January 2025

Avian Influenza

Surveillance and Investigation Protocol

Table of Contents

I. ABOUT THE DISEASE 2

A. 3**B.** 3**C.** 3**D.Error! Bookmark not defined.E.** 4**F.** 4II. DISEASE CONTROL AND PREVENTION 4

A. 4**B.** 5**C.** 7III.DISEASE INVESTIGATION 8

A. 8**B.** 9**C.** 10**D.** 11**E.** 11**F.** 12**G.** 14**H.** 15**I.** 16**J.** 17IV. DISEASE SURVEILLANCE 18

A. 18**B.** 19**C.** 19V. REFERENCES 20

I. ABOUT THE DISEASE

Avian influenza is an endemic disease of wild waterfowl that is caused by infection with avian influenza type A viruses. These viruses infect the respiratory and gastrointestinal tracts of birds and are shed in their saliva, mucous, and feces. While infected wild birds may experience minor illness and few deaths, infections among domestic poultry like chickens[1] can result in significant mortality. Avian influenza viruses are classified as low or highly pathogenic based on the degree of mortality they cause in domestic poultry; this classification does not reflect the severity of human illness. This virus spreads efficiently among wild and domestic birds and avian influenza has been documented in wild birds across all 50 states and domestic poultry in 48 states. The primary driver for the spatial extent of avian influenza viruses is the movements of migratory birds, with seasonal timing and the geographic range of outbreaks following migration routes along major flyways.

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Avian Influenza

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Avian influenza viruses may infect mammalian species and systemic infection in mammalian organ tissues has been documented in some species. The United States Department of Agriculture (USDA) has documented spillover infections in more than 200 different mammals since 2022. In 2024, a single spillover event of influenza A(H5N1) clade 2.3.4.4b led to a multi-state outbreak in dairy cattle. This was is the first time dairy cattle have been impacted by the virus.

Human infections are most often associated with close, prolonged, unprotected contact with infected birds,[2] although the most recent human cases became infected after exposure to infected dairy cattle. Seasonal influenza surveillance activities will effectively detect human novel influenza A virus infections associated with severe illness while public health monitoring of people with known exposure to birds and animals infected with an avian influenza virus may capture cases that would otherwise be missed.

Influenza viruses are constantly changing and continued comprehensive surveillance of these viruses is critical to determine the public health risk and inform ongoing preparedness efforts. Genetic changes could result in an avian influenza virus that is capable of infecting people or is transmitted between people more readily. Rapid detection of human cases as well as prompt public health response are necessary to limit the potential impacts on human health.

A. Clinical Presentation

Human illnesses caused by avian influenza A viruses range in severity from asymptomatic infections to severe illness that requires hospitalization or in some instances death. Signs and symptoms may include:

- Fever or feeling feverish
- Eye redness (conjunctivitis)
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Nausea, vomiting, or diarrhea
- Seizures
- Mild flu-like upper respiratory symptoms
- Pneumonia requiring hospitalization

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B. Etiologic Agent

Influenza A viruses are characterized by the two proteins on the surface of the virus: hemagglutinin (H) and neuraminidase (N). There are 16 different "H" proteins (H1–H16), and nine "N" proteins (N1–N9) with each combination representing a separate subtype.

Genetic analysis of HPAI A(H5N1) clade 2.3.4.4b has revealed that when some mammals, including humans, are infected, the virus may undergo an intra-host evolution resulting in genetic changes that allow more efficient replication in the lower respiratory tract or extrapulmonary tissues. Although these genetic changes may impact mammalian disease outcome, to date, they have not been associated with enhanced transmissibility of the virus to humans. HPAI A(H5N1) viruses do not currently have the ability to easily infect and bind to α2,6-linked sialic acid receptors that are predominant in the human upper respiratory tract.

C. Reservoir

Avian influenza is endemic in wild aquatic birds such as duck, geese, swans, gulls, and storks.[3] It has also been detected in mammals such as foxes, skunks, and bears, in domestic animals such as, cats and dogs in livestock such as goats and cattle, and in marine animals such as dolphins and seals.[3] Since March 2024, influenza A(H5N1) has been spreading in United States dairy cattle and has caused multiple human infections.

D. Incubation Period

The incubation period in humans ranges from two to seven days.

