U.S. Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 75 / No. 17
May 7, 2026

Serologic Evidence of Highly Pathogenic Avian Influenza A(H5N1) Virus Infection in a Veterinary Professional Exposed to an Infected Domestic Cat — Los Angeles County, California, December 2024–January 2025

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Abstract

Since 2021, avian influenza A(H5N1) clade 2.3.4.4b viruses have spread widely among wild birds and domesticated poultry in the United States, with sporadic spillover into mammals. During November 2024–January 2025, 19 domestic cats in Los Angeles County, California, became ill after consumption of commercially purchased raw milk, raw meat, or raw pet food; nine cats tested positive for influenza A(H5N1) virus (clade 2.3.4.4b genotype B3.13). Overall, 139 persons were exposed to the 19 infected cats, and all were monitored for symptoms. Although 30 persons reported influenza-like illness symptoms, none received a positive influenza A(H5) reverse transcription–polymerase chain reaction (RT-PCR) test result. In April 2025, the Los Angeles County Department of Public Health and CDC invited all exposed persons to participate in an influenza A(H5N1) serosurvey to determine whether transmission of influenza A(H5N1) virus occurred, including in those without symptoms. Sera from 25 (18%) of the 139 exposed persons were tested. Among these, antibodies specific to A(H5N1) clade 2.3.4.4.b (antigenically similar to the clade 2.3.4.4.b influenza A[H5N1] virus isolated from the infected cats) were detected in serum from one veterinary professional, who was asymptomatic. This person did not use respiratory or eye protection during the exposure, did not report influenza-like illness after the exposure, and reported no other known risk factors for A(H5N1) infection. These findings represent serologic evidence of possible transmission of influenza A(H5N1) clade 2.3.4.4.b virus from a domestic cat to a human, highlighting concerns about potential cat-to-human transmission of influenza A(H5N1) virus and the importance of infection control practices in veterinary settings.

*These authors contributed equally to this report.

Introduction

Influenza A(H5N1) Infections in the United States

Since 2021, highly pathogenic avian influenza A(H5N1) clade 2.3.4.4.b viruses have spread widely among wild birds and domesticated poultry in the United States, with increasing spillover into mammals, including dairy cattle, domestic cats, and humans (*1*,*2*). A majority of human cases in the United States have been mild and associated with known exposure to ill or infected animals (*1*). Influenza A(H5N1) infections in cats are often associated with severe disease and have been linked to consumption of unpasteurized (raw) milk, raw meat, or raw pet food or exposure to dairy farm environments (*3*,*4*). To date, domestic cat-to-human transmission of influenza A(H5N1) has not been documented; however, close contact between cats and humans could create opportunities for exposure, particularly among pet owners and veterinary personnel.

Diagnosis of Influenza A(H5N1) Infection in Symptomatic Cats in Los Angeles County, California

During November 2024–January 2025, the Los Angeles County Department of Public Health (LACDPH) received

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reports of 19 domestic cats from five households in Los Angeles County, California that became ill with severe respiratory, hepatic, or neurologic signs. Fourteen died or were euthanized. LACDPH reviewed veterinary records, and the cat owners were interviewed. Nine cats were tested; all specimens tested positive for influenza A(H5N1) virus; sequencing analysis confirmed clade 2.3.4.4b genotype B3.13 influenza A(H5N1) virus.

All of the cat owners reported feeding their pets commercially purchased raw milk, raw poultry, or raw pet food in the weeks preceding illness onset; some of the products had tested positive for influenza A(H5N1). Among all 19 cats, 14 (74%) had been evaluated at 10 different veterinary practices. All suspected or confirmed feline cases of influenza A(H5N1) infection[†] were detected through veterinarian reports, commercial laboratory reports, routine influenza A reverse transcription–polymerase chain reaction (RT-PCR) testing of brain tissue from euthanized cats submitted to the LACDPH laboratory for rabies testing, and cats that were epidemiologically linked to a confirmed influenza A(H5N1) infected feline case.

The risk for transmission of influenza A(H5N1) infection from cats to humans is unknown. To guide public health action, LACDPH conducted a public health investigation to assess whether influenza A(H5N1) infection occurred among pet owners or veterinary professionals who were exposed to the infected cats.

Methods

Investigation of Contacts

LACDPH interviewed pet owners in the five households with affected cats, and reviewed lists of staff members provided by managers at the 10 veterinary clinics where 14 of the cats had been evaluated and at an animal control agency involved in transportation of cat carcasses to LACDPH's laboratory for testing. A total of 139 persons with potential exposure to domestic cats with suspected or confirmed influenza A(H5N1) virus infection were identified. Standardized interviews were conducted with symptomatic persons to ascertain their exposure history as well as any signs or symptoms of illness. Exposure was defined as having handled or participated (within 6 ft [1.8 m]) in the clinical care of an animal with suspected or confirmed influenza A(H5N1) infection, regardless of whether personal protective equipment (PPE) had been used. Identified

[†] A suspected feline case was defined as an occurrence of illness in a domestic cat with clinical signs compatible with influenza A(H5N1) infection (e.g., fever, lethargy, and inappetence, and possible respiratory illness symptoms such as coughing, sneezing, nasal or ocular discharge, or dyspnea), with rapid progression to neurologic symptoms (e.g., ataxia, blindness, tremors, and seizures) and in some cases, acute death. Suspected cases also had an epidemiologic link to a cat with confirmed infection or to a product with confirmed or suspected contamination (e.g., raw meat, raw pet food, or raw milk). The case met the definition even if testing results of an oral or rectal swab specimen were negative for influenza A by RT-PCR or no RT-PCR test had been performed. Negative RT-PCR results from oral or rectal swabs were not considered sufficient to rule out infection. If RT-PCR testing of brain tissue was performed and the result was negative, the domestic cat was considered negative for influenza A(H5N1) infection. A confirmed feline case was defined as an occurrence of illness in a domestic cat with clinical signs compatible with influenza A(H5N1) infection and a positive H5 RT-PCR result from testing performed at the U.S. Department of Agriculture National Veterinary Services Laboratory.

