



Pandemic Influenza: the Disease

Pandemic H1N1 (referred to as “swine flu” earlier) is a new influenza virus causing illness in people. This new virus was first detected in people in the United States in April 2009. Since then the disease has spread globally and the World Health Organization declared it a Pandemic on 11th June 2009. This virus is spreading from person-to-person, probably in much the same way that regular seasonal influenza viruses spread.

This virus was originally referred to as “swine flu” because laboratory testing showed that many of the genes in this new virus were very similar to influenza viruses that normally occur in pigs in North America. But further studies have shown that this new virus is very different from what normally circulates in North American pigs. It has two genes from flu viruses that normally circulate in pigs in Europe and Asia and avian genes and human genes. Scientists call this phenomenon a "quadruple reassortment".

Generally clinical symptoms of this infection are similar to seasonal influenza but reported clinical presentation ranges broadly from asymptomatic infection to severe pneumonia resulting in death. Since typical clinical presentation of novel influenza infection in humans resembles seasonal influenza and other acute upper respiratory tract infections, most of the cases have been detected by chance through seasonal influenza surveillance. Mild or asymptomatic cases may have escaped from recognition; therefore the true extent of this disease among humans is unknown.

Infectious Agent

The virus causing novel Influenza among human is being described by the USA as a new subtype of A/H1N1 not previously detected in humans. Genetically it is a reassortment of America-Eurasian novel influenza virus. This pandemic influenza A (H1N1) virus is contagious and is spreading from human to human.

Transmission

Spread of this pandemic influenza A (H1N1) virus is thought to be happening in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing of people with influenza. Sometimes people may become infected by touching something with flu viruses on it and then touching their mouth or nose.

Since pandemic influenza A[H1N1] is not directly associated with pigs the issue of transmission through consumption of pork does not arise.

Symptoms of novel Influenza

The symptoms of pandemic flu in people are similar to the symptoms of regular human flu and include fever, cough, sore throat, body aches, headache, chills and fatigue. Some people have reported diarrhea and vomiting associated with pandemic flu. In the past, severe illness (pneumonia and respiratory failure) and deaths have been reported with pandemic flu infection in people. Like seasonal flu, pandemic flu may cause a worsening of underlying chronic medical conditions.

Groups at higher risk for seasonal influenza complications include children less than 2 years old, persons aged 65 years or older, children and adolescents (less than 18 years) who are receiving long-term aspirin therapy, pregnant women, adults and children who have chronic medical conditions, adults and children who have low immunity (caused by medications or by HIV) and residents of nursing homes and other chronic-care facilities. They may be at higher risk for this disease as well.

Incubation Period

The incubation period (the time from when the organism enters the body of a patient to the time the first symptom appears) for influenza is estimated to range from 1 to 4 days with an average of 2 days.

Period of Communicability

Influenza virus shedding (the time during which a person might be infectious to another person) begins the day before illness onset and can persist for 5 to 7 days, although some persons may shed virus for longer periods, particularly young children and severely immunocompromised persons. The amount of virus shed is greatest in the first 2-3 days of illness and appears to correlate with fever, with higher amounts of virus shed when temperatures are highest.

Therefore the period of communicability or when infected people may be able to infect others begins 1 day before symptoms develop and extends up to 7 or more days after becoming sick.

Treatment

This virus is susceptible to antivirals like oseltamivir and zanamivir. The virus strain has been shown to be resistant to rimantadine and amantadine.

Clinicians have to make decisions based on the clinical and epidemiological assessment and harms and benefit of the prophylaxis/treatment of the patient. For the ongoing pandemic of the novel influenza infection global health authorities are recommending to use oseltamivir or zanamivir for treatment and prevention of the disease based on the virus's susceptibility profile.

Prevention

There is no vaccine available right now to protect against pandemic flu. There are everyday actions that can help to prevent the spread of germs that cause respiratory illnesses like influenza.

- Cover nose and mouth with a tissue when coughing or sneezing. Throw the tissue in the trash after using.
- Wash your hands often with soap and water, especially after coughing or sneezing. Alcohol-based hand cleaners are also effective.
- Avoid touching eyes, nose or mouth. Germs spread this way.
- Try to avoid close contact with sick people.
- If you are sick with influenza, it is recommended to stay home away from work or school and limit contact with others to avoid infecting them.
- Consult a qualified medical practitioner.

Surveillance (Reporting) of suspected novel influenza cases

Every medical practitioner or person who professes to treat or attend on any person suffering from suspected, possible, probable and confirmed cases of pandemic Influenza should report the case to the Epidemiologist or Regional Epidemiologist.

The following case definitions have been adopted for the purpose of reporting/managing probable and confirmed cases of pandemic influenza A(H1N1) virus infection where community transmission of the infection exists.

Clinical case description

Acute febrile respiratory illness (fever $\geq 38^{\circ}\text{C}$) with the spectrum of disease from influenza-like illness to pneumonia.

1. Suspected case of Pandemic Influenza

Individuals presenting with acute febrile respiratory illness (fever $\geq 38^{\circ}\text{C}$) with the spectrum of disease from influenza-like illness (cough, sore throat, shortness of breath) to pneumonia

With or Without

One of the following epidemiological risk factors:

- Close contact* to a suspected case of pandemic influenza A(H1N1) virus infection while the case was ill
- Recent travel to an area where there are confirmed cases of pandemic influenza A (H1N1)

*Close contact: having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a probable or confirmed case of pandemic influenza A(H1N1).

2. A **Probable case** of pandemic influenza A(H1N1) virus infection is defined as an individual with an influenza test that is positive for influenza A, but is unsubtypeable by reagents used to detect seasonal influenza virus infection

3. A **Confirmed case** of pandemic influenza A(H1N1) virus infection is defined as an individual with laboratory confirmed pandemic influenza A(H1N1) virus infection by one or more of the following tests:
- real-time (RT) - PCR
 - viral culture
 - four-fold rise in novel influenza A(H1N1) virus specific neutralizing antibodies