E. Mode of Transmission

Five (5) subtypes of avian influenza A viruses can cause human infection H5, H6, H7, H9, and H10 viruses.[2] Human infections are rare, but the risk of infection is present whenever avian influenza is circulating in domestic poultry or animal populations that are in close contact with people. People with close or prolonged unprotected exposures to infected birds or other animals, or to environments contaminated by infected birds or other animals (i.e., poultry or cattle farmers, veterinarians, emergency responders) are at a greater risk of infection. Human infections can occur when enough virus gets into a person's eyes, nose, or mouth, or is inhaled.

F. Period of Communicability

Humans infected with avian influenza are likely to be infectious one day prior to illness onset until symptom resolution.[5]

II. DISEASE CONTROL AND PREVENTION

A. Disease Prevention and Control Objectives

Reduce the risk of transmission of avian influenza A viruses to people through:

1. Public education on prevention measures including avoiding sources of exposure and best practices if unable to avoid contact with potentially infected animals.
2. Providing education to farmers, hobbyists, and commercial poultry flock or livestock owners on hand hygiene and proper use of personal protective Equipment (PPE) when handling sick or deceased poultry/livestock.

Identify cases and reduce the risk of secondary transmission by:

1. Healthcare provider and laboratory education for recognition and reporting of avian (novel) influenza cases.
2. Monitoring exposed individuals for the 10 days following their last exposure to avian influenza, including those who have had a breach in PPE.
   a. Animal health responders (i.e., Animal and Plant Health Inspection Service (APHIS) and West Virginia Department of Agriculture (WVDA employees)
   b. Poultry/livestock owners
   c. Farm personnel
   d. Veterinarians
   e. Public health responders
   f. Any other person with exposure to an animal infected with avian influenza or the close contacts of confirmed cases
3. Investigation of suspected or confirmed cases of avian (novel) influenza by:
   a. Isolating symptomatic people with exposure to sources of avian influenza including confirmed human cases.
   b. Testing respiratory specimens at the West Virginia Office of Laboratory Services (OLS) using the CDC's Real Time RT-PCR Influenza Diagnostic Assay.
   c. Identifying and monitoring close contacts of confirmed cases.

B. Disease Prevention and Control

1. Whenever possible, people should avoid direct and unprotected contact with birds or other animals infected with or suspected to be infected with avian influenza A viruses.
2. Avoid unprotected contact with environments or products that may be contaminated with the virus from infected birds or livestock including litter, feces,

poultry houses, contaminated surface water, unpasteurized milk, or unpasteurized dairy products.

3. Report any sick birds or livestock, or unusual bird or livestock deaths to the state or the federal government, either through their state veterinarian at the WVDA Animal Health Division at (304) 558-2214 or by calling the USDA toll-free number at 1 (866) 536-7593.
4. Employers should develop a workplace health and safety plan based on a site-specific hazard assessment to identify potential exposure based on tasks and locations. The health and safety plan should employ engineering controls, administrative controls, and PPE based on the exposure level. The CDC has prepared documents to assist employers complete the hazard assessment and plans. All employer documents as well as a table with recommended controls based on exposure level may be found at: www.cdc.gov/bird-flu/prevention/worker-protection-ppe.html#heading-xpw-kpkyow.
5. People with exposure to infected or potentially infected birds or animals or areas contaminated with raw milk or other secretions should wear recommended PPE. Recommended PPE to protect against avian (novel) influenza A viruses in high exposure situations includes:
    a. Disposable or non-disposable fluid-resistant coveralls, and depending on task(s), add disposable or non-disposable waterproof apron
    b. Any NIOSH Approved respirator (e.g., N95® or greater filtering facepiece respirator)
    c. Properly fitted unvented or indirectly vented safety goggles or a face shield if there is risk of liquid splashing onto the respirator
    d. Rubber boots or rubber boot covers with sealed seams that can be sanitized or disposable boot covers for tasks taking a short amount of time
    e. Disposable or non-disposable head cover or hair cover
    f. Disposable or non-disposable gloves
6. Don and doff PPE in the correct order. Instructions for putting on and taking off PPE can be found at: www.cdc.gov/bird-flu/prevention/worker-protection-ppe.html.
7. After removing PPE:
    a. At the end of the work shift shower and change into clean uncontaminated clothing.
    b. Do not bring contaminated clothing and equipment home unless laundry facilities are not available in the work area.

c. Launder contaminated clothing at work when possible, using detergent then dry on the highest temperature suitable for the material.
d. If laundry facilities are unavailable at work, take clothing to be laundered at home in a plastic bag, wash separately from household items, and dry at the highest temperature suitable for the material.
e. Wear gloves and protective outerwear when handling soiled laundry.
f. Use separate storage containers for clean and soiled laundry.