The *MMWR* series of publications is published by the Office of Science, U.S. Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30329-4027.

Suggested citation: [Author names; first three, then et al., if more than six.] [Report title]. MMWR Morb Mortal Wkly Rep 2026;75:[inclusive page numbers].

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exposed persons were enrolled in active symptom monitoring for 10 days after their last known exposure and offered RT-PCR testing of a nasopharyngeal swab for influenza A(H5N1). Nasopharyngeal specimens collected from exposed persons were tested at LACDPH's laboratory using the multiplex RT-PCR BioFire Respiratory Panel FilmArray (BioFire Diagnostics).[§] Unsubtypeable influenza A–positive specimens underwent reflex testing using the CDC Human Influenza Virus Real-Time RT-PCR, Influenza A/H5 Subtyping Kit (*5*). The antiviral oseltamivir was offered to exposed persons on a case-by-case basis if symptoms were clinically compatible with influenza A(H5N1) infection and <5 days had elapsed since the last exposure.

Serologic Investigation

In April 2025, the 139 persons who had potentially been exposed since December 2024 were invited to participate in a serologic investigation to identify evidence of influenza A(H5N1) infection. Participants were asked to complete a standardized questionnaire that captured demographic information; recent respiratory illness history; detailed exposure history, including exposure to raw animal products, wild birds, poultry or cattle; PPE use; and information on other potential risk factors for influenza A(H5N1) infection. A single venous blood specimen was collected from each serosurvey participant. Serologic analyses were performed at CDC in biosafety level 3 enhanced laboratories, following previously described established protocols (*6*). All serum samples were tested for evidence of recent infection by microneutralization (MN) and hemagglutination inhibition (HI) assays using two wild-type influenza A(H5N1) viruses: 1) A(H5N1) clade 2.3.4.4b B3.13 (A/Michigan/90/2024) and 2) A(H5N1) clade 2.3.4.4b D1.1 (A/Washington/240/2024). Samples that tested positive underwent serum adsorption using hemagglutinin head domain from influenza A(H1N1)pdm09 virus (A/Wisconsin/588/2019) and A(H3N2) (A/Darwin/6/2021) to eliminate cross-reactivity with seasonal influenza viruses. Samples with a geometric mean titer (GMT) ≥40 in both MN and HI assays were considered seropositive for influenza A(H5N1). This activity was reviewed by LACDPH and CDC, deemed not research, and conducted consistent with applicable federal law and CDC policy.[¶]

Results

Identification and Monitoring of Exposed Persons

The 139 persons who had contact with a cat with suspected or laboratory-confirmed influenza A(H5N1) infection included 11 from five households, 126 from 10 veterinary practices, one from an animal control agency, and one from a local health department (Figure). All exposed persons were monitored for symptoms for 10 days after exposure and offered testing; 33 (24%) persons agreed to receive testing. Daily symptom monitoring was conducted using Research Electronic Data Capture (REDCap; Vanderbilt University): participants received a daily automated text message prompt that linked to a brief questionnaire. Overall, 30 (22%) persons reported influenza-like illness symptoms including runny nose, cough, sore throat, fatigue, muscle aches, headache, and sneezing. The average interval from exposure to symptom onset was 7 days. One person reported symptoms on two occasions, after exposures to two different cats, 2 weeks apart.

Detection of Respiratory Viruses in Nasopharyngeal Swab Specimens

During December 2024–January 2025, nasopharyngeal specimens were collected from 33 persons, including 18 symptomatic veterinary staff members who agreed to testing after development of symptoms, 14 asymptomatic veterinary professionals, and one asymptomatic pet owner. The median interval between the most recent exposure date and specimen collection was 8 days (range = 1–13 days). Specimens from 19 (58%) persons who received testing were collected >7 days after the last exposure. No specimen tested positive for influenza A(H5N1). Among 12 (36%) respiratory panel RT-PCR–positive test results, nine were positive for seasonal influenza A(H3N2), two for rhinovirus, and one for both rhinovirus and an endemic coronavirus (coronavirus NL63). No asymptomatic person received a positive test result for any virus on the respiratory panel.

Detection of Antibodies to Influenza A(H5N1) in an Exposed Person

Among all 139 exposed persons, 25 (18%) agreed to participate in the influenza A(H5N1) serosurvey. The average interval between exposure and serum collection was 104 days (range = 35–137 days). Among all 25 serum samples, one sample (4%), which was collected from an asymptomatic veterinary professional 120 days after exposure to an ill cat, tested positive for both neutralizing and HI antibodies (GMT ≥40) against both clade 2.3.4.4.b B3.13 (MN = 60; HI = 40) and D1.1 (MN = 113; HI = 80) influenza A(H5N1) viruses. These viruses are antigenically similar to the clade 2.3.4.4b influenza A(H5N1) virus isolated from the infected cats.

