

Detection, Diagnosis, Prevention, and Control of Highly Pathogenic Avian Influenza (HPAI) (H5N1) in Domestic Cats

A ONE HEALTH RESOURCE FOR VETERINARIANS



What is HPAI (H5N1) and why do veterinarians need this information?

Highly pathogenic avian influenza (HPAI) (H5N1) is a subtype of influenza A virus that primarily infects wild birds with spillover into commercial and backyard poultry, but has also infected dairy cattle, domestic cats, numerous wild mammal species, and occasionally humans. In cats, HPAI (H5N1) can cause serious, even life-threatening illness, with case fatality as high as 70%.

In 2020, a highly transmissible strain of HPAI (H5N1 clade 2.3.4.4b) emerged and began circulating worldwide. In the United States (U.S.) it was first detected in wild birds in 2021. Since then, it has affected millions of birds in commercial and backyard poultry flocks. It has also infected hundreds of wild bird species and over 70 species of mammals including dairy cattle, wild and domestic cats, farmed mink, peridomestic farm rodents, and marine mammals. The virus has also infected dozens of people in the U.S., usually workers who had close contact with farm animals. Illness in humans is usually mild (e.g., conjunctivitis, fever, cough) and can, although rarely, progress to severe disease and death.

The possibility for transmission of this zoonotic virus from domestic cats to humans raises occupational health and other public health concerns for veterinary medical personnel, their staff, and other people who interact with infected domestic cats.

Veterinarians and their staff may be the first professionals to encounter cats infected with HPAI (H5N1). Veterinarians play a key role in early detection, infection control, and coordination with animal health and public health professionals to limit animal-to-animal and animal-to-human transmission.

How do cats become infected?

Domestic cats can be exposed to HPAI (H5N1) through multiple pathways, including ingestion of infected animals or animal products such as raw pet food and unpasteurized milk, direct contact with infected animals, or indirectly from contaminated fomites including bedding, footwear, and equipment. Cats may develop signs of infection and shed virus as soon as 1-3 days after exposure and continue to shed virus for two weeks or longer.

What are the possible signs of infection in cats?

- Respiratory signs: rapid or difficult breathing, oculonasal discharge, coughing, sneezing, and thoracic radiograph and exam findings consistent with pneumonia
- Gastrointestinal signs: anorexia, vomiting, and diarrhea
- Systemic: fever, dehydration, lethargy, jaundice, “dullness”



- Neurologic signs (can mimic rabies encephalitis): paresis/paralysis, ataxia, circling, tremors, seizures, and ocular signs, including: blindness, nystagmus, and uveitis
- Severe/rapid progression patterns, possible sudden death



Important Note: Veterinarians should consider rabies as a differential diagnosis for cats with neurologic signs.

While rapid onset of clinical signs and death are more typical, cats with subclinical infections or mild illness have been reported. When the history is strongly compatible with H5N1 sources of exposure, veterinarians should have a high index of suspicion for infection even for mild cases.

What exposure history should I collect?

Exposure history is one of the most important components of evaluating a cat suspected of HPAI (H5N1) infection. Use the following checklist during history and intake.

☐ Dietary risk factors

- Consumption of raw or undercooked meat or poultry; raw or unpasteurized milk or dairy products; raw pet food or treats, including commercial (freeze-dried, raw kibble, raw fresh), or homemade
 - If fed raw commercial products, record brand, flavor, size, and purchase location. Save remaining products and take photos of labels including lot numbers.

☐ Animal exposures

- Exposure to wild birds, other wildlife, peridomestic rodents, or animal carcasses through predation, ingestion, scavenging, or other contact
- Contact with poultry, dairy cattle, other livestock, or clinically ill animals or their environment
- Contact with stray or feral cats; contact with other household or shelter cats if one or more cats have other risk factors in this checklist

☐ Environmental and fomite exposures

- Residence on or visits to farms, poultry facilities, livestock operations, dairy operations, or other environments where livestock, poultry, or raw animal products are handled
- Contact with any household members who work in the dairy/poultry industry
- Exposure to potentially contaminated clothing, footwear, equipment, bedding, feed, or other materials

☐ Exposure to ill people

- Contact with individuals experiencing influenza-like illness

☐ Timeline of illness relative to exposure

- Onset and progression of clinical signs that correspond to relevant possible exposures
- Incubation may be 1-7 days
- Severe disease and death may occur within ~1 week of onset

How can I protect my practice and staff?

