CDC Influenza Division Key Points: HPAI H5
May 29, 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: Avian flu cases have started to decline, although USDA confirmed HPAI H5N2 virus in additional poultry flocks in Minnesota, Nebraska and Iowa this week. USDA is reporting HPAI H5 bird flu virus detections in 20 U.S. states (15 states with outbreaks in poultry or captive birds and five states with H5 detections in wild birds only). More HPAI H5 outbreaks in birds does not change the human health risk assessment for these viruses, which continues to be low for the general public; however, people with exposure to infected birds are urged to take precautions to reduce their risk of infection. To help prevent and control any potential human infections of HPAI H5 virus infections, HHS is changing its guidance to allow the use of pandemic antiviral stockpiles to address novel avian influenza strains currently in circulation in birds. Some antivirals from state and federal stockpiles will be available for the H5 response.

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.
- A brief report in a February 3, 2015 Early Release of the Morbidity and Mortality Weekly Report described such reports through January. ("Outbreaks of Avian Influenza A (H5N2), (H5N8), and (H5N1) Among Birds — United States, December 2014–January 2015"). *(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6404a9.htm?s_cid=mm6404a9_w)*
- 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 May 29, 2015, USDA is reporting that HPAI H5 viruses have been detected in 20 U.S. states (15 states have experienced outbreaks in domestic poultry or captive birds, and five states have detected H5 in wild birds only).

* 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.

- 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.
    - HPAI H5N2 virus in Washington, Idaho, Oregon, Minnesota, Missouri, Arkansas, Kansas, Wyoming, Montana, South Dakota, North Dakota, Wisconsin, Iowa, Kentucky, and Nebraska.
    - 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 of 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)*.

[†] 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.

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.
- States health departments from affected states report monitoring the health of workers who have had contact with infected poultry for signs and symptoms reported within 10 days after the last exposure.
- CDC has received three domestic HPAI H5 virus samples (e.g., H5N8, H5N1 and H5N2) and is studying these viruses.
- 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.
- 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
- For more information about this guidance, see the February 3, 2015 Early Release of the Morbidity and Mortality Weekly Report ("Outbreaks of Avian Influenza A (H5N2), (H5N8), and (H5N1) Among Birds — United States, December 2014–January 2015") *(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6404a9.htm?s_cid=mm6404a9_w)*.

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.

Recommendations for HPAI H5 Exposures

- The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) has guidance for protecting people who work with poultry. https://www.osha.gov/dts/shib/shib121304.html
- They have a Quick Card on avian flu that details personal protective equipment and other protective actions that should be taken.
- The OSHA Bird Flu Quick Card is available in English *(https://www.osha.gov/OshDoc/data_AvianFlu/poultry_employees.pdf)* and in Spanish *(https://www.osha.gov/OshDoc/data_AvianFlu/poultry_employees_sp.pdf)*.
- Printed copies of these Quick Cards can be ordered at https://www.osha.gov/pls/publications/publication.searchResults?pSearch=3307.
- CDC recommends that people who have had direct contact with infected bird(s) monitor their health for signs or symptoms of illness, including flu-like symptoms and eye infections.
- People who have been exposed to infected birds may be given influenza antiviral drugs preventatively.
- While antiviral drugs are most often used to treat flu, they also can be used to prevent infection in someone who has been exposed to influenza viruses. When used to prevent seasonal influenza, antiviral drugs are 70% to 90% effective.
- Chemoprophylaxis with influenza antiviral medications **can be considered** for all exposed persons.
- Decisions to initiate antiviral chemoprophylaxis should be based on clinical judgment, with consideration given to the type of exposure and to whether the exposed person is at high risk for complications from influenza *(http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm)*.
- Close contacts (family members, etc.) of people who have been exposed to HPAI H5 viruses also should monitor their health and report any flu-like symptoms and or eye infections.
- States initiating H5 outbreak control activities should call CDC and health care providers evaluating patients with suspected HPAI H5 infection also should call CDC. The agency is providing case-by-case guidance at this time.
- CDC is monitoring this situation closely and continues to work with public and animal health partners to minimize the risk to human health.
- CDC will update the public as new information becomes available.

Stockpiles of Antiviral Drugs

- Appropriate use of influenza antiviral drugs is a key component of response-and-control measures for this outbreak and may help reduce the risk of human cases and subsequent person-to-person spread.
- Individuals exposed to HPAI H5 viruses who are being considered for prophylaxis or for empiric treatment of possible infection with HPAI H5 virus infection must have access to a prescription and the appropriate drug.
- To help decrease the risk of human infection with these HPAI strains and the possibility of subsequent person-to-person spread, state and local public health officials are encouraged to help facilitate access to these drugs as part of this strategy.
- This may be through the normal healthcare system or by providing select products from public health antiviral drug stockpiles.
- To assist in this effort, state health departments should be aware that 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.
- A media update on this amendment has been posted at http://www.cdc.gov/flu/news/outbreaks-h5-av-stockpile.htm
- HHS continues to recommend that state stockpiles of antiviral drugs be reserved for pandemic use, but has expanded its recommendation to allow use of some select state and federal product to support current domestic HPAI H5 response efforts. This product should not be used to treat seasonal influenza cases.
- For more information on which public health stockpiles may be used to help prevent and control potential human infections with HPAI H5, please contact CDC at dsns-request@cdc.gov.

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).