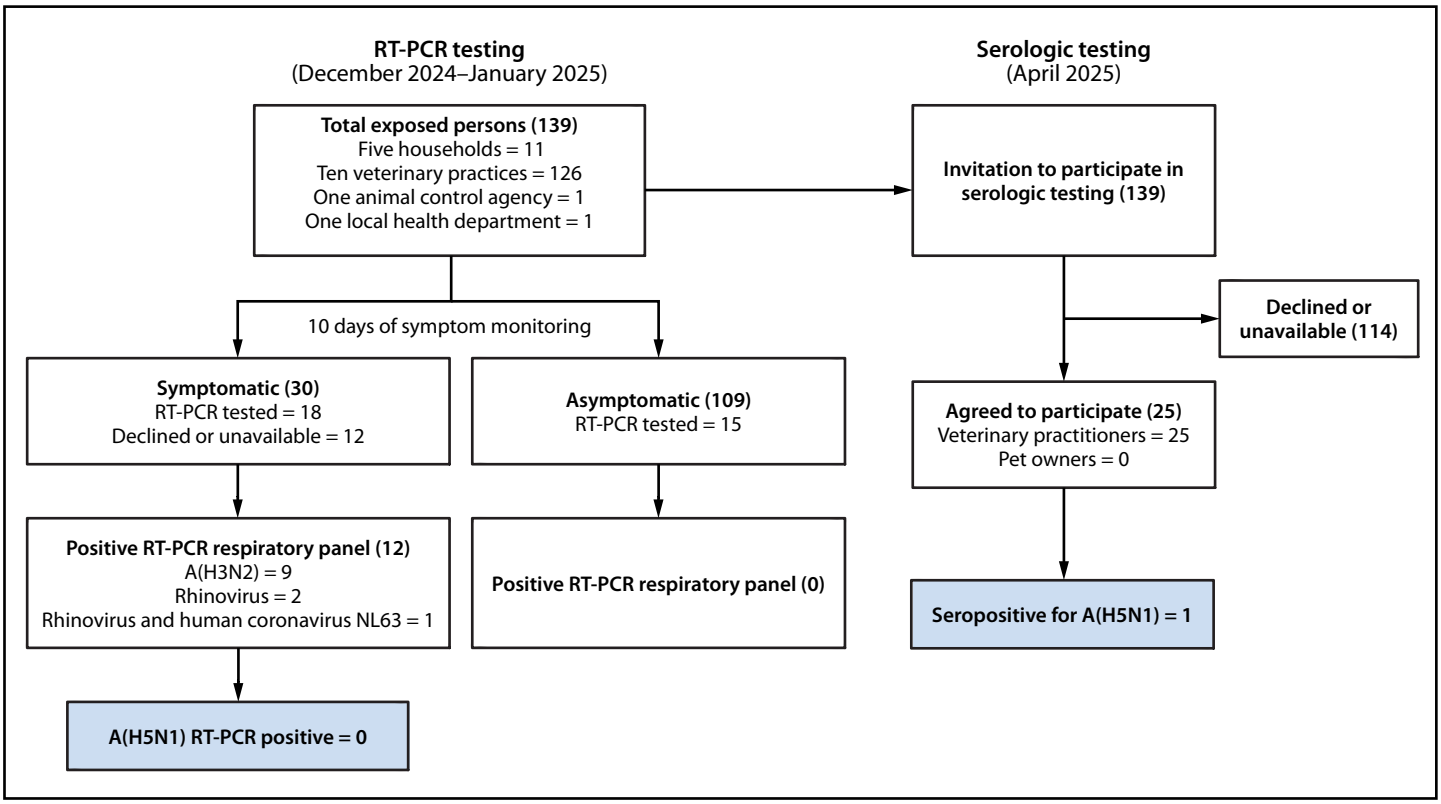
Retrospective Investigation of the Seropositive Veterinary Professional

Cat's illness and test results. In early December 2024, the seropositive veterinary professional was exposed to an ill

[§] This assay detects multiple respiratory pathogens including influenza A virus subtypes A(H1), A(H3), and A(H1N1)pdm09; influenza B; and other common respiratory viruses.

[¶] 45 C.F.R. part 46.102(l)(2), 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

FIGURE. Reverse transcription–polymerase chain reaction* and serologic testing results for persons exposed to domestic cats with suspected or confirmed influenza A(H5N1) infection — Los Angeles County, California, December 2024–January 2025



Abbreviation: RT-PCR = reverse transcription–polymerase chain reaction.

* Among symptomatic persons, 18 of 30 agreed to RT-PCR testing. Among asymptomatic persons, the 15 persons who received RT-PCR testing included 14 asymptomatic veterinary professionals and one asymptomatic pet owner who agreed to testing.

indoor housecat that was ultimately evaluated over a period of 11 days at four veterinary practices for upper respiratory signs, radiographic evidence of pulmonary lesions, transient ataxia and bilateral hind limb weakness, and progressive bilateral uveitis with retinal hemorrhage and detachment and blindness. All clinical signs occurred after the cat ate a commercial raw pet food (poultry blend). The cat survived but with permanent vision impairments. During these veterinary clinic visits, 31 persons were exposed to the cat.** The cat's clinical evaluation included physical and ophthalmologic examinations, blood collections, thoracic radiographs, an echocardiogram, and an abdominal ultrasound. At the cat's second veterinary clinic visit, deep pharyngeal and conjunctival specimens were collected and pooled, and a commercial veterinary laboratory conducted testing for several pathogens (including influenza A virus) using a feline respiratory RT-PCR panel; 7 days later, results were reported to the Veterinary Public Health program (VPH) at LACDPH as positive for both feline calicivirus and influenza A (unsubtypeable). VPH arranged for the total nucleic acids from the specimen to be forwarded to the U.S. Department of Agriculture National Veterinary Services laboratory. Whole genome sequencing identified the virus as influenza A(H5N1) clade 2.3.4.4b B3.13 (A/cat/California/038279-001/2024; GISAID isolate ID: EPI_ISL_19645032) 2 weeks later.