8. During depopulation and while cleaning and disinfecting contaminated premises, avoid stirring up dust, bird or animal waste, and feathers to prevent the virus from dispersing into the air.[6]
9. The CDC recommends that everyone six months or older get a seasonal flu vaccine every year. It is important that anyone who may have exposure to avian influenza infected birds or livestock get a seasonal flu vaccine, ideally two weeks before their potential exposure.[7] The seasonal flu vaccination will not prevent infection with avian influenza viruses but can reduce the risk of getting sick with human and avian influenza viruses at the same time.[7]
10. Do not consume unpasteurized (raw) milk or other dairy products made with unpasteurized milk. Pasteurization is effective at inactivating avian influenza viruses.
11. Self-monitor for symptoms of illness while working with sick or potentially infected animals and for 10 days after the last exposure to infected or potentially infected animals or contaminated environments.

C. Prophylaxis and Treatment

1. Chemoprophylaxis of persons with exposure Avian Influenza viruses:
   a. Chemoprophylaxis with influenza antiviral medications can be considered to prevent infection, particularly for people who had unprotected exposure to- or a breach in PPE when in close contact with birds or animals infected with Avian Influenza viruses. Decisions to initiate post-exposure antiviral chemoprophylaxis should be based on clinical judgment, with consideration given to the type of exposure, duration of exposure, time since exposure, and known infection status of the birds or animals the person was exposed to.
   b. Antiviral chemoprophylaxis is not routinely recommended for personnel who used proper PPE and experienced no PPE breaches while handling sick or potentially infected birds or other animals.[8]

c. Chemoprophylaxis is recommended for close contacts of confirmed cases with oseltamivir twice daily (treatment dosing) instead of the once daily pre-exposure prophylaxis dosing.
d. If antiviral chemoprophylaxis is initiated, oseltamivir treatment dosing (one dose twice daily) is recommended instead of the antiviral chemoprophylaxis regimen for seasonal influenza.
e. Guidance for Novel Influenza A Virus Chemoprophylaxis is available at: www.cdc.gov/bird-flu/php/novel-av-chemoprophylaxis-guidance/.
f. Physicians should consult the manufacturer's package insert for dosing, limitations of populations studied, contraindications, and adverse effects. If exposure was time-limited and not ongoing, five days of medication (one dose twice daily) from the last known exposure is recommended.

2. Antiviral Treatment
a. People with signs or symptoms of acute respiratory illness who have a relevant exposure history for avian influenza should be referred for prompt medical evaluation, testing, and empiric initiation of antiviral treatment with oseltamivir as soon as possible. Clinical benefit is greatest when antiviral treatment is administered early, especially within 48 hours of illness onset.
b. Hospitalized patients who are confirmed, probable, or suspected cases of human infection with HPAI, regardless of time since illness onset are recommended to initiate antiviral treatment with oral or enterically administered oseltamivir as soon as possible. Antiviral treatment should not be delayed while waiting for laboratory testing results.
c. Oseltamivir treatment is advised for outpatients with severe, progressive, or complicated illnesses. The following treatments may be utilized for outpatients with uncomplicated mild-to-moderate illness presenting within two days of illness onset: oral oseltamivir, inhaled zanamivir, IV peramivir, or oral baloxavir.[9]
d. Additional considerations on combination antiviral treatment and length of treatment can be found at: www.cdc.gov/bird-flu/hcp/novel-av-treatment-guidance/.

