



Key Questions and Answers for 2009 Pandemic H1N1 Influenza Scenario 1: General Animal Health as of October 9, 2009

Educating the media and the public about the complexities of the 2009 pandemic H1N1 influenza virus strain vs. swine influenza as a disease among pigs is one of USDA's primary communications objectives.

As part of this effort, USDA, in partnership with the Department of Health and Human Services, has developed four scenarios in the event of a detection and/or outbreak of 2009 pandemic H1N1 influenza in the U.S. swine herd and provision of USDA services during the pandemic.

The scenarios are:

- 1) general animal health;
- 2) a detection of 2009 pandemic H1N1 influenza in commercial swine;
- 3) USDA services during pandemic; and
- 4) food safety

Each of these scenarios contains a series of key questions and answers about animal health, guidance for the public regarding USDA services during the pandemic, as well as a summary of the actions USDA would take in the event of a 2009 pandemic H1N1 influenza detection in U.S. swine.

KEY QUESTIONS

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| 1-2 | Why is the 2009 pandemic H1N1 virus sometimes called "swine flu"? |
| 1-3 | How many swine influenza viruses are there? |
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1-1 What is swine influenza?

Swine influenza is a respiratory disease of pigs caused by type A influenza viruses.

- Influenza in swine is common and often only causes minor clinical signs of illness in pigs.
- This is often called “swine flu”. However, the 2009 pandemic H1N1 virus currently circulating in people around the world also is called “swine flu” in the media, leading to confusion about the health of swine and the perceived health risks associated with swine.
- Like humans, the main flu season for pigs is in fall and winter but many swine influenza viruses, like the current 2009 pandemic H1N1 virus in humans, circulate in pigs in the spring and summer.
- Type A influenza viruses are common in birds and mammals, including pigs and humans.

Swine influenza viruses are classified by groups of proteins.

- They are classified by a combination of two groups of proteins: the hemagglutinin or H proteins, of which there are 16 (H1-H16), and neuraminidase or N proteins of which there are 9 (N1-N9).
- Subtypes H1 and H3 are the most common in pigs and endemic in the U.S. although sporadic cases of other subtypes like H2 and H4 have also been identified.
- The 2009 pandemic in humans is a novel H1 strain which contains elements of swine, avian and human flu viruses.

Endemic swine influenza—as opposed to the novel 2009 H1N1—is a common illness that has been recognized in the U.S. swine herd for nearly a century.

- When swine influenza occurs in a herd, although a high number of pigs can get sick, they typically recover in a few days. Severe illness or death in pigs caused by swine influenza viruses alone is uncommon.
- The 2009 pandemic H1N1 pandemic flu virus and the predominant North American swine influenza viruses contain elements of swine, avian and human flu viruses. However, the two viruses contain a different combination of genes.
- Although the 2009 pandemic H1N1 virus has not been found yet in U.S. swine, USDA research where pigs were experimentally infected with the 2009 H1N1 human strain indicates that it causes a relatively mild disease in pigs that cannot be clinically distinguished from endemic swine influenza in pigs.

1-2 Why is the 2009 pandemic H1N1 virus sometimes called “swine flu”?

Influenza viruses can be found in many different birds and mammals, including ducks, chickens, pigs, whales, horses, seals, dogs and humans and are able to change or mutate into new forms with new traits that are difficult to predict.

- They are classified by a combination of two groups of proteins: the hemagglutinin or H proteins, of which there are 16 (H1-H16), and neuraminidase or N proteins, of which there are 9 (N1-N9).
- Because influenza viruses are classified by groups of H and N proteins, there could be at least 144 different characterizations of the virus.



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- The 2009 pandemic in humans is caused by a novel H1 strain which contains elements of swine, avian and human flu viruses.

The 2009 pandemic H1N1 virus currently found in people was originally referred to as “swine flu” because testing showed that many of the genes were very similar to influenza viruses that normally occur in pigs, including the two main surface proteins, the H and N.

- However, further study has shown that the 2009 pandemic H1N1 virus is a new virus, with a combination of swine, human, and avian origin genes not seen previously in humans, birds, or pigs.
- It is more accurate to call it the pandemic H1N1 influenza virus, rather than “swine flu.”
- Calling the 2009 pandemic H1N1 virus currently circulating in people around the world “swine flu” has led to public confusion about the health of swine and the perceived health risks associated with swine.