Interviews with the cat owner and veterinary staff members revealed that the cat had received care at four practices during the week preceding the release of the positive result (unsubtypeable influenza A) from the RT-PCR feline respiratory panel, which contributed to a lack of awareness of the veterinary staff member's exposure risk. Moreover, after the initial positive result became available, the public health significance was not conveyed to the pet owner or other veterinary staff members until they were contacted by LACDPH. As a result, staff members were unaware of the risk for zoonotic influenza A infection, including at the clinic where the veterinary professional was exposed.

** In addition to the seropositive person, specimens from 12 exposed persons were tested by RT-PCR; none tested positive for influenza A(H5N1). Three veterinary professionals agreed to participate in the serosurvey; all were asymptomatic and all received negative test results for antibodies against influenza A(H5N1).

Summary

What is already known about this topic?

Transmission of influenza A(H5N1) viruses from domestic cats to humans has not been documented.

What is added by this report?

During November 2024–January 2025, a total of 139 persons exposed to 19 A(H5N1)-infected domestic cats that consumed raw animal products were identified in Los Angeles County, California. Among 25 exposed persons who received serologic testing, one asymptomatic veterinary professional had serologic evidence of A(H5N1) infection after occupational exposure to an A(H5N1)-infected cat.

What are the implications for public health practice?

These findings provide evidence of zoonotic transmission of influenza A(H5N1) virus from domestic cats to humans. Pet owners are advised not to feed raw animal products to cats. Veterinary professionals should be aware of infection risks, use appropriate personal protective equipment, and adhere to recommended infection control practices to reduce the risk for zoonotic transmission of influenza A(H5N1).

Assessment of the asymptomatic veterinary professional. The veterinary professional remained asymptomatic after the exposure and had received a negative influenza A virus test result 7 days after exposure to the cat. Because this person was asymptomatic, no interview was conducted at the time of exposure, and information regarding the exact nature of the interaction between the veterinary professional and the infected cat was not available. More detailed risk factor information collected during the serosurvey indicated that this person routinely engaged in multiple clinical duties, including restraining animals; assisting with veterinary surgery; administration of inhalation anesthesia; performing cardiopulmonary resuscitation; collection of nasopharyngeal, blood, fecal, rectal, saliva, and urine samples; performing endotracheal intubation or other airway procedures; and cleaning examination rooms. Staff members at this facility were reported to routinely wear gloves but no other PPE during examinations. The veterinary professional had no known exposure to another cat with suspected or confirmed H5N1 infection, and reported no exposure to backyard poultry, wild birds, or dairy cattle; no consumption of raw animal products; and no underlying medical conditions. This person had not received either the 2024–25 seasonal influenza vaccine (which is not intended to prevent influenza A[H5N1] infection) or postexposure antiviral prophylaxis.

Discussion

This investigation identified serologic evidence of influenza A(H5N1) infection in an asymptomatic veterinary professional who was occupationally exposed to a domestic cat with confirmed influenza A(H5N1) virus infection; the person received a negative RT-PCR influenza A(H5N1) virus test result 1 week after exposure. These findings provide serologic documentation of possible transmission of avian influenza A(H5N1) clade 2.3.4.4.b virus from a domestic cat to a human. Serologic testing identified evidence of a likely infection that would otherwise have remained undetected, contributes to the understanding of A(H5N1) transmission from animals to humans, and highlights the potential use of serologic testing in identifying infections.

Zoonotic transmission involving domestic cats and other felids has been previously reported, including low pathogenicity avian influenza A(H7N2) virus infection in a symptomatic veterinarian who was exposed to infected cats at an animal shelter in New York City (*7*) and seroconversion among zoo workers after exposure to captive tigers during an influenza A(H5N1) outbreak in Thailand (*8*).

Although the precise nature of exposure in the veterinary clinic is not known, this finding raises concern about zoonotic transmission of influenza A(H5N1) virus from domestic cats to humans and reinforces the need for heightened awareness among pet owners and veterinary professionals, as well as strict infection control practices in veterinary settings (*9*). The occurrence of this exposure during a seasonal influenza A(H3N2) virus outbreak highlights the risk for co-infection and potential for reassortment between seasonal and avian influenza viruses, which could lead to the emergence of a novel viral strain capable of sustained human-to-human transmission and pandemic potential.

Limitations

The findings in this report are subject to at least two limitations. First, RT-PCR testing and serologic testing were not performed for all persons; therefore, some infections might have been missed. Second, serologic testing was performed 4–5 months after exposure, at which time antibody responses might have waned. Collection of acute and convalescent serology specimens was not feasible in this investigation; however, this step should be considered during future influenza A(H5N1) virus outbreaks in animals.

Implications for Public Health Practice

Detection of influenza A(H5N1) in domestic cats and transmission to a veterinary professional highlight a source of potential human exposure. Given the close contact that is common between cats and humans, continued vigilance is warranted. The cats described in this report were all reported to have consumed raw meat, raw pet food, or raw milk, products that have been documented to be sources of H5N1 infection in pets (*10*). Feeding these products to pets could increase their

risk for infection with influenza viruses. Animal health alerts disseminated by LACDPH warned of severe illness and death in cats associated with consumption of influenza A(H5N1)-infected raw dairy, raw meat, and raw poultry or raw pet food diets. Pet owners are advised not to feed cats raw milk or other raw animal products. Veterinarians should consider influenza A(H5N1) in cats with acute respiratory or neurologic illness and follow appropriate infection prevention practices, including using PPE, to reduce exposure risk (*9*). Timely detection and a One Health response to influenza A(H5N1) infection in domestic cats, including confirmation, source identification, and prompt evaluation and testing of exposed persons, are essential to reducing additional transmission and the risk for an influenza A(H5N1) pandemic.

