

**Section 2: Surveillance and Laboratory Testing**

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### I. Overview

Established local and statewide surveillance systems are fundamental for detecting influenza activity, identifying the circulating strains, and monitoring the burden of influenza morbidity and mortality. Enhancing existing influenza surveillance networks can lead to rapid detection of a novel virus strain with pandemic potential. For this plan, the terms ‘novel virus strain’ or ‘novel influenza’ refers to a newly identified influenza virus strain with evidence of more than occasional human cases and some capacity for human to human transmission. The current surveillance and reporting criteria included is for the highly pathogenic avian influenza (HPAI) H5N1 strain circulating in Asia, Europe, the Middle East, and Africa as of June 2008.

This section on human case surveillance and laboratory testing will cover:

- Surveillance for human infection with H5N1 and a novel or pandemic strain of influenza.
- Laboratory diagnosis of human cases associated with a novel pandemic strain of influenza and H5N1,
- Human pandemic influenza, and
- Epidemiologic surge capacity.

### II. Objectives

- Ensure early detection of cases and clusters of respiratory infections that might signal the presence of a novel influenza virus or H5N1.
- Ensure laboratory resources are available to rapidly detect the introduction of a novel influenza virus or H5N1.
- If a novel strain of influenza or a case of H5N1 is confirmed, ensure prompt and complete identification and reporting of potential cases to facilitate control and management of local outbreaks.
- Once a pandemic has been confirmed, monitor:
  - Changes in the circulating virus, including development of antiviral resistance,
  - Impact on human health by conducting an ongoing assessment of the morbidity and mortality.

### III. Surveillance for Human Infection

The level of surveillance will depend on the global, regional, and local epidemiology of an influenza pandemic. Surveillance activities will be utilized within the framework of the pandemic phases as developed by the World Health Organization (WHO) as well as the pandemic intervals as developed by the Centers for Disease Control and Prevention (CDC) (see Section 2-VI). In addition, actions may be different if infections caused by a novel influenza virus occur in the United States or in another country or if person-to-person spread is slow, limited or widespread.

In conjunction with recommendations from other public health partners, such as CDC and WHO, NYSDOH will provide updated guidance to medical providers and local health departments on an ongoing basis. Activities outlined below will be contingent on local, national, and international influenza activity at the time and may change as a pandemic evolves.

### A. Components of Surveillance

In addition to surveillance activities conducted by local health departments (LHDs), the NYSDOH has been routinely coordinating a comprehensive statewide influenza surveillance system. These activities collect data from multiple partners throughout the state. Information compiled includes laboratory testing data, nosocomial outbreak reports, influenza-like illness by age group, hospitalizations, and pediatric deaths. These routine systems could be enhanced during an influenza pandemic. It is expected that all routine surveillance systems will function during all CDC intervals from Investigation through Resolution. Specific CDC intervals are indicated in parentheses when certain routine surveillance systems might be enhanced. The Regional Epidemiology Program, within the Bureau of Communicable Disease Control (BCDC), has supported a full-time influenza surveillance coordinator position for more than 12 years. Since 1999, the Regional Epidemiology Program has also supported a full-time coordinator position for the Sentinel Provider Influenza Surveillance Program.

- **Virologic Surveillance:**
  - **WHO and/or National Respiratory and Enteric Virus Surveillance System (NREVSS):** There are 13 laboratories in New York State that participate in either or both of these systems and report to CDC weekly throughout the influenza season (first week in October through third week in May). Eight of the 13 labs report year-round. CDC shares the data with NYSDOH. Data reported are the number of respiratory specimens tested and the number positive for influenza by type. Three of the 13 labs also report subtype. The percentage of specimens that are positive is also calculated. The labs send a subset of virus isolates to CDC each season for further analysis and characterization. In addition to providing information on when and where influenza activity is occurring, the data also identify which viruses are circulating. Outside of the above-mentioned influenza season, respiratory specimens from cases of influenza-like illness continue to be tested for influenza viruses at the State Public Health Laboratory, Wadsworth Center, throughout the year.
  - **Electronic Clinical Laboratory Reporting System (ECLRS):** Individual positive laboratory specimens are reported to NYSDOH via ECLRS by participating laboratories. ECLRS provides real-time data that allows daily assessment of when and where influenza activity is occurring. During the 2007-08 influenza season, there were approximately 150 ECLRS-participating laboratories reporting influenza. Many of the labs, including Wadsworth Center, report positive influenza laboratory specimens on ECLRS year-round. All reports

received outside the usual influenza season are investigated by BCDC staff to determine if they are true influenza cases; for example, confirmatory testing may be arranged through Wadsworth Center.

- **Outpatient Surveillance:**
  - **Surveillance for Influenza-Like Illness:** As of June 2008, there are 76 (1/150,000 population) medical providers throughout New York State, excluding New York City, participating in the U.S. Influenza Sentinel Provider Network (SPN). This level is above the CDC-recommended level of at least one sentinel provider per 250,000 persons. There is at least one sentinel located in 48 of the 62 NYS counties. During the influenza season they voluntarily report weekly the total number of patients seen and the number of patients presenting with influenza-like-illness (ILI) by age group. As of August 2007, 17 sentinels were reporting year-round. This data is analyzed weekly to assess influenza-like illness morbidity in the outpatient setting. Each provider is also allowed to submit up to six respiratory specimens throughout the season for viral testing at Wadsworth Center at no cost. During the 2007-08 season, 40 NYS and New York City sentinels submitted 118 specimens to the Wadsworth Center.
  - **LHD Telephone Emergency Department Contact Surveillance System:** This reporting system is available on the NYSDOH Health Information Network (HIN) for LHDs to report findings of daily contact with emergency departments. Alternative methods for reporting are by e-mail or voice mail on a dedicated phone line. The data are reviewed seven days a week by NYSDOH staff for any significant findings. Unusual illness reports and clusters are followed up by state and LHD epidemiologists. Identification of events after normal business hours that are of immediate public health importance or otherwise significant are phoned to the NYSDOH Duty Officer.
  - **Syndromic Surveillance:**
    - **Medicaid Prescription and Over-the-Counter Data:** Electronic data is received seven days a week for all prescription and over-the-counter medication prescribed for those enrolled in Medicaid. Data includes influenza antiviral prescriptions by zip code. This allows an assessment of antiviral use in the Medicaid outpatient community (it excludes antiviral medications that are administered to hospital inpatients and nursing home residents). Other categories of medications, such as those for cough and cold, may also be used as an indicator of respiratory illness.
    - **Electronic Emergency Department Syndromic Surveillance System:** One hundred thirty-five hospitals in 52 counties outside NYC currently submit an electronic file seven days a week with chief complaint for all patients presenting to the emergency department within the past twenty-four hours. Chief complaints are grouped into “syndromes,” including respiratory and

fever syndromes, to categorize clinical presentations of the patients seeking medical attention. Statistical methods are used to determine if there are any short-term or sustained increases in patients presenting with possible respiratory illness. Users can also view long-term syndrome trends which allow them to view seasonal variations within an historical context.

The New York City Department of Health and Mental Hygiene (NYCDOHMH) receives data for the previous 24 hours from 48 NYC emergency departments. Visits are also grouped into syndromes, including respiratory and fever-flu-like illness. Data is analyzed (citywide temporal trend analysis, spatial cluster analysis, and age-specific analysis) 365 days a year.

- **BioSense System:** NYSDOH uses the system which analyzes selected ICD-9 coded outpatient visits at Department of Defense ambulatory-care centers and Department of Veterans Affairs inpatient and outpatient discharge diagnosis.
- **Hospital/Healthcare Facility Surveillance:**
  - **Nosocomial Outbreak Reporting:** Under New York Code Rules and Regulations (NYCRR), Title 10, Sections 2.1, 2.2, 405.11, and 415.19, acute-care and long-term care facilities are required throughout the year to report any increased incidence in respiratory illness, including suspected and confirmed influenza outbreaks, to NYSDOH Bureau of Communicable Disease Control (BCDC). BCDC staff follow up on each report to ensure appropriate laboratory testing is conducted and outbreak control measures are implemented until the increased incidence or outbreak resolves. During the 2007-08 season, 280 reports of nosocomial laboratory-confirmed influenza were submitted to the NYSDOH from hospitals and nursing homes throughout the state.
  - **Weekly Influenza Hospitalizations:** During the influenza season, acute care facilities report weekly via the Healthcare Emergency Response Data System (HERDS) the number of inpatients with laboratory-confirmed influenza by age group. Weekly data analysis provides an indicator of severity of illness by age group. During the 2007-08 season, 213 acute care facilities reported to NYSDOH via HERDS.
  - **Emerging Infections Program (EIP) Pediatric and Adult Influenza Hospitalization Surveillance:**
    - **Prospective Surveillance:** Beginning with the 2003-04 influenza season, the NYSDOH EIP has been conducting active surveillance for laboratory-confirmed pediatric and adult influenza hospitalizations in 15 counties in the Capital District (8 counties) and Western (7 counties) regions. Data is captured for cases occurring between October 1 through April 30. EIP surveillance officers (SO) in these regions perform active influenza

surveillance by utilizing HERDS, ECLRS and CDESS. In addition, the SOs routinely communicate with hospital laboratories and infection control practitioners throughout the season. A case report form, which captures demographic information, vaccine history, underlying conditions, and testing methods used by the laboratory, is completed on each identified pediatric and adult influenza hospitalization. Data is entered into a database and transmitted to CDC weekly.

- **Retrospective Surveillance:** As part of a validation study, the SOs participated in a retrospective audit of pediatric influenza hospitalizations for seasons 2003-04 and 2004-05. The CDC provided a list of ICD-9 codes that corresponded with a wide range of symptoms including fever, pneumonia, and bronchiolitis (codes 480-486) as well as influenza (code 487). The goal was to identify children admitted to a hospital during flu season with confirmed influenza, but not captured through active surveillance methods. Using SPARCS data extracted by the Statistical Unit, the SOs reviewed approximately 400-600 charts each season, to identify additional cases. The extracted data was then transmitted to the CDC for aggregation with data from the other EIP sites. For the 2006-07 season, the NYS EIP conducted an audit on hospitalized, laboratory-confirmed adult cases of influenza, using similar procedures to those used in the pediatric validation study. Utilizing SPARCS data to identify records with ICD-9 codes 480-487 from Rochester and Albany area hospitals, over 535 medical charts were reviewed by the SOs in 2007. A total of 9 additional cases were identified through the audit. CDC is in the process of aggregating the data across the nine participating EIP sites and summarizing the results.
- **Pediatric Influenza Vaccine Efficacy Study:** Children, aged 6-59 months, hospitalized for influenza who reside in the 15-county Albany and Rochester surveillance area on the date of hospital admission are eligible for enrollment as cases. Case children are enrolled after consent to participate has been received from the child's parent or guardian. Attempts are made to enroll four children not hospitalized with influenza for each child hospitalized with an influenza infection to evaluate vaccine efficacy. Interviews are conducted with parents or guardians of cases and controls with vaccine and health histories obtained from the children's primary physicians. In 2006-07, the three children who were eligible for this study were enrolled along with 10 controls. Enrollment for the study for the 2007-08 influenza season is ongoing. This is the final season for study enrollment.

