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Highly Pathogenic Avian Influenza A(H5N1) Virus: Identification of Human Infection and Recommendations for Investigations and Response

Summary

The Centers for Disease Control and Prevention (CDC) is issuing this Health Alert Network (HAN) Health Advisory to inform clinicians, state health departments, and the public of a recently confirmed human infection with highly pathogenic avian influenza (HPAI) A(H5N1) virus in the United States following exposure to presumably infected dairy cattle. The U.S. Department of Agriculture (USDA) [recently reported detections of](#) highly pathogenic avian influenza A(H5N1) virus in U.S. dairy cattle in multiple states. This Health Advisory also includes a summary of interim [CDC recommendations for preventing, monitoring, and conducting public health investigations of potential human infections with HPAI A\(H5N1\) virus.](#)

Background

A farm worker on a commercial dairy farm in Texas developed conjunctivitis on approximately March 27, 2024, and subsequently tested positive for HPAI A(H5N1) virus infection. HPAI A(H5N1) viruses have been reported in the area's dairy cattle and wild birds. There have been no previous reports of the spread of HPAI viruses from cows to humans.

The patient reported conjunctivitis with no other symptoms, was not hospitalized, and is recovering. The patient was recommended to isolate and received antiviral treatment with oseltamivir. Illness has not been identified in the patient's household members, who received oseltamivir for post-exposure prophylaxis per [CDC Recommendations for Influenza Antiviral Treatment and Chemoprophylaxis](#). No additional cases of human infection with HPAI A(H5N1) virus associated with the current infections in dairy cattle and birds in the United States, and no human-to-human transmission of HPAI A(H5N1) virus have been identified.

CDC has sequenced the influenza virus genome identified in a specimen collected from the patient and compared it with HPAI A(H5N1) sequences from cattle, wild birds, and poultry. While minor changes were identified in the virus sequence from the patient specimen compared to the viral sequences from cattle, both cattle and human sequences lack changes that would make them better adapted to infect mammals. In addition, there were no markers known to be associated with influenza antiviral drug resistance found in the virus sequences from the patient's specimen, and the virus is closely related to two existing HPAI A(H5N1) candidate vaccine viruses that are already available to manufacturers, and which could be used to make vaccine if needed.

This patient is the second person to test positive for HPAI A(H5N1) virus in the United States. The first case was reported in [April 2022 in Colorado](#) in a person who had contact with poultry that was presumed to be infected with HPAI A(H5N1) virus.

Currently, HPAI A(H5N1) viruses are circulating among wild birds in the United States, with associated outbreaks among poultry and backyard flocks and sporadic infections in mammals.

The current risk these viruses pose to the public remains low. However, people with job-related or recreational exposures to infected birds, cattle, or other animals are at higher risk of infection and should take appropriate precautions outlined in [CDC Recommendations for Farmers; Poultry, Backyard Bird Flock, and Livestock Owners; and Worker Protection](#).

CDC continues to work with USDA, FDA, and state health departments to monitor people exposed to animals infected with HPAI A(H5N1) viruses. The FDA does not currently have concerns about the safety or availability of pasteurized milk products nationwide. Pasteurization has continually proven to inactivate bacteria and viruses, like influenza viruses, in milk and is required for any milk entering interstate commerce. Because influenza viruses constantly change, continued surveillance and preparedness efforts are critical. CDC is taking measures in case the public health risk assessment changes. This is a developing situation, and CDC will share additional updates as new relevant information becomes available.

No case of severe illness or death with HPAI A(H5N1) virus infection has been reported in the United States. Since 1997, more than 900 sporadic human cases of HPAI A(H5N1) have been reported in 23 countries, with more than half of these cases resulting in death. However, since 2015–2016, human cases have decreased substantially, and only a small number of sporadic human cases have been reported worldwide since 2022. Clinical illness with HPAI A(H5N1) virus infection has ranged from mild disease (e.g., conjunctivitis and upper respiratory symptoms) to severe or critical disease (e.g., pneumonia, multi-organ failure, and sepsis) and death.

Recommendations CDC's updated recommendations include instructions for infection prevention and control measures, using personal protective equipment (PPE), testing, antiviral treatment, patient investigations, monitoring of exposed persons (including persons exposed to sick or dead wild and domesticated animals and livestock with suspected or confirmed infection with HPAI A(H5N1) viruses), and antiviral chemoprophylaxis of exposed persons.

