CDC Influenza Division Key Points: HPAI H5
June 19, 2015

Highly Pathogenic Avian Influenza H5 in U.S. Domestic and Wild Birds; Human Health Implications and Background Information

In this document:

Summary and What's New: This week, the number of newly reported H5 avian flu outbreaks in birds declined, although USDA did confirm detection of HPAI H5 virus infection in a commercial egg-laying chicken flock in Iowa. The number of states that USDA is reporting as having HPAI H5 bird flu virus detections continues to be 21 U.S. states (six of these states have had H5 detections in wild birds only). The human health risk assessment for these viruses continues to be low for the general public. People with close or prolonged unprotected contact with infected birds or contaminated environments, however, are likely at greater risk of infection. People with exposure to infected birds or contaminated environments are urged to take precautions to reduce their risk of infection. CDC guidance and more information are available at http://www.cdc.gov/flu/avianflu/h5/index.htm.

Background

- In December 2014 and to date in 2015, the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the U.S. Department of the Interior (DOI), National Wildlife Health Center have been detecting and reporting highly pathogenic* avian influenza (HPAI) H5 viruses in U.S. domestic poultry (backyard and commercial flocks), captive wild birds, and wild birds.
- Increased outreach, reporting and surveillance activities in the United States followed the detection of HPAI H5N2 among commercial poultry flocks in Canada in early December 2014.
- As of June 12, 2015, USDA is reporting that HPAI H5 viruses have been detected in 21 U.S. states (15 states have experienced outbreaks in domestic poultry or captive birds; six states have detected H5 in wild birds only).
- A complete list of confirmed U.S. H5 Infections in poultry is available on the USDA website *(http://1.usa.gov/1JD0scw)*.
- A complete list of confirmed U.S. H5 infections in wild birds is available on the USDA website *(http://1.usa.gov/15xZXSX)*.
- A summary of all reports to date includes:
    - HPAI H5N8 virus in California, Idaho, Oregon, Utah, Washington, Nevada, and Indiana.

* Avian influenza A viruses are designated as highly pathogenic (HP) or low pathogenicity based on molecular characteristics of the virus and the ability of the virus to cause disease and mortality in chickens.

  - HPAI H5N2 virus in Washington, Idaho, Oregon, Minnesota, Missouri, Arkansas, Kansas, Wyoming, Montana, South Dakota, North Dakota, Wisconsin, Iowa, Kentucky, Nebraska and Michigan.
  - HPAI H5N1[†] virus in Washington.
  - H5 virus in a wild bird in New Mexico, but diagnostic testing did not determine the neuraminidase (NA).

- HPAI H5N8, HPAI H5N2 and HPAI H5N1 viruses with these combinations of genes had not been detected previously in the United States.
- While no human infections with these HPAI H5N8, H5N2, or this reassortant H5N1 virus have been reported worldwide, some genetically similar HPAI viruses (like Eurasian H5N1, for example) have infected people in the past.
- Though rare, human infections with HPAI viruses have most often occurred after contact with infected birds or their secretions or excretions.
- Illnesses in humans from avian influenza virus infections have ranged in severity from mild to severe.
- The U.S. Department of Interior and the United States Department of Agriculture are the lead federal departments for outbreak investigation and control in wild birds and the USDA APHIS is the lead agency for such activities in domestic birds.
- The Department of Health and Human Services (HHS) and The Centers for Disease Control and Prevention (CDC) would lead any federal response for protecting human health.
- For more information about avian influenza, visit the CDC avian flu web site *(http://www.cdc.gov/flu/avianflu/)* and the USDA ARS *(http://www.ars.usda.gov/News/docs.htm?docid=11244)* and APHIS websites *(http://1.usa.gov/1DvYBrF* For more information on avian influenza and wild birds, please visit the USGS National Wildlife Health Center *(http://www.nwhc.usgs.gov/disease_information/avian_influenza/index.jsp)*.

What CDC Is Doing

- At this time, CDC is communicating and coordinating with all state health departments from affected states on appropriate human health measures and is working with animal health colleagues to minimize public health risk.
- State health departments of affected states monitor the health of workers who have had contact with infected poultry for signs and symptoms of illness that occur within 10 days after their last exposure.
- CDC has received domestic HPAI H5 virus samples (e.g., H5N8, H5N1 and H5N2) and is studying these viruses.

[†] This HPAI H5N1 virus is a new mixed-origin virus (a reassortant) that has a new combination of genes from HPAI H5N1 viruses that spread in Asia and low-pathogenic avian influenza viruses that circulate in wild birds in North America.

- Genetic analysis of these viruses does not show any markers previously associated with greater disease severity in people or better transmissibility to people.
- In addition, CDC has ongoing studies in mice and ferrets also to evaluate transmissibility and disease severity of these viruses in animal models.
- CDC also is studying whether existing H5N1 vaccines in the Strategic National Stockpile might protect against any of the HPAI H5 viruses that have been detected in the United States as well as creating candidate vaccine viruses that are specific to the new domestic H5 viruses which could be used to make vaccine if one were needed.

CDC Guidance

- On January 30, CDC posted guidance for clinicians and public health professionals in the United States on appropriate testing, specimen collection and processing for patients who may be infected with novel influenza A viruses with the potential to cause severe illness in people. http://www.cdc.gov/flu/avianflu/severe-potential.htm
- CDC also posted interim guidance for clinicians and public health professionals in the United States on follow-up and influenza antiviral chemoprophylaxis of persons exposed to birds infected with avian influenza A viruses. http://www.cdc.gov/flu/avianflu/guidance-exposed-persons.htm
- On June 2, CDC also posted a document called "Recommendations for Worker Protection and Use of Personal Protective Equipment (PPE) to Reduce Exposure to Highly Pathogenic Avian Influenza A H5 Viruses" (http://www.cdc.gov/flu/avianflu/h5/worker-protection-ppe.htm).
- The U.S. Department of Health and Human Services (HHS) has amended its guidance on the use of antiviral drugs that have been stockpiled for use during an influenza pandemic such that some select state and federal product to support current domestic HPAI H5 response efforts. A media update on this amendment has been posted at http://www.cdc.gov/flu/news/outbreaks-h5-av-stockpile.htm .