III. DISEASE INVESTIGATION

A. Case Detection

In 2007, human infection with novel influenza A viruses became a nationally notifiable condition. A human novel influenza A virus infection is an infection with any influenza type-A virus that is different from the influenza viruses that typically cause seasonal

epidemics in people (i.e., A(H3N2) and A(H1N1)). Novel influenza viruses include those from nonhuman origins and those that cannot be subtyped using the CDC's Influenza Real-Time RT-PCR Diagnostic Panel. Healthcare providers or veterinarians may be the first to be aware of zoonotic influenza cases. Some patients may present with signs and symptoms compatible with influenza virus infection and recent exposure to birds or livestock (i.e., chickens, turkey, ducks, guinea hens, cattle, goats). Still, some novel influenza virus infections are only identified when a clinical laboratory is unable to determine the subtype of an influenza A positive respiratory specimen. The Council for State Territorial Epidemiologist's (CSTE) novel influenza case definition was updated as of October 2024. The epidemiology of novel influenza A viruses has changed over the past decade. Highly pathogenic Avian Influenza A(H5N1) clade 2.3.4.4b now routinely circulates in United States wild bird populations and is causing outbreaks in domestic poultry and animals which is increasing human contact with this virus. The following definitions are for the purpose of investigations of confirmed cases, probable cases, and cases of avian influenza A virus infection under investigation.

Report the following to public health:

- Any person meeting laboratory criteria for reporting; OR
- Any person meeting clinical criteria for reporting and meeting epidemiologic lineage criteria for reporting; OR
- Any person meeting vital records criteria for reporting; OR
- Any person meeting healthcare record criteria for reporting.

B. Case Definition
(cdn.ymaws.com/www.cste.org/resource/resmgr/position_statements_files_2023/24-ID-09_Novel_Influenza_A.pdf)

Clinical Criteria*
One or more of the following:

- Cough, sore throat, fever (measured or subjective), shortness of breath or difficulty breathing, conjunctivitis (red eye, discharge from eye), OR

Two or more of the following:

- Headache, myalgia, arthralgia, fatigue, rhinorrhea or nasal congestion, diarrhea, vomiting.

**Clinical criteria for reporting must be paired with epidemiologic linkage criteria for reporting to trigger a public health notification.*

Epidemiologic Linkage Criteria**

- Close contact with a confirmed human case of novel influenza A virus infection, OR
- Shared a common exposure (such as an agricultural fair or live animal market) with a confirmed novel influenza A case, OR
- Direct or indirect contact (such as touching an animal, their environment, or their raw or unprocessed animal products) with animals with confirmed or suspected influenza A, OR
- Inadequate use or breach of PPE and exposure to novel influenza A virus in a laboratory.

***Epidemiologic linkage criteria for reporting must be paired with clinical criteria for reporting to trigger a public health notification.*

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Laboratory Criteria

Confirmatory Laboratory Evidence:

Category 1 (novel virus detection)

- Positive confirmatory molecular test result (e.g., reverse transcriptase polymerase chain reaction [rT-PCR]) for novel influenza, OR
- Genetic sequence indicative of novel influenza A strain.

Category 2 (viable virus)

- Isolation of a novel influenza virus from a clinical specimen.‡

Category 3 (evidence of infection)

- Significant IgG antibody rise to novel influenza A (i.e., at least a 4-fold rise in a quantitative titer or seroconversion) in paired acute and convalescent serum IgG in the absence of another explanation (such as vaccination).

Presumptive Laboratory Evidence:

Category 1

- Presumptive positive for novel influenza on tests specifically designed to detect novel influenza, such as H5 or H7.

Category 2

- Virus testing results indicative of variant influenza, such as H1v or H3v, as determined in consultation with subject matter experts at CDC.

‡ *Isolation of a novel influenza virus should not be performed outside of CDC.*

C. Case Classifications

Confirmed Case

- Meets clinical criteria AND confirmatory laboratory evidence category 1, OR
- Meets confirmatory laboratory evidence category 2, OR
- Meets confirmatory laboratory evidence category 3.

Probable Case

- Meets confirmatory laboratory evidence in category 1,* OR
- Meets clinical criteria AND presumptive laboratory evidence category 1, OR
- Meets clinical criteria AND epidemiologic linkage criteria AND presumptive laboratory evidence category 2. [10]

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Suspect Case

- Meets clinical criteria AND epidemiologic linkage criteria AND laboratory testing results are positive for influenza A but no laboratory evidence is available that would rule out novel influenza A.

