

New Jersey Department of Health
Surveillance Criteria and Testing for Influenza A (H5N1) in Humans

Protocol for Healthcare Providers and Local Health Departments

January 2014

Keys steps in case screening for avian influenza H5N1

- 1. Identify if the case meets current SURVEILLANCE CRITERIA**
- 2. Ensure appropriate REPORTING of suspect case**
- 3. Ensure appropriate CONTROL MEASURES are implemented**
- 4. Ensure appropriate SPECIMEN COLLECTION AND TRANSPORT**

SURVEILLANCE CRITERIA for avian influenza (H5N1) infection:

An ill person must meet the following clinical and epidemiologic criteria to be considered for testing:

- Requires hospitalization or who dies; **AND**
- Has or had a documented temperature of $\geq 38^{\circ}\text{C}$ ($\geq 100.4^{\circ}\text{F}$); **AND**
- Has radiographically-confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternative diagnosis has not been established; **AND**
- Has had at least one potential exposure within 10 days of symptom onset as listed below:

A.) History of travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans (for a listing of H5N1-affected counties, see the World Organization for Animal Health (OIE) web site at:

http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/graph_avian_influenza/graphs_HPAI_02_01_2014.pdf and the WHO web site at:

http://www.who.int/influenza/human_animal_interface/EN_GIP_20131210CumulativeNumberH5N1cases.pdf); **AND**

- Direct contact (e.g., touching) with sick or dead domestic poultry; **OR**
- Direct contact with surfaces contaminated with poultry feces; **OR**
- Consumption of raw or incompletely cooked poultry or poultry products; **OR**
- Close contact (within 6 feet) to a person who was hospitalized or died due to a severe unexplained respiratory illness.

B.) Close contact (within 6 feet) of an ill patient who was confirmed or suspected to have H5N1;

C.) Works with live influenza virus in a laboratory.

Testing for avian influenza A (H5N1) will also be considered on a case-by-case basis for

- A patient with mild or atypical disease (hospitalized or ambulatory) who has one of the exposures listed above in A, B, or C; **OR**
- A patient with severe or fatal respiratory disease whose epidemiologic information is uncertain, unavailable, or otherwise suspicious but does not strictly meet the criteria listed above.

Providers are reminded to test for other common respiratory pathogens that may be causing illness in the patient (e.g., seasonal influenza, RSV).

Providers are encouraged to hospitalize patients meeting the above criteria to ensure that infection control precautions are enforced and to enhance the ability to monitor the patient's condition. Especially in those cases where avian influenza is strongly suspected (e.g., direct contact with sick or dead birds or a human H5N1 case), the patient should be admitted to the hospital and isolated until laboratory test results are available to confirm or rule out H5N1 infection.

REPORTING and AVIAN INFLUENZA SCREENING FORM

Healthcare Providers

Cases meeting the above surveillance criteria should be reported **IMMEDIATELY** to the local health department (LHD) where the patient resides. If patient residence is unknown, report to your own local health department. Contact information for local health departments is available at: www.localhealth.nj.gov. If LHD personnel are unavailable, healthcare providers should report the case to the New Jersey Department of Health, Communicable Disease Service (CDS) at 609-826-5964, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020.

Healthcare providers will be asked to complete the AVIAN INFLUENZA SCREENING FORM (<http://www.state.nj.us/health/forms/cds-25.dot>). Completed forms can be faxed to CDS at 609-826-5972. This form will be reviewed by CDS staff who will make the final determination if the case meets surveillance criteria and if a specimen is required for testing. No specimen will be tested by the New Jersey Public Health and Environmental Laboratories (PHEL) until the case has been reviewed by the CDS. NOTE: If PHEL receives a specimen without CDS review and approval number, PHEL will hold the specimen and contact CDS. Preliminary and final results will be relayed to the submitting physician via telephone as soon as they are available. PHEL will mail a hard copy to the submitter of the final results when available.