- **State-level Assessment of Influenza Activity:**

**State and Territorial Epidemiologists Report:** Current influenza activity level throughout the state is assessed weekly and reported to the CDC during the influenza season.

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### Definition of Influenza Activity Levels:

Activity Level	ILI activity/Outbreaks		Laboratory data
<b>No activity</b>	Low	<b>And</b>	No lab-confirmed cases
<b>Sporadic</b>	Not increased	<b>And</b>	Isolated lab-confirmed cases
	<b>OR</b>		
<b>Local</b>	Not increased	<b>And</b>	Lab-confirmed outbreak in one institution
	<b>OR</b>		
<b>Local</b>	Increased ILI in one region; ILI activity in other regions is not increased	<b>And</b>	Recent (within the past 3 weeks) lab evidence of influenza in region with increased ILI
	<b>OR</b>		
<b>Regional</b>	2 or more institutional outbreaks (ILI or lab-confirmed) in one region; ILI activity in other regions is not increased	<b>And</b>	Recent (within the past 3 weeks) lab evidence of influenza in region with the outbreaks; virus activity is no greater than sporadic in other regions
	<b>OR</b>		
<b>Regional</b>	Increased ILI in $\geq$ two but less than half of the regions	<b>And</b>	Recent (within the past 3 weeks) lab confirmed influenza in the affected regions
	<b>OR</b>		
<b>Regional</b>	Institutional outbreaks (ILI or lab confirmed) in $\geq$ two and less than half of the regions	<b>And</b>	Recent (within the past 3 weeks) lab confirmed influenza in the affected regions
	<b>OR</b>		
<b>Widespread</b>	Increased ILI and/or institutional outbreaks (ILI or lab confirmed) in at least half of the regions	<b>And</b>	Recent (within the past 3 weeks) lab confirmed influenza in the state.

- **Mortality Surveillance:**

- **Surveillance for Influenza and Pneumonia Deaths:** As part of the 122 Cities Mortality Reporting System for pneumonia and influenza deaths, eight cities in NYS (Albany, Buffalo, NYC, Rochester, Schenectady, Syracuse, Utica, and Yonkers) report weekly to CDC the total number of deaths and those with influenza or pneumonia listed as a contributing cause of death. All the cities except NYC and Yonkers report their data to NYSDOH as well.
- **Pediatric Influenza-Associated Deaths:** Medical providers are required by regulation to report by telephone any suspected or confirmed influenza-associated deaths in patients less than 18 years of age to the LHD where the patient resides. If an autopsy is performed, the NYSDOH works with the LHD and the pathologist or medical examiner to have specimens sent to Wadsworth Center for forwarding to the Infectious Disease Pathology Branch at CDC as specified in Appendix 2-A. During the 2007-08 influenza season, three influenza-associated pediatric deaths were reported to NYSDOH. NYSDOH reported the three cases

to CDC. During the 2007-08 influenza season, five influenza-associated pediatric deaths were reported to NYCDOHMH, which reported the NYC cases to CDC.

- **Hospital and Nursing Home Deaths:**

Using HERDS, NYSDOH is able to implement electronic reporting of hospital and nursing home-based influenza deaths and denominator death rates. Automated means of populating this application are being explored.

- **Death Certificates:**

The NYSDOH Bureau of Vital Statistics mails copies of death certificates having influenza or pneumonia listed as the underlying or contributing cause of death to the Division of Epidemiology on a weekly basis. Division staff extract pertinent data from the death certificate and enter it into an ACCESS database. From January 1, 2007 through December 31, 2007, 7 deaths due to influenza and 9,559 deaths due to pneumonia were reported in New York State excluding New York City.

- **Coordination with Animal Health Surveillance Systems:**

Redundant electronic and phone communication systems have been established between NYSDOH, NYS Department of Agriculture and Markets (NYSDAM), and NYS Department of Environmental Conservation (NYSDEC). The coordination is detailed in Section 12.

### **B. Enhanced Surveillance Activities**

Surveillance activities will be modified based on the WHO phase and CDC interval of novel or pandemic influenza activity. Following is a list of enhanced influenza surveillance activities that could be initiated as needed throughout the intervals of a pandemic.

- **Virologic Surveillance:**

- Increase the number of specimens to be submitted through the SPN by providing testing for SPN-submitted specimens beyond the influenza season (all intervals).
- Expand laboratory-confirmed influenza reporting from ECLRS-participating laboratories to all laboratories. Although the laboratory-confirmed influenza reporting regulation as of December 2004 was implemented by requiring only ECLRS-participating laboratories to report, the regulation does allow NYSDOH to mandate the complete spectrum of communicable disease reporting (all intervals).
- Electronically reported ECLRS data will be the primary surveillance method used to determine where laboratory-confirmed influenza is circulating in NYS during the following intervals:

- **Interpandemic (interval Investigation)**
- **Pandemic Alert and *No Evidence of H5N1 or Novel Influenza Virus in New York State* (interval Investigation and Recognition)**
- **Pandemic (interval Recognition, Initiation, Acceleration, Peak, Deceleration, Resolution )**

**During the Pandemic Alert and Pandemic Periods with Evidence of H5N1 or Novel Influenza Virus in New York State (interval Investigation and Recognition):**

NYSDOH Wadsworth Center laboratory results, which are reported on ECLRS, will be the primary surveillance method used to determine where laboratory-confirmed H5N1 or novel influenza is circulating in New York State.

- **Outpatient Surveillance:**
  - Implement provider influenza case reporting as necessary during the intervals Investigation, Recognition and Initiation prior to the novel influenza strain or H5N1 being identified in NYS. Cases and/or clusters may be investigated by LHD or NYSDOH to determine attack rate and case fatality rate. During the intervals Acceleration, Peak, Deceleration and Resolution, providers may be asked to report cases of pandemic influenza with an unusual clinical presentation. It is not expected that provider individual case reporting will be a primary method for surveillance during the intervals Acceleration, Peak, Deceleration and Resolution.
  - Recruit additional sentinel surveillance providers, as either permanent participating providers in the SPN or for short-term reporting on an as-needed basis, to report aggregate data for the number of persons with ILI and total number of patients seen by age group, to calculate ILI attack rate (all intervals). Alternative methods to collect ILI data either through data entry on the NYSDOH HPN or telephone reporting using an integrated voice response (IVR) system could be considered (Acceleration, Peak, Deceleration, Resolution). Since it is expected that there will be staffing shortages during a pandemic, recruiting of medical providers would focus on those providers with electronic data systems and/or active HPN accounts (Acceleration, Peak, Deceleration). Data will be analyzed daily (Acceleration, Peak, Deceleration).
  - Consider enhanced disease surveillance at points of entry to the country/state (airports, seaports, and/or other ports), if an influenza pandemic begins outside the United States (see Section 8) (Investigation, Recognition, Initiation).

- **Hospital/Healthcare Facility Surveillance:**
  - Modify HERDS influenza hospitalization data reporting as necessary to determine attack rate among hospital admissions, case fatality rate, and other aspects of novel and pandemic influenza illness. Data collected and frequency of reporting can be adjusted as indicated to monitor the pandemic and ensure recommended surveillance and control measures are appropriate. It is anticipated that during widespread pandemic influenza activity, HERDS hospitalization data will be the primary surveillance method used to assess severity of illness (Acceleration, Peak, Deceleration, Resolution).
  - The EIP hospitalization project in the EIP catchment area has been expanded to include adults (Investigation).
  - Local and/or state health department staff will participate in CDC active hospital-based hospitalization surveillance initiatives, which may include specimen collection and virologic testing from a subset of patients (Acceleration, Peak, Deceleration, Resolution).
- **State-level Assessments:**
  - **State and Territorial Epidemiologists Report** - Current influenza activity level throughout the state will continue to be assessed weekly but reported to the CDC year-round (Acceleration, Peak, Deceleration, Resolution).
- **Mortality Surveillance:**
  - Expand reporting of influenza-associated deaths beyond the pediatric age group as needed based on the analysis of the current epidemiologic data and/or CDC case definitions (Initiation, Acceleration, Peak, Deceleration, Resolution).
  - Implement a HERDS reporting system for hospitals and nursing homes to report daily aggregate data on the number of suspected and confirmed influenza-associated deaths and total number of deaths. It is anticipated that this electronic reporting system will be the primary method to collect daily data necessary to monitor the mortality of the pandemic (Initiation, Acceleration, Peak, Deceleration, Resolution).
  - Convert from a paper-based to an electronic death certificate reporting system. The NYSDOH is currently drafting a Request for Proposals (RFP) in anticipation of contracting with a software vendor to help the department convert to an electronic system. Once implemented, this will allow reporting of any death within one to two days of date of death (all intervals). If an electronic system cannot be implemented before a pandemic occurs, Division of Epidemiology staff will visit the Bureau of Vital Statistics to obtain copies of death certificates

- having influenza or pneumonia listed as the underlying or contributing cause of death as well as total number of death certificates received in a given time period. Division staff will extract pertinent data from the death certificate and enter it into an ACCESS database. It is expected that such mortality data will be able to be reported within one to two weeks of date of death (Initiation, Acceleration, Peak, Deceleration, Resolution).
- Provide mortality and case fatality rate data to CDC as needed to help guide national response measures. Case definitions and reporting procedures will be communicated by CDC via Epi-X (Initiation, Acceleration, Peak, Deceleration, Resolution).
  - Participate in national and international surveillance activities as indicated (all intervals).
  - **Coordination with Animal Health Surveillance Systems:**  
Redundant electronic and phone communication systems have been established between NYSDOH, NYS Department of Agriculture and Markets (NYSDAM), and NYS Department of Environmental Conservation (NYSDEC). The coordination is detailed in Section 12.

