



## NOVEL INFLUENZA

### What Is It?

For information on seasonal influenza please see the seasonal influenza page. Novel influenza refers to a new strain of influenza that forms through the rearrangement of viral gene segments. Two viruses infect a host and the gene segments “resort” between them. The novel strains of influenza can cause pandemics when the human virus acquires a novel segment from the influenza virus of a nonhuman species. This reassortment leads to forms of the virus that are new to the human immune system and can cause pandemics such as those of 1957, 1968, and 2009.

Subtypes of influenza A:

- The subtypes of influenza A differ based on surface proteins. These are called hemagglutinin (HA) and neuraminidase (NA). There are 25 different types of HA and NA which may combine into different subtypes.

### Avian Influenza (Bird Flu)

- This type of influenza A naturally occurs among wild birds.
  - The virus is highly contagious among birds but does not usually cause illness in wild birds. Infected birds pass the virus through direct contact, mucus or excretions/waste. When transmitted to chickens and turkeys, these domesticated birds become sick. The illness in poultry can be very mild or may devastate the flock.
- The risk of avian influenza transferring to people occurs through direct contact with either the infected poultry or contaminated surfaces. This type of avian influenza is rarely contagious among humans. Since Influenza A is known to undergo novel changes, however, concern does exist that bird flu may become contagious between humans.
  - *Avian (H5N1) Flu* is a subtype of influenza A virus that is highly contagious among birds but rarely infects humans. Scientists follow H5N1 flu closely because it has the potential to cause a deadly pandemic. So far, the majority of human H5N1 cases have occurred outside of the United States.
  - The severity of illness, high mortality, and limited transmissibility may be explained by the higher affinity of the H5N1 viruses to cells of the lower but not upper respiratory tract.



## Swine Influenza

- This type of influenza A naturally occurs among wild birds.
  - Swine Influenza is a common respiratory disease of pigs leading to outbreaks of influenza in these pigs. The virus spreads through close contact and any contaminated objects the pigs contact.
  - Pigs are a source of reassortment as discussed above. Swine, avian and human influenza viruses can infect them. The reassortment (or gene swapping) leads to a mix of swine, human and/or avian influenza viruses. Four main influenza type A virus subtypes in pigs are: H1N1, H1N2, H3N2, and H3N1.
  - Vaccines are available to prevent swine flu in pigs. The human seasonal flu virus now has a component specific to the H1N1 of 2009.
  - Swine flu viruses do not normally infect humans. However, sporadic human infections with swine flu have occurred. Prior to 2009, the CDC received reports of approximately one human infected with swine influenza virus every one to two years in the U.S.. From April 15, 2009 to July 24, 2009, a total of 43,771 confirmed and probable cases of novel influenza A (H1N1) infection” were reported in the US States.

## How can you get it?

The major way that influenza viruses are transmitted is through **droplet spread**. When people infected with flu virus cough, sneeze or talk they produce droplets that can land in the mouth, eyes or noses of people nearby. Less commonly, a person might also get the flu through **indirect contact**, by touching a contaminated surface or object and then touching their own mucous membranes (mouth, eyes or nose).

Most healthy adults can infect others beginning one day before symptoms develop and up to five to seven days after becoming sick. Several groups are noted to have a high risk of transmitting influenza viruses, particularly school age children (ages 5 to 19) and their parents. Healthcare workers, including first responders, also have significant potential to transmit the virus through multiple patient contacts.

- Swine influenza cannot be transmitted to humans by eating pork.

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## What are the symptoms?

Symptoms of novel influenzas are similar to those of the seasonal influenza

- Fever (not everyone with flu will have a fever)
- Feeling feverish or having chills
- Cough, sore throat and runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue
- Vomiting or diarrhea

Although most healthy people recover from the flu within 1 week, certain groups are at high risk for serious complications. Elderly people, young children, pregnant women and people with certain chronic illnesses (asthma, heart disease, diabetes) are more likely to become seriously ill and possibly die from influenza.

## How do you prevent it?

CDC recommends a yearly flu vaccine as the first and most important step in protecting against flu viruses. About 2 weeks after vaccination, antibodies that provide protection against influenza virus infection develop in the body. **Annual influenza vaccine is recommended for all firefighters in NFPA 1581**, Fire Department Infection Control Programs. Emergency responders need to be vaccinated with the seasonal flu vaccine every year. Currently, there are two kinds of flu vaccine available in the US:

- **The "flu shot"** — an inactivated vaccine (containing killed virus) is approved for use in people older than 6 months, including healthy people and people with high risk chronic medical conditions
- **The nasal-spray flu vaccine — a live vaccine (containing weakened viruses) that does not cause the flu** (sometimes called LAIV for "live attenuated influenza vaccine"; or FluMist®). Nasal vaccines are approved for use in healthy, non-pregnant people 2-49 years of age

In addition to vaccination, you can help prevent the spread of influenza by:

- Staying home from work and school if you are experiencing flu-like symptoms
- Creating or promoting good ventilation

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- Decontamination
  - Practicing decontamination procedures will protect you, your crew and your family from indirect contact. Viruses and bacteria can live for up to two hours or longer on surfaces such as radios, doorknobs and equipment.
- Using Universal Precautions
  - Assume patients with respiratory symptoms have the flu
  - Strictly limit the number of crew members having direct patient contact
  - Hand hygiene (wash with soap and water or using an alcohol based hand rub)
  - Personal protective equipment (PPE) (gloves, gowns, NIOSH-certified respirators N95 or higher, and goggles that offer mouth, nose and eye protection)
  - Provide masks for symptomatic patients

## What should you do if you believe you have Influenza?

- Stay home from work or school when you are sick
- Contact your healthcare provider to discuss possible testing and treatment
  - Because many respiratory illnesses, such as the common cold, have symptoms similar to the flu, it can be difficult to diagnose influenza. If you develop flu-like symptoms and are concerned about your illness, especially if you are at high risk for complications of the flu, it is important to contact your healthcare provider.
  - Tests to diagnose influenza are most effective if performed within the first 2 or 3 days of illness.
  - Antiviral treatments for influenza work best when started within 2 days of symptom onset. While most people do not require medication, antiviral therapy can be very important in certain situations (hospitalized patients, high risk groups, severe complications).

## For More Information and Frequently Asked Questions (FAQs), Check Out :

- IAFF Influenza Information: <http://www.iaff.org/hs/Resi/PanFlu.asp>
- Occupational Safety & Health Administration (OSHA):  
<http://www.osha.gov/dsg/guidance/avian-flu.html>
  - OSHA, Pandemic Flu: <http://www.osha.gov/dsg/topics/pandemicflu/index.html>
- Centers for Disease Control and Prevention (CDC), Avian Flu:  
<http://www.cdc.gov/flu/avianflu/>
  - CDC, Swine Flu: <http://www.cdc.gov/flu/swineflu/variant.htm>
  - CDC, Influenza A Variant Virus Outbreaks: <http://www.cdc.gov/flu/swineflu/h3n2v-outbreak.htm>

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- National Institute of Allergy and Infectious Diseases (NIAID):  
<http://www.niaid.nih.gov/topics/flu/Pages/default.aspx>
- Canadian Centre for Occupational Health and Safety (CCOHS):  
[http://www.ccohs.ca/oshanswers/diseases/pandemic\\_flu.html](http://www.ccohs.ca/oshanswers/diseases/pandemic_flu.html)