

Swine Influenza

Special Edition Newsletter



In just a few short days, an isolated instance of illness in Mexico has spread to become a worldwide concern. Documented cases of Swine Influenza A (H1N1) have already appeared in the US, Canada, New Zealand, Spain, Israel, and Scotland and is likely to appear elsewhere. While deaths linked to swine influenza continue to rise in Mexico, already a total of 40 cases of the illness have been determined in the United States. But this is not “a cause of alarm.”

On Monday, April 27th, President Obama reminded the American people that this is not a time for panic as much as it is a time of heightened awareness. By being attentive to the issue, monitoring what’s happening, and responding with calm, collected behavior, we can weather any situation. With that in mind, this special edition newsletter was created to help you develop an effective response so that your day-to-day life is impacted as little as possible.

The articles contained in this newsletter were collected to educate you on the issues

surrounding swine flu, so that you’ll have the right facts to make smart decisions for yourself and your family. While the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) continue to research swine influenza and develop preparedness strategies to contain its spread, you’ll have the information you need to take your own preparedness steps.

Swine Influenza Frequently Asked Questions

What is swine influenza?

Swine influenza, or “swine flu”, is a highly contagious acute respiratory disease of pigs, caused by one of several swine influenza A viruses. Morbidity tends to be high and mortality low (1-4%). The virus is spread among pigs by aerosols and direct and indirect contact, and asymptomatic carrier pigs exist. Outbreaks in pigs occur year round, with an increased incidence in the fall and winter in temperate zones. Many countries routinely vaccinate swine populations against swine influenza.

Swine influenza viruses are most commonly of the H1N1 subtype, but other subtypes are also circulating in pigs (e.g., H1N2, H3N1, H3N2). Pigs can also be infected with avian influenza viruses and human seasonal influenza viruses as well as swine influenza viruses. The H3N2 swine virus was thought to have been originally introduced into pigs by humans. Sometimes pigs can be infected with more than one virus type at a time, which can allow the genes from these viruses to mix. This can result in an influenza virus containing genes from a number of sources, called a “reassortant” virus. Although swine influenza viruses are normally species specific and only infect pigs, they do sometimes cross

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the species barrier to cause disease in humans.

What are the implications for human health?

Outbreaks and sporadic human infection with swine influenza have been occasionally reported. Generally clinical symptoms 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 swine 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.

How do people become infected?

People usually get swine influenza from infected pigs, however, some human cases lack contact history with pigs or environments where pigs have been located. Human-to-human transmission has occurred in some instances but was limited to close contacts and closed groups of people.

Is it safe to eat pork and pork products?

Yes. Swine influenza has not been shown to be transmissible to people through eating properly handled and prepared pork (pig meat) or other products derived from pigs. The swine influenza virus is killed by cooking temperatures of 160°F/70°C, corresponding to the general guidance for the preparation of pork and other meat.

Which countries have been affected by outbreaks in pigs?

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 the United States. Outbreaks in pigs are also known to have occurred in North and South America, Europe (including the UK, Sweden, and Italy), Africa (Kenya), and in parts of eastern Asia including China and Japan.

What about the pandemic risk?

It is likely that most people, especially those who do not have regular contact with pigs, do not have immunity to swine influenza viruses that can prevent the virus infection. If a swine virus established efficient human-to human transmission, it can cause an influenza pandemic. The impact of a pandemic caused by such a virus is difficult to predict: it depends on virulence of the virus, existing immunity among people, cross protection by antibodies acquired from seasonal influenza infection and host factors. Swine influenza viruses can give a rise to a hybrid virus by mixing with a human influenza virus and can cause pandemic.

Is there a human vaccine to protect against swine influenza?

No. Influenza viruses change very quickly and the match between the vaccine and the circulating virus is very important to give adequate protective immunity to vaccinated people. This is why WHO needs to select vaccine viruses twice a year for seasonal influenza protection, once for the northern hemisphere winter and another for the southern hemisphere. Current seasonal influenza vaccine produced based on WHO recommendation does not contain swine influenza virus. It is unknown whether the seasonal vaccines can provide any cross protection to ongoing swine influenza virus infection in the United States and Mexico. WHO is working closely with its partner institutions for further advise on the use of seasonal influenza vaccine in preventing the swine influenza infection.

What drugs are available for treatment?

Antiviral drugs for seasonal influenza are

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available in some countries and effectively prevent and treat the illness. There are two classes of such medicines, 1) adamantanes (amantadine and remantadine), and 2) inhibitors of influenza neuraminidase (oseltamivir and zanamivir).

Most of the previously reported swine influenza cases recovered fully from the disease without requiring extensive medical attention and without antiviral medicines.

Some influenza viruses develop resistance to the antiviral medicines, limiting the effectiveness of chemoprophylaxis and treatment. The viruses obtained from the recent human cases with swine influenza in the United States were sensitive to oseltamivir and zanamivir but resistant to amantadine and remantadine.