### **C. Criteria for Assessing and Reporting Possible Novel or Pandemic Influenza Cases**

NYSDOH will develop and distribute to healthcare providers the current CDC and NYSDOH recommendations for enhanced surveillance, case reporting, and laboratory testing for novel or pandemic influenza cases (all intervals). Criteria may need to be modified throughout the intervals according to the circulating virus and the known epidemiology of the infection at that time. Cases and/or clusters may be investigated by LHD or NYSDOH to determine attack rate and case fatality rate. It is anticipated that individual case reporting will not be feasible during the Acceleration, Peak, Deceleration and Resolution intervals. Surveillance during those intervals will focus on data collection mechanisms to assess morbidity and mortality. Select individual case investigations during those intervals may need to be conducted to guide prevention and control recommendations.

#### **During the Investigation, Recognition and Initiation intervals,**

the criteria as of June 2008 are based on the current information known about the H5N1 influenza virus, and are based on guidance provided by CDC in the CDC Health Update dated June 7, 2006 entitled *Updated Interim Guidance for Laboratory Testing of Persons with Suspected Infection with Avian Influenza A(H5N1) Virus in the United States*, available at: <http://www2a.cdc.gov/han/ArchiveSys/ViewMsgV.asp?AlertNum=00246>. Should a novel virus other than H5N1 emerge, criteria would be based on recommendations issued by CDC.

- **Criteria for Assessing and Reporting Possible Influenza A(H5N1) Virus**

Providers should question all patients who present to healthcare settings with fever and respiratory symptoms regarding possible travel and occupational exposure to influenza A(H5N1) (see Appendix 2-B: Surveillance and Reporting Criteria, and Section 5: Clinical Guidelines). Testing for avian influenza A(H5N1) virus infection is recommended for:

A patient who:

- Has an illness that requires hospitalization or is fatal; **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 alternate diagnosis has not been established; **AND**
- Has at least one of the following potential exposures within 10 days of symptom onset:
  - 1) History of travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans<sup>1</sup>, **AND** had at least one of the following potential exposures during travel:
    - direct contact with (e.g., touching) sick or dead domestic poultry;
    - direct contact with surfaces contaminated with poultry feces;
    - consumption of raw or incompletely cooked poultry or poultry products;
    - direct contact with sick or dead wild birds suspected or confirmed to have influenza H5N1;
    - close contact (approach within 1 meter [approx. 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness;
  - 2) Close contact (approach within 1 meter [approx. 3 feet]) of an ill patient who was confirmed or suspected to have H5N1;
  - 3) Worked with live influenza H5N1 virus in a laboratory.

Patients meeting the clinical and epidemiologic criteria above should be reported immediately to the LHD.

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<sup>1</sup> For a listing of influenza H5N1-affected countries, visit the CDC website at <http://www.cdc.gov/flu/avian/outbreaks/current.htm>; the OIE website at [http://www.oie.int/eng/en\\_index.htm](http://www.oie.int/eng/en_index.htm); and the WHO website at [http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/).

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

- A patient with mild or atypical disease<sup>2</sup> (hospitalized or ambulatory) who has one of the exposures listed above (criteria 1, 2, or 3); **OR**
- A patient with severe or fatal respiratory disease whose epidemiological information is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above (examples include: a returned traveler from an influenza H5N1-affected country whose exposures are unclear or suspicious, a person who had contact with sick or well-appearing poultry, etc.).

**During the Investigation, Recognition, Initiation and early Acceleration intervals**, patients meeting the clinical and epidemiological criteria determined at that time should be reported immediately to the LHD. Once the Initiation interval has begun, it is expected that it would be only a brief period of time before the virus is identified in NYS. Therefore it is anticipated that individual case reporting of suspect cases will be brief and will occur during the Recognition, Initiation and early Acceleration intervals.

**During the Acceleration, Peak, Deceleration and Resolution intervals**, individual case reporting will likely be suspended. The local and/or state health department will investigate any unusual cases reported by medical providers. In NYC, web-based reporting will be available for provider reporting. Outside NYC, hospital infection control practitioners are able to report individual cases of influenza through the NYSDOH Communicable Disease Electronic Surveillance System (CDESS).

- **Reporting:**

**Providers should report any patients meeting the clinical and epidemiologic criteria for influenza A(H5N1) or a novel influenza illness based on the current pandemic period to the LHD immediately.**

**Reporting Methods:**

- Healthcare providers should immediately report any patient meeting the surveillance and reporting criteria for novel influenza or influenza A(H5N1) to the LHD.
- If unable to reach the LHD, contact the NYSDOH: During business hours contact the appropriate Regional Epidemiologist. If unavailable, contact the BCDC at (518) 473-4436.
  - Outside of business hours, contact the NYSDOH After-Hours Duty Officer at 1-866-881-2809.
  - In New York City, during business hours, contact the NYCDOHMH through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641). At all other times, call the Poison Control Center at 1-212-764-7667.

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<sup>2</sup> For example, a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurologic or gastrointestinal symptoms in the absence of respiratory disease

- The NYSDOH Human Influenza A(H5) Case Report Form (Appendix 2-C) or other form being used at the time of the report should be completed immediately and forwarded to the LHD.
- **LHD Surveillance and Control Activities during Periods of Individual Case Reporting:**
  - Receive reports from healthcare providers of potential human novel influenza cases to determine if the patient meets the surveillance criteria using the Human Influenza A(H5) Case Screening Form (Appendix 2-D).
  - If the patient meets the surveillance and reporting criteria for a potential human influenza A(H5) virus infection, review appropriate infection control precautions with the medical provider (see Sections 4 and 8).
  - Investigate cases or clusters of ILI..
  - Vaccination of Health-Care Workers against Human Influenza  
Health-care workers involved in the care of patients with documented or suspected avian influenza should be vaccinated with the most recent seasonal human influenza vaccine. In addition to providing protection against the predominant circulating influenza strain, this measure is intended to reduce the likelihood of a health-care worker's being co-infected with human and avian strains, where genetic rearrangement could take place, leading to the emergence of a potential pandemic strain.
  - Review with providers infection control and surveillance and monitoring of health-care worker illness as detailed in Section 4.
  - Home isolation may be employed early during an influenza pandemic, as outlined in Section 8, Community Containment, to slow the spread of influenza in communities. See Section 8 for patient management in the home.
  - Patients meeting the current surveillance case definition, or those with an influenza infection with an unusual clinical presentation should be interviewed using the NYSDOH Human Influenza A(H5) Case Report Form (Appendix 2-C) or other form being used at that time of the report to determine possible risk factors and mode of transmission. When indicated in Section 8, use the Pandemic Influenza Contact Record form (Appendix 8-C) to identify close contacts.
  - Report immediately by telephone to the appropriate NYSDOH Regional Epidemiologist or BCDC any patient who meets the human influenza A(H5) surveillance criteria based on the period of the pandemic (Appendix 2-B).
  - The report should be initiated on the NYSDOH CDESS. If influenza testing at Wadsworth is indicated, the Health Information Network (HIN) identification

- number generated needs to be included on all paperwork associated with the case, including the lab specimen submission form.
- In conjunction with the NYSDOH, ensure that appropriate specimens are collected and shipped for testing at Wadsworth (see Section 2-IV and Attachments 2-E and 2-F).
  - Surveillance of contacts of cases infected with a novel influenza virus may be helpful in *early* control efforts (Investigation, Recognition, Initiation). When contact identification and management is indicated, surveillance of contacts will be conducted by LHDs, with assistance from the NYSDOH as needed (see Section 8).
  - Quarantine may be employed early during a flu pandemic to slow the spread of influenza in communities (see Section 8).
  - **NYSDOH Activities:**
    - Immediately report to the appropriate NYSDOH Regional Office and LHD any patients meeting the surveillance and reporting criteria that are reported by the medical provider directly to NYSDOH.
    - Wadsworth Center will notify NYSDOH BCDC if laboratory specimens are received on patients for whom there is no HIN identification number included with the paperwork. If the case has not been reported on the HIN, NYSDOH BCDC will notify the appropriate Regional Office and/or LHD for follow up.
    - Report, on a daily basis, suspected and confirmed cases of novel influenza infection to the CDC Emergency Response Hotline to obtain a CDC case ID number. Redacted case report forms will be faxed to CDC. Laboratory results for suspected and confirmed cases of H5N1, using the LRN H5 assay, will be reported to CDC within 2 hours of obtaining a high-confidence positive result via the LRN Results Messenger electronic reporting system.

### D. Surveillance in Specialized Populations

- Institutionalized Populations:

Under NYCRR, Title 10, Section 2.16, facilities operated by NYS agencies are required to report outbreaks of communicable diseases to the NYSDOH and to their LHD. This includes state-operated correctional facilities, residential facilities for persons with mental illness, and residential facilities for persons with mental retardation or developmental disabilities. In NYS, all the state agencies that operate or license such facilities have strong reporting relationships with the NYSDOH in regard to communicable disease cases, clusters or outbreaks. The agencies also routinely consult with the NYSDOH on prevention and control measures for communicable diseases. The NYSDOH is providing guidance to all these state

agencies and to the local health departments regarding the surveillance and reporting of novel or pandemic influenza (all intervals).

- **Elderly Populations:**  
Under NYCRR, Title 10, Sections 2.1, 2.2, and 415.19, long-term care facilities are required to report an increased incidence of infections, including nosocomial infections, to the NYSDOH. Each time a long-term care facility reports to the NYSDOH, BCDC staff provide consultation including recommendations for appropriate laboratory testing and disease control measures. Because of this reporting requirement, the NYSDOH has a well-established history of interacting with long-term care facilities on communicable disease issues. The NYSDOH routinely provides prevention and control guidelines to these facilities for many of the communicable diseases, including influenza, and is now providing guidance regarding the surveillance and reporting of novel or pandemic influenza (all intervals).
- **Children:**
  - Ten of the 13 WHO and NREVSS laboratories that report influenza testing weekly during influenza season or year-round to CDC and the NYSDOH are tertiary care medical centers that contain pediatric units and/or pediatric ICU's. It is anticipated that these medical centers and laboratories would be among the first to identify children in NYS infected with a novel or pandemic influenza strain as well as estimate attack rate among pediatric populations (all intervals).
  - There are three pediatric long-term care facilities located in NYS. As detailed in the section above, long-term care facilities are required to report an increased incidence of infection, including nosocomial infections, to the NYSDOH. Experience with nosocomial reporting by the pediatric long-term care facilities over the years has shown that these facilities often act as "sentinels" of respiratory viruses circulating in the pediatric population. These facilities have frequently reported nosocomial cases or outbreaks of respiratory viruses including influenza, parainfluenza virus, respiratory syncytial virus, adenovirus, and human metapneumovirus (all intervals).
  - Pediatric sentinel providers – as of April 2008, 15 sentinel influenza surveillance providers are pediatric practices and 16 sentinels are elementary or secondary school-based health centers (all intervals).

