

**Guidance for Clinicians on Human Infections
with Variant Influenza Viruses**

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TO:	Health Alert Network
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SUBJECT:	Guidance for Clinicians on Human Infections with Variant Influenza Viruses
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Summary

- Michigan recently identified two people infected with variant influenza viruses.
- One person was infected with influenza A H1N2v and the other, with influenza A H3v following contact with swine at two different agricultural fairs.
- Variant influenza viruses do not normally infect humans; however sporadic human infections with variant influenza viruses can occur. Most infections with variant influenza do not result in person-to-person spread.
- Common exposures to variant influenza include individuals exhibiting or visiting swine at fairs or workers in the swine industry.
- Variant influenza infection cannot be distinguished by clinical features from seasonal influenza infection or infection from other respiratory viruses that cause influenza-like illness. Testing is the main diagnostic method to identify the causative virus.
- For patients with influenza-like illness and swine exposure, collect a nasopharyngeal swab or aspirate, place in viral transport medium, and contact your local health jurisdiction to arrange transport to Pennsylvania Department of Health Bureau of Laboratories (BOL).
- Routine testing will not identify variant infection; however, clinicians should test for common etiologies and simultaneously arrange testing of specimens from ill persons with swine exposure at the BOL.
- Clinicians treating an individual with influenza-like illness who had exposure to swine in the seven days prior to illness should notify their local public health jurisdiction or PA DOH by calling 1-877-PA-HEALTH.

Background

On July 26, 2023, the Michigan Department of Health and Human Services reported one person infected with influenza A H3v following exposure to swine at an agricultural fair. This is the first person identified in the United States with an influenza A H3v infection. On August 4, 2023, Michigan reported a second person infected with a variant influenza A virus, also following exposure to swine at an agricultural fair. This second infection was caused by influenza H1N2v and is the first reported person infected with influenza A H1N2v in the United States this year. To date, no additional persons infected with either influenza variant or person-to-person spread has been identified.

Variant influenza viruses associated with swine do not normally infect humans; however, sporadic human infections with variant influenza viruses can occur. Most commonly, human infections with variant viruses occur in people with exposure to infected swine, for example, individuals visiting swine barns at a fair or workers in the swine industry. Most human infections with variant influenza viruses do not result in person-to-person spread. However, variant influenza viruses are capable of mutating and causing novel influenza viruses of concern. Therefore, each human infection with a variant influenza virus should be fully investigated to determine if person-to-person spread has occurred, and if infected animals are identified, to limit further exposure of humans to these animals.

Clinical presentation and risk groups:

Clinical characteristics of human infections with variant influenza viruses generally have similar signs and symptoms of uncomplicated seasonal influenza. Symptoms can include fever, cough, pharyngitis, rhinorrhea, myalgia, and headache. Vomiting and diarrhea also have been reported in some infections in children. Milder clinical illness is possible, including lack of fever. The duration of illness appears to be similar to uncomplicated seasonal influenza, approximately three to five days. While assumed to be similar to seasonal influenza virus infection, the duration of viral replication and possible infectiousness of variant virus infection has not been studied. Exacerbation of underlying conditions (e.g., asthma) has occurred.

The same people at increased risk for complications of seasonal influenza are likely at high risk for serious complications from variant virus infection, including children younger than five years, and people who are pregnant, 65 years and older, immunosuppressed, have chronic pulmonary, cardiac, metabolic, hematologic, renal, hepatic, neurological or neurodevelopmental conditions, or with other co-morbidities, including extreme obesity.

Clinical diagnosis

Variant virus infection cannot be distinguished by clinical features from seasonal influenza virus infection or from infection with other respiratory viruses that can cause influenza-like illness (fever and either cough or sore throat). Therefore, the key to suspecting variant influenza infection in an ill person is to determine if there was any exposure to swine in the seven days prior to illness onset. Exposure can be defined as follows:

- Direct contact with swine (e.g., showing swine, raising swine, feeding swine, or cleaning swine waste); or
- Indirect exposure to swine (e.g., visiting a swine farm or walking through a swine barn), especially if pigs were known to be ill; or

- Close contact (being within six feet) with an ill person who had recent swine exposure or is known to be infected with a variant virus.