Risk to People in the United States

- No human infections with these viruses have been detected at this time, however, similar viruses have infected people.
- It's possible that human infections with these viruses may occur.
- While human infections are possible, infection with avian influenza viruses in general are rare and – when they occur – these viruses have not spread easily to other people.
- These reports of H5-infected wild birds and poultry in the United States do not signal the start of a pandemic.
- CDC considers the risk to the general public from these HPAI H5 viruses in wild birds, backyard flocks, and commercial poultry, to be low.
- As a general precaution, people should avoid wild birds and observe them only from a distance; avoid contact with domestic birds (poultry) that appear ill or have died; and

avoid contact with surfaces that appear to be contaminated with feces from wild or domestic birds.

- People with close or prolonged unprotected contact with infected birds or contaminated environments may be at greater risk of infection.
- CDC recommends that people in close or prolonged contact with infected birds or contaminated environments take routine precautions to protect against infection.

U.S. Poultry

- Based on the World Organization for Animal Health (OIE) reporting criteria for avian influenza in commercial poultry, between 1997 and 2014, the United States experienced one incident of HPAI.
- In 2004, there was a HPAI H5N2 outbreak on one poultry farm in Texas, caused by a North American lineage HPAI H5N2 virus (a genetically different virus from the HPAI H5N2 viruses detected in U.S. and Canada in recent months).
- No human cases of HPAI H5 associated with wild bird or domestic poultry infections with HPAI have ever been reported in the U.S. However, low pathogenic avian influenza viruses have been associated with human cases in the U.S.
- In November 2003, a case of avian influenza A virus infection was detected in an adult male from New York, who was hospitalized for respiratory tract illness. A low pathogenic avian influenza A (H7N2) virus *(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5325a1.htm)* was isolated from a respiratory specimen from the patient. The patient's acute symptoms resolved. The source of this person's infection is unknown.
- In 2002, a person developed influenza-like illness after being involved with culling activities associated with a low pathogenic avian influenza A (H7N2) outbreak *(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5325a1.htm)* among turkeys and chickens on commercial farms in Virginia. Serological testing confirmed infection with avian influenza A (H7N2) virus; no human-to-human transmission was evident and the person made a full recovery.
- The U.S. poultry industry maintains rigorous health and safety standards, including routine monitoring for avian influenza.
- It is safe to eat properly handled and cooked poultry in the United States.
- However, consumers are reminded to handle raw poultry hygienically and cook all poultry and poultry products (including eggs) thoroughly before eating to avoid infection with *Salmonella* and other pathogens.
- There is no evidence that any human cases of bird flu have ever been acquired by eating properly cooked poultry products. Proper cooking kills influenza viruses. Visit the USDA Food Safety and Inspection Service website for guidance on handling and cooking poultry and game birds at:
    - Chicken from Farm to Table http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-

answers/food-safety-fact-sheets/poultry-preparation/chicken-from-farm-to-table/ct_index

- Game from Farm to Table
  http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/meat-preparation/game-from-farm-to-table/CT_Index

Background on Recently Detected HPAI H5N8, H5N2 and H5N1 Viruses

- The HPAI H5N8 viruses detected in the United States are similar to viruses that were first reported on duck farms in China in 2009-2010. During 2014, similar HPAI H5N8 viruses were found in wild birds and poultry in Korea and Japan. In November 2014, HPAI H5N8 in poultry and wild birds was reported in England, the Netherlands, Germany and Italy. In March 2015, HPAI H5N8 in a wild bird was reported in Sweden. No human cases have been associated with these HPAI H5N8 viruses.
- The HPAI H5N2 viruses detected in the United States are similar to HPAI H5N2 viruses first detected in early December 2014 on poultry farms in British Columbia province, Canada. This is a reassortant virus that combines genes from Eurasian H5 viruses and North American N2 viruses. No human cases have been associated with either of the lineages of HPAI H5N2 viruses.
- The HPAI H5N1 virus detected in the United States is a reassortant virus with genes from HPAI H5 Asian viruses and low pathogenic North American viruses.

Background on Avian Influenza

- Avian influenza *(http://www.cdc.gov/flu/avianflu/)* (bird flu) is a viral disease of birds. Migratory birds may carry avian influenza viruses that do not usually make them sick. Avian influenza viruses can be classified as either “low pathogenic” avian influenza viruses or “highly pathogenic” avian influenza viruses (HPAI). HPAI viruses can cause severe illness and death in birds, particularly in domestic poultry. Avian influenza viruses do not normally infect humans, but human cases have occurred.

Question & Answer

What should I do if I find a dead bird?

State and local agencies have different policies for collecting and testing birds, so check with your state health department, state veterinary diagnostic laboratory, or state wildlife agency for information about reporting dead birds in your area. Wildlife agencies routinely investigate sick or dead bird events if large numbers are impacted. This type of reporting could help with the early detection of illnesses in birds caused by West Nile virus or avian influenza. If local authorities tell you to simply dispose of the bird’s carcass (body), don’t handle it with your bare hands. Use gloves or an inverted plastic bag to place the carcass in a garbage bag, which can then be disposed of in your regular trash.

Please report sick or dead wild birds to your local wildlife agencies or to 1-866-4USDA-WS (1-866-487-3297).