#### **IV. Laboratory Diagnosis of Novel Human Influenza**

The following describes the procedures for submitting samples to the Virus Reference and Surveillance Laboratory at the Wadsworth Center for influenza virus molecular detection and subtyping. Submitters should familiarize themselves with the testing capability of their local laboratory and utilize that facility when appropriate services are available. It should be noted that the laboratory procedures used for testing may change

depending on the characteristics of the pandemic strain. During the early phases of the pandemic (*Intervals Investigation, Recognition, Initiation*) influenza type and subtype-specific RT-PCR testing on suspected cases will be performed at the Wadsworth Center. The Wadsworth Center will communicate with the CDC and forward samples for confirmatory testing when appropriate.

- **Samples for testing and surveillance**

The Wadsworth Center laboratory receives samples for testing for respiratory viruses from multiple sources.

- **Sentinel surveillance program.** Providers participating in the CDC Influenza Sentinel Provider Network are asked to send up to six specimens per season to the Wadsworth Center for detection and typing. During the 2007-08 respiratory season, 118 submissions were received from 40 sentinels.
- **Outbreak investigations.** The Wadsworth Center laboratory works closely with epidemiologists in the NYSDOH and NYCDOHMH to detect and type respiratory viruses in reported outbreaks, especially in residential care facilities.
- **Suspected cases of avian influenza or other novel influenza virus.** For patients meeting surveillance criteria or after consultation with the NYSDOH Regional Epidemiology Program, the Wadsworth Center will conduct appropriate molecular testing and send samples to the CDC, as necessary for additional or confirmatory testing on patients suspected of infection with a novel influenza virus. Additional clinical specimens may be collected and forwarded to the CDC for testing including autopsy specimens and serum.
- **Reference function.** Wadsworth Center regularly receives influenza isolates from commercial and hospital laboratories that do not have sub-typing capability.

- **Diagnostic assays that are used on samples received from NYS patients**

- The following procedures are performed for routine influenza diagnostics (*Investigation, Recognition*)
  1. A real-time RT-PCR assay for detection of influenza A and influenza B viruses are performed on the sample. The influenza A assay is generic, and based on an analysis of sequences currently stored in public databases, and is designed to detect all sub-types of the virus including A/H5N1. The results are available within 24 to 72 hours.
  2. Any specimen positive for influenza A (with sufficient viral load) is sub-typed with molecular assays for H1, H3, N1, and N2. The results are available within 3 to 10 days.

3. Routinely, the specimens are inoculated into cell types that support replication of respiratory viruses and appropriate confirmatory testing is performed as needed. Results are available within 2 to 14 days.
  4. If not sub-typed on the primary specimen, influenza A isolates from cell culture are sub-typed with molecular assays for H1, H3, N1, and N2. The sub-typing results are available within 10 to 21 days.
  5. Molecular assays are also available to detect the presence of respiratory viruses including parainfluenzaviruses, rhinoviruses, adenoviruses, enteroviruses, respiratory syncytial viruses and human metapneumoviruses. These assays will be used as appropriate for epidemiological purposes. Additionally, once the presence of avian influenza virus has been ruled out, culture will be performed to detect the presence of other respiratory viruses.
  6. Additionally, a portion of influenza positive samples are tested by sequencing of the NA and matrix genes for the presence of drug resistance mutations.
    - If the sample is from a patient who meets the CDC criteria for a suspected case of highly pathogenic avian influenza virus, the following procedures are followed (*Investigation, Recognition, Initiation, Acceleration*)
      1. Samples are not inoculated into cell culture.
      2. The real-time RT-PCR detection assays for influenza A and B are performed concurrently with sub-typing molecular assays for H1, H3, H5 and H7. Additionally, if these test results suggest the presence of a novel influenza virus (i.e. not H1 or H3) a portion of the original sample is sent to CDC for confirmatory testing.
      3. Concurrent with the influenza molecular assays, additional molecular assays are performed to test for the presence of other respiratory viral agents to facilitate a rapid diagnosis in suspected cases.
      4. If an H5 influenza virus is shown not to be present, the sample is inoculated into cell culture.
- **Method and timing of specimen collection** (*all intervals*)
    - Respiratory specimens should be collected within 72 hours of symptom onset and transported quickly to the Wadsworth Center on ice packs at 4°C. If transport is not possible within 48 hours, samples should be frozen at -70°C and transported on dry ice. Do not freeze at -20°C.
    - Collect one specimen set for submission to the Wadsworth Center for molecular testing. The specimen set should consist of one nasopharyngeal swab, aspirate or

- wash and one oropharyngeal (throat) swab. Use only Dacron, rayon, or flocked swabs with a plastic shaft for oropharyngeal swab, and a fine-tip flexible shaft swab for nasopharyngeal swab. Do not use calcium alginate or wooden-shafted swabs.
- All specimens must be clearly labeled with the patient identifier, type of specimen, and date and time of collection.
  - Acceptable respiratory specimens include:
    - **Nasopharyngeal swab:** Use a swab with a long fine, flexible shaft; either Dacron or rayon with a metal shaft, or flocked tip with a plastic shaft. Insert swab into posterior nasopharynx. Rub swab against mucosal surface and leave in place for 5 seconds to absorb secretions. Collection of specimens from both nostrils increases amount of material available for analysis. Place swab in a vial of viral transport medium. Use scissors to cut the shaft if metal, snap if plastic, so top of vial can be screwed on tightly.
    - **Oropharyngeal (throat) swab:** Use only sterile Dacron, rayon, or flocked swabs with plastic shafts. Swab both posterior and tonsillar areas, avoiding the tongue. Place swab in a vial of viral transport medium and break shaft.
    - **Nasopharyngeal aspirate:** Requires source of suction (syringe, vacuum pump, or wall suction), specimen trap with two outlets, and catheter (no. 6 to 14 depending on size of patient). Without applying suction, insert catheter through nose into posterior nasopharynx (approximately the distance from tip of the nose to the external opening of the ear when measured in a straight line). Apply gentle suction, leaving catheter in place for a few seconds, then withdraw slowly. Suction contents of a vial of viral transport medium or non-bacteriostatic saline through catheter tubing to assist in moving material from tubing into trap and to add viral transport media to specimen. Transfer specimen to a sterile screw cap tube for transport to laboratory.
    - **Nasopharyngeal wash:** Use rubber bulb (1-2oz for infants) or syringe to instill 3-5 ml of non-bacteriostatic saline into one nostril while occluding the other. If patient is able to cooperate, instruct them to close glottis by making a humming sound with mouth open. If a rubber bulb is used, release pressure on bulb to allow saline and mucus to enter bulb. Remove from nose and squeeze into vial of transport medium. If syringe is used, apply suction to syringe to recover saline and nasal secretions. Alternately, hold sterile container, such as a urine cup, under patient's nose and ask patient to expel material into it. In either case, add recovered saline-nasal secretions to a vial of viral transport medium.

Additional note: While it appears that lower respiratory tract secretions may have a higher viral load than upper respiratory secretions in patients infected with the

avian influenza A(H5N1) virus or other novel influenza viruses, collecting such specimens may present a risk to health care providers. **If appropriate personal protective equipment is not available (see Section 4), lower respiratory tract secretions should NOT be collected and sample collection should be restricted to nasopharyngeal and oropharyngeal specimens as described above.**

Clinical laboratories may perform a rapid influenza antigen detection assay using standard BSL-2 work practices in a Class II biological safety cabinet. If meeting case criteria for suspected avian or novel influenza, specimens should still be referred to the Wadsworth Center for testing, regardless of the rapid EIA result.

Obtain a blood specimen (not anti-coagulated) from the suspect case, separate serum by centrifugation, and submit the serum, not the blood sample, along with the respiratory samples. In addition to the patient identifier, label the serum with the date and time of collection. Serum samples will be stored at Wadsworth until forwarding is requested by the CDC.

- **Samples that will not be tested** (*all intervals*)
  - Samples with insufficient volume.
  - Samples that are leaking since they are a safety hazard to laboratory staff.
  - Samples shipped at room temperature because of the potential for false-negative results.
  - Improperly labeled samples may be tested, but the report will not be released until the required information is obtained.
- **Forms to be submitted with specimens sent to the Wadsworth Center** (*all intervals*)

The Wadsworth Center Virus Detection History Form must be completed. The form is available as Attachment 2-F. The completed form must be shipped with the sample. Place the completed form in a plastic bag on top of the outer shipping container but inside the cardboard box before sealing.

- **How to ship specimens to the Wadsworth Center** (*all intervals*)
  - It is essential that specimens be sent to the Wadsworth Center as soon as possible after collection. If shipped within 48 hours of collection, ship with cold packs to keep sample at 4°C. Do NOT use wet ice. If shipment is delayed more than 48 hours, then the specimens should be frozen at -70°C and shipped on dry ice. All original paperwork must be complete and accompany each specimen.