Acknowledgments

Sascha Ellington, Zhunan Li, Feng Liu, CDC; Michael Brown, Amy Marutani, Serology Unit staff members, Los Angeles County Public Health Laboratory; Maira Rodriguez, Pasadena Department of Public Health; staff members of the National Veterinary Services Laboratories, U.S. Department of Agriculture; serosurvey participants.

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All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

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Fatal Human Case of Highly Pathogenic Avian Influenza A(H5N5) in a Backyard Flock Owner — Washington, November 2025

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Abstract

Clade 2.3.4.4b influenza A(H5N1) viruses have circulated across migratory bird flyways in the United States since 2022, including in Washington, where backyard flock detections have been reported annually. In November 2025, a Washington resident died from acute respiratory failure after receiving a positive influenza A(H5) test result at a hospital laboratory. Washington Public Health Laboratories confirmed influenza A(H5), and genomic sequencing identified influenza A(H5N5) virus (A6 genotype). Polymerase chain reaction testing detected highly pathogenic avian influenza A(H5) virus clade 2.3.4.4b from an apparently healthy backyard flock of ducks and sediment from a watering basin on the patient's property. Six of eight gene segments from the environmental sample and one duck sample (partial neuraminidase segment) were highly genetically similar to the patient's virus sequence. Although existing wild bird surveillance had not detected influenza A(H5N5) virus (A6) in the U.S. Pacific Flyway, introduction via wild birds into the environment of the backyard flock was likely the source of the patient's exposure. The public health investigation identified approximately 135 exposed persons; symptom monitoring and influenza testing detected no additional cases. The overall risk for avian influenza A remains low among the general U.S. population; however, novel avian influenza A virus infection should be considered in persons with symptoms of influenza and potential exposures.

Investigation and Results

Illness Onset, Hospital Course, and Laboratory Testing

Symptom onset. In late October 2025, a Grays Harbor County, Washington, resident aged ≥65 years with a history of non-Hodgkin lymphoma developed fever, diarrhea, nausea, and cough (day 0) (Figure). The next day (day 1), the patient was evaluated in hospital A's emergency department and discharged without a diagnosis. Nucleic acid testing (NAT) of a nares swab specimen was negative for influenza A virus, the first of multiple negative upper respiratory specimen influenza test results during the first 14 days of illness, which resulted in inconsistent implementation of isolation precautions.

First hospitalization (hospital A) and pneumonia. On day 10, the patient was admitted to hospital A with confusion, an inability to walk, lower back pain, and a sore throat. A chest radiograph revealed right-sided pneumonia. A nares swab specimen tested negative for influenza by NAT.

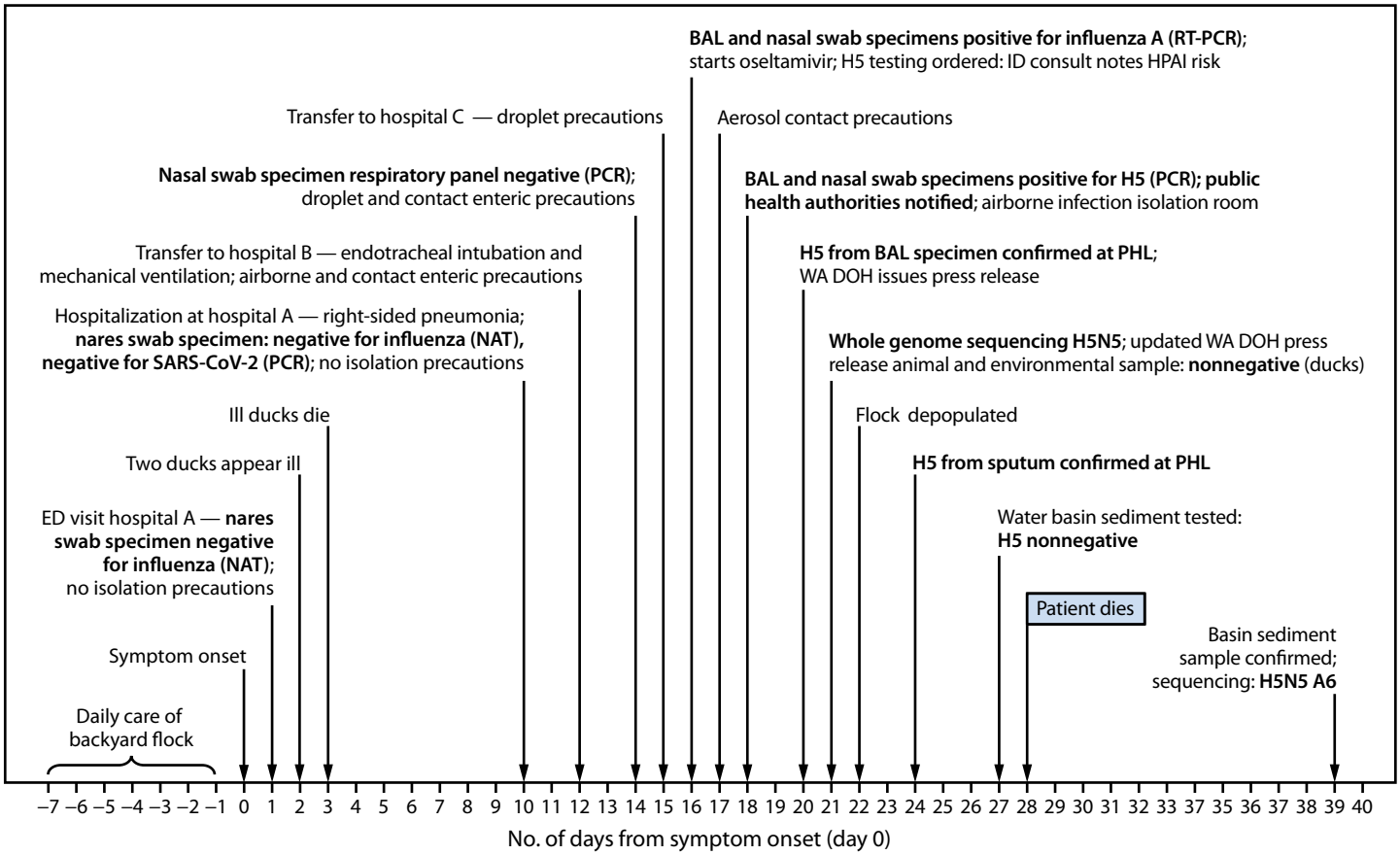
Clinical deterioration and intensive care (hospital B). On day 12, because of worsening respiratory status, the patient was transferred to an intensive care unit (ICU) at hospital B and received endotracheal intubation, with invasive mechanical ventilation using a high efficiency particulate air (HEPA) filter. A nasal swab specimen tested with a respiratory viral polymerase chain reaction (PCR) panel was negative (day 14).

