



# Novel Influenza Quicksheet

## BACKGROUND – (as of July 2017)

Novel influenza infections are those due to influenza viruses that differ from strains currently circulating among humans. The table below distinguishes the Asian-origin H5N1 and H7N9 viruses, which have caused fatal human cases outside of the U.S., and highly-pathogenic avian influenza H5 and H7 viruses (U.S. strains H5N1, H5N2, H5N8, H7N8, H7N9), which are not known to infect humans.

	Asian-origin H5N1 and H7N9 viruses	Highly-pathogenic avian influenza H5 and H7 viruses (US strain H5N1, H5N2, H5N8, H7N8, H7N9)
Overview	<p>Since November 2003, more than 800 human influenza A (H5N1) cases have been reported from numerous countries, including China, Indonesia, and Egypt. No cases have been identified in the U.S. Most H5N1 patients have been children or young adults with close, sustained contact with backyard poultry. Approximately 60% have died.</p> <p>Since March 2013, more than 1,500 people infected with avian influenza A (H7N9) virus have been reported from China<sup>±</sup>. Most were elderly with chronic medical conditions and had contact with poultry, often at live bird markets. Approximately 40% have died.</p> <p>There has been <b>no</b> evidence of sustained human-to-human transmission of these viruses.</p>	<p>Since December 15, 2014 the US Department of Agriculture (USDA) confirmed more than 40 million birds have been infected or exposed to highly-pathogenic avian influenza (HPAI) A H5 and A H7 viruses including: (H5N1), (H5N2), (H5N8), (H7N8), and (H7N9) viruses. The majority of these HPAI infections have occurred in poultry, including backyard and commercial flocks.</p> <p>To date, <b>no</b> human infections from HPAI H5 and H7 viruses have occurred. CDC considers the risk to the general public from these newly-identified U.S. HPAI H5 and H7 viruses to be low. Previous human infections with other avian viruses have most often occurred after unprotected direct physical contact with infected birds or surfaces contaminated by avian influenza viruses, being in close proximity to infected birds, or visiting a live poultry market.</p>
Latest update (July 2017)	In January 2014, the first case of Asian-origin H5N1 infection in North America was reported in a Canadian traveler who had recently been in China.	Only H5N8 viruses have been found in <a href="#">California birds</a> ; the last detection occurred on February 12, 2015 in King County.
Clinical Case Definition	<ul style="list-style-type: none"> <li>• New-onset severe acute respiratory illness leading to hospitalization or death; <b>AND</b></li> <li>• No alternative etiology is identified.</li> </ul>	<ul style="list-style-type: none"> <li>• New-onset fever (<math>\geq 100^{\circ}\text{F}</math>) and respiratory illness (e.g., cough, sore throat, shortness of breath), conjunctivitis, or gastrointestinal symptoms; <b>AND</b></li> <li>• No alternative etiology is identified.</li> </ul>
Exposure Criteria	<p><b>Within 10 days of illness onset:</b></p> <ul style="list-style-type: none"> <li>• Close contact with a confirmed or suspected case of human infection with a novel influenza virus; <b>OR</b></li> <li>• History of travel to areas where a novel virus has been detected in humans or animals<sup>*</sup>; <b>OR</b></li> <li>• History of working with a live novel influenza virus in a laboratory</li> </ul>	<p><b>Within 10 days of illness onset:</b></p> <ul style="list-style-type: none"> <li>• History of contact with potentially-infected birds (e.g. handling, defeathering, culling; including people wearing PPE<sup>†</sup>); <b>OR</b></li> <li>• History of direct contact with surfaces contaminated with feces or parts of potentially-infected birds; <b>OR</b></li> <li>• Close contact with a confirmed or suspected human infection with novel influenza virus; <b>OR</b></li> <li>• History of working with a live novel influenza virus in a laboratory</li> </ul>

\*H5N1 affected areas information: [Cumulative number of confirmed human cases of H5N1 reported to WHO](#) and [avian influenza in animals reported to OIE](#)

± H7N9: Only in China; some human cases of H7N9 virus infection acquired in China also have been identified in Taiwan, Malaysia and Canada

<sup>†</sup>PPE: Personal Protective Equipment

## INFECTIOUS PERIOD

Until further data are available, the infectious period should be considered to be from 1 day before symptom onset until resolution of illness.

## WHO SHOULD BE TESTED?

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

Test patients who meet the clinical case definition and exposure criteria. Please provide available information in CalREDIE under the “Influenza-Novel Strain” tab, or use the [Novel Influenza Case History Form](#).

## **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 Dacron-tipped swabs in a standard container with 2-3 ml of viral transport media (VTM). Cotton or calcium alginate swabs are not acceptable for PCR testing; no wooden shaft swabs.
- For patients with pneumonia or acute respiratory distress syndrome (ARDS), lower respiratory tract specimens typically have the highest yield: collect bronchoalveolar lavage, tracheal aspirate, pleural fluid or induced sputum whenever possible.

Specimens sent to CDPH-VRDL must be accompanied by a [VRDL General Submittal Form](#) with patient and clinical information filled in.

## **TREATMENT RECOMMENDATIONS**

- Oseltamivir, 75 mg administered orally twice a day for 5 days, is recommended for hospitalized adults 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 clinical trial or an emergency investigational new drug (EIND) request to the manufacturer at 877-626-8019 or 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 must be placed in an airborne infection (negative-pressure) isolation room and healthcare workers must use airborne, contact and standard precautions, including eye protection. For more information on infection control for avian influenza see the CDC's [Guidance for Infection Control within Healthcare Settings](#).

For more information on infection control see [California's Aerosol Transmissible Diseases standard](#).

## **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 or persons who had close unprotected contact with a person or animal with avian influenza.
- 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**

- [Laboratory Testing for Novel Influenza A \(CDPH\)](#)
- [Information on Avian Influenza \(CDC\)](#)
- [Avian Influenza: Information for Health Professionals and Laboratorians \(CDC\)](#)
- [Recommendations for Human Health Investigations and Response \(CDC\)](#)