

Novel A/H1N1

About causing agent

What is it?

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

What are the characteristics of the novel human virus?

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

How 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 the virus that mutated 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 classical 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.

Swine influenza 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 IHR(2005) in 2007, WHO has been notified of swine influenza cases from the United States and Spain. These are some documented cases in USA.

The most well known outbreak of swine flu was 1976 one 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 H1N1 flu 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 have been reported in USA 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 are affected?

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

How does it spread?

This is thought to occur in the same way as seasonal flu occurs in people, which is mainly 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 people catch swine influenza from eating pork?

No. Swine influenza viruses are not transmitted by food. Eating properly handled and cooked pork (pig meat) or other heat treated products derived from pigs are safe. The swine influenza virus is killed by cooking temperatures of 70°C.

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 pig

Why pigs are implicated as a source of human infection?

It is interesting that 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 mix of swine, human and/or avian influenza viruses. Therefore, pigs act as 'mixing vessel' of different animal influenza viruses and human influenza viruses which may lead to emergence of potential new human influenza virus.

How frequent swine flu outbreaks are reported?

Swine influenza 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 outbreak but few sick pigs die. Therefore it is not notifiable disease whereas Swine fever, Swine Vesicular Disease and Foot-and-Mouth Disease are notifiable due to its impact on trade restriction.

Swine influenza is not notifiable to international animal health authorities (OIE, 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 going off feed.

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 medicine should be used strictly under medical supervision because the virus may develop resistance quickly if it is used haphazardly.

Is there a human vaccine to protect from swine influenza?

There are no vaccines that contain the current swine influenza virus causing illness in humans. 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?

Right now, 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 cares 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.

What measures have been taken by public health authorities in Asian countries?

Many Asian countries have conducted high level consultation to assess the situation and prepare for prevention and control of novel A/H1N1. WHO is urging Member countries to enhance surveillance of ILI, severe pneumonia. Health authorities have increased surveillance at all entry points for travelers coming from affected countries with flu-like symptoms using thermosensor devices at airports.

Where to contact for more information and clarification?

For technical information, please contact CSR SEARO Tel. No. +919958590457/011-23370804. Email: outbreak@searo.who.int

For general public enquiries about an individual's concern in travelling to or from a given location, or about any other health concern, please contact your national health authority.