First positive influenza A results (hospital C). On day 15, the patient was transferred to hospital C's ICU for an extracorporeal membrane oxygenation consultation. Bronchoalveolar lavage (BAL) and nasal swab specimens both tested positive for influenza A virus by reverse transcription–polymerase chain reaction (RT-PCR), and oseltamivir treatment was initiated (day 16). An infectious disease consult raised concern for avian influenza virus given the patient's history of contact with a backyard flock. On day 17, aerosol contact precautions with eye protection were implemented (e.g., National Institute for Occupational Safety and Health–approved respirator, gown, gloves, and eye protection) (*1*,*2*).

Identification of influenza A(H5N5), whole genome sequencing of BAL specimen, and death of patient. On day 18, the University of Washington laboratory identified influenza A(H5) virus by PCR from the influenza A–positive BAL and nasal swab specimens. The patient was moved to an airborne infection isolation room, and the local health jurisdiction was notified. Washington Public Health Laboratories (WA PHL) confirmed the BAL influenza A(H5) subtyping result (collected on day 16) with a cycle threshold (Ct) value*

*The number of PCR cycles necessary to detect a virus, with lower Ct values indicating a higher concentration.

FIGURE. Timeline of events for fatal human case of avian influenza A(H5N5)* in a backyard flock owner — Washington, November 2025



Abbreviations: BAL = bronchoalveolar lavage; ED = emergency department; ID = infectious disease; HPAI = highly pathogenic avian influenza; NAT = nucleic acid test; PCR = polymerase chain reaction; PHL = public health laboratory; RT-PCR = reverse transcription–polymerase chain reaction; WA DOH = Washington Department of Health.
* Nonnegative indicates a presumptive positive result, before confirmation by the National Veterinary Services Laboratory.

of 25.26 (day 20). The University of Washington virology laboratory conducted whole genome sequencing of the BAL specimen and identified influenza A(H5N5) virus (genotype A6) (day 21). On day 24, WA PHL confirmed influenza A(H5) virus in a sputum sample (Ct = 28.00). Despite supportive critical care and aggressive treatment with influenza antiviral therapy (oseltamivir, baloxavir, amantadine, and peramivir), the patient died on day 28.

Epidemiologic Investigation

Illness in two ducks kept by patient. The patient lived on a multiacre, rural property that was frequented by wild birds, including waterfowl. One family member lived in the house with the patient; another lived in a separate residence on the property. Grays Harbor County Public Health obtained exposure details via proxy interviews. The patient was the owner and primary caretaker of a backyard free-range poultry flock of 25 dabbling ducks[†] and approximately 30 chickens, with multiple basins embedded in the ground for the birds' enrichment and watering. During the week preceding symptom onset, the patient cared for the flock daily, handled eggs, and used a hose to clean and fill watering basins without using personal protective equipment (PPE). The patient owned no other animals, including livestock and had no known exposure to raw dairy products. On day 2 after the patient's symptom onset, two ducks in the flock appeared ill; a household member removed them from the flock to a cage. These ducks died overnight and were disposed of on the property. The patient did not handle the ill or dead birds; daily care ceased at the time of the patient's illness.

Animal health investigation. After notification by the Washington Department of Health (WA DOH), the Washington State Department of Agriculture (WSDA) and U.S. Department of Agriculture conducted an animal health investigation, including diagnostic sampling (day 21). Although the flock appeared healthy, oropharyngeal and cloacal swabs from all ducks on the property and a pooled sample of oropharyngeal swabs from chickens were collected

[†] Surface-feeding waterfowl that tip forward to graze on shallow plants, insects, and larvae.

and submitted to the Washington Animal Disease Diagnostic Laboratory (WADDL). The same day, WADDL reported weak Ct detections among all ducks by at least one of the following PCR assays: 1) avian influenza matrix PCR, 2) avian influenza A(H5) PCR, or 3) avian influenza (A[H5], 2.3.4.4) PCR; the pooled chicken swabs tested negative by avian influenza A(H5) PCR. The flock was depopulated on day 22. Positive specimens were forwarded to the National Veterinary Services Laboratories (NVSL), where six of the ducks tested positive for influenza A by PCR, all with Ct values >35; virus isolation and direct sequencing were unsuccessful.

