Summary

Highly pathogenic avian influenza (HPAI) A(H5) viruses have been identified in birds in the United States since December 2014. The purpose of this advisory is to notify public health workers and clinicians of the potential for human infection with these viruses and to describe Centers for Disease Control and Prevention (CDC) recommendations for patient investigation, testing, and antiviral treatment and prophylaxis.

On February 21, 2022, Delaware Department of Agriculture (DDA) evaluated a commercial poultry operation following the unexpected death of multiple chickens. Samples from the birds tested positive for influenza A H5N1. The DDA and its partner agencies are working to contain the situation and taking several precautionary measures.

Background

Highly pathogenic avian influenza (HPAI) A(H5N1) virus occurs mainly in birds and is highly contagious among them. The virus was first detected in 1996 in geese in China. Asian H5N1 was first detected in humans in 1997 during a poultry outbreak in Hong Kong and has since been detected in poultry and wild birds in more than 50 countries in Africa, Asia, Europe, and the Middle East. Six countries are considered to be endemic for HPAI H5N1 virus in poultry (Bangladesh, China, Egypt, India, Indonesia, and Vietnam). Since its widespread re-emergence in 2003, rare, sporadic human infections with this virus have been reported in Asia, and later in Africa, Europe, and the Middle East. Human infections with H5N1 viruses have been associated with severe disease and death. Most human infections with avian influenza viruses, including HPAI H5N1 viruses, have occurred after prolonged and close contact with infected birds. Rare human-to-human spread with this virus has occurred, but it has not been sustained and no community spread of this virus has ever been identified. **No human cases of HPAI virus infection have ever been detected or reported in the United States.**

While recently identified HPAI H5 viruses in Delaware are not known to have caused disease in humans, their appearance in North American birds may increase the likelihood of human infection in the United States. Human infection with other avian influenza viruses, including a different HPAI (H5N1) virus found in Asia, Africa, and other parts of the world; HPAI (H5N6) virus; and (H7N9) virus, has been associated with severe and sometimes fatal disease. Previous human infections with other avian viruses have most often occurred after unprotected direct physical contact with

infected birds or surfaces contaminated by avian influenza viruses, being in close proximity to infected birds, or visiting a live poultry market. Human infection with avian influenza viruses has not occurred from eating properly cooked poultry or poultry products.

CDC considers the risk to the general public from these newly-identified US HPAI H5 viruses to be low; however, people with close or prolonged unprotected contact with infected birds or contaminated environments may be at greater risk of infection. Until more is known about these newly-identified HPAI H5 viruses, public health recommendations are largely consistent with guidance for influenza viruses associated with severe disease in humans (e.g., HPAI H5N1 viruses that have caused human infections with high mortality in other countries). Currently, CDC considers these newly-identified HPAI H5 viruses as having the potential to cause severe disease in humans and recommends the following:

- Clinicians should consider the possibility of HPAI H5 virus infection in persons showing signs or symptoms of respiratory illness who have relevant exposure history. This includes persons who have had contact with potentially infected birds (e.g., handling, slaughtering, defeathering, butchering, culling, preparation for consumption); direct contact with surfaces contaminated with feces or parts (carcasses, internal organs, etc.) of potentially-infected birds; and persons who have had prolonged exposure to potentially-infected birds in a confined space.
- People who have had direct contact with infected bird(s) who develop any illness symptoms within 10 days of their last exposure to infected birds should immediately notify a health care provider about their exposure so they can be evaluated and tested for avian influenza A virus infection and other possible causes of their symptoms.

Signs and symptoms of avian influenza A virus infection are non-specific and variable and may include:

- **Fever (temperature of 100ºF [37.8ºC] or greater) or feeling feverish, cough, sore throat, runny or stuffy nose**
- **Muscle or body aches, headaches, or fatigue**
- **Eye redness (or conjunctivitis),**
- **Shortness of breath or difficulty breathing.**

Less common signs and symptoms are:

- **Diarrhea, nausea, vomiting, seizures.**

Fever may occur in infected persons of any age, particularly in persons aged 65 years and older or people who have weakened immune systems due to disease or medications.

Respiratory specimens will be collected for influenza testing at a state public health laboratory and may also be tested locally for influenza and other infectious diseases. A health care provider can assess whether testing for other infectious diseases is indicated based upon signs, symptoms, history of exposures, clinical examination findings and the local epidemiology of other pathogens, including other respiratory viruses that may be circulating among people (e.g., SARS-CoV-2).

People who become sick within 10 days of their exposure to infected birds should isolate at home away from their household members and should not go to work or school until they are proven not to have avian influenza A virus infection and have recovered from their illness. The Division of Public Health (DPH) can assist in monitoring and advising when isolation is no longer required.

Close contacts (family members, etc.) of people who have been exposed to avian influenza A viruses should monitor their health and report to their health care provider any new symptoms, especially respiratory symptoms, within 10 days of the exposure.

Recommendations

Influenza Antiviral Treatment and Chemoprophylaxis:

Chemoprophylaxis with influenza antiviral medications can be considered for all persons meeting bird exposure criteria. 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.