To date, pigs do not play a role in the ongoing transmission of the 2009 pandemic H1N1 virus in people.

1-3 How many swine influenza viruses are there?

All influenza viruses change constantly.

- Although influenza viruses usually are adapted to one species, some of these viruses can infect different species.
- For example, pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses.
- When influenza viruses from different species infect the same cell, the viruses can reassort (i.e. swap genes) and new viruses can emerge with new traits.

Since 1998, different variations of swine influenza viruses have emerged.

- At this time, there are four main influenza type A virus subtypes that have been isolated in pigs: H1N1, H1N2, H3N2, and H3N1.
- Most of the recently isolated influenza viruses from pigs have been H1N1 triple reassortant viruses that contain influenza virus genes that originated from a combination of swine, human and avian influenza viruses.

1-4 Should people be concerned about getting sick with the 2009 pandemic H1N1 influenza virus from pigs?

No. To date, pigs do not play a role in the ongoing transmission of the 2009 pandemic H1N1 virus.

- The 2009 pandemic H1N1 virus currently found in people is a new virus, with a combination of genes not seen before in humans or pigs.
- Calling the 2009 pandemic H1N1 virus currently circulating in people around the world “swine flu” has led to confusion.

Pig owners should keep people with respiratory illness away from animals.

- Seasonal flu viruses are occasionally transmitted from people to pigs.
- Recognize flu-like symptoms in humans - fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills, fatigue, and possibly vomiting or diarrhea.



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- Anyone who has been diagnosed with flu, has flu-like symptoms, or reports contact with others who have flu-like symptoms should avoid contact with pigs.

Pig owners should be utilizing protective measures to keep their animals healthy.

- Enhance protective practices to prevent spread of the virus.
- Permit only essential workers and vehicles to enter the farm to limit the chances of bringing the virus from an outside source.
- Avoid visiting other livestock farms.
- Disinfect shoes, clothes, hands, crates, vehicles and tires – all of which can carry the virus.
- Protect your herd from contact with other animals.

1-5 What is USDA doing to protect the U.S. swine herd from the 2009 pandemic H1N1 virus?

USDA is working with the swine industry and other partners to look for influenza viruses in U.S. swine herds.

- If the 2009 pandemic H1N1 virus is identified in swine, we will work with the producer to increase protective measures to prevent the spread.
- Swine that have fully recovered from the disease and are no longer shedding influenza virus can move to other premises or slaughter.
- Surveillance for influenza viruses in swine can help achieve the following goals:
 - Identify new influenza viruses that could pose a threat to human health or animal health before they become a problem.
 - Develop improved influenza diagnostic tests.
 - Identify new influenza viruses for inclusion in vaccines.

USDA is prepared to conduct extensive surveillance in swine.

- USDA has a network of animal health experts and laboratories capable of assisting with testing and response to swine outbreaks.
- USDA has 600 veterinarians and 1,300 experts nationwide capable of assisting.
- USDA has a network of 39 state and academic laboratories nationwide certified to assist with testing samples.

If the 2009 pandemic H1N1 virus becomes established in the U.S. swine herd, USDA and HHS researchers will watch for changes in the virus.

- USDA will share influenza viruses from pigs with HHS so that both agencies can study the virus for any associated potential risks to animals or people.
- USDA is collaborating with the World Organization for Animal Health and relevant United Nations technical agencies on global surveillance and sharing results of clinical studies for the common public and animal health goals.
- This collaboration will help identify new influenza virus strains in a timely manner for candidate vaccine development and development of diagnostic tests as needed.



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1-6 Who else is USDA doing and who is in charge?

USDA leads federal animal disease preparation and response.

- USDA works in partnership with state and local animal health experts on surveillance and response efforts.
- USDA in cooperation with the U.S. swine industry monitors and tests commercial herds.
- USDA has an active influenza virus research program to ensure diagnostic tools are available to rapidly detect new and emerging influenza viruses and to develop animal vaccines to protect livestock and poultry from these viruses.

HHS leads the human health response. All Federal agencies are involved in the coordinated pandemic flu efforts.

HHS leads federal response and preparation activities related to public health.

- HHS works closely with state and local public health experts.
- Every citizen has a role in preparing and responding to a human pandemic.
- More information is available at www.flu.gov and <http://www.cdc.gov/h1n1flu>.