Environmental evaluation. On day 21, WA DOH conducted an environmental investigation and collected samples at the patient's property, including swabs from a feather, material suspected to be duck feces in the holding cage, and bottom sediment from one watering basin. The sediment tested nonnegative (presumptive positive result before confirmation)[§] for avian influenza A(H5) clade 2.3.4.4b by PCR at WADDL (day 27) and was forwarded to NVSL, which confirmed highly pathogenic avian influenza (HPAI) A(H5), isolated the virus, and characterized the virus as A(H5N5), genotype A6 (partial genome with six of eight genes sequenced) (day 39).

A partial genome from one duck sample (Ct = 35.07; partial neuraminidase segment) was obtained by WADDL. The viral sequences from the sediment sample and the duck were highly genetically similar to the patient's viral genome sequence.

Public Health Response

A tiered health care personnel (HCP) risk assessment was generated in coordination with CDC, WA DOH, and local health jurisdictions as an option for health care partners in the event of staffing shortage concerns (Box) (*3*). HCP (124), family contacts (seven known), and state and federal government employees (four) with possible exposure to the patient, flock, or flock's environment were monitored for influenza symptoms through day 10 after their last exposure. During symptom monitoring, 15 exposed persons developed compatible symptoms; none received positive test results for influenza (Table). Monitoring was primarily conducted using Research Electronic Data Capture (REDCap; version 16.0.18) databases with automated daily text message questionnaires.

Public health officials identified seven family members with exposure to the patient or the property, including two living on the property grounds. Six family members agreed to passive weekly monitoring by phone. During the patient's final hospitalization, only family visitation was permitted; the hospital provided PPE, including non–fit-tested respirators. Additional family members were identified through hospital visitation logs but contact information was not provided. Thus, the total number of exposed family members is unknown.

[§] Nonnegative indicates a presumptive positive result, before confirmation by the National Veterinary Services Laboratory.

BOX. Risk assessment and recommendations* for health care personnel in facilities that cared for a patient with a fatal case of avian influenza A(H5N5) infection,† by risk level of exposure — Washington, November 2025

High-risk exposure: exposure to aerosols or aerosol-generating procedures without respirator or eye protection, or open ventilator circuit or no high-efficiency particulate air filter without respirator or eye protection

Recommendations:

- Furlough through 10 days after last exposure, or
- May continue working under the following conditions:
  - Influenza molecular assay result for upper respiratory tract specimen is negative, and
  - Postexposure antiviral chemoprophylaxis started within 2 days of exposure, and continued through 10 days after last exposure
  - Face mask for source control and
  - Continued daily active symptom monitoring

Moderate-risk exposure: exposure using eye protection and surgical mask (no respirator or non–fit-tested respirator)

Recommendations:

- May continue working under the following conditions through 10 days after last exposure:
  - Face mask for source control and
  - Continued daily active symptom monitoring

Low-risk exposure: exposure while using a fit-tested respirator and eye protection

Recommendations:

- May continue working under the following conditions through 10 days after last exposure:
  - Passive symptom self-monitoring and
  - Face mask not required

* These recommendations from the state of Washington were developed during this public health investigation in collaboration with the health care facility, adapted from CDC guidance. Interim guidance for infection control within healthcare settings | Avian influenza (bird flu) | CDC

† Being within 6 ft (1.8 m) of the patient or in the patient's room for ≥15 minutes, regardless of whether personal protective equipment was used.

Discussion

This detection of influenza A(H5N5) in a Washington resident is the first human influenza A(H5N5) virus detection worldwide. Diagnosis of influenza A(H5N5) clade 2.3.4.4b,

TABLE. Symptom monitoring and influenza test results among health care personnel, family contacts, and government employees exposed to a patient with a fatal case of highly pathogenic avian influenza A(H5N5) — Washington, November 2025

Characteristic	Health care personnel* (124)	Family contacts† (7)	Government employees§ (4)	Total (135)
Total monitored for symptoms	**124**	**6**	**4**	**134**
Accepted postexposure prophylaxis	0	2¶	0	**2**
Developed respiratory symptoms	19	1	0	**20**
Negative influenza test result**	14	1	NA	**15**
Positive influenza test result**	0	0	NA	**0**
Not tested for influenza	5	0	NA	**5**

Abbreviation: NA = not applicable.

* High-risk exposure (exposure to aerosols or aerosol-generating procedures without respirator or eye protection, or open ventilator circuit or no high-efficiency particulate air filter without respirator or eye protection) or moderate-risk exposure (exposure using eye protection and surgical mask [no respirator or non–fit-tested respirator]).

† One person lived with the patient in the same household, and a second person lived in a separate residence on the property; additional family members visited the patient in the hospital.

§ Public health and agricultural employees.

¶ Asymptomatic family contacts who lived on the property.

** Nasopharyngeal swab specimen.

genotype A6, in this patient resulted in a multijurisdictional public health response to ascertain exposure sources, identify exposed persons, and monitor for additional cases. WA DOH and WSDA sampling identified influenza A(H5N5) virus in the backyard flock environment and in apparently healthy ducks on the patient's property. Although existing federal and state-based wildlife surveillance had not detected influenza A(H5N5) virus (genotype A6) in the U.S. Pacific Flyway, introduction of the virus into the environment of the backyard flock via wild waterfowl and the presence of amplifying hosts on the property were the most likely sources of exposure. The overall avian influenza risk to the general U.S. population remains low (*3*).