Chemoprophylaxis is not routinely recommended for personnel who used proper PPE while handling sick or potentially-infected birds or decontaminating infected environments (including animal disposal).

If antiviral chemoprophylaxis is initiated, treatment dosing for the neuraminidase inhibitors oseltamivir or zanamivir (one dose twice daily) is recommended instead of the typical antiviral chemoprophylaxis regimen (once daily). For specific dosage recommendations for treatment by age group, see https://www.cdc.gov/flu/avianflu/guidance-exposed-persons.htm. Physicians should consult the manufacturer's package insert for dosing, limitations of populations studied, contraindications, and adverse effects. If exposure was time-limited and not ongoing, five days of medication (one dose twice daily) from the last known exposure is recommended.

Treatment of Symptomatic Persons with Bird Exposure:

Patients meeting bird exposure criteria who develop symptoms compatible with influenza should be referred for prompt medical evaluation and empiric initiation of influenza antiviral treatment with a neuraminidase inhibitor as soon as possible. Clinical benefit is greatest when antiviral treatment is administered early, especially within 48 hours of illness onset. Antiviral treatment should not be delayed while waiting for laboratory testing results. For detailed guidance, see Interim Guidance of the Use of Antiviral Medications for the Treatment of Human Infection with Novel Influenza A Viruses Associated with Severe Human Disease.

People should avoid unprotected exposure to sick or dead birds, bird feces, litter, or materials contaminated with suspected or confirmed HPAI H5 viruses. All recommended personal protective equipment (PPE) should be worn when in direct or close contact (within about 6 feet) with sick or dead poultry, poultry feces, litter or materials contaminated with suspected or confirmed HPAI H5 viruses.

People exposed to HPAI H5-infected birds (including people wearing PPE) should be monitored for signs and symptoms consistent with influenza beginning after their first exposure and for 10 days after their last exposure. Influenza antiviral prophylaxis may be considered to prevent infection (see below). Persons who develop respiratory illness after exposure to HPAI H5-infected birds should be tested immediately for influenza and be given influenza antiviral treatment (see below).

Surveillance and Testing:

Patients who meet clinical and exposure criteria should be tested for HPAI H5 virus infection by reverse-transcription polymerase chain reaction (RT-PCR) assay. The sample should be sent to the Delaware Public Health Laboratory (DPHL) for subtyping, especially those that are negative for H1 and H3. However, any sample should be sent to DPHL if there is suspicion for HPAI H5.

Standard, contact, and airborne precautions are recommended for patient management; this includes collection of respiratory specimens. Practitioners should employ infection control precautions consistent with precautions recommended for novel influenza A viruses known to cause severe disease in humans. See Interim Guidance for Infection Control Within Healthcare Settings When Caring for Confirmed Cases, Probable Cases, and Cases Under Investigation for Infection with Novel Influenza A Viruses Associated with Severe Disease for more information and consult CDC for specific case-by-case infection control recommendations if needed.

Multiple respiratory tract specimens should be collected from persons with suspected HPAI H5 virus infection, including nasopharyngeal, nasal, and throat swabs. Patients with severe respiratory disease also should have lower respiratory tract specimens collected, if possible. For more information on surveillance and testing of persons under investigation for avian HPAI H5 virus infection, see https://www.cdc.gov/flu/avianflu/severe-potential.htm. Swab specimens should be collected using swabs with a synthetic tip (e.g., polyester or Dacron®) and an aluminum or plastic shaft. The swab specimen collection vials should contain 1-3ml of viral transport medium (e.g., containing protein stabilizer, antibiotics to discourage bacterial and fungal growth, and buffer solution).

Infection Control:

For patients presenting for medical care or evaluation who have illness consistent with influenza and recent exposure to potentially infected birds, standard, contact, and airborne precautions are recommended. For additional guidance on infection control precautions for patients who may be infected with HPAI H5 virus, refer to guidance for infections with novel influenza A viruses associated with severe disease found at https://www.cdc.gov/flu/avianflu/novel-flu-infection-control.htm.

Additional Information

Avian Influenza is a reportable disease in Delaware. All Delaware physicians, laboratories and other health care providers are required by regulations to report patients, either based on clinical diagnosis or laboratory confirmation, to the Office of Infectious Disease Epidemiology (OIDE) as listed at Reportable Diseases in Delaware - Delaware Health and Social Services - State of Delaware. Reporting enables appropriate public health follow-up for your patients, helps identify outbreaks, and provides a better understanding of disease trends in Delaware. Cases can be reported to the DPH Office of Infectious Disease Epidemiology (OIDE) by calling 302-744-4990 (normal business hours) or 1-888-295-5156 (outside of normal business hours). You may also complete a Notifiable Disease Report PDF Form and mail the form as directed, fax the form to DPH at 302-622-4149, or email

to reportdisease@delaware.gov. The form can be found online at https://dhss.delaware.gov/dhss/dph/dpc/rptdisease.html. If you need additional guidance on testing resources, contact 1-888-295-5156.

Resources

- https://www.cdc.gov/flu/avianflu/index.htm
- https://www.cdc.gov/flu/avianflu/treatment-prophylaxis.htm