Human Infection with Novel Influenza A Viruses
Key Points

November 3, 2017

- This week's FluView reports of three human infections with novel influenza A viruses from three states: Colorado [1], Nebraska [1], and Michigan [1].
- Two infections were with influenza A(H3N2) variant (H3N2v) viruses and one infection was with an influenza A(H1N2) variant (H1N2v) virus.
- When an influenza virus that normally infects pigs is found in people, it is called a variant influenza virus and is designated with the letter "v."
- Swine flu viruses do not normally infect humans, however, sporadic human infections with influenza viruses that normally infect swine have occurred.
- Most human infections with variant viruses have occurred in people exposed to infected pigs (e.g., children near pigs at a fair or workers in the swine industry), but there have been some instances of limited person-to-person spread of variant viruses.
- The patient in Colorado reported exposure to swine at an agricultural event in the week preceding illness onset.
- The patient in Nebraska reported no contact with swine during the week preceding illness onset, however a member of their household did report exposure to swine.
- The patient in Michigan is a close contact of a laboratory-confirmed H3N2v infection that was reported earlier this year. While exposure to swine was reported for the patient, that exposure occurred more than a week prior to illness onset, which is outside of the typical incubation period.
- It is possible that limited person-to-person transmission may have occurred, but no ongoing person-to-person spread of these viruses has been identified.
- There have been 65 variant virus infections reported during 2017 and 465 variant virus infections reported in the United States since 2005.
    - In 2017, six of the 65 infections have resulted in hospitalization, but all patients have fully recovered from their illnesses.
    - See Case Count: Detected U.S. Infections with Variant Influenza Viruses by State since December 2005 (http://www.cdc.gov/flu/swineflu/variant-cases-us.htm).
- Illnesses associated with variant virus infections have been mostly mild with symptoms similar to those of seasonal flu. However, variant virus infections also can result in serious illness, causing hospitalization and death.
- However, each case of human infection with a variant influenza virus should be fully investigated to a) be sure that such viruses are not spreading in an efficient and ongoing way in humans, and b) to limit further exposure of humans to infected animals if infected animals are identified.
- Agricultural fairs are one setting that can result in many human exposures to swine.
- Additional information on influenza in swine, variant influenza infection in humans, and strategies to interact safely with swine can be found at http://www.cdc.gov/flu/swineflu/index.htm.

CDC Recommendations

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- CDC has long-standing guidance for people attending agricultural fairs or other settings where swine might be present, including additional precautions for people who are at high risk of serious flu complications. (http://www.cdc.gov/flu/swineflu/variant/preventspreadfactsheet.htm)
- CDC recommendations for people at high risk:
    - Anyone who is at high risk of serious flu complications (http://www.cdc.gov/flu/about/disease/high_risk.htm) and planning to attend a setting where pigs will be present should avoid pigs and swine barns.
    - People who are at high risk of serious flu complications include children younger than 5 years, people 65 years and older, pregnant women, and people with certain long-term health conditions (like asthma and other lung disease, diabetes, heart disease, weakened immune systems, and neurological or neurodevelopmental conditions).
- CDC recommendations for people not at high risk:
    - Do not take food or drink into pig areas; do not eat, drink or put anything in your mouth in pig areas.
    - Do not take toys, pacifiers, cups, baby bottles, strollers, or similar items into pig areas.
    - Avoid close contact with pigs that look or act ill.
    - Take protective measures if you must come in contact with pigs that are known or suspected to be sick. This includes minimizing contact with pigs and wearing personal protective equipment like protective clothing, gloves and masks that cover your mouth and nose when contact is required.
    - Wash your hands often with soap and running water before and after exposure to pigs. If soap and water are not available, use an alcohol-based hand rub.
    - To further reduce the risk of infection, minimize contact with pigs in the pig barn and arenas.
    - Watch your pig (if you have one) for illness. Call a veterinarian if you suspect illness.
    - Avoid contact with pigs if you have flu symptoms. Wait to have contact with pigs until 7 days after your illness started or until you have been without fever for 24 hours without the use of fever-reducing medications, whichever is longer. If you must have contact with pigs while you are sick, take the protective actions listed above.
- People with high risk factors who develop flu symptoms should call a health care provider. Tell them about your high risk condition and any exposure to pigs or swine barns you have had recently. Providers should alert the local or state public health department if variant influenza infection is suspected. Prescription influenza antiviral drugs can treat infections with these viruses in people, especially when initiated early.
- People who go to a health care provider for flu symptoms following direct or close contact with swine (pigs) should tell their health care provider 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 variant influenza.

What CDC Does

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- CDC works to improve global control and prevention of seasonal and novel influenza, including swine influenza viruses.
- In collaboration with domestic and global partners, CDC's Influenza Division:
    - Builds surveillance and response capacity.
    - Monitors and assesses influenza viruses and illness.
    - Improves vaccines and other interventions.
    - Applies research to provide science-based enhancement of prevention and control policies and programs.
- In addition, to prevent and respond to variant influenza and other zoonotic diseases, the Centers for Disease Control and Prevention (CDC) established the Public Health Youth Agriculture Education partnership pilot program in 2011.
- At a national level, this program is designed to educate youth about zoonotic infections and deliver prevention and mitigation messages targeting these infections.
- More information about this program is available at https://www.cdc.gov/flu/swineflu/youth-agriculture-education-program.htm.