

**National Assembly of State Animal Health Officials (NASAHO)  
National Association of State Public Health Veterinarians (NASPHV)**

**Measures to Minimize Influenza Transmission at Swine Exhibitions, 2014**

It is estimated that 150 million people visit agricultural fairs each year in North America. Agricultural exhibitions provide valuable educational venues for the public. Equally important, livestock shows are an important learning opportunity for thousands of 4-H and FFA youth across the United States. For these youth, exhibiting at their county or state fair is the culmination of many months of work dedicated to the care and training of their animal.

Pigs can be infected with human, swine and avian origin influenza A viruses. While rare, influenza A viruses can spread from pigs to people and from people to pigs. Transmission usually requires close contact between pigs and people. This has happened in different settings, including livestock shows. When people are infected with swine origin influenza A viruses, it is termed as a variant virus infection and denoted with a “v” after the subtype (e.g. H3N2v).<sup>1</sup> In the past 5 years, cases of influenza A H1N1v, H1N2v and H3N2v have been associated with swine exhibitions. Between 2011 and 2013, 340 human cases infected with H3N2v were reported from 13 states. The largest outbreak occurred in 2012 when a total of 309 human cases of H3N2v flu were identified.<sup>2</sup> The majority of cases reported exposure to pigs prior to onset of illness and were exhibitors and others in close contact with pigs at agricultural fairs. From 2011 to 2013, 17 case-patients were hospitalized and one death was reported. Most of the hospitalized cases, as well as the person who died, were people considered to be at high risk for complications from influenza infections. People at high risk include children younger than 5 years of age, people 65 years of age and older, pregnant women and people with certain long-term health conditions (like asthma, diabetes, heart disease, chronic respiratory disease, weakened immune systems, and neurological or neurodevelopmental conditions).<sup>3</sup>

The Swine Exhibitions Zoonotic Influenza Working Group was assembled in December 2012 to develop a set of measures to minimize influenza virus transmission between swine, from people to swine, and from swine to people at swine exhibitions. The group reviewed the document again in May 2014 and minor updates were made. Influenza viruses are unpredictable and their impact and circulation can vary by year. It may not be possible to prevent all transmission of influenza viruses at swine exhibitions. The measures described here are offered for careful consideration depending on the needs of the specific exhibition and can be implemented in part or in total. They are not intended to supersede local, state, or federal regulations. These measures were formulated based on current evidence and the collective knowledge of the Swine Exhibitions Zoonotic Influenza Working Group. It is expected that this document will be updated regularly as additional information becomes available.

The suggested measures are organized to address activities before, during, and after swine exhibitions. Measures are further divided into actions that may minimize risk to swine and risk to humans, although there is significant overlap between those two groups.

## **Measures to Consider BEFORE the Exhibition**

Each state should establish and maintain a communication network that includes the state animal health agency, state and local public health officials, exhibition organizers and managers, veterinarians, Cooperative Extension Service educators, vocational agriculture instructors and other stakeholders.

State animal health officials in collaboration with state public health officials should develop a testing protocol for use at exhibitions when there are swine that have clinical signs consistent with influenza, and establish a method to distribute any test results to the appropriate animal health and public health agencies.

### **Swine Measures**

#### **For Exhibition Organizers**

- Limit the time pigs are congregated and co-mingled at an exhibition. Measures might include:
  - Shorten the total time pigs are on the exhibition grounds, ideally exhibition swine should be on the exhibition grounds no more than 72 hours.
  - Release pigs from the exhibition grounds as soon as possible following their respective show(s).
  - If offering both terminal pig and breeding swine shows, schedule the terminal show after the breeding swine show or schedule a break between shows. Use this break to clean and disinfect the facility.
  - Locate longer-term swine exhibits (i.e. big boars, birthing center animals, display exhibits of pigs) away from areas where the competition swine are housed.
- Establish a relationship with a veterinarian who will be present or on call for the duration of the exhibition. The veterinarian will be responsible for monitoring the animals for clinical signs, evaluating sick animals and taking additional steps as warranted to minimize the risk of influenza-like illness in the swine.
- Establish a temporary isolation area for sick pigs on or near the exhibition or fairgrounds.
- Establish a protocol to immediately remove sick swine from the exhibition area.
- Maintain records of individual swine identification and source farms to enhance the speed and accuracy of an animal disease investigation associated with the exhibition.