Local Health Departments

When a local health department receives a report of a suspect case of avian influenza (H5) in a human, the protocols contained within this document for screening, treatment, and collection of lab specimens should be followed. Information should be communicated **IMMEDIATELY** to the CDS at 609-826-5964, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020. The healthcare provider or local health department should complete the AVIAN INFLUENZA SCREENING FORM (<http://www.state.nj.us/health/forms/cds-25.dot>). Completed forms should be faxed to CDS at 609-826-5972. This form will be reviewed by CDS staff who will make the final determination if the case meets surveillance criteria and if a specimen is required for testing.

CONTROL MEASURES

Precautions in Healthcare Facilities

Standard, contact, and airborne precautions are recommended for management of hospitalized patients who may be infected with avian influenza A (H5N1) virus.

For additional guidance on infection control precautions for patients with suspected or confirmed infection with avian influenza A (H5N1) virus, please see <http://www.cdc.gov/flu/avianflu/healthprofessionals.htm>.

Contact Management:

- Close contacts (e.g., household, sexual) of suspect cases should be identified. Close contact with compatible signs and symptoms should be treated as suspect cases. Asymptomatic close contacts should be advised to stay home and use respiratory hygiene precautions until the case-patient's H5 test result is available.
- Each hospital should keep a logbook of all hospital personnel and visitors exposed to the suspect case until the H5 test result is available.
- Healthcare providers should advise asymptomatic close contacts to notify their healthcare provider if they develop fever or respiratory symptoms (cough, sore throat, shortness of breath).

Treatment and Chemoprophylaxis

For persons hospitalized with suspected novel influenza A virus infection, including suspected avian influenza (H5N1) virus infection, clinicians should start empiric treatment with oseltamivir as soon as possible, without waiting for laboratory confirmation.

Antiviral treatment is most effective when started as soon as possible after influenza illness onset. Early initiation of treatment provides a more optimal clinical response, although treatment of moderate, severe, or progressive disease begun after 48 hours of the onset of symptoms may still provide clinical benefit.

Persons who meet exposure criteria for a suspected or confirmed case of avian influenza A (H5N1) virus infection should be monitored daily for 10 days for fever and respiratory symptoms. Antiviral chemoprophylaxis should be provided to close contacts according to risk of exposure (<http://www.cdc.gov/flu/avianflu/healthprofessionals.htm>).

COLLECTION AND TRANSPORT OF CLINICAL SPECIMENS for Patients Who Meet H5N1 Surveillance Criteria:

PHEL has the ability to conduct Real-time reverse transcription polymerase chain reaction (RT-PCR) testing for influenza A H5 Asian lineage. Confirmatory testing can only be performed by the Centers for Disease Control and Prevention and may take several days. The timeframe in which testing is conducted will be determined on a case-by-case basis. **No specimen will be tested by PHEL until the case has been reviewed by the CDS.** NOTE: If PHEL receives a

specimen without CDS review and approval number, PHEL will hold the specimen and contact CDS.

General Considerations

- Appropriate infection control procedures should be followed when collecting samples. This information can be found in the control measures, precautions in healthcare facilities section.
- Detection of H5N1 is more likely from specimens collected within the first 3 days of illness onset.
- Oropharyngeal swab specimens and lower respiratory tract specimens (e.g., bronchoalveolar lavage or tracheal aspirates) are preferred because they appear to contain the highest quantity of virus for influenza H5N1 detection. Nasal or nasopharyngeal swab specimens are acceptable, but may contain fewer viruses and therefore may not be optimal specimens for virus detection.
- Samples should be collected from multiple sites to improve diagnostic sensitivity.

Collection

The following samples should be obtained:

Nasopharyngeal (NP)

- Materials
 - Sterile Dacron/nylon swab
 - Viral transport media tube (3 ml)
- Procedure
 - Collect specimen with a sterile Dacron/nylon swab with a non-wooden shaft (do NOT use calcium alginate swabs or swabs with wooden sticks as they may contain substances which can inactivate viruses or interfere with PCR testing).
 - Insert the swab through the nostril, parallel to the palate to the posterior nasopharynx (distance from the nostrils to the external opening of the ear). The swab should be left in place for a few seconds to absorb secretions. Slowly withdraw the swab with a rotating motion. Swab both nostrils with the same swab.
 - Put the tip of the swab into the plastic vial containing 3 ml of viral transport media and cut off the applicator stick.

