



# Novel Influenza A (H5N1 and H7N9) Quicksheet



## **BACKGROUND (as of December 2013)**

Novel influenza infections are due to influenza viruses that differ from those currently circulating in humans. Two novel influenza A viruses, H5N1 and H7N9, have caused fatal human cases outside of the United States, but domestic cases have not been identified yet.

- Since November 2003, more than 600 human influenza A (H5N1) cases have been reported from numerous countries, including China, Indonesia, Egypt and Turkey. Most patients have been children or young adults with close, sustained contact with backyard poultry. Approximately 60% have died.
- Since April 2013, more than 140 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 30% have died.
- All confirmed novel influenza cases 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 may 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 fill out available clinical and demographic information in CALREDIE under the “Influenza-Novels Strain” tab, or use the Novel Influenza Case History Form (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)) and notify CDPH about these

patients by calling (510) 231-6861.

## **CLINICAL CASE DEFINITION**

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

## **EXPOSURE CRITERIA**

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

- Recent close contact within **10** days of illness onset with a confirmed or suspected case of human infection with a novel influenza virus.
- History of working with a live novel influenza virus in a laboratory.

### **For H5N1 Virus**

Within **10** days of symptom onset, history of at least one of the following during travel to a country where H5N1 virus has been documented in poultry, wild birds, or humans (updated list available at: <http://www.oie.int/animal-health-in-the-world/update-on-avian-influenza/2011/>):

- Direct contact with (e.g., handling, slaughtering, defeathering, butchering, preparation for consumption) poultry or wild birds (well-appearing, sick or dead).
- Direct contact with surfaces contaminated with poultry feces or poultry parts (carcasses, internal organs, etc.).
- Consumption of raw or incompletely cooked poultry or poultry products.
- Visiting a market where live poultry are sold or slaughtered.
- Contact within 6 feet of a confirmed H5N1-infected animal other than birds (e.g., cat, dog).
- Contact within 6 feet of a person who was hospitalized or died due to a severe unexplained respiratory illness. This may include: healthcare personnel, family members, persons who lived with or stayed overnight, and others who have had similar close physical contact.
- Handling samples (animal or human) suspected of containing H5N1 virus in a laboratory or other setting.

### **For H7N9 virus**

- Within **10** days of symptom onset, history of travel to an area (as of December 2013, only China) with human or avian H7N9 infections.

Local health departments should contact CDPH for consultation about outpatient cases who otherwise meet the clinical case definition and exposure criteria.

## **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 (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 cannot tolerate or absorb oral oseltamivir (e.g., due to gastrointestinal stasis, malabsorption, or bleeding) investigational intravenous 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 probable 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), 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 neuraminidase inhibitor treatment 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.

## **POST-EXPOSURE PROPHYLAXIS**

Asymptomatic close contacts of a confirmed or probable novel influenza case 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.

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.

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/h7n9-virus.htm>