#### **For Exhibitors**

- Consult a veterinarian to understand and implement applicable biosecurity and swine health practices at home.
- Become familiar with the clinical signs of illness in pigs (off feed, lethargic, fever, nasal discharge, and cough).<sup>4</sup>
- Seek veterinary assistance if a pig becomes sick.
- Understand the risks to both humans and animals of taking a sick pig to a show. Sick pigs and sick people need to stay home so they do not risk infecting other pigs or people.
- Ask the exhibition organizer about any specific actions that may be required if a pig becomes sick at the show.

- Refrain from showing a pig or pen-mates for at least seven days after returning from an exhibition to reduce the risk of spreading influenza.
- Discuss the use of swine influenza vaccines with a veterinarian and check the exhibition rules for any requirements. Vaccines are available commercially and may be used prior to an exhibition. Swine vaccinated for influenza may be less likely to become ill, and if they become sick, they may be contagious for a shorter time.

### **Human Measures**

It is recommended by the Centers for Disease Control and Prevention (CDC) that everyone 6 months of age or older be vaccinated annually against seasonal influenza. Seasonal influenza vaccine is usually distributed in late summer and early fall, and people should be vaccinated as soon as the vaccine becomes available.<sup>5</sup>

People at high risk for developing more severe complications from influenza include the following: children younger than 5 years of age, people 65 years of age and older, pregnant women, and people with certain long-term health conditions (like asthma, diabetes, heart disease, chronic respiratory disease, weakened immune systems, and neurological or neurodevelopmental conditions).<sup>3</sup> People in these high risk groups should limit their exposure to infected swine.

#### **For Exhibition Organizers**

- Establish methods to rapidly communicate (i.e. email addresses and/or phone numbers from show entry information, social media channels, etc.) with exhibitors about procedural changes or incidents associated with the exhibition.
- Collect contact information for local or state public health officials to ensure they can be reached if they are needed during the event.
- Locate food service areas away from animal barns.
- Host non-animal-related activities (i.e. dances, pizza parties, etc.) in locations other than animal barns.

#### **For Exhibitors**

- Sick people can be infectious to pigs and other people. People with influenza-like illness should stay away from pigs until they are fever-free for at least 24 hours without the use of fever-reducing medication.<sup>6</sup>

### **Measures to Consider DURING the Exhibition**

#### **Swine Measures**

##### **For Exhibition Organizers**

- Host a meeting with exhibitors and their family members at the start of the exhibition to:
  - Provide contact information for the designated exhibition veterinarian.

- Provide instructions on how to report animal illnesses and explain any specific actions that may be required if a pig becomes sick at the show.
- Provide contact information for a public health official who can answer questions and be available during the exhibition.
- Review exhibition regulations.
- Review and encourage animal disease control measures to be utilized during the exhibition, including the daily monitoring of the animals during the show.

### **For Exhibitors**

- Observe swine daily for signs of influenza-like illness (off feed, lethargic, fever, nasal discharge, and cough).<sup>4</sup>
- Report any influenza-like illness to the designated exhibition veterinarian or the appropriate exhibition staff so the pig can be evaluated.
- The designated veterinarian should consider testing swine with signs of influenza-like illness. Results should be shared with animal health and public health officials.
- Swine deemed to be ill should be removed from the exhibition immediately or moved to a temporary isolation area on or near the exhibition or fairgrounds.
- Use precautions when caring for sick pigs to minimize the opportunity for disease transmission to other swine or people.