For patients with influenza-like illness and swine exposure as defined above, collect respiratory samples for influenza testing as outlined below. Clinicians should obtain a nasopharyngeal swab or aspirate (or a combined nasal swab and throat swab), place the swab or aspirate into viral transport medium, and contact their local health jurisdiction (call 1-877-PA-HEALTH) to arrange transport to the Pennsylvania Department of Health BOL.

Routine testing for influenza will not identify variant infections; however, clinicians should test for common etiologies and simultaneously arrange testing of specimens from ill persons with swine exposure at the BOL. If testing is also going to be done at the hospital or clinic, the specimen should be split, or two specimens should be taken so that one can be immediately sent to the BOL. For collection guidance refer to the BOL website www.health.pa.gov/labs under Clinical Microbiology/Specimen Collection Guidance.

Reporting

Clinicians treating an individual with influenza-like illness who has had exposure to swine in the seven days prior to illness should notify their local public health jurisdiction or PA DOH by calling 1-877-PA-HEALTH.

Clinical management and antiviral chemoprophylaxis

Clinical management of variant virus infection is similar to management of seasonal influenza virus infections. Persons with uncomplicated variant virus infection can be managed on an outpatient basis, with close monitoring for clinical progression and development of complications. Early neuraminidase inhibitor antiviral treatment is indicated for all hospitalized persons, severe and progressive illness, and for any high-risk patients with suspected or confirmed variant virus infection. Current information indicates that variant viruses are susceptible to the neuraminidase inhibitor drugs oseltamivir, peramivir, zanamivir, and baloxavir. These drugs can be prescribed to treat variant virus infections. However, most variant viruses are resistant to the antiviral drugs amantadine and rimantadine; therefore, amantadine and rimantadine should not be prescribed. CDC recommends against antiviral chemoprophylaxis (before or after swine exposure), including for persons who are at high risk for influenza complications. If such high-risk persons become ill, they should seek medical care as soon as possible and early antiviral treatment should be started if influenza, including variant virus infection, is suspected.

Infection control

Limited, non-sustained human-to-human transmission of some variant viruses has been reported, but the risk of human-to-human transmission is thought to be low. However, it should be assumed that variant viruses may be transmitted from person-to-person. Therefore, in health care settings, infection control recommendations are the same as for seasonal influenza, including standard and droplet precautions. Health care personnel who collect respiratory specimens from ill persons for influenza testing should follow standard and droplet precautions, as recommended for patient care.

Vaccination

No vaccine specifically targeted against variant influenza viruses is available at this time. Immunization with seasonal influenza vaccine does not provide protection against infection with variant viruses. However, seasonal influenza vaccination is recommended for all persons aged six months and older to prevent seasonal influenza and to minimize co-infection with variant and seasonal influenza, which could lead to genetic reassortment and result in a new influenza strain.

For more information about variant influenza, visit the CDC website at:

<https://www.cdc.gov/flu/swineflu/interim-guidance-variant-flu.htm>

Additional Resources

Influenza Antiviral Medications: Summary for Clinicians:

<https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>

Novel influenza A virus infections in USA:

https://gis.cdc.gov/grasp/fluview/Novel_Influenza.html

Bureau of Laboratories instructions for obtaining and shipping viral respiratory specimens:

<https://www.health.pa.gov/topics/Documents/Laboratories/Viral%20Testing%20Respiratory%20Swab%20Collection%20and%20Shipping%20Instructions.pdf>

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Categories of Health Alert messages:

Health Alert: conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: provides important information for a specific incident or situation; may not require immediate action.

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action.

This information is current as of August 9, 2023, but may be modified in the future. We will continue to post updated information regarding the most common questions about this subject.