

## **Background**

Influenza A/H5N1, a highly pathogenic avian influenza (HPAI) virus, spreads through contact with infected animals or contaminated materials. Since 2022, a global outbreak in birds and other animals has raised concerns that the virus may mutate into a form easily transmissible to humans, possibly leading to a pandemic. Recent infections in U.S. livestock (goats and dairy cattle), cats on dairy farms, and a dairy worker in Texas, highlight the virus's capacity for interspecies transmission. While birds generally become very ill or die, information available to date suggests that infected dairy cattle may be asymptomatic or have mild illness. Although at present human infection is rare, globally about 25% of persons with known infection have died.

## **Persons exposed to infected animals may be at risk of contracting H5N1.**

To date, human cases have had direct contact with sick or dead birds (chickens, gamebirds, waterfowl, etc.), items contaminated with feces, feathers, etc. from sick animals, or other animals known to be infected with H5N1. Persons who may be at increased risk of exposure to H5N1 include:

- Commercial poultry workers/depopulation workers (who cull infected poultry flocks)
- Dairy farm workers
- Live-bird market workers/shoppers
- Backyard flock owners
- People who consume or handle raw milk
- Game-bird hunters
- Members of agricultural clubs such as 4-H or FFA
- Veterinary workers (especially those who handle poultry or livestock)
- Slaughterhouse workers

## **Symptoms of H5N1 in humans include influenza-like illness, gastrointestinal symptoms, and conjunctivitis.**

Severity of illness varies. Patients with H5N1 have presented with influenza-like-illness symptoms (i.e., fever, cough, sore throat), fatigue, eye irritation or discharge, body aches, diarrhea, vomiting, or nausea. Some cases have presented primarily with conjunctivitis ("pink eye").

For questions or to report a symptomatic patient, please call your local health department or PA DOH at 1-877-PA-HEALTH (877-724-3258).

## **Test symptomatic patients with H5N1 exposure, or patients with severe illness, no known cause, and with animal/dairy exposures.**

Two classes of patients should be tested for H5N1:

- Symptomatic patients with known exposure to an H5N1-infected animal, flock, herd, or person in the 10 days prior to illness onset. Persons who were wearing PPE at the time of exposure should still be tested.
- Hospitalized patients with severe respiratory illness, with no identified cause, AND with exposure to raw milk, sick or dead birds, sick or dead animals, or dairy cows, in the 10 days prior to illness onset.

Suggested questions to assess H5N1 exposure include: 1) What is your occupation? 2) Have you had any known exposure to bird flu? 3) Have you had any contact with sick or dead birds, sick or dead animals, or cows or raw milk or dairy products made from raw milk?

**NOTE:** Commercial influenza A rapid antigen tests and PCR assays may not detect H5N1. A negative result does not rule out H5N1 infection.

## **For testing, call the Pennsylvania Department of Health (PADOH) at 877-724-3258.**

- Call PADOH at 1-877-724-3258 to arrange testing, courier service, and support.

- If possible, collect three swabs: nasopharyngeal, nasal, and oropharyngeal. Nasal and oropharyngeal swabs should be combined in one vial. If these specimens cannot be collected, either a nasopharyngeal or a combined nasal/oropharyngeal sample is acceptable. **If the person has conjunctivitis (with or without respiratory symptoms), both conjunctival and nasopharyngeal swabs should be collected.** Specimens should be placed in sterile viral transport media and placed on refrigerant gel-packs or at 4°C (refrigerator) for transport.
- Testing at the PADOH Bureau of Laboratories (BOL) and courier services will be provided at no cost.

### **Patients who need testing should be isolated.**

Isolate patients while waiting for testing and/or treatment. In outpatient settings, use Standard, plus Droplet precautions. For admitted patients, use Airborne precautions.

### **Treat patients with suspected H5N1 with antivirals ASAP, Do not wait for test results.**

Initiate influenza antiviral treatment with oseltamivir, zanamivir, or baloxavir, as soon as possible. Do not wait for test results to come back before starting treatment. For more information, visit this [CDC web site](#).

### **Seasonal vaccines, hygiene, and PPE are encouraged.**

Seasonal influenza vaccines do not prevent H5N1. However, getting vaccinated annually reduces the chance of co-infection with seasonal influenza and H5N1. Co-infection can cause severe illness and might lead to a reassortment and emergence of a novel influenza virus. People at risk of H5N1 exposure should use personal protective equipment (PPE) and avoid touching their faces after contact with infected animals or contaminated materials.