Criteria to Distinguish a New Case of Novel Influenza A Virus Infection from Reports or Notifications which Should Not be Enumerated as a New Case for Surveillance

A person should be enumerated as a new case of novel influenza A virus infection if:

- The virus is distinguishable from the individual's previous novel influenza A virus infection, OR
- The virus is indistinguishable from the individual's previous novel influenza A virus infection, AND
- The person has recovered fully or returned to baseline health, OR
- It has been >30 days since symptom onset date (if available) or first positive specimen collection date.

**For severely immunocompromised individuals, judgement should be used to determine if a repeat positive test is likely to result from long-term shedding and, therefore, not be enumerated as a new case. CDC defines severe immunocompromise as certain conditions, such as being on chemotherapy for cancer, untreated human immunodeficiency virus (HIV) infection with CD4 T lymphocyte count <200, combined primary immunodeficiency disorder, and receipt of prednisone >20mg/day for more than 14 days.*

D. Reporting Timeframe to Public Health

Novel influenza viruses including avian influenza A viruses in an animal or human, is a category I reportable disease. Suspected avian (novel) influenza in animals or humans should be reported **IMMEDIATELY** to the local health department (LHD). If the LHD cannot be reached, notify OEPS epidemiologist on-call at (304) 558-5358, ext. 2 **IMMEDIATELY** of any suspected avian (novel) influenza A viruses detected in West Virginia. Once a novel influenza A virus is identified by the CDC, it will be nationally notifiable until CDC, in consultation with CSTE, determines that it is no longer necessary to notify each case to the CDC.

E. Outbreak Recognition

One human case of avian (novel) influenza A constitutes an outbreak.

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F. Healthcare Provider Responsibilities

1. Consider avian (novel) influenza A viruses in the differential diagnosis of acute respiratory illness in persons with recent contact (<10 days prior to illness onset) with sick or dead birds or animals in any of these categories:
   a. Domestic poultry (e.g., chickens, turkeys)
   b. Wild aquatic birds (e.g., ducks, geese, swans)
   c. Other wild or domesticated birds
   d. Wild or domesticated animals
   e. Farm animals (e.g., cattle)
2. Consider avian (novel) influenza in the differential diagnosis of persons with acute respiratory illness who had contact with potentially infected birds or animals through:
   a. Contact with infected birds or animals through: handling, slaughtering, defeathering, butchering, culling and preparing for consumption.
   b. Depopulation activities from a confirmed avian influenza outbreak in domestic poultry.
   c. Consuming uncooked or undercooked food or related uncooked food products, including unpasteurized (raw) milk or other unpasteurized dairy products.
   d. Direct contact with the virus contaminated environments of birds or animals infected with the avian influenza virus, including environments contaminated with unpasteurized (raw) milk or unpasteurized milk products (e.g., contaminated water, bird houses, litter, feces).
   e. Prolonged exposure to potentially infected birds or animals in a confined space.
   f. Exposure to found sick or deceased wild birds.
3. If avian (novel) influenza A virus infection is suspected, report **IMMEDIATELY** to the LHD. If the LHD cannot be reached contact the OEPS epidemiologist on-call at (304) 558-5358, ext. 2. An epidemiologist is available 24/7/365 to assist.
4. Assist public health authorities during the investigation by collecting and sharing:
   a. Clinical information including symptoms, flu vaccination history, medical history, and acute conditions;
   b. Risk factor and exposure history; and
   c. Close contact information.
5. Use standard, contact, and airborne precautions when providing medical care for patients suspected of avian influenza infection.

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a. Recommendations for infection control and prevention may be found at: www.cdc.gov/bird-flu/hcp/novel-flu-infection-control/index.html.