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- Packaging, shipping and transport of specimens from influenza cases must follow the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations. The following resources will be useful: (<http://www.iata.org/dangerousgoods/index>) and US DOT 49 CFR Parts 171-180 (<http://hazmat.dot.gov/rules.htm>).
- All influenza specimens must be shipped in accordance with IATA packing instructions 650 as a "Biological substance, category B." Appropriate UN/IATA certified shipping materials must be used. Diagnostic specimens transported under the IATA Regulations are assigned to UN Identification number 3373. Follow the step-by-step packaging guidelines given in "Packing Diagnostic Specimens for Transport: Summary Instructions" at <http://www.cdc.gov/ncidod/sars/pdf/packingspecimens-sars.pdf>. It should be noted that if shipment on dry ice is necessary, IATA hazardous material regulations should be followed.
- Prior to shipment of a specimen from a patient meeting the CDC case criteria for suspected highly pathogenic avian influenza, medical providers must contact the LHD or appropriate NYSDOH Regional Epidemiologist, who will arrange testing with the Wadsworth Center if appropriate. **Do not send these specimens to the Wadsworth Center without prior notification.**
- Note that it is the shipper's responsibility – not the transport company's – to provide the appropriate packaging materials and documentation that complies with the IATA regulations. Apart from the materials provided to participants in the Sentinel Provider Influenza Surveillance Network, the Wadsworth Center does NOT routinely provide shipping materials for influenza testing.
- All specimens must be shipped "Priority Overnight" and received within 24 hours via chosen carrier. Confirm that the selected carrier guarantees next day, morning delivery for diagnostic specimens.
- Samples should be shipped to:

Wadsworth Center, NYSDOH  
Griffin Laboratory  
Virus Reference and Surveillance Laboratory  
5668 State Farm Road (Route 155)  
Slingerlands, NY 12159

- **When to ship specimens to Wadsworth Center** (*all intervals*)

The Wadsworth Center laboratory performs routine influenza testing during regular working hours Monday through Friday. Specimens should therefore ONLY be shipped Sunday - Thursday so that appropriate laboratory personnel can be present to accept and process specimens. Samples should not be shipped to arrive on a public

holiday. However, arrangements will be made to perform urgent testing for suspected avian or novel influenza cases outside of business hours. The NYSDOH Regional Epidemiology Program, in collaboration with the Wadsworth Center, must give prior approval for such after hours testing, before shipment of specimens.

- **Receipt of specimens** (*all intervals*)
  - When specimens for influenza testing are received at the Wadsworth Center, the specimen will be accessioned and entered into the clinical laboratory information management system (CLIMS).
  - Once accessioned, the record will be uploaded to the NYSDOH Electronic Clinical Laboratory Reporting System (ECLRS) by 8:00AM daily.
- **Reporting of results** (*all intervals*)
  - Influenza test information will be reported through ECLRS to the LHD and a paper report sent to submitters.
  - Results are uploaded to ECLRS by 8:00AM daily.
  - It should be noted, therefore, that multiple report updates are issued for each sample.
    - The first report will be at the level of influenza A or B virus detection based on the real-time RT-PCR assay.
    - If the influenza A test is positive, a second report will be issued with the sub-typing result.
    - The final reports will be marked as such.
  - For specimens received during the Acceleration, Peak and Deceleration intervals, it is likely that only subtype-specific testing will be performed and one report issued.
- **Safety precautions to be taken while handling specimens in the laboratory** (*all intervals*)
  - Guidance for handling respiratory secretions from patients who are suspected of being infected with influenza virus but **who do not meet the CDC criteria for suspected HP avian influenza virus**:

The following should be performed in BSL-2 facilities with standard BSL-2 practices:

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- Pathological examination and processing of formalin-fixed or otherwise inactivated tissues.
- Molecular analysis of extracted nucleic acid preparations.
- Electron microscopic studies with glutaraldehyde-fixed grids.
- Routine staining and microscopic analysis of fixed smears.
- Final packaging of specimens for transport to diagnostic laboratories for additional testing. Specimens should already be in a sealed, decontaminated primary container.

The following activities involving untreated specimens should be performed in a BSL-2 facility AND in a Class II biological safety cabinet:

- Aliquoting or diluting specimens.
- Inoculation and maintenance of virus cultures with the original diagnostic specimen or the culture amplified isolate.
- Nucleic acid extraction procedures involving untreated specimens.
- Based on CDC guidance, rapid EIA commercial influenza antigen detection assays.

Laboratory workers should wear protective equipment, including disposable gloves and gowns. Work surfaces should be decontaminated upon completion of work with appropriate disinfectants and all disposable waste autoclaved.

Any procedure or process that cannot be conducted within a biological safety cabinet requires the use of the appropriate combinations of personal protective equipment (e.g., respirators and face shields) and physical containment devices (centrifuge safety cups or sealed rotors). Centrifugation should always be carried out using aerosol-sealed centrifuge cups and rotors that are loaded and unloaded in a biological safety cabinet.

- Guidance for handling respiratory secretions from patients **meeting CDC criteria for suspected HP avian influenza** (*all intervals*):
  - These specimens must **NOT** be inoculated into cell culture.
  - If the laboratory has the capability of performing molecular detection, nucleic acid to be used in the assay may be extracted in a BSL-2 facility using a Class II biological safety cabinet and appropriate personal protective equipment. It should be noted that for molecular analysis of potential influenza A/H5 (Asian lineage) strains, the CDC recommends that procedures should be performed using BSL-2 facilities and BSL-3 practices.
  - After consultation with and approval by the Regional Epidemiology Program, the original specimen should be forwarded to the Wadsworth Center for analysis.
  - An occupational health plan should be in place such that laboratory workers are regularly monitored for symptoms of respiratory infection. Detailed information about occupational health protection from avian influenza viruses in the laboratory can be found at the following Wadsworth Center web site: [http://www.wadsworth.org/events/sars/SARS\\_Protocol.pdf](http://www.wadsworth.org/events/sars/SARS_Protocol.pdf).

- **Laboratory surge capacity** (*Acceleration, Peak, Deceleration*)
  - The NYSDOH Wadsworth Center is capable of performing real-time molecular assays for the identification of H1, H3, H5 and H7 subtypes of the influenza virus using both the LRN H5 kit and the influenza protocols released to public health laboratories by the Association of Public Health Laboratories (APHL).
  - To enhance the regional capacity of laboratory testing to meet the needs of the jurisdiction, the Wadsworth Center has provided training and proficiency testing to Biodefense staff at the two NYS Regional LRN Reference Laboratories located at the Erie County Public Health Laboratory and the Westchester County Department of Laboratories and Research, for the LRN H5 kit. Through the CDC Emergency Preparedness Cooperative Agreement, NYS DOH has contractual agreements with both locations to provide regional surge capacity testing once the pandemic strain has been characterized and the LRN H5 kit determined to be sensitive for its detection.
  - Within the Wadsworth Center's Continuity of Operations Plan (COOP), additional staff have been identified and cross-trained for assistance with surge testing. Should an increased demand for diagnostic testing arise that requires surge staff, the Laboratory Chief responsible for clinical virology testing will work with the Wadsworth Center senior administration to begin call-down procedures to activate personnel.
- **Contact for additional information** (*all intervals*)

Griffin Laboratory, Wadsworth Center, 518-869-4500 (business hours Monday-Friday) or the NYS After Hours Duty Officer at 866-881-2809 (non-business hours).

### V. Epidemiologic Surge Capacity

During the Investigation, Recognition, Initiation and early Acceleration intervals, epidemiologic investigation of any suspect or confirmed human novel influenza virus infections will be extensive to attempt to limit transmission. If a novel strain of influenza strain that is capable of person-to-person transmission is suspected in New York State, staff may need to be mobilized in a short time frame to conduct surveillance activities, outbreak investigations, contact tracing, and to implement control measures. As a supplement to local health department staff, NYSDOH Regional and Central Office staff, including but not limited to those in the Bureaus of Communicable Disease Control (BCDC), Sexually Transmitted Disease Control (BSTDC), Tuberculosis Control (BTBC), and AIDS Epidemiology (BHAЕ) may be utilized.

Many LHD epidemiologists and case investigators are nurses and may also be needed to assist with vaccination and/or antiviral therapy delivery. Given that public health medical staff may also be engaged in vaccine/antiviral initiatives, other local and state public health staff as noted above, may need to be mobilized and receive just in time training to assist with case investigations, contact tracing, and ensuring control measures are being implemented.

During the Acceleration, Peak, Deceleration and Resolution intervals, public health epidemiologic resources would likely need to be diverted from intense case investigation and contact tracing to tracking the geographic distribution of illness, calculating the morbidity and mortality, and determining the overall epidemiology of the outbreak. This will be critical to target public health resources and modify prevention and control measures for LHDs and medical providers.

NYSDOH would identify and recruit staff for the epidemiology surge team during the Recognition and Initiation intervals. Persons would be assigned roles based on their experience and would receive just-in-time training. Roles would include case investigator, supervisor of case investigators, data collection and management, and data entry/clerical support staff. The NYSDOH epidemiologic surge capacity training and response will be coordinated by BCDC and the Regional Offices.

### VI. Activities by Pandemic Phases and Intervals

#### Interpandemic and Pandemic Alert Periods

##### **State Health Department:**

- **Epidemiology:** (*Investigation and Recognition*)
  - Develop materials and help educate healthcare providers about novel and pandemic influenza.
  - Provide consultation to LHDs and healthcare providers, as needed, on suspect novel influenza cases.
  - Upon request and as resources allow, Regional Offices may send staff to LHDs to assist them with investigation, data entry, etc.
  - Provide updated surveillance information and materials to LHDs.
  - Work with LHDs and Wadsworth Center to coordinate testing.
  - Continue to recruit medical providers to participate in the CDC Influenza Sentinel Provider Network.
  - Maintain current influenza surveillance systems to monitor morbidity and mortality.
  - Identify critical resources for epidemiologic surge capacity.
    - Personnel needed to assist with epidemiological investigations.
    - Establish and maintain (update) contact lists, including other agencies involved in non-human animal disease control (e.g., NYSDAM, NYSDEC, USDA state offices).
  
- **Wadsworth Center** (*Investigation, Recognition*):

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- Routine sample testing:
  - Perform molecular influenza A / B detection and virus isolation in cell culture.
  - Sub-type positive primary or cell-culture harvest samples with molecular methods
  - Perform additional molecular testing for the presence of other respiratory viral agents.
- For suspected cases of novel influenza infection, including highly pathogenic A(H5N1), meeting the current surveillance criteria:
  - Perform molecular influenza A / B detection
  - Concurrently perform molecular sub-typing on primary specimen
  - Concurrently perform additional molecular assays to test for the presence of other respiratory viral agents to facilitate a rapid diagnosis in suspected cases.
  - Do NOT perform virus isolation unless the sub-typing indicates that highly pathogenic A(H5N1) is not present in the sample.
- Laboratory testing will support surveillance within the current Sentinel Provider Network.