Nasopharyngeal aspirates/wash

- Materials
 - Suction apparatus
 - Sterile suction catheter
 - Sterile saline
 - Viral transport media

- Procedure
 - Aspirate nasopharyngeal secretions through a catheter connected to a mucus trap and fitted to a vacuum source.
 - For NP wash, have the patient sit with head tilted slightly backward. Instill 1ml-1.5ml of nonbacteriostatic saline (pH 7.0) into one nostril. No saline is used for an aspirate.
 - Insert the catheter into the nostril parallel to the palate. Apply the vacuum and slowly withdrawn the catheter with a rotating motion. Mucus from the other nostril should be collected the same way. Specimen should be placed in a sterile vial.

Nasal swab

- Materials
 - Dry polyester swab
 - Viral transport media tube (3 ml)
- Procedure
 - Insert a dry polyester swab into the nostril. Using a gentle rotation, push the swab until resistance is met at the level of the turbinates (less than 1 inch into the nostril). Rotate the swab a few times against the nasal wall. Repeat in the other nostril using the same swab.
 - Put the tip of the swab into the plastic vial containing 3 ml of viral transport media and cut off the applicator stick.

Combined nasopharyngeal and oropharyngeal (throat) swab

- Materials
 - Dry polyester swab
 - Sterile Dacron/nylon swab
 - Viral transport media tube (3 ml)
- Procedure
 - Collect specimens with sterile Dacron/nylon or polyester swabs with a non-wooden shaft (do NOT use calcium alginate swabs or swabs with wooden sticks as they may contain substances which can inactivate viruses or interfere with PCR testing).
 - Insert the swab through the nostril, parallel to the palate to the posterior nasopharynx (distance from the nostrils to the external opening of the ear). The swab should be left in place for a few seconds to absorb secretions. Slowly withdraw the swab with a rotating motion. Swab both nostrils with the same swab.
 - Put the tip of the swab into the plastic vial containing 3 ml of viral transport media and cut off the applicator stick.
 - For oropharyngeal specimen collection, swab the posterior pharynx and tonsillar areas, avoiding the tongue using the second swab.
 - Put the tip of the swab into the same plastic vial containing the nasopharyngeal swab and break or cut off the applicator stick.

Bronchoalveolar lavage or tracheal aspirate

- During bronchoalveolar lavage or tracheal aspirate, use a double-tube system to maximize shielding from oropharyngeal secretions.
- Centrifuge half of the specimen, and fix the cell pellet in formalin. Place the remaining unspun fluid in sterile vials with external caps and internal O-ring seals. If there is no internal O-ring seal, then seal tightly with the available cap and secure with Parafilm®.

The SRD-1 form (available at <http://www.state.nj.us/health/forms/srd-1.pdf>) should be completely filled out for each specimen that is sent.

For fatal cases associated with possible avian influenza infection, autopsy and collection of appropriate postmortem specimens should be performed. Information on fatal cases should be communicated IMMEDIATELY to the CDS at 609-826-5964, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020.

Shipping

Local health departments and hospitals will be asked to assist in transporting specimens to PHEL on initial reports of suspect H5N1 cases. Each report will be evaluated individually to determine the immediacy in which the specimen should be transported and tested.

Commercial carriers can be used to ship samples, which should be handled as Biologic Substance, Category B. Information on shipping regulations for these carriers can be found at <http://www.iata.org/Pages/default.aspx> or <http://phmsa.dot.gov/hazmat>.

For More Information

NJDOH Guidance Documents

(<http://nj.gov/health/flu/avianflu.shtml>)

(<http://nj.gov/health/flu/surveillance.shtml>)

General information about avian influenza viruses and how they spread

(<http://www.cdc.gov/flu/avianflu/avian-in-humans.htm>)

Past Outbreaks of Avian Influenza in North America

(<http://www.cdc.gov/flu/avianflu/past-outbreaks.htm>)

Transmission of Avian Influenza A Viruses Between Animals and People

(<http://www.cdc.gov/flu/avianflu/virus-transmission.htm>)

WHO: FAQs on avian influenza A(H5N1) virus

(http://www.who.int/influenza/human_animal_interface/avian_influenza/h5n1_research/faqs/en/)