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Clinical Management and Testing Recommendations for Influenza A H3N2 Variant
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A large increase in human infections with influenza A H3N2 variant (H3N2v) virus in the United States has been observed since July 2012. H3N2v has been circulating in pigs since 2011. Human infections have been observed since 2011 in nine states with the most recent outbreaks occurring in Indiana and Ohio. Though the virus contains the M gene from the 2009 H1N1 influenza pandemic virus, which is thought to make communicability easier, person-to-person transmission has not been documented for cases occurring this year. Nearly all H3N2v human cases have had direct or indirect exposure to swine. Clinical presentation and treatment is similar to seasonal influenza. This advisory presents an update of current H3N2v epidemiology and provides guidance for healthcare professionals regarding clinical management and testing of suspect H3N2v cases.

As of August 10, 2012, 153 confirmed cases in this most recent outbreak of H3N2v have been identified in Indiana (N=120), Ohio (N=31), Illinois (N=1), and Hawaii (N=1). To date, nearly all cases have had indirect (visiting a pig farm, walking through a swine barn at an agricultural fair) or direct (raising pigs, feeding pigs, caring for pigs or their waste) exposure to swine in the week before their illness onset. More than 90% of cases are children and only two cases that had underlying medical conditions required hospitalization.

Presently, there are no confirmed or suspect cases of H3N2v in Philadelphia. There is also no seasonal influenza circulating. However, given the evolving nature of this outbreak it is important that healthcare professionals enhance local surveillance for H3N2v cases and adhere to the clinical management and testing recommendations provided in this advisory and the attached testing and treatment algorithm.

- Clinicians should consider the possibility of H3N2v infections in patients presenting with febrile respiratory illness (fever ≥100° F *and* cough or sore throat) with a history of swine exposure or close contact to an ill person with recent swine exposure in the week before illness onset. Clinical characteristics of H3N2v are similar to uncomplicated seasonal influenza and include fever, cough, pharyngitis, rhinorrhea, myalgia, and headache along with some vomiting and diarrhea typically in pediatric cases.

- A nasopharyngeal swab or aspirate should be obtained from suspect H3N2v patients. The specimen should be placed in viral transport media and refrigerated until it can be sent to a public health laboratory for confirmatory testing. If testing cannot be performed within 72 hours of specimen collection, the specimen should be stored at -70°C. Rapid influenza diagnostic tests (RIDTs) and immunofluorescence assays cannot reliably detect H3N2v and are unable to differentiate between seasonal influenza A and H3N2v. Therefore, it is important that all suspect H3N2v specimens are sent to the Pennsylvania Department of Health Bureau of Laboratories (PABOL) for testing. PABOL is currently the only laboratory in the state that can perform the CDC rRT-PCR assay on specimens and identify presumptive positive H3N2v infection. PDPH can provide assistance with transport to the laboratory.

- Patients with suspect H3N2v infection should be treated with oseltamivir or zanamivir as soon as possible; treatment should not be dependent on laboratory test results. Aspirin or aspirin-containing products should not be given to children with influenza-like illness including suspect H3N2v infection because of the risk of Reye's syndrome.

- Health care personnel should adhere to appropriate infection control precautions when collecting specimens and caring for patients. Ill persons who are not hospitalized should be isolated at home away from others as much as possible until 24 hours after their fever resolves without fever-reducing medications.

- All suspected cases H3N2v should be reported to the Philadelphia Department of Public Health (PDPH) Division of Disease Control by calling 215-685-6740. For more information please visit hip.phila.gov and click on the Disease Information tab or visit www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm.

Algorithm for Testing and Treating Patients with Suspected Influenza (including Seasonal and H3N2v Virus)

Last updated 8/15/2012

Patient presents with **influenza-like illness (ILI)**:
- Temperature ≥ 100º F (37.8º C) **AND**:
- Cough and/or sore throat
- Without other confirmed etiology

NO → Testing for influenza is *not recommended*.
- Workup and follow-up as clinically indicated.

YES

Exposure to swine in week before symptom onset:
- Direct contact or indirect exposure to pigs
- Close contact to ill person with recent swine exposure

YES → Report case to PDPH at 215-685-6740.

NO

Illness Presentation

Patient presents with **MILD** ILI symptoms:
Appropriate infection control measures should be instituted

Patient has **underlying conditions** that increase risk for complications:
- < 5 or ≥ 65 years of age
- Pregnant or 2 weeks postpartum
- Underlying conditions associated with a higher risk of medical complications from influenza:
  - Pulmonary disease (including asthma or COPD)
  - Cardiovascular disease (excluding hypertension)
  - Renal, hepatic, hematological, neurologic, neuromuscular disease
  - Metabolic disorders (including diabetes) or morbid obesity
  - Immunosuppression, including that caused by HIV or medications
- <19 years of age on long-term aspirin therapy

Patient presents with **SEVERE** symptoms including: respiratory distress, hypoxia, pneumonia, acute respiratory distress syndrome, neurologic symptoms or atypical symptoms in severely immunocompromised patient.

Clinical Management

NO: Treatment is generally not indicated, but use clinical judgment. If there is evidence of lower respiratory tract involvement, treat empirically.

YES: Initiate antiviral treatment with oseltamivir or zanamivir as soon as possible and ideally within 48 hours; do not wait for laboratory test results.

- Initiate antiviral treatment (oseltamivir, zanamivir) within 48 hours of symptom onset; do not wait for laboratory test results. Use clinical judgment to decide whether additional therapy is needed.
- If severe, consider referring the case to a local ED or hospital for admission. Notify EMS or hospital of suspected influenza and need for appropriate infection control.

Testing

Not necessary, particularly in periods of high influenza incidence.

Testing is generally not necessary and should not influence treatment decisions.

Obtain any of the following: nasopharyngeal swab, nasal aspirate, nasal swab plus throat swab, or nasal wash
- Place in viral transport media and store in refrigerator while awaiting transport. If testing will not occur within 72 hours, place in -70° C
- *Isolates from fatal, ICU, or suspected antiviral resistance and all swine exposure cases should be forwarded to the PA Bureau of Laboratories.* All other isolates may be sent to a commercial laboratory for testing

Additional Comments:

- Rapid influenza diagnostic tests (RIDT) can be used used to identify influenza. However, because of sub-optimal sensitivity for most commercial RIDTs, a negative result does not rule out influenza. Specimens should be sent for viral culture or rt-PCR testing to confirm results of RIDTs. RIDTs cannot specifically identify H3N2v virus infection.
- Additional information regarding infection control, antiviral medication use, clinical guidance for specific groups, and testing can be found at www.cdc.gov/flu/professionals.