Recommendations for Clinicians

- Clinicians should consider the possibility of HPAI A(H5N1) virus infection in people showing signs or symptoms of acute respiratory illness or conjunctivitis and who have relevant exposure history outlined in [Highly Pathogenic Avian Influenza A\(H5N1\) Virus in Animals: Interim Recommendations for Prevention, Monitoring, and Public Health Investigations](#).
 - Examples of symptoms include but are not limited to:
 - Mild illness: (e.g., cough, sore throat, eye redness or eye discharge such as conjunctivitis, fever or feeling feverish, rhinorrhea, fatigue, myalgia, arthralgia, and headache)
 - Moderate to severe illness: (e.g., shortness of breath or difficulty breathing, altered mental status, and seizures)
 - Complications: (e.g., pneumonia, respiratory failure, acute respiratory distress syndrome, multi-organ failure (respiratory and kidney failure), sepsis, and meningoencephalitis)
- If signs and symptoms compatible with avian influenza A(H5N1) virus infection are present:
 1. Isolate patient and follow infection control recommendations, including using PPE.
 2. Initiate empiric antiviral treatment as soon as possible. Do not delay treatment while awaiting laboratory results.

3. Notify state and local health department to arrange testing for influenza A(H5N1) virus.
 4. Collect respiratory specimens from the patient to test for influenza A(H5N1) virus at the state health department. If the exposed person has conjunctivitis, with or without respiratory symptoms, both a conjunctival swab and a nasopharyngeal swab should be collected for testing.
 5. Encourage patients to isolate at home away from their household members and not go to work or school until it is determined they do not have avian influenza A(H5N1) virus infection.
- Starting empiric antiviral treatment with oral or enterically administered oseltamivir (twice daily for five days) is recommended regardless of time since onset of symptoms. [Antiviral treatment](#) should not be delayed while waiting for laboratory test results.

Recommendations for State Health Departments

- State health department officials should investigate potential human cases of HPAI A(H5N1) virus infection as described in these [recommendations](#) and [notify CDC within 24 hours](#) of identifying a case under investigation.
- Patients who meet [epidemiologic criteria AND either clinical OR public health response criteria](#) should be tested for influenza A(H5N1) virus infection by reverse-transcription polymerase chain reaction (RT-PCR) assay using H5-specific primers and probes at state or local public health departments.
- [Recommendations for monitoring and antiviral chemoprophylaxis of close contacts of infected persons](#) are different than [those that apply to persons who meet bird or other animal exposure criteria](#).
 - Post-exposure prophylaxis of close contacts of a person with HPAI A(H5N1) virus infection is recommended with oseltamivir twice daily (treatment dosing) instead of the once daily preexposure prophylaxis dosing.
- People exposed to HPAI A(H5N1) virus-infected birds or other animals (including people wearing recommended PPE) should be monitored for signs and symptoms of acute respiratory illness beginning after their first exposure and for 10 days after their last exposure.
- Whenever possible, public health officials (including the state public health veterinarian) and animal health and agriculture officials (including the state veterinarian) should collaborate using a One Health approach to conduct epidemiological investigations into animal and human infections with HPAI A(H5N1) virus to protect animal and human health.

Recommendations for Farmers; Poultry, Backyard Bird Flock, and Livestock Owners; and Worker Protection

- [To reduce the risk of HPAI A\(H5N1\) virus infection](#), poultry farmers and poultry workers, backyard bird flock owners, livestock farmers and workers, veterinarians and veterinary staff, and responders should wear recommended PPE (e.g., the same PPE is recommended for persons exposed to any confirmed or potentially infected animals as for exposed poultry workers; for specific recommendations see: [PPE recommended for poultry workers](#)). This includes wearing an N95™ filtering facepiece respirator, eye protection, and gloves and performing thorough hand washing after contact, when in direct physical contact, or during close exposure to sick or dead birds or other animals, carcasses, feces, unpasteurized (raw) milk, or litter from sick birds or other animals confirmed to be or potentially infected with HPAI A(H5N1) viruses.
- [Workers should receive training on using PPE](#) and demonstrate an understanding of when to use PPE, what PPE is necessary, how to correctly put on, use, take off, dispose of, and maintain PPE, and PPE limitations.

Recommendations for the Public

- [People should avoid being near sick or dead animals](#) or surfaces contaminated with the animal's feces, litter, raw milk, or other byproducts when not wearing respiratory or eye protection.

- Animals in which HPAI A(H5N1) virus infection has been identified include wild birds, poultry, other domesticated birds, and other wild or domesticated animals (including livestock such as cattle and goats).
- As always, people should not prepare or eat uncooked or undercooked food or related uncooked food products, such as unpasteurized (raw) milk or raw cheeses, from animals with [suspected or confirmed](#) HPAI A(H5N1) virus infection.