If HPAI (H5N1) is suspected, isolate the cat immediately and limit handling to essential personnel. Staff interacting with the cat at any stage—including intake, examination, treatment, sample collection, cleaning, and necropsy—should use appropriate personal protective equipment (PPE).

PPE for suspect or confirmed cases:

- N95 respirator/mask (preferably fit-tested)
- Eye protection (goggles or face shield; not eyeglasses)
- Latex or nitrile disposable gloves
- Fluid-resistant gown or coveralls
- Boot covers or dedicated footwear
- Head cover (e.g., surgical cap)

Additional precautions:

- Use dedicated equipment whenever possible.
- Exercise extra caution during procedures involving the oral cavity, respiratory tract, body fluids, contaminated materials, cleaning/disinfection, or necropsy.

- Avoid bites, scratches, and contact with saliva, respiratory secretions, and other body fluids. Promptly scrub with soap and water any exposed skin that has contact with these fluids.
- Clean and disinfect surfaces and equipment using [EPA-registered disinfectants effective against avian influenza](#) and follow label instructions.
- Handle waste and contaminated materials according to applicable local, and/or state regulations.
- Do not eat or drink in patient care areas.
- Encourage annual seasonal influenza vaccination for veterinary personnel.
- Clinic staff who are immunocompromised, pregnant, or otherwise at increased risk of severe illness should avoid contact with cats suspected of H5N1 infection.

What should I do after a possible exposure?

1. Remove PPE safely and perform hand hygiene.
2. Contact public health as early as possible. Suspected or confirmed HPAI (H5N1) in a cat may require public health follow-up of exposed individuals. You may be asked to:
 - Identify and document exposed individuals, including owners, household members, and veterinary personnel who handled the cat or had contact with possibly contaminated materials.
 - Collect names and contact information for exposed individuals and provide them to public health when requested.
3. Exposed persons should monitor for fever, respiratory symptoms, or conjunctivitis and seek medical evaluation if symptoms develop and inform healthcare providers of their exposure to a cat with suspected or confirmed HPAI (H5N1) infection.
4. Employees should not report to work while potentially infectious.

What samples should I collect?

No single optimal antemortem sample has been established for HPAI (H5N1) testing in cats. Use appropriate sedation or anti-anxiety medications as needed prior to sampling and use [Cat Friendly®](#) handling when collecting samples.

- **Priority sample to maximize viral detection:** Oropharyngeal (OP) or nasal swab from both nares in a plain sterile container such as a red top tube or white top tube or viral transport media (VTM), also called universal transport media (UTM).
- **Additional samples (when safely obtainable):**
 - Whole blood in an EDTA purple top tube
 - Urine in a sterile container
 - Fecal swab in plain container (optional)
- **Additional diagnostics:** Consider requesting a full feline respiratory PCR panel from your usual veterinary diagnostic laboratory to rule out other common upper respiratory viruses. Most panels include an Influenza A matrix PCR, which would detect all influenza A's including H5N1.
- **Deceased animals:** You may need to submit the entire carcass for HPAI (H5N1) testing and/or to rule out rabies. Reach out to your nearest [National Animal Health Laboratory Network \(NAHLN\) veterinary diagnostic laboratory](#) for more information on appropriate specimens for antemortem and postmortem testing.

