

# Novel influenza A virus infections

## 2010 CDC Case Definition

### Clinical Description

An illness compatible with influenza virus infection (fever >100 degrees Fahrenheit with cough or sore throat).

### Laboratory criteria for diagnosis

A human case of infection with an influenza A virus subtype that is different from currently circulating human influenza H1 and H3 viruses. Novel subtypes include, but are not limited to, H2, H5, H7, and H9 subtypes. Influenza H1 and H3 subtypes originating from a non-human species or from genetic reassortment between animal and human viruses are also novel subtypes. Novel subtypes will be detected with methods available for detection of currently circulating human influenza viruses at state public health laboratories (e.g., real-time reverse transcriptase polymerase chain reaction [RT-PCR]). Confirmation that an influenza A virus represents a novel virus will be performed by CDC's influenza laboratory

### Exposure

Criteria for epidemiologic linkage:

- The patient has had contact with one or more persons who either have or had the disease, AND
- Transmission of the agent by the usual modes of transmission is plausible

OR

- A case may be considered epidemiologically linked to a laboratory confirmed case if at least one case in the chain of transmission is laboratory confirmed

### Case Classification

**Suspected:** A case meeting the clinical criteria, pending laboratory confirmation. Any case of human infection with an influenza A virus that is different from currently circulating human influenza H1 and H3 viruses is classified as a suspected case until the confirmation process is complete.

**Probable:** A case meeting the clinical criteria and epidemiologically linked to a confirmed case, but for which no confirmatory laboratory testing for novel influenza virus infection has been performed.

**Confirmed:** A case of human infection with a novel influenza A virus confirmed by CDC's influenza laboratory. Once a novel virus has been identified by CDC, confirmation may be made by public health laboratories following CDC-approved protocols for that specific strain, or by laboratories using an FDA-authorized test specific for detection of that novel influenza strain.

## Comment

Once a novel virus is identified by CDC, it will be nationally notifiable until CSTE in consultation with CDC determines that it is no longer necessary to report each case.

On December 13, 2006, the United States formally accepted the revision of the International Health Regulations, referred to as IHR (2005) (<http://www.hhs.gov/news/press/2006pres/20061213.html>). The IHR (2005) are an international legal instrument that governs the roles of the WHO and its member countries in identifying and responding to and sharing information about public health emergencies of international concern ([http://www.who.int/csr/ihr/IHRWHA58\\_3-en.pdf](http://www.who.int/csr/ihr/IHRWHA58_3-en.pdf)). The updated rules are designed to prevent and protect against the international spread of diseases, while minimizing interference with world travel and trade. The revised regulations add human infections with new influenza strains to the list of conditions that Member States must immediately report to WHO. An outbreak of infections with a new influenza A virus that demonstrates human-to-human transmission could signal the beginning of the next pandemic. Robust epidemiologic and laboratory surveillance systems are required for a coordinated public health response to infections with a novel influenza virus subtype. Early detection of an influenza virus with pandemic potential will permit identification of viral characteristics (e.g., genetic sequence, antiviral susceptibility, and virulence) that will affect clinical management and public health response measures. It should also facilitate development of a virus-specific vaccine and testing strategies.

All state public health laboratories have the capacity to test respiratory specimens for influenza viruses with sensitive and specific assays that can detect human and non-human influenza A viruses. They also have the capacity to subtype currently circulating human influenza A H1, H3, and avian H5 (Asian lineage) viruses. The detection or confirmation by a state public health laboratory of an influenza A virus that is unsubtypeable with standard methods (e.g., real-time RT-PCR assays for human influenza A(H3) or (H1) viruses), or a non-human influenza virus (e.g., H5) from a human specimen, could be the initial identification of a virus with pandemic potential. Prompt notification of CDC by a state epidemiologist in conjunction with the public health laboratory will permit rapid confirmation of results and reporting to WHO. In addition, it will aid prompt viral characterization, and the development of virus-specific diagnostic tests.