For More Information

- General Information
 - [Highly Pathogenic Avian Influenza A\(H5N1\) Virus in Animals: Interim Recommendations for Prevention, Monitoring, and Public Health Investigations](#)
 - [Technical Update: Summary Analysis of Genetic Sequences of Highly Pathogenic Avian Influenza A\(H5N1\) Viruses in Texas](#)
 - [Information on Bird Flu](#)
 - [Past Outbreaks of Avian Influenza in North America](#)
 - [Transmission of Avian Influenza A Viruses Between Animals and People](#)
 - [Avian Influenza in Birds](#)
 - [Reported Human Infections with Avian Influenza A Viruses](#)
 - [Bird Flu Virus Infections in Humans](#)
- Information for Clinicians
 - [Human Infection with Avian Influenza A Virus: Information for Health Professionals and Laboratorians](#)
 - [Brief Summary for Clinicians: Evaluating and Managing Patients Exposed to Birds Infected with Avian Influenza A Viruses of Public Health Concern](#)
 - [Interim Guidance on Testing and Specimen Collection for Patients with Suspected Infection with Novel Influenza A Viruses with the Potential to Cause Severe Disease in Humans](#)
 - [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](#)
 - [Interim Guidance on the Use of Antiviral Medications for Treatment of Human Infections with Novel Influenza A Viruses Associated with Severe Human Disease](#)
 - [Interim Guidance on Influenza Antiviral Chemoprophylaxis of Persons Exposed to Birds with Avian Influenza A Viruses Associated with Severe Human Disease or with the Potential to Cause Severe Human Disease](#)
 - [Interim Guidance on Follow-up of Close Contacts of Persons Infected with Novel Influenza A Viruses and Use of Antiviral Medications for Chemoprophylaxis](#)
- Information for Farmers, Workers, and Livestock and Poultry Owners
 - [Recommendations for Worker Protection and Use of Personal Protective Equipment \(PPE\) to Reduce Exposure to Novel Influenza A Viruses Associated with Severe Disease in Humans](#)
 - [CDC Healthy Pets, Healthy People](#)
 - [Farm Animals | Healthy Pets, Healthy People](#)
 - [Backyard Poultry | Healthy Pets, Healthy People](#)
 - [Stay Healthy When Working with Farm Animals](#)
- Press Releases
 - CDC: April 1 - [Highly Pathogenic Avian Influenza A\(H5N1\) Virus Infection Reported in a Person in the U.S.](#)

- o Texas DSHS: April 1 - [Health Alert: First Case of Novel Influenza A \(H5N1\) in Texas, March 2024](#)
- o USDA: March 25 - [Federal and State Veterinary, Public Health Agencies Share Update on HPAI Detection in Kansas, Texas Dairy Herds](#)
- o USDA: March 29 - [USDA, FDA and CDC Share Update on HPAI Detections in Dairy Cattle](#)

DHEC contact information for reportable diseases and reporting requirements

Reporting of **Influenza** is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2024 List of Reportable Conditions available at: <https://scdhec.gov/sites/default/files/Library/CR-005869.pdf>

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

Regional Public Health Offices – 2024			
Mail or call reports to the Epidemiology Office in each Public Health Region			
MAIL TO:			
<u>Lowcountry</u> 3685 Rivers Avenue, Suite 201 N. Charleston, SC 29405 Fax: (843) 953-0051	<u>Midlands</u> 2000 Hampton Street Columbia, SC 29204 Fax: (803) 251-3170	<u>Pee Dee</u> 1931 Industrial Park Road Conway, SC 29526 Fax: (843) 915-6506	<u>Upstate</u> 352 Halton Road Greenville, SC 29607 Fax: (864) 282-4373
CALL TO:			
<u>Lowcountry</u> Allendale, Bamberg, Beaufort, Berkeley, Calhoun, Charleston, Colleton, Dorchester, Hampton, Jasper, Orangeburg Office: (843) 441-1091 Nights/Weekends: (843) 441-1091	<u>Midlands</u> Aiken, Barnwell, Chester, Edgefield, Fairfield, Kershaw, Lancaster, Lexington, Newberry, Richland, Saluda, York Office: (888) 801-1046 Nights/Weekends: (888) 801-1046	<u>Pee Dee</u> Clarendon, Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Sumter, Williamsburg Office: (843) 915-8886 Nights/Weekends: (843) 409-0695	<u>Upstate</u> Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens, Spartanburg, Union Office: (864) 372-3133 Nights/Weekends: (864) 423-6648
For information on reportable conditions, see https://www.scdhec.gov/ReportableConditions		<u>DHEC Bureau of Communicable Disease Prevention & Control</u> Division of Acute Disease Epidemiology 2100 Bull St • Columbia, SC 29201 Phone: (803) 898-0861 • Fax: (803) 898-0897 Nights / Weekends: 1-888-847-0902	

Categories of Health Alert messages:

Health Alert	Conveys the highest level of importance; warrants immediate action or attention.
Health Advisory	Provides important information for a specific incident or situation; may not require immediate action.
Health Update	Provides updated information regarding an incident or situation; unlikely to require immediate action.
Info Service	Provides general information that is not necessarily considered to be of an emergent nature.