CDC has developed guidance for the public to protect against H3N2v, and guidance for public health and health care workers.
- CDC recommends that people at high risk of serious flu complications due to age or health factors avoid pigs at fairs (and their environments, i.e. swine barns).
- High risk people include children younger than 5 years, people 65 years and older, people with underlying health conditions like asthma, diabetes and heart disease and pregnant women. A full list of high risk conditions is available at http://www.cdc.gov/flu/about/disease/high_risk.htm.
- In addition, people at high risk of flu complications who develop flu symptoms should contact their health care professional.
    - If you are at high risk of flu complications, have developed flu symptoms after exposure to pigs at a fair or had other possible contact with pigs, tell your health care professional about your exposure.
- People who go to a doctor for flu symptoms following direct or close contact with swine (pigs) should tell their doctor about this exposure. CDC recommends that people at high risk of flu complications get influenza antiviral treatment as quickly as possible if they have confirmed or suspected influenza, including H3N2v.

Background

- H3N2v viruses with the matrix (M) gene from the 2009 H1N1 pandemic virus were first detected in people in July 2011, and these viruses were first identified in U.S. pigs in 2010.
    - Since then, 343 human cases of H3N2v virus infection have been detected in the United States. The genetic characterization of these viruses has varied, but their antigenic properties have been similar.
    - Human infections with H3N2v viruses since 2011 have had one of the following three combinations of genes from the 2009 H1N1 virus: the “M” gene by itself; both the “M” and “PA” genes; both the “NP” and “M” genes; or the “M,” “PA” and “NP” genes” together.
- These infections have mostly been associated with prolonged exposure to pigs at agricultural fairs.
- Limited human-to-human spread of this virus has been detected in the past, but no sustained or community spread of H3N2v has ever been identified.
- It’s possible that sporadic infections and even localized outbreaks among people with this virus will continue to occur.
- Fair settings can magnify the risk of flu spreading among pigs and between pigs and people. Pigs from many farms come in close contact with each other and with people

at fairs, increasing the risk of exposure to pigs that may be infected with swine influenza viruses.

- While some pigs show signs when they are infected with swine influenza (like coughing and sneezing), it is possible that a pig may be infected and not show any signs (the pig may appear well).There is evidence, however, that asymptomatic pigs (no signs of illness) may still spread swine flu viruses.
- Influenza viruses are thought to spread from a pig to a person in the same way that human flu viruses spread—mainly through droplets produced by coughing and sneezing.
- CDC continues to monitor novel influenza A viruses, including H3N2v, closely and will provide updates on H3N2v cases and other variant flu viruses weekly in FluView and on the H3N2v page.
    - H3N2v case counts by state and year are available at http://www.cdc.gov/flu/swineflu/h3n2v-case-count.htm.

Guidance

- CDC has developed guidance for the public to protect against H3N2v virus infection. It is available at http://www.cdc.gov/flu/swineflu/h3n2v-factsheet.htm.
- CDC H3N2v guidance for public health is available at http://www.cdc.gov/flu/swineflu/h3n2v-publichealth.htm.
- CDC H3N2v guidance for health care workers is available at http://www.cdc.gov/flu/swineflu/h3n2v-healthcare.htm.