When to suspect HPAI (H5N1)

Key Exposures

- Reported cases of avian flu in the area
- Exposure to dead or infected wild birds, poultry, or rodents
- Exposure to other infected mammals (e.g., dairy cattle, other cats)
- Consumption of raw or unpasteurized products
- Owner/household member occupation
- Contact with contaminated fomites (e.g., feed, bedding, footwear, milking equipment)
- Multiple cats in the same household, shelter, colony, or feeding group becoming ill within a short period

Clinical Signs

- Difficulty breathing, coughing, sneezing
- Ataxia, circling, tremors, seizures
- Fever, lethargy, anorexia

Course of Illness

- Acute or peracute onset
- Rapid clinical deterioration (often 24-72 hours)
- Poor or no response to antibiotic or other supportive therapy

Laboratory submission and reporting

- Keep all samples refrigerated until the time of shipment.
- Ship all samples with ice packs for overnight delivery to a [NAHLN \(National Animal Health Laboratory Network\) veterinary diagnostic laboratory](#) approved by the USDA to perform HPAI (H5N1) testing. Document in the submission form that samples are from a cat suspected with HPAI (H5N1) and include as much history as possible regarding the case, including owner name, address and phone number.
- Contact your diagnostic laboratory, [State Animal Health Official \(SAHO\)](#), and/or [State Public Health Veterinarian](#) when HPAI (H5N1) is suspected.
- Sample testing reimbursement may be available in your state; the state regulatory officials will be able to assist with this funding. Remember: if samples are tested for Influenza A at a private laboratory and determined to be non-negative, these results should also be reported to state regulatory staff.
- If testing is declined despite strong suspicion, consult your SAHO or State Public Health Veterinarian.
- You may be contacted by animal or public health officials for additional information, guidance, or follow-up.



How should I interpret lab results?

- Interpret all laboratory results in the context of the cat's clinical signs and exposure history. Influenza A (FluA) detected on a feline respiratory panel is an *unusual* finding and, in the absence of other FluA viruses circulating locally, may be interpreted as presumptive for HPAI (H5N1).
- A negative OP swab—or other individual sample type—*does not* rule out HPAI (H5N1). If clinical suspicion remains high, consult with the diagnostic laboratory and consider additional antemortem or postmortem samples.

How should a suspected or confirmed feline case be managed?

- Currently, there is no approved or well-established antiviral treatment for influenza in cats; provision of supportive care is the cornerstone of treatment. While oseltamivir (“Tamiflu®”) is used in humans, its use in cats is not recommended.
- For protection of practice staff and other animals, physically isolate suspected or confirmed HPAI (H5N1)-infected cats while in veterinary care and limit their movement or transport. Hospitalization should be based on medical need; cats that are clinically stable and can be safely managed at home may be discharged with appropriate isolation instructions.
- At home, suspect or confirmed HPAI (H5N1)-infected cats should be confined to a separate room and cared for by a limited number of household members.
- Cats should remain isolated at home until 5 days after clinical signs resolve. Consult your diagnostic laboratory and SAHO regarding any follow-up testing recommendations.
- Litter trays, bowls, baskets, and other objects with which the cat had contact should be disinfected.
- Perform hand hygiene after handling a cat suspected or confirmed to have HPAI (H5N1). Use either soap and water or an alcohol-based hand sanitizer; wash with soap and water if hands are visibly soiled. Remove contaminated clothing and shoes after handling the cat.

What should I tell the owner/caretaker of a cat ill with HPAI (H5N1)?

- Do not feed raw meat, poultry, or unpasteurized dairy products.
- Isolate the sick cat from other pets and any other animals including birds.
 - a. Keep your cat in a separate room with its own food/water bowls, litter boxes, bed, etc.
 - b. Keep your cat away from children, adults over 65 years old, pregnant people, immunocompromised people.
 - c. Anyone handling or feeding the cat or clearing litterboxes should wear PPE and wash hands afterwards.
- Monitor yourself and household members for flu-like symptoms or conjunctivitis; if symptoms develop, consult with your doctor about HPAI (H5N1) contact.
- Monitor other household cats, pet birds, and backyard poultry for signs of illness; contact your vet if you suspect illness.
- Follow public health guidance if contacted.