6. Notify the OEPS epidemiologist on-call by calling (304) 558-5358, ext. 2 of any unsubtypable influenza A positive test result. Commercial flu tests may yield an unsubtypable even when a patient is infected with a seasonal influenza strain as a result of low viral titer or other specimen quality concerns. Testing at the Office of Laboratory Services (OLS) can determine whether unsubtypable results are due to specimen quality or attributable to human infection with a novel influenza virus.
7. If influenza testing at OLS is recommended, collect specimens for influenza testing as soon as possible after illness onset, ideally within seven days.
   a. **SPECIMEN COLLECTION AND STORAGE**:
      i. Collect a nasopharyngeal swab **AND** a nasal swab combined with an oropharyngeal swab (e.g., two swabs combined into one viral transport media vial).
         a. The nasopharyngeal swab and the combined nasal-throat swabs should be tested separately.
         b. If unable to collect a nasopharyngeal and a nasal swab, a single nasal or oropharyngeal swab is acceptable.
      ii. For patients with **conjunctivitis (with or without respiratory symptoms),** collect a conjunctival swab **AND** a nasopharyngeal swab and/or nasal swab combined with an oropharyngeal swab.
      iii. Patients with severe respiratory disease also should have lower respiratory tract specimens (e.g., an endotracheal aspirate or bronchoalveolar lavage fluid) collected.
      iv. For severely ill persons, multiple respiratory tract specimens from different sites should be obtained to increase the potential for influenza A(H5N1) virus detection.
      v. Use swabs with a synthetic tip (polyester or Dacron®) and an aluminum or plastic shaft to collect specimens. The swab specimen collection vials should contain 1-3 ml of sterile viral transport medium.
      vi. Clinical specimens should be stored at ≤-20°C for no more than seven days or at ≤-70°C and transported to OLS promptly on dry ice. Avoid freezing and thawing specimens.
8. Consider diagnostic testing for other respiratory pathogens that can cause acute respiratory illness based on local epidemiology of circulating respiratory viruses.

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9. Due to the ongoing threat of HPAI in the U.S, submit influenza A specimens to OLS that have not been subtyped or are unsubtypeable in patients hospitalized for influenza.
10. Follow recommendations for influenza antiviral treatment and chemoprophylaxis of exposed persons found at: www.cdc.gov/bird-flu/prevention/hpai-interim-recommendations.html.
    a. Antiviral treatment is recommended as soon as possible for symptomatic outpatients and hospitalized patients who are suspected, probable, or confirmed cases of human infection with avian (novel) influenza A viruses.
    b. Chemoprophylaxis with influenza antiviral medications can be considered for any person meeting epidemiologic exposure criteria and should be based on clinical judgment. If antiviral chemoprophylaxis is initiated, oseltamivir treatment dosing (one dose twice daily) is recommended instead of the antiviral chemoprophylaxis regimen for seasonal influenza.
    c. Post-exposure prophylaxis of close contacts of confirmed cases is recommended with oseltamivir twice daily (treatment dosing) instead of the once daily pre-exposure prophylaxis dosing.
11. Educate the patient on isolation recommendations until testing determines whether they are infected with an avian (novel) influenza virus.
12. Notify the patient that infection with avian influenza is a reportable condition in West Virginia and the LHD will contact the patient to complete a public health investigation.

G. Laboratory Responsibilities

1. Refer requests for avian influenza virus testing for human specimens to the OEPS epidemiologist on-call at (304) 558-5358, ext. 2.
2. Send the entire specimen to OLS for avian (novel) influenza A virus testing. This ensures adequate specimens are available to send to CDC if needed.
3. Send all influenza A positive **unsubtypeable** specimens to OLS for further testing and notify the OEPS epidemiologist on-call at (304) 558-5358, ext. 2.
4. Refer to the OLS website for specimen submission forms (General Microbiology Specimen Test Request Submission Form) and shipping instructions.
5. Ship specimen(s) to OLS, 167 11th Avenue, South Charleston, WV 25303 (Attention: Microbiology Section).
6. Contact the WV OLS Microbiology Department by calling (304) 558-3530 to provide the FedEx tracking number.

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H. Local Health Responsibilities

