New Jersey Department of Health and Senior Services
Surveillance and Testing for Influenza A (H5N1) in Humans
Pandemic Alert Period
Protocol for Healthcare Providers and Local Health Departments

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°C ($\geq$100.4°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 within10 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/eng/en_index.htm and the WHO web site at: http://www.who.int/csr/disease/avian_influenza/en/index.html); **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 3 feet) to a person who was hospitalized or died due to a severe unexplained respiratory illness.

  B.) Close contact (within 3 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-base 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 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 LHD personnel are unavailable, healthcare providers should report the case to the New Jersey Department of Health and Senior Services Communicable Disease Service (CDS) at 609-588-7500, 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 609-588-7433. 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 Division of 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 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 609-588-7500, 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 609-588-7433.

CONTROL MEASURES

Precautions in Healthcare Facilities
(http://www.cdc.gov/flu/avian/professional/infect-control.htm)

Isolation precautions should be implemented for all hospitalized patients diagnosed with, or under evaluation for, suspect avian influenza A (H5N1), as follows:

1. **Standard Precautions**
   - Hand hygiene is absolutely essential:
     - Before and after all patient contact.
     - As soon as possible after contact with items contaminated or potentially contaminated with respiratory secretions.
2. **Contact Precautions**
   - Use gloves and gown for all patient contact.
   - Use dedicated equipment such as disposable blood pressure cuffs, stethoscopes, disposable thermometers or other equipment that can be disinfected before use with another patient.
3. **Eye Protection**
   - Wear goggles or face shields when within 3 feet of the patient.
4. **Airborne Precautions**
   - Place the patient in an airborne infection isolation room
   - Airborne infection isolation rooms should have monitored negative air pressure in relation to the corridor, with 6 to 12 air changes per hour, and should exhaust air directly to the outside or have recirculated air filtered by a high efficiency particulate air (HEPA) filter.
   - Keep the doors to the patient room closed; this protects other employees who are nearby.
   - If an airborne infection isolation room is unavailable, contact the healthcare facility engineer to assist or use portable HEPA filters (see Environmental Infection Control Guidelines at www.cdc.gov/ncidod/hip/enviro/guide.htm) to augment the number of air changes per hour.
   - Use a fit-tested respirator, at least as protective as a NIOSH-approved N-95 filtering face piece (i.e., disposable) respirator, when entering the room.
5. **Transmission Prevention Strategies in Healthcare Settings**
   - Place patients that are AI-infected and those that are suspected of being AI-infected together in the same room if private rooms are not available. This would only be a likely scenario if there were a major avian influenza outbreak in your area.
   - If possible, do not place patients with seasonal influenza and those with AI in the same room. Although the risk is relatively small, the sharing of the same room by such patients would increase the chances of co-infection of patients with the two viruses and this could lead to viral reassortment of genes and the possible emergence of a novel human-adapted virus.
   - Minimize transportation of influenza patients outside of their room.
   - Limit the number of healthcare workers caring for influenza patients.
   - Limit the number of patients who visit influenza patients.

Precautions should be continued for 14 days after onset of symptoms or until either an alternative diagnosis is established or diagnostic test results indicate the patient is not infected with influenza A virus. Children less than 12 years of age and those who are

immunosuppressed may shed virus for longer periods of time and may need to remain on the above precautions for up to 21 days after onset of symptoms.

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).

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

PHEL has the ability to conduct PCR testing (Laboratory Response Network approved) for influenza A H5 Asian lineage. Preliminary results can be obtained within a few hours after the specimen is received at PHEL. Confirmatory testing (i.e., viral culture) 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:

A. Nasopharyngeal (NP) and oropharyngeal (OP) swab
    - Collect specimen with a sterile Dacron/nylon swab with a non-wooden shaft (do

NOT use calcium alginate swabs or swabs with wooden sticks).

- For NP swab, insert swab into each nostril parallel to the palate and leave in place for a few seconds to absorb secretions. Swab both nostrils.
- For OP swab, swab the posterior pharynx and tonsillar areas, avoiding the tongue.
- Place swab immediately into sterile vials containing 2 ml of viral transport media.
- Label each specimen container with patient's FIRST AND LAST NAME, date of birth, medical record number, date of collection, specimen type and CDS approval number.
- Place specimen vial onto ice or in refrigerator prior to and during transport. Do not freeze.

B. Nasopharyngeal wash/aspirates

- Have the patient sit with head tilted slightly backward.
- Instill 1ml-1.5ml of nonbacteriostatic saline (pH 7.0) into one nostril.
- Insert the tubing into the nostril parallel to the palate.
- Aspirate nasopharyngeal secretions. Repeat this procedure for the other nostril.
- Rinse the catheter into viral transport medium (syringe or bulb) or aspirate viral transport media through catheter into collection trap.
- Label specimen container with patient's FIRST AND LAST NAME, date of birth, medical record number, date of collection, specimen type and CDS approval number.
- Place specimen vial onto ice or in refrigerator prior to and during transport. Do not freeze.

C. Broncheoaveolar 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®.
- Label specimen container with patient's FIRST AND LAST NAME, date of birth, medical record number, date of collection, specimen type and CDS approval number.
- Place specimen vial onto ice or in refrigerator prior to and during transport. Do not freeze.

D. Sputum

- Educate the patient about the difference between sputum and oral secretions.
- Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile screw-cap sputum collection cup or sterile dry container.
- Label specimen container with patient's FIRST AND LAST NAME, date of birth, medical record number, date of collection, specimen type and CDS approval number.

- Place specimen vial onto ice or in refrigerator prior to and during transport. Do not freeze.

E. Acute serum sample
   - Collect 5-10 ml whole blood in a serum separator or red top tube. Allow the blood to clot, centrifuge briefly, and collect all resulting sera in vial with external caps and internal O-ring seals. Refrigerate at 4C.
   - The minimum amount of serum needed for testing is 200 ml, which can easily be obtained from 5 ml of whole blood. A minimum of 1 cc of whole blood is needed for testing of pediatric patients. If possible, collect 1 cc in an EDTA tube and in a clotting tube. If only 1 cc can be obtained, use a clotting tube.
   - Label specimen container with patient's FIRST AND LAST NAME, date of birth, medical record number, date of collection, specimen type and CDS approval number.

F. 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.

G. 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 609-588-7500, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020. Additional information is available at: **http://www.hhs.gov/pandemicflu/plan/sup2.html#app5**

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 www.iata.org or www.hazmat.dot.gov.