### **H5N1 is NOT transmissible by eating properly prepared meat or pasteurized milk.**

Proper handling and cooking food protects against avian influenza and other pathogens like Salmonella and E. coli. Raw milk from infected cows can contain high levels of H5N1, highlighting the risks of consuming raw dairy. Recent studies suggest H5N1 transmission to animals through consumption of infected raw milk. Although [viral H5N1 fragments have been found in retail milk](#), there is no evidence of active virus in pasteurized milk, or human infection from ingesting it. The Food and Drug Administration (FDA) also tested several samples of both infant and toddler formula and found no viral fragments or virus in any of the testing. The United States Department of Agriculture (USDA) and FDA continue to indicate that, based on the information we currently have, our commercial milk supply, including formula, is safe.

### **PADOH conducts wellness checks on people with known exposure to infected animals.**

When HPAI is detected in poultry, the infected flock is culled, and PADOH's Bureau of Epidemiology (BOE) monitors the workers' health for 10 days after their last exposure. BOE also plans to monitor those exposed to other sick animals, like dairy cows. Exposed individuals are asked to report any new symptoms to PADOH daily via text messages. For those with symptoms, BOE coordinates specimen collection and testing. Individuals preferring to have specimens collected by their healthcare provider are advised to inform the provider of their H5N1 exposure before their visit.

### **H5N1 outbreaks can occur in any region of Pennsylvania.**

H5N1 has been reported in poultry farms, backyard flocks, and wild birds across PA, particularly in the southeast. However, workers culling infected flocks may reside outside the outbreak area. Contractors and workers are dispatched nationwide to manage outbreaks. For updates, monitor both the [USDA](#) and [PA Department of Agriculture](#) pages.

### **The current HPAI outbreak has been ongoing since 2022.**

HPAI outbreaks occurred in U.S. poultry in 1924, 1983, and 2004. The current H5N1 outbreak began in January 2022 and is ongoing. Since 2022, four human cases have been reported in the US. One individual, involved in culling infected birds in Colorado in 2022, experienced fatigue as their only symptom. The second person, working with infected dairy cows in

Texas, fell ill in March 2024, with conjunctivitis as their only symptom. The third and fourth person were both working with infected dairy cows in Michigan and became ill in May 2024. Globally, from 2022 to April 2024, there have been 26 confirmed human cases of H5N1; of those, eight were asymptomatic, fourteen had severe illness, and seven died.

Recent detection of H5N1 in mammals emphasizes the need for vigilance.

In early 2024, H5N1 was detected in baby goats on a Minnesota farm hit by a recent HPAI outbreak in poultry, marking the first detection of H5N1 in U.S. livestock. Recently, USDA, FDA, and CDC reported H5N1 in dairy cows in several states (in 67 herds across 9 states as of May 31, 2024). To date, H5N1 has not been identified in PA herds, but neighboring Ohio has been affected. High virus levels have been found in raw milk from infected dairy cattle. Cats on dairy farms have also become ill and died from H5N1. As of May 31, 2024, the only mammal detections in PA were red foxes, in spring 2023.

**For questions or to report a symptomatic patient, please call your local health department or PA DOH at 1-877-PA-HEALTH (877-724-3258).**

## Resources

[Considerations for Veterinarians: Evaluating and Handling of Cats Potentially Exposed to Highly Pathogenic Avian Influenza A\(H5N1\) Virus | Avian Influenza \(Flu\) \(cdc.gov\)](#)

[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 | Avian Influenza \(Flu\) \(cdc.gov\)](#)

[Influenza Specimen Submission to BOL \(pa.gov\)](#)

[2023-706-6-23-ADV-Influenza Testing.pdf \(pa.gov\)](#)

[USDA APHIS | H5N1 bird flu \(H5N1 bird flu\)](#)

[Technical Report: Highly Pathogenic Avian Influenza A\(H5N1\) Viruses | Avian Influenza \(Flu\) \(cdc.gov\)](#)

[Current Bird Flu Situation in Poultry | Avian Influenza \(Flu\) \(cdc.gov\)](#)

[USDA APHIS | 2022-2024 Detections of H5N1 bird flu](#)

[News and Updates | Animal and Plant Health Inspection Service \(usda.gov\)](#)

[Highly Pathogenic Avian Influenza \(HPAI\) Detections in Livestock | Animal and Plant Health Inspection Service \(usda.gov\)](#)

[Avian flu detected for first time in US livestock | CIDRAP \(umn.edu\)](#)

[Health Alert Network \(HAN\) - 00506 | H5N1 bird flu A\(H5N1\) Virus: Identification of Human Infection and Recommendations for Investigations and Response \(cdc.gov\)](#)

[Technical Update: Summary Analysis of Genetic Sequences of H5N1 bird flu A\(H5N1\) Viruses in Texas \(cdc.gov\)](#)

[Human Infection with H5N1 bird flu A\(H5N1\) Virus in Texas | CDC](#)