

What you need to know about novel influenza A(H1N1)

About the causative agent

What is it?

This is a new strain of influenza virus A/H1N1. There have been reports of influenza-like illness (ILI) and severe pneumonia cases in Mexico and the United States of America. Cases began to appear on 17 March 2009 in Mexico. Two cases in children were reported in Southern California in the United States on 17 April, 2009. Neither child had contact with animals. Between 17 March and 25 April 2009, clusters of outbreaks have appeared in multiple locations in Mexico and USA. These clusters were consistent with human-to-human spread.

What are the characteristics of the novel influenza A(H1N1) virus?

The virus is being described as a new subtype of A(H1N1) not previously detected in swine or humans. The 2009 novel A(H1N1) strain contains an unusual mix of gene segments. The genetic sequencing of samples in the Centers for Disease Control (CDC) Atlanta shows that the new flu virus contains segments from four different viruses: some North American swine viruses, some North American avian, one human influenza, and two Eurasian swine viruses.

How can swine flu viruses infect humans?

Swine flu viruses do not normally infect humans. However, sporadic human infections have occurred. Most commonly, these cases occur in persons with direct exposure to pigs, such as children near pigs at a fair or workers in the swine industry. In addition, there have been documented cases of one person spreading swine flu to others. Novel A(H1N1) is a virus that originated from pigs and then at some point was transmitted to humans.

How many swine flu viruses are there?

There are four main influenza type A swine flu viruses that have been isolated in pigs: H1N1, H1N2, H3N2, and H3N1. The classic swine flu virus (an influenza type A H1N1 virus) was first isolated from a pig in 1930. Most of the flu viruses recently found in pigs have been H1N1 and H3N2 strains. Current swine flu H3N2 viruses are closely related to human H3N2 viruses, because they were introduced into pigs from humans in the late 1990s. But H1N1 swine viruses have been known to circulate in pigs at least since the 1930s.

How is this virus different from bird flu virus?

Avian influenza virus H5N1 so far has had difficulty infecting humans unless they are intensely exposed to birds or contaminated products, because the virus has not mutated in a way that makes it transmissible by humans to other humans. Highly pathogenic avian influenza outbreaks have been reported in poultry and infected poultry or contaminated materials are the source of infection; by contrast, there are no cases of

novel influenza A (H1N1) in swine populations, nor are pigs or pork an apparent source of infection. This A (H1N1) virus has genetic origins from both pigs and birds, but the big difference from the bird flu is that the A (H1N1) virus can be transmitted readily from human to human.

Novel Influenza A (H1N1) in humans

How common is swine flu infection in humans?

Although swine influenza viruses are normally species-specific and only infect pigs, they do sometimes cross the species barrier to cause disease in humans. Since the implementation of the International Health Regulations (IHR 2005) in 2007 and prior to the current outbreak, WHO was notified of swine influenza cases from Spain and the United States. Following are some documented cases in the United States.

The most well-known outbreak of swine flu was in 1976 among soldiers in Fort Dix, N.J. The virus caused illnesses in at least four soldiers and one death. In September 1988, a healthy 32-year-old pregnant woman was hospitalized for pneumonia and died eight days later. A swine A(H1N1) influenza virus was detected. Four days before getting sick, she had visited a county fair swine exhibition where there was widespread flu-like illness among the pigs.

Twelve cases of human infection with swine flu were reported in the United States from December 2005 to February 2009. Five of the 12 cases occurred in patients who had direct exposure to pigs, six in patients reported being near pigs, and the exposure in one case was unknown.

Who is affected?

Seasonal influenza primarily affects people in younger or older age groups, whereas novel A (H1N1) affects all age groups. Most of the cases in Mexico have been found in healthy young adults between the ages of 4 and 45 years old.

How does it spread?

This novel influenza A(H1N1) is thought to spread in the same way as seasonal flu, which is mainly by person-to-person transmission through coughing or sneezing of people infected with the flu virus. People may become infected by touching something with flu viruses on it and then touching their mouth or nose.

Can I catch it from pigs?

No. This strain is one that is communicable through human-to-human contact. It is a mutated form of a swine virus.

Can people catch this influenza from eating pork?

No. this influenza has not been shown to be transmissible to people through eating pig meat or other products derived from pigs. Heat treatments commonly used in cooking meat (e.g. 70 °C core temperature) will readily inactivate any viruses potentially present in raw meat products.

What are the clinical symptoms of swine flu in humans?