Avian influenza A viruses pose a higher human transmission risk when direct or close and prolonged exposure to infected poultry or other infected animals occurs without recommended PPE use (*2*). However, three cases of human infection with HPAI A(H5N1) viruses without a clear exposure source have been identified in the United States (*4*). To assist in early identification, appropriate treatment, and isolation, HCP should routinely inquire about relevant exposures, including contact with ill or dead animals or their environments, consumption or handling of raw animal products, and contact with a confirmed or suspected human case of avian influenza virus infection when evaluating patients with acute respiratory illness (particularly those with severe illness requiring hospitalization) (*2*,*5*).

The diagnosis of influenza A(H5N5) virus infection in the patient described in this report was complicated by early and repeated negative influenza test results from upper respiratory swab specimens. Negative influenza results from initial upper respiratory specimens have been described in three similar patients with lower respiratory tract disease hospitalized with avian influenza A(H5N1) infection (*4*). Thus, avian influenza virus infection should not be ruled out in hospitalized patients based on negative influenza laboratory test results from upper respiratory tract specimens if the patients have lower respiratory tract disease, relevant exposures, and no confirmed etiology for their disease. If avian influenza virus infection is suspected in a patient with severe respiratory disease, both upper and lower respiratory tract specimens should be collected for influenza testing by RT-PCR at a public health laboratory (*6*).

Early negative influenza results delayed initiation of isolation precautions, reporting to public health authorities, and symptom monitoring. Although isolation precautions were not established consistently until the ninth day of inpatient care, no cases among HCP were identified. Likewise, no cases were detected among family members, despite lengthy exposure to both the symptomatic patient and the property. One household member reported direct contact with the ill and dead ducks but remained asymptomatic. Establishing a tiered risk assessment for HCP exposures based on setting and PPE use allowed staff members to continue working while having their symptoms monitored and limited new HCP exposures. The investigation was complicated by its occurrence during viral respiratory season and symptom development among several persons whose symptoms were being monitored. Human-to-human transmission of avian influenza A viruses has only rarely been reported globally and has not been reported in the United States (*3*,*7*).

Timely HPAI risk evaluation is important for persons with influenza symptoms requiring hospitalization to support infection prevention and control, early notification of public health authorities, and robust epidemiologic investigation, including genomic sequencing to identify possible transmission pathways. Ill or dead animals should be reported to animal health authorities for surveillance and potential testing and to reduce human exposure. Public health guidance for evaluating suspected cases of avian influenza should include immediate isolation precautions, prompt initiation of antiviral treatment, repeated influenza testing, and specimen collection from multiple sites (*2*,*6*,*8*). Considering the successive influenza A–negative laboratory results in the Washington patient, sampling from both upper and lower respiratory tracts in hospitalized patients should be considered to increase the likelihood of laboratory detection.

Summary

What is already known about this topic?

Since 2022, highly pathogenic avian influenza (HPAI) A(H5) viruses have circulated among wild birds in the United States. Seventy human cases of influenza A(H5), most with mild illness, have been reported in the United States since 2024; 14 human influenza A(H5N1) cases were previously identified in Washington.

What is added by this report?

In November 2025, Washington reported the first human case of HPAI A(H5N5) infection worldwide. A positive laboratory result was obtained from a lower respiratory sample after multiple negative upper respiratory sample results; the patient experienced respiratory failure and died 28 days after symptom onset. The public health investigation identified approximately 135 exposed persons.

What are the implications for public health practice?

Symptom management and testing of exposed persons are critical to monitoring for human-to-human transmission of novel influenza infection. Environmental and animal investigations, including genomic analysis, can identify epidemiologic risk factors.

Acknowledgments

Tacoma-Pierce County Health Department; Harborview Medical Center; University of Washington; MultiCare Capital Medical Center; Harbor Regional Health; Lauren Sarkissian, Anna Unutzer, Washington State Department of Health.

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All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. Allison Black reports receipt of institutional support from the Northwest Pathogen Genomics Center of Excellence, receipt of textbook royalties, and uncompensated service as an executive board member for Pathoplexus. Chloe Bryson-Cahn reports receipt of grant support from the Gordon and Betty Moore Foundation, consulting fees from Alaska Airlines as co-medical director (paid to UW Medicine) and Washington Hospital Services, honoraria for presentations at the Annual Infectious Disease Conference (2024 and 2025), and travel support from IDWeek. Eric J. Chow reports receipt of support from the American Academy of Pediatrics (AAP) to attend the AAP National Conference in 2023, 2024, and 2025. Alex L. Greninger reports institutional support from Abbott, Cepheid, Novavax, Pfizer, Janssen, Hologic, Assembly Biosciences, Aicuris, Innovative Molecules, and Gilead, and receipt of consulting fees from Arisan Therapeutics. Jennifer Lenahan reports receipt of support from the council of State and Territorial Epidemiologists to attend the Annual Conference and Influenza Workshop. Patrick Smith reports receipt of payment from AstraZeneca for a presentation on the asthma treatment Tezspire (tezepelumab-ekko). Kevin Snekvik reports receipt institutional support from the U.S. Department of Agriculture Animal and Plant Health Inspection Service. No other potential conflicts of interest were disclosed.

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ISSN: 0149-2195 (Print)