### **Local Health Departments:** (*Investigation, Recognition*)

- Help educate healthcare providers about novel and pandemic influenza.
- Provide consultation and investigation of suspected novel influenza cases to healthcare providers in conjunction with NYSDOH.
- Consult on collection of specimens for suspected novel influenza testing.
- Facilitate the transfer of specimens to the Wadsworth Center.
- Conduct follow-up of suspected novel influenza cases, including contact investigations.
- Identify critical resources for epidemiologic surge capacity.
  - Personnel needed to assist with epidemiological investigations.
  - Establish and maintain (update) contact lists.
- Investigate community outbreaks of influenza-like illness.
- Assist with identifying medical providers willing to participate in the CDC Influenza Sentinel Provider Network.

### **Healthcare Providers:** (*Investigation, Recognition*)

- Be aware of case definitions, procedures for screening, infection control, laboratory testing, and antiviral regimens for influenza A (H5N1) and other novel influenza viruses by accessing the NYSDOH Health Provider Network (HPN) (<https://commerce.health.state.ny.us/hpn/>).
- Notify the LHD about suspected novel influenza cases and fatalities.
- Collect recommended specimens for diagnosis of novel influenza in consultation with the LHD.
- Forward specimens to the Wadsworth Center after consultation with the LHD.

### **Pandemic Period**

#### **State Health Department:**

- **Epidemiology:**
  - Update LHDs and providers regularly throughout the influenza pandemic (*Initiation, Acceleration, Peak, Deceleration, Resolution*).
  - Work with LHDs and Wadsworth Center to coordinate testing (intervals *Initiation, Acceleration, Peak, Deceleration, Resolution*). Upon request and as resources allow, Regional Offices may send staff to LHDs to assist them with contact investigation, data entry, etc. (*Initiation, Acceleration*).
  - Work with LHDs to investigate and report special pandemic situations (*Acceleration, Peak, Deceleration, Resolution*).
  - Analyze surveillance data to monitor trends in influenza activity (*Initiation, Acceleration, Peak, Deceleration, Resolution*).

- **Wadsworth Center**

*Interval: Initiation*

- Perform molecular influenza A / B detection
- Sub-type positive primary samples with molecular methods
- Perform additional molecular testing for the presence of other respiratory viral agents.
- Initiate surge capacity procedures to meet the needs of the jurisdiction.

*Interval: Acceleration*

- Perform molecular influenza A or sub-type specific detection of known pandemic strain (based on reagent availability and test sensitivity) on a high proportion of specimens.
- Perform anti-viral susceptibility surveillance using genotypic methods.
- Coordinate the preparation of protocols for the collection, storage, and /or shipment of appropriate autopsy specimens from fatal novel influenza cases for analysis at the CDC as appropriate.
- Continue to evaluate surge capacity procedures to meet the needs of the jurisdiction.

*Interval: Peak*

- Perform surveillance molecular testing on a portion of samples to monitor the pandemic strain for assay reactivity and drug susceptibility.
- Coordinate the collection, storage, and /or shipment of appropriate autopsy specimens from fatal novel influenza cases for analysis at the CDC as appropriate
- Continue to evaluate surge capacity procedures to meet the needs of the jurisdiction.

*Interval: Deceleration*

- Initiate plans for broader surveillance by molecular testing to ensure continued detection of pandemic virus (in case of genetic changes to circulating strains) and continue to monitor for drug susceptibility.
- Coordinate the collection, storage, and /or shipment of appropriate autopsy specimens from fatal novel influenza cases for analysis at the CDC as appropriate.
- Continue to evaluate surge capacity needs and begin to decrease testing volume.

*Interval: Resolution*

- Reassess methods for the detection of circulating strains.
- Continue to monitor for drug susceptibility as needed.

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- Coordinate the collection, storage, and /or shipment of appropriate autopsy specimens from fatal novel influenza cases for analysis at the CDC as appropriate.
- Reassess testing capacity and the ongoing laboratory needs of the jurisdiction.

### **Local Health Departments:** (*Initiation, Acceleration, Peak, Deceleration, Resolution*)

- Update providers regularly throughout the influenza pandemic.
- Provide or facilitate testing and investigation of pandemic influenza cases.
- Work with NYSDOH to investigate and report special pandemic situations.

### **Healthcare Providers:** (*Initiation, Acceleration, Peak, Deceleration, Resolution*)

- Regularly consult updates on case definitions, screening, laboratory testing, and treatment algorithms for pandemic influenza by accessing the NYSDOH HPN (<https://commerce.health.state.ny.us/hpn/>).
- Report pandemic influenza cases or fatalities as requested by the LHD and NYSDOH.
- Collect recommended specimens for ongoing pandemic influenza surveillance and forward specimens as requested to NYSDOH Wadsworth Laboratory after consultation with the LHD.
- Report atypical cases, breakthrough infections while on prophylaxis, or any other abnormal cases throughout the duration of the pandemic as directed by the LHD and/or NYSDOH.



## Specimen Collection for the Pathologic Evaluation of Influenza Virus Infections



**Infectious Disease Pathology Branch  
Centers for Disease Control and Prevention**

**Phone: (404) 639-3133**

**Fax: (404) 639-3043**

Viral antigens may be focal and sparsely distributed in patients with influenza, and are most frequently detected in respiratory epithelium of large airways. Larger airways (*particularly primary and segmental bronchi*) have the highest yield for detection of influenza viruses by IHC staining. Collection of the appropriate tissues ensures the best chance of detecting the virus by immunohistochemical stains. If influenza is suspected, a minimum total of 8 blocks or fixed tissue specimens representing samples from each of the following sites should be obtained and submitted for evaluation:

- 1. Central (hilar) lung with segmental bronchi**
- 2. Right and left primary bronchi**
- 3. Trachea (proximal and distal)**
- 4. Representative pulmonary parenchyma from right and left lung**

In addition, representative tissues from major organs should be submitted for evaluation. In particular, for patients with suspected myocarditis, encephalitis, or rhabdomyolysis, specimens should include myocardium (right and left ventricle), CNS (cerebral cortex, basal ganglia, pons, medulla, and cerebellum), and skeletal muscle. Specimens should be included from any other organ showing significant gross or microscopic pathology.

Specimens may be submitted as:

- Fixed, unprocessed tissues in 10% neutral buffered formalin, or
- Tissue blocks containing formalin-fixed, paraffin-embedded specimens, or
- Unstained sections cut at 3 microns placed on charged glass slides (10 slides per specimen)

Please include a copy of the autopsy report (preliminary or final if available), and a cover letter outlining a brief clinical history and the full name, title, complete mailing address, e-mail address, phone, and fax numbers of the submitter.

**We would appreciate advance notification of a shipment and tracking numbers by phone or by e-mail (see below).**

Appropriately packaged specimens should be sent at room temperature (**NOT FROZEN**), to the attention of:

**Sherif R. Zaki, M.D., PhD**  
**Chief, Infectious Disease Pathology Branch (IDPB)**  
**Centers for Disease Control and Prevention (CDC)**  
**1600 Clifton Road, N.E.**  
**MS: G32 (Bldg. 18/Rm. SB130)**  
**Atlanta, GA 30333**

**Tel: 404-639-3133 or E-mail: [Sherif.Zaki@cdc.hhs.gov](mailto:Sherif.Zaki@cdc.hhs.gov)**

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## NYSDOH Human Influenza A(H5) Surveillance and Reporting Criteria<sup>1</sup>

- **Surveillance Criteria:**

- **Clinical Criteria**

A patient who:

- Has an illness that requires hospitalization or is fatal; **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 alternate diagnosis has not been established; **AND**
- Has at least one of the following potential exposures within 10 days of symptom onset:

- **Epidemiologic Criteria**

A) History of travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans<sup>2</sup>, **AND** had at least one of the following potential exposures during travel:

- direct contact with (e.g., touching) sick or dead domestic poultry;
- direct contact with surfaces contaminated with poultry feces;
- consumption of raw or incompletely cooked poultry or poultry products;
- direct contact with sick or dead wild birds suspected or confirmed to have influenza H5N1;
- close contact (approach within 1 meter [approx. 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness;

B) Close contact (approach within 1 meter [approx. 3 feet]) of an ill patient who was confirmed or suspected to have H5N1;

C) Worked with live influenza H5N1 virus in a laboratory.

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<sup>1</sup> Criteria as of June 2008 for H5N1 avian influenza. Based on CDC Health Alert dated June 7, 2006, *Updated Interim Guidance for Laboratory Testing of Persons with Suspected Infection with Avian Influenza A(H5N1) Virus in the United States*, available at:

<http://www2a.cdc.gov/han/ArchiveSys/ViewMsgV.asp?AlertNum=00246>.

Surveillance criteria are subject to change and will be based on the pandemic influenza strain and its epidemiology.

<sup>2</sup> For a listing of influenza H5N1-affected countries, visit the CDC website at

<http://www.cdc.gov/flu/avian/outbreaks/current.htm>; the OIE website at

[http://www.oie.int/eng/en\\_index.htm](http://www.oie.int/eng/en_index.htm); and the WHO website at

[http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/).

Testing for avian influenza A (H5N1) virus infection can be considered on a case-by-case basis, in consultation with the local and state health department, for:

- A patient with mild or atypical disease<sup>3</sup> (hospitalized or ambulatory) who has one of the exposures listed above (criteria A, B, or C); OR
  - A patient with severe or fatal respiratory disease whose epidemiological information is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above (examples include: a returned traveler from an influenza H5N1-affected country whose exposures are unclear or suspicious, a person who had contact with sick or well-appearing poultry, etc.)
- **During the Interpandemic and Pandemic Alert Periods (WHO phases 1-5) and No Evidence of HPAI or Other Novel Influenza Virus in NYS (CDC Interval - Investigation – unaffected state):** Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
    - Severe illness AND, within 10 days of onset, either: travel to an affected area (even if no direct contact with poultry or suspect or confirmed human cases) or occupational risk.
    - Mild illness AND, and within 10 days of onset, one of the following: direct contact with ill poultry in an affected area, close contact with a suspected or confirmed human case of novel influenza, or occupational risk.
  - **During the Interpandemic and Pandemic Alert Periods (WHO phases 1-5) and Documented HPAI or Other Novel Influenza Virus in non-human animals in NYS: (CDC Interval - Investigation – affected state):** Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
    - Severe or mild illness  
AND
    - Reside in or travel within 10 days of onset to a locally affected area  
AND
    - Direct contact with ill poultry or other implicated animal in an affected area OR close contact with a suspected or confirmed human case of novel influenza OR occupational risk.

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<sup>3</sup> For example, a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurologic or gastrointestinal symptoms in the absence of respiratory disease.

