



# Novel Influenza A (H5N1 and H7N9) Quicksheet



## **BACKGROUND (as of August 2014)**

Novel influenza infections are those due to influenza viruses that differ from strains currently circulating in humans. Two novel influenza A viruses, H5N1 and H7N9, have caused fatal human cases outside of the United States, including Canada, but no cases have been identified in the U.S.

- Since November 2003, more than 600 human influenza A (H5N1) cases have been reported from numerous countries, including China, Indonesia, Egypt and Turkey. On January 8, 2014, the first case of H5N1 in North America was reported in a Canadian traveler who had recently been in China. Most H5N1 patients have been children or young adults with close, sustained contact with backyard poultry. Approximately 60% have died.
- Since April 2013, more than 400 people infected with avian influenza A (H7N9) virus have been reported from several provinces in mainland China, Hong Kong, and Taiwan. Most patients were elderly with chronic medical conditions. Prior to illness onset, most reported contact with poultry, often at live bird markets. Approximately 36 % have died.
- All patients with confirmed novel influenza to date (both H5N1 and H7N9) have had respiratory disease; complications have included pneumonia, acute respiratory distress syndrome (ARDS), and sepsis with multi-organ failure.
- There has been **no** evidence of sustained human-to-human transmission of these viruses. If these viruses were to develop the ability to transmit easily from person-to-person, a worldwide pandemic could occur.
- In the laboratory, novel influenza viruses could be subtyped as non-human or found to be unsubtypeable by standard methods and reagents.

## **INFECTIOUS PERIOD**

The infectious period for H5N1 and H7N9 is unknown. For seasonal influenza, healthy adults may infect others beginning 1 day before symptoms develop and up to 7 days after becoming sick. Young children and people with weakened immune systems might be infectious for a longer time. Until further data are available, the infectious period for H5N1 and H7N9 should be considered from **1 day before symptom onset to resolution of illness.**

## **WHO SHOULD BE TESTED?**

Test patients who meet both the clinical case definition and exposure criteria.

Please provide available clinical and demographic information in CalREDIE under the “Influenza-Novel Strain” tab, or use the Novel Influenza Case History Form, which is available at:

[http://www.cdph.ca.gov/programs/dcdc/Documents/CDPH\\_8658\\_Final\\_NovelFlu\\_LabConfirmedCaseReportForm\\_02102012.pdf](http://www.cdph.ca.gov/programs/dcdc/Documents/CDPH_8658_Final_NovelFlu_LabConfirmedCaseReportForm_02102012.pdf)

Immediately notify CDPH about these patients by calling (510) 620-3737 or (510) 231-6861.

## **CLINICAL CASE DEFINITION\*\***

- New-onset severe acute respiratory illness leading to hospitalization or death; **AND**
- No alternative etiology is identified.

## **EXPOSURE CRITERIA**

### **For Any Novel Influenza Virus**

- Within **10** days of illness onset, close contact with a confirmed or suspected case of human infection with a novel influenza virus; **OR**
  - Within **10** days of illness onset, history of travel to areas where a novel virus has been detected in humans or animals.
    - **H5N1:** Thus far, human H5N1 cases have been recognized in 15 countries. Indonesia (197), Egypt (176), Vietnam (127), Cambodia (56), China (47), and Thailand (25) have reported the most human cases.
    - Lists of H5N1 affected areas are available at: [http://www.oie.int/fileadmin/Home/eng/Animal\\_Health\\_in\\_the\\_World/docs/pdf/graph\\_avian\\_influenza/graphs\\_HPAI\\_02\\_01\\_2014.pdf](http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/graph_avian_influenza/graphs_HPAI_02_01_2014.pdf) and [http://www.who.int/influenza/human\\_animal\\_interface/EN\\_GIP\\_20131210CumulativeNumberH5N1cases.pdf](http://www.who.int/influenza/human_animal_interface/EN_GIP_20131210CumulativeNumberH5N1cases.pdf)
    - **H7N9:** As of August 2014, only China and Malaysia
- OR**
- History of working with a live novel influenza virus in a laboratory.

\* \*In contrast to the CDPH clinical case definition which focuses on patients requiring hospitalization or who die, current CDC guidances recommend testing of all travelers with Illness compatible with influenza who meet exposure criteria regardless of severity of illness (<http://www.cdc.gov/flu/avianflu/h7n9/case-definitions.htm>). At their discretion, local health departments may choose to consider testing of outpatient, non-hospitalized cases who otherwise meet the clinical case definition and exposure criteria. Local health departments are encouraged to contact CDPH at (510) 620-3737 or (510) 231-6861 for consultation.

