

What is H5N1/Highly Pathogenic Avian Influenza?

Highly-Pathogenic Avian Influenza (HPAI) is a respiratory illness caused by avian-origin influenza A virus subtypes, such as H5, H7, and H9. Influenza A viruses infect the respiratory and gastrointestinal tract of birds causing them to shed virus in their saliva, mucous, and feces. The panzootic of HPAI A(H5N1) viruses in wild birds has resulted in outbreaks among commercial poultry and backyard bird flocks and has spread to infect wild terrestrial and marine mammals, as well as domesticated animals. Sporadic human infections with HPAI A(H5N1) virus have been reported in 23 countries since 1997 with a case fatality proportion of >50%, but only a small number of H5N1 cases have been reported in humans since 2022. Most human infections with H5N1 virus have occurred after unprotected exposures to sick or dead infected poultry. Since the spring of 2024, sporadic human infections have been reported in the United States, associated with poultry exposures or with dairy cattle exposures associated with the ongoing multistate outbreaks of HPAI A(H5N1) virus among dairy cattle and poultry. There is no evidence of sustained human-to-human H5N1 virus transmission in any country, and limited, non-sustained human-to-human H5N1 virus transmission has not been reported worldwide since 2007. The CDC currently considers HPAI A (H5N1) infection in humans' low risk to the health of the general public in the United States, however HPAI should be considered in persons showing signs or symptoms of respiratory illness and/or conjunctivitis who have relevant exposure history.

Clinical Presentation & Disease Summary

- Transmission:**
- Exposure to saliva, mucous, or feces from infected birds (either direct contact with infected birds or contact with contaminated environments) and touching eyes, nose, or mouth, or inhaling airborne particles.
 - Through an intermediate host, such as another animal (e.g., dairy cattle)
- Incubation Period:**
- Usually 2-5 days, but can be up to 10 days.
- Signs and Symptoms:**
- Mild illness:
 - 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:
 - Shortness of breath or difficulty breathing, altered mental status, and seizures
 - Illness in humans with avian influenza A (H5N1) virus have ranged from mild to severe.
- Complications:**
- Pneumonia, respiratory failure, acute respiratory distress syndrome, multi-organ failure (respiratory and kidney failure), sepsis, and meningoencephalitis

Note: Other infection can mimic avian influenza, such as COVID-19 and other types of influenza.

Recent H5N1 cases in the U.S. which primarily occurred in adults exposed to infected poultry or dairy cows have reported the following symptoms: 93% had conjunctivitis (eye redness), 49% fever, and 36% respiratory symptoms.

When to Suspect a Patient has HPAI

Epidemiologic Criteria: Has **one or more** of the following exposures 10 days prior to symptom onset:

- Exposure to H5N1 virus infected birds or other animals defined as follows:

- Close exposure (within six feet) to birds with confirmed H5N1 virus. Bird exposures can include but are not limited to handling, slaughtering, de-feathering, butchering, culling, or preparing birds or other animals for consumption, or consuming contaminated uncooked or undercooked food or related contaminated uncooked food products, including unpasteurized (raw) milk or cheese from dairy farms with suspected/confirmed H5N1, **OR**
- Direct contact with surfaces contaminated with feces, unpasteurized (raw) milk or other unpasteurized dairy products, or bird or animal parts (e.g., carcasses, internal organs) from infected birds or other animals, **OR**
- Close exposure to wild or domestic animals including pets (e.g., cats), or animal products (e.g., raw meat-based pet food) **OR**
- Visiting a live poultry market with confirmed bird infections or associated with a case of human infection with H5N1.
- Exposure to an infected person - Close (within 6 ft) unprotected (no respiratory and eye protection) exposure to a person who is a confirmed, probable, or symptomatic suspected case of human infection with H5N1 virus (e.g., in a household or healthcare facility).
- Laboratory exposure (unprotected exposure to H5N1 virus in a laboratory).