Patients experience high fever, cough, and sore throat, symptoms similar to typical influenza, with some patients experiencing diarrhoea and vomiting. The cases can rapidly progress to severe and unusual pneumonia.

Swine influenza and pigs

Why are pigs implicated as a source of human infection?

Pigs can be infected by avian, human and swine influenza viruses. When influenza viruses from different species infect pigs, the viruses can reassort and new ones emerge that are a mixture of swine, human and/or avian influenza viruses. Therefore, pigs act as a “mixing vessel” of different animal influenza viruses and human influenza viruses, which may lead to the emergence of potential new human influenza viruses.

How frequently are swine flu outbreaks reported?

Swine flu viruses cause regular outbreaks of influenza in pigs. The viruses may circulate among pigs throughout the year, but most outbreaks occur during the late fall and winter months, similar to outbreaks in humans. Large numbers of pigs may be affected during swine influenza outbreaks but few sick pigs die. Therefore it is not a notifiable pig disease whereas swine fever, swine vesicular disease and foot-and-mouth disease are notifiable due to its serious impact on livestock trade.

Swine influenza is not notifiable to international animal health authorities (World Organization for Animal Health, www.oie.int), therefore its international distribution in animals is not well known. The disease is considered endemic in North America, South America, Europe, Africa and Asia.

What are signs of swine influenza in pigs?

Signs of swine influenza in pigs can include sudden onset of fever, depression, coughing, discharge from the nose or eyes, sneezing, breathing difficulties, eye redness or inflammation, and loss of appetite.

What can be done to prevent swine influenza in pigs?

Pigs most commonly get infected with flu viruses from other pigs (swine flu), but also can get infected with flu viruses from birds (avian flu), and from people (human flu). This cross-species spread of flu viruses can lead to new types of flu viruses which is dangerous from public health point of view. It can be potentially prevented by:

- Segregating pig farms from poultry farms

- Avoiding direct contact with infected pigs with swine influenza
- Providing sick leave for farm workers ill with influenza like illness
- Vaccinating farm workers with seasonal influenza vaccine or pig herd with swine influenza vaccine.
- Implementing “All in and all out” system
- Using good biosecurity measures
- Maintaining proper ventilation systems.

Role of drugs and vaccines

What medicines can be used for treatment of an infection by this new virus?

This virus is susceptible to *oseltamivir* and *zanamivir*. The virus strain has been shown to be resistant to *rimantadine* and *amantadine*. The medicines should be used under strict medical supervision because the virus may develop resistance quickly if medicines used haphazardly.

Is there a human vaccine to protect from swine influenza?

There are no vaccines that contain the novel swine flu virus. It is not known whether current human seasonal influenza vaccines can provide any protection. Influenza viruses change very quickly.

Personal hygiene is important!

What should I do to keep from getting the flu?

First and most important: wash your hands. Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids, and eat nutritious food. Try not touch surfaces that may be contaminated with the flu virus. Avoid close contact with people who are sick.

What is the best way to keep from spreading the virus through coughing or sneezing?

If you are sick, limit your contact with other people as much as possible. Do not go to work or school if ill. Cover your mouth and nose with a tissue when coughing or sneezing. It may prevent those around you from getting sick. Cover your cough or sneeze if you do not have a tissue. Then, clean your hands, and do so every time you cough or sneeze.

How long can viruses live outside the body?

We know that some viruses can live two hours or longer on surfaces like cafeteria tables, doorknobs, and desks. Frequent handwashing will help you reduce the chance of getting contamination from these common surfaces.

What can I do to protect myself from getting sick?

There is no vaccine available right now to protect against swine flu. There are everyday actions that can help prevent the spread of germs that cause respiratory illnesses like influenza. Take these everyday steps to protect your health:

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
- Wash your hands often with soap and water, especially after you cough or sneeze.
- Avoid touching your eyes, nose or mouth.
- Try to avoid close contact with sick people.
- Stay home from work or school and limit contact with others to keep from infecting them.

Public health action needed

What control measures should be implemented?

People must be vigilant. Countries should ensure proper surveillance of severe or unusual pneumonia cases or of a sudden increase in ILI cases. In Mexico, the government closed the schools, universities and day care centres and asked government employees to work from home. They also closed many public services in order to minimize the spread of disease. People are being reminded of the importance of frequent handwashing. People should follow cough etiquette and crowding should be avoided.

For more information log on to:

<http://www.who.int/en/1>