### **Human Measures**

#### **For Exhibition Organizers**

- Provide easy access to hand washing stations.
- Post informational signage that includes the following messages:<sup>7</sup>
  - People and animals can share germs
  - Wash your hands with soap and water when you leave the barn
  - No food or drink in animal areas
  - Remove pacifiers and avoid hand-to-mouth contact
  - Senior citizens, children under 5 years of age, pregnant women, and people with chronic health conditions or a weak immune system should take extra care around animals
- Discourage sleeping in the animal areas.
- If humans or pigs develop influenza-like-illness at the exhibition, animal health and public health officials should be notified immediately. Public health officials should facilitate human testing for influenza viruses, investigate the source of illness, and attempt to identify additional human cases. When illness is detected in swine or humans, public health recommendations include:
  - People who have influenza-like illness should leave the exhibition immediately and seek medical care. They should inform their health care provider about their exposure to swine.
  - People at high risk for developing severe complications from influenza, as listed previously, should be discouraged from entering the swine areas.

## Measures to Consider AFTER the Exhibition

### Swine Measures

#### **For Exhibit Organizers**

- Clean and disinfect the swine exhibition areas.

#### **For Exhibitors**

- Isolate and observe animals daily for illness after returning home and before allowing contact with other animals
  - The isolation/observation period for clinical signs of influenza should be no fewer than 7 days.
  - Clean and disinfect equipment, clothing, shoes, and vehicles/trailers that were at the exhibition.
  - Consult a veterinarian if pigs become ill.

### Human Measures

#### **For Exhibitors**

- Consult a health care provider and public health official as soon as possible if exhibitors or family members develop influenza-like illness
  - Inform the health care provider of close contact with swine and/or exhibition attendance.
  - Ill people should avoid all contact with swine until they are fever-free for at least 24 hours without the use of fever-reducing medications.<sup>6</sup>

## References

1. Standardization of terminology for the variant A(H3N2) virus recently infecting humans (2014). Retrieved May 14, 2014, from [http://www.who.int/influenza/gisrs\\_laboratory/terminology\\_ah3n2v/en/](http://www.who.int/influenza/gisrs_laboratory/terminology_ah3n2v/en/)
2. Jung MA et al. 2013. Outbreak of variant influenza A(H3N2) virus in the United States. Clin Infect. Dis. (2013) 57 (12) 1703-1712.
3. People at High Risk of Developing Flu–Related Complications (2013). Retrieved May 14, 2014, from [http://www.cdc.gov/flu/about/disease/high\\_risk.htm](http://www.cdc.gov/flu/about/disease/high_risk.htm)
4. Diseases of Swine, 10th Edition. Edited by Zimmerman, et al. ©2012 John Wiley & Sons, Inc.
5. Key Facts about Influenza (Flu) & Flu Vaccine (2013). Retrieved May 14, 2014, from <http://www.cdc.gov/flu/keyfacts.htm>
6. What people who raise pigs need to know about influenza (flu). Retrieved June 11, 2014, from <http://www.cdc.gov/flu/swineflu/people-raise-pigs-flu.htm>
7. The Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2013. Retrieved May 14, 2014, from <http://nasphv.org/documentsCompendiumAnimals.html>

### **Other Resources**

- A Champion's Guide to Youth Swine Exhibition (2013). Retrieved from <http://www.pork.org/filelibrary/NPB%20A%20Champions%20Guide%20to%20Youth%20Swine%20Exhibition.pdf>
- H3N2v. Retrieved May 14, 2014, from [http://www.flu.gov/about\\_the\\_flu/h3n2v/index.html#](http://www.flu.gov/about_the_flu/h3n2v/index.html#)
- Key Facts about Human Infections with Variant Viruses (Swine Origin Influenza Viruses in Humans) (2012). Retrieved May 14, 2014, from <http://www.cdc.gov/flu/swineflu/keyfacts-variant.htm>
- National Pork Board Influenza (2014). Retrieved from <http://www.pork.org/flu>
- Youth Pork Quality Assurance (2013). Retrieved from <http://www.pork.org/filelibrary/YouthPQAPlus/2014/YPQAhandbook.pdf>

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