
Interim Guidance for Clinicians on Identifying and Caring for Patients with Novel influenza A (H1N1) Virus Infection

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Objective: This document provides interim guidance for clinicians who might provide care for patients with confirmed novel influenza A (H1N1) or suspected novel influenza A (H1N1) virus infection (previously referred to as swine-origin influenza virus). **This document has changed as more ill persons have been identified and more epidemiologic and clinical information has been gathered. CDC recommends that testing and treatment be focused on those with severe respiratory illness and those at highest risk of complications from influenza, as reflected in this document.**

Transmission

Transmission of novel influenza A (H1N1) is being studied as part of the ongoing outbreak investigation, but limited data available indicate that this virus is transmitted in ways similar to other influenza viruses. Seasonal human influenza viruses are thought to spread from person to person primarily through large-particle respiratory droplet transmission (e.g., when an infected person coughs or sneezes near a susceptible person). Transmission via large-particle droplets requires close contact between source and recipient persons because droplets do not remain suspended in the air and generally travel only a short distance (< 6 feet). Contact with respiratory-droplet contaminated surfaces is another possible source of transmission and transmission via droplet nuclei (also called “airborne” transmission) may also occur. Because data from swine-origin influenza viruses are limited, the potential for ocular, conjunctival, or gastrointestinal infection is unknown. Since this is a novel influenza A virus in humans, transmission from infected persons to close contacts might be common. All respiratory secretions and bodily fluids (diarrheal stool) of novel influenza A (H1N1) cases should be considered potentially infectious.

Incubation period

The estimated incubation period is unknown and could range from 1-7 days, and more likely 1-4 days.

Persons with confirmed novel influenza A (H1N1) virus infection

Case definitions for *Confirmed*, *Probable* and *Suspected* cases can be found at:
http://www.cdc.gov/h1n1flu/casedef_swineflu.htm

Clinical findings

Patients with uncomplicated disease due to confirmed novel influenza A (H1N1) virus infection have experienced fever, chills, headache, upper respiratory tract symptoms (cough, sore throat, rhinorrhea, shortness of breath), myalgias, arthralgias, fatigue, vomiting, or diarrhea. In New York City, 95% of patients with novel influenza A (H1N1) met the case definition for influenza-like illness (subjective fever plus cough and/or sore throat)
(<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0430a1.htm>)

Complications

There is insufficient information to date about clinical complications of this novel influenza A (H1N1) virus infection. Among persons infected with previous infection with human variants of swine influenza virus, clinical syndromes have ranged from mild respiratory illness, to lower respiratory tract illness, dehydration, or pneumonia. Deaths caused by previous variants of swine influenza have occasionally occurred. Although data on the spectrum of illness is not yet available for this new variant of novel influenza A (H1N1), clinicians should expect complications to be similar to seasonal influenza: exacerbation of underlying chronic medical conditions, upper respiratory tract disease (sinusitis, otitis media, croup) lower respiratory tract disease (pneumonia, bronchiolitis, status asthmaticus), cardiac (myocarditis, pericarditis), musculoskeletal (myositis, rhabdomyolysis), neurologic (acute and post-infectious encephalopathy, encephalitis, febrile seizures, status epilepticus), toxic shock syndrome, and secondary bacterial pneumonia with or without sepsis.

Groups at high risk for complications

There are insufficient data available at this point to determine who is at higher risk for complications of novel influenza A (H1N1) virus infection. At this time, the same age and risk groups who are at higher risk for seasonal influenza complications should also be considered at higher risk for swine-origin influenza complications.

Groups at higher risk for seasonal influenza complications include:

- Children less than 5 years old;
- Persons aged 65 years or older;
- Children and adolescents (less than 18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye syndrome after influenza virus infection;
- Pregnant women;
- Adults and children who have chronic pulmonary, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders;
- Adults and children who have immunosuppression (including immunosuppression caused by medications or by HIV);
- Residents of nursing homes and other chronic-care facilities.