## **SPECIMEN COLLECTION AND TESTING**

Polymerase chain reaction (PCR) testing is available at certain local public health laboratories, the CDPH Viral and Rickettsial Disease Laboratory and CDC.

Laboratories should NOT attempt to perform viral culture on specimens from patients with suspected or laboratory-confirmed novel influenza infection.

To increase the likelihood of detecting infection, submit multiple specimens from different sites and different times after symptom onset, including:

- Upper respiratory tract specimens, nasopharyngeal and oropharyngeal (throat) swabs, nasal aspirates or washes. Use only synthetic fiber swabs with plastic shafts; no calcium alginate or wooden shaft swabs.
- For patients with pneumonia or ARDS, lower respiratory tract specimens typically have the highest yield: collect bronchoalveolar lavage, tracheal aspirate, pleural fluid or sputum whenever possible.

All specimens must be accompanied by the CDPH-VRDL Influenza or other Respiratory Illnesses Specimen Submittal Form, which is available at: <http://www.cdph.ca.gov/HealthInfo/discond/Documents/Influenza%20and%20Respiratory-%20Individual%20Specimen%20Submittal%20Form.pdf>

## **TREATMENT RECOMMENDATIONS**

- Oseltamivir, 75 mg administered orally twice a day for 5 days, is recommended for hospitalized patients as soon as possible, even if more than 48 hours has elapsed since illness onset. Treatment should not be delayed while waiting for laboratory testing results.
- Longer courses (e.g., 10 days) or higher doses (e.g., 150 mg twice daily in adults with normal renal function) may be considered for severely ill or immunocompromised patients, although the clinical benefit is unknown.
- For patients who are not responding to or cannot tolerate or absorb oral oseltamivir (e.g., due to gastrointestinal stasis, malabsorption, or bleeding), an intravenous formulation of zanamivir is available under an emergency investigational new drug (EIND) request to the manufacturer at 1-877-626-8019 or 1-866-341-9160. Inhaled zanamivir is not recommended in severe influenza because of the lack of effectiveness data.

## **INFECTION CONTROL**

Suspect or confirmed hospitalized cases should be placed in an airborne infection (negative-pressure) isolation room with airborne, contact and standard precautions, including eye protection. For more information on infection control, see:

<http://www.cdc.gov/flu/avianflu/h7n9-infection-control.htm>.

## **CLOSE CONTACTS**

**Definition:** Persons within approximately 6 feet (2 meters) or within the room or care area of a confirmed or suspected novel influenza case for a prolonged period of time, or with direct contact with infectious secretions (such as being directly in the path of a sneeze or cough), during the period beginning 1 day before symptom onset to resolution of illness. This period may be longer in young children and immunocompromised persons.

**Monitoring:** Public health personnel should monitor all close contacts daily for 10 days after the last known exposure to a confirmed or probable novel influenza case. Contacts with a temperature of  $\geq 38.0^{\circ}\text{C}$  ( $\geq 100.4^{\circ}\text{F}$ ) or any new respiratory symptoms should receive prompt medical evaluation, testing and treatment with oseltamivir or inhaled zanamivir (for contacts  $\geq 7$  years of age with no underlying airway disease) twice daily for 5 days. Symptomatic persons should be requested to stay home except to seek medical care and limit contact with other persons in their home until their illness is resolved.

## **POSTEXPOSURE PROPHYLAXIS**

Decisions to initiate chemoprophylaxis should be based on clinical judgment, with consideration given to the type of exposure and to whether the close contact is at high risk for complications from influenza:

- Routine prophylaxis: Household or close family member contacts.
- Consider prophylaxis: Healthcare personnel with higher-risk exposures.
- Not routinely recommended: Social contacts with a short duration of exposure in a non-hospital setting.

Asymptomatic close contacts of a confirmed or probable novel influenza case recommended for postexposure prophylaxis should be provided with two doses per day of oseltamivir (for contacts of any age) or inhaled zanamivir (for contacts  $\geq 7$  years of age with no underlying airway disease) for 10 days if exposure is ongoing, or 5 days if not.

Based on limited data in animals, two doses per day are recommended instead of the typical seasonal influenza chemoprophylaxis regimen of one dose per day to prevent development of antiviral resistance to novel viruses.

## **Additional information on novel influenza**

- <http://cdph.ca.gov/programs/cder/Pages/H7N9.aspx>
- <http://www.cdc.gov/flu/avianflu/index.htm>
- <http://www.cdc.gov/flu/avianflu/healthprofessionals.htm>