AND

Clinical Criteria (see symptoms above)

**Note: Determining if testing for asymptomatic persons is warranted, as part of public health investigations, is made in consultation with NYC DOHMH*

Key Steps for Frontline Clinical Staff

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| Identify | <ul style="list-style-type: none"> • Assess the patient for signs and symptoms, travel history, and epidemiological criteria. • For assistance, contact facility Infection Prevention and Control or on-call hospital epidemiologist. |
| Isolate | <ul style="list-style-type: none"> • Provide a mask to the patient and initiate prompt isolation. Follow infection control prevention guidance. |
| Inform | <ul style="list-style-type: none"> • Notify dept/facility leadership, Infection Prevention & Control, on-call hospital epidemiologist. • Notify jurisdictional health department immediately (via the 24-hour Epi-On-Call contact list) and follow jurisdictional protocols for patient assessment. • Initiate empiric antiviral treatment as soon as possible. Do not delay treatment while awaiting laboratory results. |

Infection Prevention and Control

Hand Hygiene

- Perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves.
- Use soap and water for at least 20 seconds or use alcohol-based hand rubs. If hands are visibly soiled, use soap and water.

Patient Placement

- Place patient in a single patient **Airborne Infection Isolation Room (AIIR)**. If an AIIR is not available, isolate the patient in a private examination room. Keep the door closed, minimize entry and exit, and avoid entry without appropriate PPE.
 - Keep a **log** of all persons who care for or enter the room or care area of the patient.
- Limit movement of the patient outside of the room. When outside the room, **patient should wear a facemask**.

Transmission-Based Precautions & Personal Protective Equipment

- Adhere to **Airborne + Contact + Eye Protection Precautions in addition to standard precautions**. Use an N95 respirator, gloves, gown, and face shield/goggles.
- Follow Donning and Doffing Checklist
 - Example: [NYC Health + Hospitals SP Level 1](#)

Environmental Infection Control

- Avian influenza virus is a **Category B infectious substance**: not in a form generally capable of causing permanent disability or life-threatening/fatal disease in healthy humans if exposure occurs.
- Avian influenza clinical waste can be managed as **regulated medical waste**.
- Clean and disinfect the patient's care area using an EPA registered disinfectant for appropriate contact times that has a label claim for influenza. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.
- Further information regarding waste and transport can be found here: [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](#)

Diagnostic Testing

- Test for influenza. If patient is positive for Influenza A AND has epidemiological risk factors above, patient's specimen needs to be further subtyped at your jurisdictional Public Health Laboratory (PHL) to assess for H5. Call your jurisdiction [24-hour Epi-On-Call contact list](#) to discuss case and obtain approval for H5 testing and further instructions on specimen pick up.
- CDC Testing Guidance [here](#).

Recommendations for Testing of Hospitalized Patients

- Per CDC recommendations, clinicians should inquire about epidemiological risk factors for H5N1 (see above) for all hospitalized patients with influenza A positive results. If Yes, to any epidemiological risk factors, follow first bullet above for "diagnostic testing." For patients in the ICU, consult your facility infection prevention and control or hospital epidemiologist regarding all Influenza A positive results.

Treatment and Immunization

- Outpatients meeting exposure criteria who develop signs and symptoms compatible with non-avian influenza should be referred for prompt medical evaluation and empiric initiation of antiviral treatment with a neuraminidase inhibitor, such as oseltamivir or zanamivir, or the cap-dependent endonuclease inhibitor, baloxavir, as soon as possible. Treatment should be initiated even if more than 48 hours has elapsed (clinical benefit is greatest when antiviral treatment is administered within 48 hours of illness onset) since illness onset and regardless of illness severity (outpatients or hospitalized patients).
- Hospitalized patients, especially those in an ICU with suspected seasonal influenza or confirmed, probable, or suspected avian influenza A(H5), regardless of time since illness onset, should initiate antiviral treatment with oral or enterically administered oseltamivir as soon as possible.

Antiviral treatment should not be delayed while waiting for laboratory test results.

- The recommendation for administration of chemoprophylaxis in asymptomatic individuals that have potentially been exposed to avian influenza A(H5N1) depends on the nature of the exposure. Chemoprophylaxis for symptomatic individuals that have had contact with a confirmed or probable case is recommended.

For detailed guidance on dosing and treatment duration, please see [Interim Guidance on the Use of Antiviral Medications for Treatment of Human Infections with Novel Influenza A Viruses Associated with Severe Human Disease](#)

Contact: SystemBiopreparedness@nychhc.org

References:

- [Avian influenza strain breakdown](#)
- [CDC Case Definition](#)
- [CDC Human Infection with Avian Influenza A Virus: Information for Health Professionals and Laboratorians](#)
- [CDC HAN Highly Pathogenic Avian Influenza A\(H5N1\) Virus](#)