- **During the Pandemic Period (WHO Phase 6) and No Documented Pandemic Influenza Virus in NYS (CDC Interval – Initiation – unaffected state):** Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - Severe or mild illness  
AND
  - Within 10 days of onset: travel to a locally affected area (even if no direct contact with poultry or suspect or confirmed human cases) OR occupational risk.
 Once an influenza pandemic has begun, it is expected that it would only be a brief period of time before the virus is identified in NYS. Therefore it is anticipated that individual case reporting of suspect cases during the pandemic will be brief.
  
- **During the Pandemic Period (WHO Phase 6) and Documented Pandemic Influenza Virus in NYS (CDC Intervals – Initiation – affected state and Acceleration – affected state):** Patients meeting the mild illness clinical criteria will be classified as a suspected pandemic influenza case. However, individual case reporting will likely be suspended. The local and/or state health department will investigate any unusual cases reported by medical providers. In NYC, web-based reporting will be available for provider reporting. Outside NYC, hospital infection control practitioners are able to report individual cases of influenza through the NYSDOH Communicable Disease Electronic Surveillance System (CDESS).

### Reporting Requirements:

Medical providers identifying patients meeting the above surveillance criteria should:

- Immediately report any suspect novel influenza cases to the LHD. If unable to reach the LHD, contact the NYSDOH:
  - During business hours contact the appropriate Regional Epidemiologist . If unavailable, contact the Bureau of Communicable Disease Control at (518) 473-4436.
  - Outside of business hours, contact the NYSDOH After-Hours Duty Officer at 1-866-881-2809.
  
- In New York City, contact the New York City Department of Health and Mental Hygiene through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641) during business hours. At all other times, call the Poison Control Center at 1-212-764-7667.

Information on avian influenza activity, including links to websites of the World Health Organization and the Food and Agriculture Organization of the United Nations can be accessed at <http://www.cdc.gov/flu/avian/>.

Ongoing updates on novel or pandemic influenza surveillance and reporting criteria can be found on the NYSDOH Health Provider Network (HPN) at: <https://commerce.health.state.ny.us/hpn/>.

**NYSDOH Human Influenza A(H5) Case Report Form**

State case ID: \_\_\_\_\_

**Appendix 2-C**

**Patient Demographics**

1. Patient Name..... \_\_\_\_\_

2. Date of birth ..... \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)

3. Gender..... Male                  Female

4. Race..... White      Black      Asian      Hawaiian/ Pacific Islander      American Indian/ Alaska Native      Unknown

5. Ethnicity..... Hispanic or Latino      Not Hispanic or Latino      Unknown

6. Address.....  
    Street \_\_\_\_\_ Apt. \_\_\_\_\_  
    City: \_\_\_\_\_ County: \_\_\_\_\_  
    State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Country: \_\_\_\_\_

7. Telephone Number..... (\_\_\_\_) \_\_\_\_\_

**Illness Course**

1. Date of illness onset..... \_\_\_\_/\_\_\_\_/\_\_\_\_      2. Date of fever onset..... \_\_\_\_/\_\_\_\_/\_\_\_\_  
 (Temperature  $\geq$  38.0° C or 100.4° F; or feverishness if not measured)

**Symptoms and Signs**

What symptoms and signs did the patient have during the course of illness? **(check all that apply)**

Feverishness	Fever ( $\geq$ 38.0°C or 100.4°F)	Runny nose/congestion	Conjunctivitis
Headache	Cough	Sore throat	Bloody respiratory secretions
Difficulty breathing	Shortness of breath	Lethargy	Seizure(s)
Muscle aches	Vomiting	Diarrhea	Abdominal pain

Other (specify): \_\_\_\_\_

**Clinical Diagnoses and Complications (check all that apply)**

What complications, if any, did the patient have during the illness? **(check all that apply)**

Pneumonia	ARDS	Rhabdomyolysis	DIC
Bronchiolitis	Myocarditis	Seizures	Hypotension
Croup	Renal failure	Encephalopathy/encephalitis	Inotropic drugs for blood pressure
Shock	Myositis	Reye syndrome	Dehydration requiring IV fluids

Fever (highest temperature = \_\_\_\_ ° C; or \_\_\_\_ ° F)      Hypothermia (lowest temperature = \_\_\_\_ ° C; or \_\_\_\_ ° F)

Exacerbation of underlying medical condition(s) (specify): \_\_\_\_\_

Other complications (specify): \_\_\_\_\_

**Medical Care and Treatment**

1a. Was the patient evaluated by a health care provider or admitted for medical care? ..... Yes      No      Unknown

1b. **If YES**, indicate level(s) of care received (check all that apply):      Outpatient clinic      ER      Inpatient ward      Intensive care unit

1c. Was a chest x-ray or chest CAT scan performed?      Yes      No      Unknown

1d. **If YES**, specify medical facilities where patient was evaluated and/or admitted: *(if > 2 facilities, add information at end of form)*

Facility 1: _____	Date of admission: ____/____/____
City: _____ State: _____	Date of discharge: ____/____/____
Facility 2: _____	Date of admission: ____/____/____
City: _____ State: _____	Date of discharge : ____/____/____

**NYSDOH Human Influenza A(H5) Case Report Form**

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**Appendix 2-C**

1e. Did the patient require mechanical ventilation (intubated)? ..... Yes No Unknown

**Death Information**

1. Date of death..... \_\_\_\_/\_\_\_\_/\_\_\_\_ 2. Was an autopsy performed? ... Yes No Unknown

3. Location of death ... Home Emergency Dept (ER) Inpatient ward ICU Other (specify):\_\_\_\_\_

**Influenza Testing**

Influenza Test Type	Result	Influenza Type	Specimen(s) that tested positive	Specimen collection Date (s)
Commercial rapid diagnostic test  Name of test: _____	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____
Viral Culture	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____
Direct fluorescent antibody (DFA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____
Indirect fluorescent antibody (IFA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____ ____/____/____

**NYSDOH Human Influenza A(H5) Case Report Form**

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Enzyme immunoassay (EIA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____ _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___
RT-PCR	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____ _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___
Immunohistochemistry (IHC)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____ _____	Blood CSF NP swab NP aspirate OP swab Tissue Tracheal aspirate BAL Other:	___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___ ___/___/___

1. Date of the first positive influenza test:..... \_\_\_/\_\_\_/\_\_\_

2. Were specimens sent to NYSDOH Wadsworth Center?..... Yes No Unknown

3. If YES, who submitted the specimens? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. If an influenza virus was isolated from this patient, was the isolate sent to CDC?..... Yes No Unknown

**Culture Confirmation of Secondary Bacterial Pathogens**

1. Was there culture confirmation of a bacterial infection?..... Yes No Unknown

2. If YES, please specify the organism(s) and specimen(s):

<b>Organism</b>	<b>Specimen(s) that tested positive</b> (e.g., blood, CSF, sputum, tissue, pleural fluid, upper resp. tract, lower resp. tract)
<i>Streptococcus pneumoniae</i> Group A streptococcus <i>Neisseria meningitidis</i> <i>Haemophilus influenzae</i> type b <i>Haemophilus influenzae</i> non-type b	_____ _____ _____ _____

**NYSDOH Human Influenza A(H5) Case Report Form**

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<i>Staphylococcus aureus</i> , methicillin sensitive <i>Staphylococcus aureus</i> , methicillin resistant <i>Staphylococcus aureus</i> , sensitivity not done Other (specify) _____	_____ _____ _____ _____
--	----------------------------------

3. Is a bacterial isolate available for further testing by CDC?..... Yes No Unknown

**Non-Influenza and Non-bacterial infections (viruses and fungal infections)**

1. Was there laboratory testing evidence for a **viral** infection (*not influenza*) or **fungal** infection? Yes No Unknown

2. **If YES**, please specify what virus or fungal infection and specimen source: \_\_\_\_\_

**Epidemiologic Risk Factors**

**TRAVEL EXPOSURES:**

1a. In the 10 days prior to illness onset, did the patient travel to a foreign or domestic area with documented or suspected recent/previous novel influenza activity? See: <http://www.oie.int> and [http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/) Yes No Unknown

**If YES,**  
Country: \_\_\_\_\_

Arrival Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Departure Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

1b. Did the patient have direct contact with (e.g., touching) sick or dead domestic poultry? Yes No Unknown

1c. Did the patient have direct contact with surfaces contaminated with poultry feces? Yes No Unknown

1d. Did the patient consume raw or incompletely cooked poultry or poultry products? Yes No Unknown

1e. Did the patient have direct contact with (e.g., touching) sick or dead wild birds suspected or confirmed to have influenza H5N1? Yes No Unknown

1f. Did the patient have direct contact with surfaces contaminated with feces of sick or dead wild birds suspected or confirmed to have influenza H5N1? Yes No Unknown

1g. Did the patient consume raw or incompletely cooked products of sick or dead wild birds suspected or confirmed to have influenza H5N1? Yes No Unknown

1h. Did the patient have close contact (approach within 1 meter [approx. 3 feet]) of a person who was hospitalized or died due to severe unexplained respiratory illness? Yes No Unknown

**NON-TRAVEL EXPOSURE:**

2a. In the 10 days prior to illness onset, did the patient have close contact (approach within 1 meter [approx. 3 feet]) of an ill patient who was confirmed or suspected to have H5N1? Yes No Unknown

2b. In the 10 days prior to illness onset, did the patient work with live influenza H5N1 virus in a laboratory? Yes No Unknown

**Influenza Vaccine and Antiviral History**

1. Did the patient receive any influenza vaccine during the current season (*before illness*)? Yes No Unknown

2. **If YES**, please specify influenza vaccine received before illness onset: Trivalent inactivated influenza vaccine (TIV) [*injected*]  
Live-attenuated influenza vaccine (LAIV) [*nasal spray*]

**NYSDOH Human Influenza A(H5) Case Report Form**

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**Appendix 2-C**

3. **If YES**, how many doses did the patient receive during the current season (*before illness*)? 1 dose                      2 doses

4. **If YES**, specify influenza vaccination dates:

**Dose 1:**    \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_                      < 14 days prior to illness                      ≥ 14 days prior to illness

**Dose 2:**    \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_                      < 14 days prior to illness                      ≥ 14 days prior to illness

5. Did the patient ever receive influenza vaccine in a previous season?..... Yes      No      Unknown

6. Did the patient receive antiviral medication? Yes      No      Unknown

If YES,

Antiviral Name: \_\_\_\_\_ Dosage: \_\_\_\_\_ Route: \_\_\_\_\_

Date started: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_ Date ended: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**Existing Medical Conditions and Medication History**