1-7 Does USDA expect to find the 2009 pandemic H1N1 influenza virus in pigs and what can people do to help?

This fall, it is possible that we will find the 2009 pandemic H1N1 influenza virus causing the pandemic in swine.

- If we do, USDA will work with States, practitioners and producers to monitor any sick herds and prevent the spread of the virus – both to other swine and to people.
- Animals that have fully recovered from the virus and are no longer shedding virus will be allowed to go to market or to slaughter.
- We have worked with federal and state public health officials, state animal health officials and industry representatives to build consensus on this approach.

Pig owners should keep people with any respiratory illness away from animals.

- Seasonal flu viruses are occasionally transmitted from people to pigs.
- Recognize flu-like symptoms in humans - fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills, fatigue, and possibly vomiting or diarrhea.
- Anyone who has been diagnosed with flu, has flu-like symptoms, or reports contact with others who have flu-like symptoms should avoid contact with pigs.

Protect your pig's health, enhance your protective practices.

- Keep your pigs and areas around them clean.
- If you have been around other animals, make sure that you clean your shoes, clothing and other items.
- And don't forget to wash your hands with warm water and soap for 20 seconds before and after handling any animals.

Report sick swine.

- If you see any pigs exhibiting flu-like signs, call your veterinarian.
- Or call USDA toll-free – 1-866-536-7593.



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1-8 How can people protect themselves?

To date, pigs do not play a role in the ongoing transmission of the 2009 pandemic H1N1 virus in people.

- The 2009 pandemic H1N1 virus currently found in people is a new virus, with a combination of genes not seen previously in humans or pigs.
- Calling the 2009 pandemic H1N1 virus currently circulating in people around the world “swine flu” has led to confusion about the health of swine and the perceived health risks associated with swine.

Flu is spread through direct contact, or aerosol droplets from coughing and sneezing.

- 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. Alcohol-based hand rubs also are effective.
 - Avoid touching your eyes, nose and mouth. Germs spread this way.
 - Try to avoid close contact with sick people.
 - If you get sick with influenza, CDC recommends that you stay home from work or school and limit contact with others to keep from infecting them.
- If you are sick with flu, exercise appropriate personal hygiene and stay away from pigs.
- If there are pigs sick with flu, stay away from them.

HHS leads federal response and preparation activities related to public health.

- HHS works closely with state and local public health experts.
- Every citizen has a role in preparing and responding to a human pandemic.
- More information is available at flu.gov and <http://www.cdc.gov/h1n1flu>.

1-9 What advice does USDA have for people with pet pigs?

USDA reminds anyone who owns pigs about being consistent and thorough in their practices to prevent the introduction or spread of disease.

- If you or anyone else with you has flu-like symptoms, stay away from your pigs.
- Purchase animals from reputable sources and ensure that you have documentation of the animal’s origin.
- Keep your pigs and areas around them clean. If you have been around other animals, make sure that you clean your shoes, clothing and other items.
- And don’t forget to wash your hands with warm water and soap for 20 seconds before and after handling your pet.

Learn the warning signs of swine influenza in pigs.

- Flu signs in pigs include fever, depression, coughing (barking), discharge from the nose or eyes, sneezing, breathing difficulties, eye redness or inflammation and going off feed.
- If your pigs are showing any of these signs, call your veterinarian.



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1-10 What are the signs of influenza illness in pigs?

Signs of 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 lack of appetite.

- If your pigs are showing any of these signs, call your veterinarian.

Like humans, swine also are exposed to influenza viruses and are given vaccine to induce a protective immune response to prevent disease.

- While this disease has a high infection rate among pigs, death is uncommon.
- Generally, pigs recover from influenza and return to normal health in a few days.
- Other swine diseases can look like flu. A diagnostic test is required to confirm a diagnosis of swine influenza.

1-11 What other animals are susceptible to swine H1N1 influenza A viruses?

Influenza A viruses are found in many different birds and mammals, including ducks, chickens, pigs, whales, horses, seals, dogs and humans.

- Infected animals show signs of illness similar to humans, such as cough, fever and runny nose.

Because Influenza A viruses can affect different species, it is possible for viruses to spread from one species to another.