Medical care for patients with novel influenza A (H1N1) virus

Not all patients with suspected novel influenza (H1N1) infection need to be seen by a health care provider. Patients with severe illness and those at high risk for complications from influenza (see list above) should contact their medical provider or seek medical care.

Which patients should be tested for novel influenza A (H1N1) virus

Clinicians should test persons for the novel influenza (H1N1) virus if they have an acute febrile respiratory illness or sepsis-like syndrome. Certain groups may have atypical presentations including infants, elderly and persons with compromised immune systems. Priority for testing includes persons who 1) require hospitalization *or* 2) are at high-risk for severe disease (as listed above). To test for novel H1N1 influenza virus, upper respiratory specimens, such as a nasopharyngeal swab or aspirate, nasal swab plus a throat swab or nasal wash, or tracheal aspirate should be collected. Nasal and tracheal aspirates require appropriate personal protective equipment (http://www.cdc.gov/h1n1flu/guidelines_labworkers.htm). Specimens should be sent to the state public health laboratory. Not all people with suspected novel influenza (H1N1) infection need to have the diagnosis confirmed, especially if the person resides in an affected area or if the illness is mild. Recommendations on who to test may differ in some states. Clinicians should be aware of local guidance on testing and should use their clinical judgment in

addition to this guidance for deciding when to test for novel influenza A (H1N1). Interim guidance on specimen collection, processing, and testing can be found at: <http://www.cdc.gov/h1n1flu/specimencollection.htm>

Reporting suspect novel influenza A (H1N1) virus infection

Clinicians should contact their state public health department if they test a person for novel influenza A (H1N1) infection to obtain information on what clinical and epidemiological data to collect and specimen shipment protocols in their state. Information on laboratory testing and specimen collection can be found at <http://www.cdc.gov/h1n1flu/guidance/>.

Treatment of novel influenza A (H1N1)

The novel influenza (H1N1) virus is susceptible to both oseltamivir and zanamivir. It is resistant to amantadine and rimantadine. Interim guidance on antiviral treatment for novel influenza A (H1N1) can be found at: <http://www.cdc.gov/h1n1flu/recommendations.htm>

Additional Therapy

Additional therapy such as antibacterial agents, should be used at the discretion of the clinicians given the patients clinical presentation. For antibacterial treatment of pneumonia, clinical guidance for community-acquired pneumonia should be followed and can be accessed at <http://www.journals.uchicago.edu/doi/pdf/10.1086/511159?cookieSet=1>.

For hospitalized patients with severe community-acquired pneumonia (CAP) requiring intensive care unit admission, methicillin-resistant *Staphylococcus aureus* (MRSA) infection should be suspected and treated empirically in addition to other causes of CAP if they have 1) necrotizing or cavitary infiltrates or 2) empyema.

Infectious period

The duration of shedding with novel influenza A (H1N1) virus is unknown. Therefore, until data are available, the estimated duration of viral shedding is based upon seasonal influenza virus infection. Infected persons are assumed to be shedding virus from one day prior to illness onset until resolution of symptoms. Persons with novel influenza A (H1N1) virus infection should be considered potentially contagious from 1 day before to 7 days following illness onset. Persons who continue to be ill longer than 7 days after illness onset should be considered potentially contagious until symptoms have resolved. Children, especially younger children, might be contagious for longer periods.

Infection control measures

Guidance on infection control during care of patients with confirmed or suspected novel influenza A (H1N1) virus infection can be found at: http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm

Antiviral chemoprophylaxis

Guidance on pre-exposure and post-exposure chemoprophylaxis with antiviral agents for novel influenza A (H1N1) virus can be found at: <http://www.cdc.gov/h1n1flu/recommendations.htm>

Additional Information

Additional information on swine-origin influenza can be found at: <http://www.cdc.gov/h1n1flu/>