1. Educate healthcare providers and laboratories about the responsibilities mentioned above (see Sections F and G).
2. Maintain readiness to respond to avian influenza events by:
   a. Keeping at least five unexpired respiratory collection kits on hand at the LHD. Reordering respiratory collection kits from OLS as kits expire or are used.
   b. Have an emergency number that can be used to contact LHD staff after-hours and over the weekend.
   c. Ensure PPE (masks, gloves, gowns, goggles, head or hair cover, boots) will be available for responding LHD staff.
   d. Have personnel fit tested. At a minimum respiratory protection should be at least as protective as a fit-testing NIOSH-certified disposable N95 filtering facepiece respirator.
   e. Recommend and offer the seasonal influenza vaccine each year. While the seasonal influenza vaccine does not protect against avian influenza viruses, it will reduce the risk of co-infection with seasonal human and avian influenza A viruses.
3. Maintain communication with state and local WVDA veterinarians and state epidemiologists to ensure a collaborative approach to Avian Influenza response activities.
4. If notified of human exposures to avian influenza, ensure the following has been done:
   a. Provide education to exposed individuals about the signs and symptoms of avian influenza in humans including emergency warning signs and when to seek medical attention, how to use the Self-Monitoring Log to monitor for illness, and when to contact the LHD.
   b. Monitor exposed individuals for the 10 days following the last date of exposure, making contact on the day of LHD notification then again on day five and 10. The Text Illness Monitoring System (TIMS) may be used to monitor groups of people during large responses.
   c. Provide weekly updates on the status of exposed individuals to the Influenza Surveillance Coordinator until monitoring is complete.
   d. Notify the exposed individual once monitoring is complete.
   e. Notify the OEPS epidemiologist on-call immediately if a person being monitored develops symptoms during their monitoring period so that testing may be coordinated with OLS/CDC.

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f. Instruct symptomatic people with exposure to isolate until testing determines whether they have been infected with avian influenza.

5. If a case of avian influenza is reported, ensure the following is completed:
   a. Report any suspected, probable, or confirmed avian (novel) influenza in an animal or person to the epidemiologist on-call at (304) 558-5358, ext. 2.
   b. Use standard investigative tools such as the CDC's Novel Influenza Case Report Form to complete the investigation.
   c. Educate the case under investigation (CUI) to isolate. Instruct the CUI to notify the healthcare facility before their exposure to avian influenza when seeking medical care.
   d. Obtain respiratory specimens from cases and ship the specimens to OLS. See Section H. Healthcare provider and Section G. Laboratory Responsibilities for details on appropriate specimen types.
   e. Ensure healthcare facilities use standard, contact, and airborne precautions when providing medical care for suspected avian influenza cases.
   f. Provide healthcare facilities with the CDC antiviral treatment and chemoprophylaxis recommendations found here: www.cdc.gov/bird-flu/prevention/hpai-interim-recommendations.html.
   g. Identify close contacts of confirmed cases and complete the following:
      i. Initiate post-exposure prophylaxis with oseltamivir twice daily (treatment dosing) for contacts with unprotected, prolonged close contact (within six feet) to the case.
      ii. Follow guidance above for human exposures to avian influenza.
6. Educate hobbyist/backyard flock owners about recommended biosecurity measures. Additional biosecurity information is available from the USDA's Defend the Flock Program here: www.aphis.usda.gov/livestock-poultry-disease/avian/defend-the-flock.
7. Educate dairy cattle owners about recommended biosecurity measures for cattle. Additional biosecurity information is available from the USDA here: www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock.

I. State Health Responsibilities

1. Maintain capacity to supplement LHD response for avian influenza events, including outbreak investigations.
2. Maintain communication with the WVDA State Veterinarian and facilitate a collaborative approach to Avian Influenza response activities.

3. Provide technical expertise and consultation for surveillance, investigations, laboratory testing, contact tracing, and prevention and control of avian influenza.
4. Report suspected or confirmed cases of avian influenza to the CDC within 24 hours of notification. CDC notifications can be made:
   a. During business hours by calling the Influenza Division directly at (404) 639-3747.
   b. After business hours by calling the CDC Epidemiologist on-call at (770) 488-7100. You may be asked to contact the CDC Influenza Division via email at FluViewSupport@cdc.gov if no one is there to address your call from the Influenza team.
5. Report suspected or confirmed cases of avian influenza to the West Virginia Bureau for Public Health Leadership by phone.
6. Provide complete case investigation data on avian influenza cases to the CDC through the Secure Access Management Services (SAMs) Novel Influenza Portal.
7. Monitor CDC Epi-X for notifications of avian influenza exposures and alert Regional Epidemiologists in the exposed person's county of residence to begin monitoring.
8. Arrange surveillance of all persons being monitored for avian influenza in collaboration with Regional Epidemiologists and LHDs.
9. Maintain situational awareness of avian influenza surveillance, prevention, and control activities in collaboration with the WVDA, the Centers for Threat Preparedness, OLS, CDC, USDA, and other public health partners.