Information is insufficient to make a recommendation on the use of the antivirals in prevention and treatment of swine influenza virus infection. 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 outbreak of the swine influenza infection in the United States and Mexico, the national and the local authorities are recommending to use oseltamivir or zanamivir for treatment and prevention of the disease based on the virus's susceptibility profile.

What should I do if I am in regular contact with pigs?

Even though there is no clear indication that the current human cases with swine influenza infection are related to recent or ongoing influenza-like disease events in pigs, it would be advisable to minimize contact with sick pigs and report such animals to relevant animal health authorities.

Most people are infected through prolonged, close contact with infected pigs. Good hygiene practices are essential in all contact with

animals and are especially important during slaughter and post-slaughter handling to prevent exposure to disease agents. Sick animals or animals that died from disease should not be undergoing slaughtering procedures. Follow further advice from relevant national authorities.

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How can I protect myself from getting swine influenza from infected people?

In the past, human infection with swine influenza was generally mild but is known to have caused severe illness such as pneumonia. For the current outbreaks in the United States and Mexico however, the clinical pictures have been different. None of the confirmed cases in the United States have had the severe form of the disease and the patients recovered from illness without requiring medical care. In Mexico, some patients reportedly had the severe form of the disease.

To protect yourself, practice general preventive measures for influenza:

- Avoid close contact with people who appear unwell and who have fever and cough.
- Wash your hands with soap and water frequently and thoroughly.
- Practice good health habits including adequate sleep, eating nutritious food, and keeping physically active.

If there is an ill person at home:

- Try to provide the ill person a separate section in the house. If this is not possible, keep the patient at least 1 meter in distance from others.

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- Cover mouth and nose when caring for the ill person. Masks can be bought commercially or made using the readily available materials as long as they are disposed of or cleaned properly.
- Wash your hands with soap and water thoroughly after each contact with the ill person.
- Try to improve the air flow in the area where the ill person stays. Use doors and windows to take advantage of breezes.
- Keep the environment clean with readily available household cleaning agents.

If you are living in a country where swine influenza has caused disease in humans, follow additional advice from national and local health authorities.

What should I do if I think I have swine influenza?

If you feel unwell, have high fever, cough and/or sore throat:

- Stay at home and keep away from work, school or crowds as much as possible.
- Rest and take plenty of fluids.
- Cover your mouth and nose with disposable tissues when coughing and sneezing and dispose of the used tissues properly.
- Wash your hands with soap and water frequently and thoroughly, especially after coughing or sneezing.
- Inform family and friends about your illness and seek help for household chores that require contact with other people such as shopping.

If you need medical attention:

- Contact your doctor or healthcare provider

before traveling to see them and report your symptoms. Explain why you think you have swine influenza (for example, if you have recently traveled to a country where there is a swine influenza outbreak in humans). Follow the advice given to you for care.

- If it is not possible to contact your healthcare provider in advance, communicate your suspicion of having swine influenza immediately upon arrival at the healthcare facility.
- Take care to cover your nose and mouth during travel.

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A Constantly Mutating Virus: Two Consequences



All type A influenza viruses, including those that regularly cause seasonal epidemics of influenza in humans, are genetically labile and well adapted to elude host defenses. Influenza viruses lack mechanisms for the "proofreading" and repair of errors that occur during replication. As a result of these uncorrected errors, the genetic composition of the viruses changes as they replicate in humans and animals, and the existing strain is replaced with a new antigenic variant. These constant, permanent and usually small changes in the antigenic composition of influenza A viruses are known as antigenic "drift".

The tendency of influenza viruses to undergo frequent and permanent antigenic changes necessitates constant monitoring of the global influenza situation and annual adjustments in the composition of influenza vaccines. Both activities have been a cornerstone of the [WHO Global Influenza Program](#) since its inception in 1947.

Influenza viruses have a second characteristic of great public health concern: influenza A viruses, including subtypes from different species, can swap or "reassort" genetic materials and merge. This reassortment process, known as antigenic "shift", results in a novel subtype different from both parent viruses. As populations will have no

immunity to the new subtype, and as no existing vaccines can confer protection, antigenic shift has historically resulted in highly lethal pandemics. For this to happen, the novel subtype needs to have genes from human influenza viruses that make it readily transmissible from person to person for a sustainable period.

Conditions favorable for the emergence of antigenic shift have long been thought to involve humans living in close proximity to domestic poultry and pigs. Because pigs are susceptible to infection with both avian and mammalian viruses, including human strains, they can serve as a "mixing vessel" for the scrambling of genetic material from human and avian viruses, resulting in the emergence of a novel subtype. Recent events, however, have identified a second possible mechanism. Evidence is mounting that, for at least some of the 15 avian influenza virus subtypes circulating in bird populations, humans themselves can serve as the "mixing vessel".

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For additional information:

<http://www.cdc.gov/swineflu/>

<http://www.emergencyreport.com>