- Although influenza viruses usually are adapted to one species, some of these viruses can infect different species. For example, pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses.
- When influenza viruses from different species infect the same cell, the viruses can reassort (i.e. swap genes) and new viruses that are a mix of swine, human and/or avian influenza viruses can emerge and exhibit novel traits.
- The 2009 pandemic H1N1 virus is an example of how influenza A viruses from different species can reassort.

Influenza viruses usually found in swine (endemic swine flu) do not normally infect humans.

- In the past, sporadic human infections of swine influenza have occurred in people who had direct contact with pigs. In these instances, the viruses have spread very little or not at all from human to human.
- Swine Flu is NOT transmitted to people by handling, cooking or eating pork products.



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1-12 How can people infect pigs with this 2009 pandemic H1N1 virus strain or with other human influenza viruses?

Flu can spread from people to pigs in the same way that it spreads from person to person.

- If you or anyone else with you has flu-like symptoms, stay away from pigs.
- USDA scientists recently conducted studies to see if the 2009 pandemic H1N1 influenza strain from humans could infect pigs.
- The laboratory study found that the 2009 pandemic H1N1 flu virus found in humans can infect pigs quickly and that the pigs recovered as they usually do when infected with endemic swine influenza.

Flu is spread through direct contact, or aerosol droplets from coughing and sneezing.

- 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. Alcohol-based hand rubs also are effective.
 - Avoid touching your eyes, nose and mouth. Germs spread this way.
 - Try to avoid close contact with sick people.
 - If you get sick with influenza, CDC recommends that you stay home from work or school and limit contact with others to keep from infecting them.
- If you are sick with flu, stay away from pigs.

1-13 What advice do you have for children who care for their own livestock?

Children raising swine should be vaccinated with the human flu vaccine, and should stay away from pigs if they have flu-like illness.

- Always wash your hands with soap and water before and after working in the barns and before touching your eyes, nose or mouth.
- These animals should be regularly seen by a veterinarian, and should be current on the recommended vaccines in keeping with their veterinarian's animal health program.
- If pigs are ill with flu-like signs, an N-95 respirator worn by the animal caretaker to prevent aerosol transmission, along with good hand-washing practices, is recommended to reduce the chances of pig-to-human transmission.

USDA reminds all owners of pigs about being consistent and thorough in their practices to prevent the introduction or spread of disease.

- Purchase animals from reputable sources and ensure that you have documentation of the animal's origin.
- Have your new animals checked by a veterinarian.
- Avoid visiting other livestock farms without proper cleaning and disinfection.

USDA encourages livestock owners to intensify the protective practices they have in place.

- Livestock owners should not lend equipment or vehicles to other farms, or borrow them from other farms.



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- Swine from outside sources should not be brought back to the farm and mingled with pigs already on the farm.

Learn the warning signs of influenza virus in pigs.

- Signs include sudden onset of fever, depression, coughing (barking), runny nose or eyes, sneezing, breathing difficulties, red eyes or swelling, and appetite loss.
- If your pig shows any of these signs, call your veterinarian.

1-14 Will my child be able to show his/her pig in the next agriculture fair?

USDA is not recommending anything that would prevent healthy pigs from going to fairs and shows.

- If swine are identified with 2009 pandemic H1N1 flu, the herd would be monitored and pigs that have recovered fully can move to other premises.
- At this time, there are no 2009 pandemic H1N1 influenza detections in the U.S. swine herd.
- Exhibitors should contact their local fair authority to confirm any specific requirements or actions that might be recommended.

We encourage participants and sponsors of agriculture fairs to intensify their protective practices and to intensify surveillance for any illness in pigs while at fairs.

- If you or anyone has flu-like symptoms, stay away from pigs.
- Only essential workers and vehicles should enter the designated fair areas.
- Thoroughly clean and disinfect equipment and vehicles entering and leaving the facility and avoid movement between exhibits and other parts of the fair without proper cleaning and disinfection.
- Monitor pigs closely for any illness and have them removed from other pigs and areas where the public may have access until the pig recovers. Contact the fair veterinarian so that the pig can be quickly tested for influenza and other illnesses as appropriate.

USDA has reminded the pork industry as well as owners of pigs about being consistent and thorough in their practices to prevent the introduction or spread of disease.

- Purchase animals from reputable sources and ensure that you have documentation of the animal's origin.
- Have your new animals checked by a veterinarian.