J. Occupational Health

People who work with or are exposed to animals (i.e., poultry or livestock) should take steps to reduce the risk of infection with avian influenza A viruses associated with severe disease when working with animals or potentially contaminated materials. Farm workers should wear recommended PPE based on their level of exposure and tasks being completed. In medium or high exposure settings, PPE should be worn when in contact with or around dairy cattle, raw milk, other animals or other environments or items that could be contaminated with influenza viruses. Recommendations for worker protection and use of PPE may be found here: www.cdc.gov/bird-flu/prevention/farm-workers.html. Additionally, the CDC recommends that everyone six months or older get a seasonal flu vaccine every year. It is especially important that people who may have exposure to sick birds get a seasonal flu vaccine, ideally two weeks before their potential exposure, if possible.[7] The seasonal flu vaccination will not prevent infection with avian influenza viruses but can reduce the risk of getting sick with human and avian influenza viruses at the same time.[7]

Avian Influenza

Surveillance and Investigation Protocol

DISEASE SURVEILLANCE

A. Public Health Significance

Avian influenza A is a group of zoonotic viruses with many possible subtypes, although A(H7) and A(H5) are of greatest public health significance. Human infection with avian influenza A viruses may cause high morbidity and mortality, as people have little to no immunity against these viruses. At least six HA subtypes of Avian influenza viruses, specifically H3 (H3N8), H5 (HPAI H5N1, H5N6, and H5N8), H6, H7, H9 (LPAI H9N2), and H10, have been reported to cause infections in humans, resulting in a total of 2,754 infections and 1,120 fatalities worldwide since 1977.[11] Specifically, ancestral influenza A(H5N1) emerged in 1997 and has since resulted in over 900 human cases across 23 countries; these cases had a >50% mortality.

Since 2020, influenza A(H5N1) clade 2.3.4.4b virus has been the predominant avian influenza virus circulating globally. This virus is genetically different from its predecessors and is behaving in new and unexpected ways. Specifically, there have been over 200 spillover infections in mammals and on March 25, 2024, an outbreak of influenza A(H5N1) was reported in a dairy farm in Texas. This is the first-time dairy cattle have been infected with an avian influenza virus. Since then, the United States Food and Drug Administration (FDA) has been conducting ongoing research and testing of the United States milk and beef supply. Studies conducted by the FDA have shown that H5N1 is passed in high concentrations in cow's milk. There is concern that consumption of raw, unpasteurized milk or products made from raw milk contaminated with HPAI A(H5N1) virus could transmit influenza A(H5N1) virus to people; however, the risk of human infection is unknown at this time. The CDC and FDA continue to recommend against the consumption of raw (unpasteurized) milk.

While avian influenza viruses are distinct from the viruses responsible for causing seasonal epidemics in people and are not easily transmitted to or between humans; the wide geographic spread of influenza A(H5N1) increases the likelihood that people will continue to be exposed to this virus. Avian influenza epidemics have led to significant losses in various animal populations and surveillance across ten countries and three continents since 2022 draws particular attention to the escalated rates of infection among mammals. Based on what is known about the epidemiology of contemporary influenza A(H5N1) viruses the risk to the public is considered low. Certain people are considered at higher risk for infection including people who work with or are exposed to the

environments of infected birds and other animals. In April 2022, the first human infection of influenza A(H5N1) was reported in a commercial poultry outbreak responder and in April 2024, the first dairy farm employee was infected after being exposed to infected cattle. This represents the first-time influenza has been transmitted to humans from a dairy cow.

Influenza viruses are constantly changing, and continued surveillance and preparedness efforts are essential to assess the risk posed by these viruses including whether genetic changes may lead to an increased ability to spread to humans, cause severe illness, or result in reduced susceptibility to antivirals.

B. Disease Surveillance Objectives

1. To maintain situational awareness of avian influenza A virus trends globally, in the United States, and West Virginia.
2. To detect and respond to avian influenza events in West Virginia.
3. To identify and characterize the epidemiologic features of avian influenza viruses circulating in West Virginia.

C. Surveillance Indicators

1. Proportion of exposed people that completed their monitoring period.
2. Proportion of cases reported to the health department in a timely manner.
3. Proportion of cases with complete sociodemographic, exposure, clinical, medical history, vaccination, and laboratory information.

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