1. Did the patient have any underlying medical conditions? Yes      No      Unknown

2. **If YES, please check all that apply:**

- |  |   |
|--|---|
| Asthma/reactive airway disease                         | Other chronic lung disease (specify) _____                        |
| Cardiac disease (specify) _____                        | Immunosuppressive condition (specify) _____                       |
| Cystic fibrosis  | Pregnant (specify gestational age in weeks) _____                 |
| Developmental delay (moderate to severe)               | History of febrile seizures before current illness                |
| Diabetes mellitus (Insulin dependent)                  | Seizure disorder requiring anti-seizure medications               |
| Hemoglobinopathy (e.g. sickle cell disease, not trait) | Renal disease (specify): _____                                    |
| Metabolic disorder (specify) _____                     | Neuromuscular disorder (including cerebral palsy) (specify) _____ |
| Other (specify) _____                                  | _____   |

3. Was the patient receiving any of the following medications when influenza illness started? (**check all that apply**):

- |  |  |                   |
|--|--|-------------------|
| Aspirin or aspirin-containing products | Systemic steroids (not inhaled)                      | Radiation therapy |
| Chemotherapy for cancer                | Other immunosuppressive medications (specify): _____ |                   |

**Isolation**

**Location 1:**

Isolation Location:    Home      Hospital      School Campus      Unknown      Other (specify): \_\_\_\_\_

Isolation Start Date: ( mm/dd/yyyy) \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_      Isolation Discontinuation Date (mm/dd/yyyy) \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**Location 2:**

Isolation Location:    Home      Hospital      School Campus      Unknown      Other (specify): \_\_\_\_\_

Isolation Start Date: (mm/dd/yyyy) \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_      Isolation Discontinuation Date (mm/dd/yyyy) \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**Contact and Travel During Infectious Period**

1. Did the patient travel while ill? Yes      No      Unknown

2. Was the patient symptomatic during travel? Yes      No      Unknown

3. List all travel either by public conveyance (airplane, train, bus) or with a tour group, 24 hours before onset of fever or symptoms thereafter. (*List each portion of leg of the trip as a separate record*):

## NYSDOH Human Influenza A(H5) Case Report Form

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**Appendix 2-C**

**Trip 1:**

Depart Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Arrival Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Departure City: \_\_\_\_\_

Arrival City: \_\_\_\_\_

Transport Type:      Airline      Auto      Bus      Cruise      Other      Subway      Tour Group      Train

**Trip 2:**

Depart Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Arrival Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Departure City: \_\_\_\_\_

Arrival City: \_\_\_\_\_

Transport Type:      Airline      Auto      Bus      Cruise      Other      Subway      Tour Group      Train

**Reporter Information**

Last name:		First name:	
Title:	Medical specialty (ID, ICN, ED, etc.):		
Facility Name:			
Street Address:			
City:		County:	State:      Zip:
Phone: (    )	Cell or pager: (    )		Fax: (    )
E-mail address:		Report date:      /      /	

### NYSDOH Human Influenza A(H5) Case Screening Form

<b>REPORT DATE</b>	MM	DD	YY	Name of NYSDOH Submitter:	REPORT TIME	__: __am/pm
NYSDOH #				CDC ID#		

<b>PATIENT DEMOGRAPHICS</b>	1. Patient Name: (Last)			(First)		
2. Date of birth:	MM	DD	YYYY	Age:	3. Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	
4. Race: <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> Asian <input type="checkbox"/> Hawaiian/Pacific Islander <input type="checkbox"/> American Indian/Alaska Native						
5. Ethnicity: <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino				If translator needed, language:		
6. Address:	Street:		Apt.	City:		County:
State:			Zip:		Country:	
7. Occupation				8. Phone: ( )		

SCREENING INFORMATION	Date of symptom onset	MM	DD	YYYY	
<b>SECTION 1. HOSPITALIZED PATIENTS</b>					
<b>1a.</b> Does patient have (or had) documented temperature of $\geq 38^{\circ}\text{C}$ ( $\geq 100.4^{\circ}\text{F}$ ) AND radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternate diagnosis has not been established?					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, proceed to 1b If No, proceed to SECTION 2.
<b>1b.</b> Within 10 days of symptom onset, did patient travel to a country with influenza H5N1 documented in poultry, wild birds and/or humans? (Currently including parts of Asia, Africa and Europe: see <a href="http://www.oie.int">http://www.oie.int</a> and <a href="http://www.cdc.gov/flu/avian/outbreaks/current.htm">http://www.cdc.gov/flu/avian/outbreaks/current.htm</a> ).					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, proceed to 1c. If No, proceed to 1k.
<b>1c.</b> Within 10 days of symptom onset, did patient have direct contact with (e.g., touching) sick or dead domestic poultry?					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations* and notify NYSDOH. If No, proceed to 1d.
<b>1d.</b> Within 10 days of symptom onset, did patient have direct contact with surfaces contaminated with poultry feces?					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1e.
<b>1e.</b> Within 10 days of symptom onset, did patient consume raw or incompletely cooked poultry or poultry products?					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1f.
<b>1f.</b> Within 10 days of symptom onset, did patient have direct contact with (e.g., touching) sick or dead wild birds suspected or confirmed to have influenza H5N1?					<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1g.

\* Infection Control Recommendations are provided on pages 4-5.

### NYSDOH Human Influenza A(H5) Case Screening Form

<b>1g. Within 10 days of symptom onset</b> , did patient have direct contact with surfaces contaminated with feces of sick or dead wild birds suspected or confirmed to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1h.
<b>1h. Within 10 days of symptom onset</b> , did patient consume raw or incompletely cooked products of sick or dead wild birds suspected or confirmed to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1i.
<b>1i. Within 10 days of symptom onset</b> , did patient have close contact (approach within 1 meter [approximately 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1j.
<b>1j.</b> Does patient have severe or fatal respiratory disease but information to answer questions 1c to 1i is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above? (Examples include: a returned traveler from an influenza H5N1-affected country whose exposures are unclear or suspicious, a person who had contact with sick or well-appearing poultry, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, patient does not meet current case definition for suspected H5N1 infection.
<b>1k. Within 10 days of symptom onset</b> , did patient have close contact (approach within 1 meter [approximately 3 feet]) of an ill patient who was confirmed or suspected to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 1l.
<b>1l. Within 10 days of symptom onset</b> , did patient work with live influenza H5N1 virus in a laboratory?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, patient does not meet current case definition for suspected H5N1 infection.

**SECTION 2.****HOSPITALIZED OR AMBULATORY**

<b>2a.</b> Does patient have mild or atypical disease (for example, a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurologic or gastrointestinal symptoms in the absence of respiratory disease)?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, proceed to 2b If No, patient does not meet current case definition for suspected H5N1 infection.
<b>2b. Within 10 days of symptom onset</b> , did patient travel to a country with influenza H5N1 documented in poultry, wild birds and/or humans? (Currently including parts of Asia, Africa and Europe: see <a href="http://www.oie.int">http://www.oie.int</a> and <a href="http://www.cdc.gov/flu/avian/outbreaks/current.htm">http://www.cdc.gov/flu/avian/outbreaks/current.htm</a> ).	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, proceed to 2c. If No, proceed to 2j.
<b>2c. Within 10 days of symptom onset</b> , did patient have direct contact with (e.g., touching) sick or dead domestic poultry?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2d.
<b>2d. Within 10 days of symptom onset</b> , did patient have direct contact with surfaces contaminated with poultry feces?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2e.
<b>2e. Within 10 days of symptom onset</b> , did patient consume raw or incompletely cooked poultry or poultry products?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2f.
<b>2f. Within 10 days of symptom onset</b> , did patient have direct contact with (e.g., touching) sick or dead wild birds suspected or confirmed to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2g.

### NYSDOH Human Influenza A(H5) Case Screening Form

<b>2g. Within 10 days of symptom onset</b> , did patient have direct contact with surfaces contaminated with feces of sick or dead wild birds suspected or confirmed to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2h.
<b>2h. Within 10 days of symptom onset</b> , did patient consume raw or incompletely cooked products of sick or dead wild birds suspected or confirmed to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2i.
<b>2i. Within 10 days of symptom onset</b> , did patient have close contact (approach within 1 meter [approximately 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, patient does not meet current case definition for suspected H5N1 infection.
<b>2j. Within 10 days of symptom onset</b> , did patient have close contact (approach within 1 meter [approximately 3 feet]) of an ill patient who was confirmed or suspected to have influenza H5N1?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, proceed to 2k.
<b>2k. Within 10 days of symptom onset</b> , did patient work with live influenza H5N1 virus in a laboratory?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, follow infection control recommendations and notify NYSDOH. If No, patient does not meet current case definition for suspected H5N1 infection.

<b>LHD REPORTER INFORMATION</b>	Last Name:	First Name:
Title:		
LHD Name:		
Phone: (   )	Cell or Pager: (   )	Fax: (   )
E-mail address:		

- Fax completed screening form to NYSDOH Regional Epidemiology Program at (518) 408-1745.
- If patient does NOT meet clinical and epidemiologic screening criteria, patient is not considered to be a suspect case of avian or novel influenza.
- If patient DOES meet screening criteria, notify NYSDOH immediately by telephone:
  - During business hours contact the appropriate Regional Epidemiologist.
  - If unavailable, contact the Bureau of Communicable Disease Control at (518) 473-4436.
  - Outside of business hours, contact the NYSDOH After-Hours Duty Officer at 1-866-881-2809.
- In New York City, notify the New York City Department of Health and Mental Hygiene (NYCDOHMH) immediately by telephone:
  - During business hours, contact the NYCDOHMH through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641).
  - Outside of business hours, call the Poison Control Center at 1-212-764-7667.

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**NYSDOH Human Influenza A(H5) Case Screening Form****Infection Control Recommendations for Suspected Influenza H5N1 Cases**

If the patient meets the surveillance and reporting criteria for a suspected influenza H5N1 virus infection, review appropriate infection control precautions with the medical provider.

As of August 2007, the following infection control precautions are recommended by CDC per the document *Interim Recommendations for Infection Control in Health-Care Facilities Caring for Patients with Known or Suspected Avian Influenza*, available at: <http://www.cdc.gov/flu/avian/professional/infect-control.htm>.

- **Standard Precautions**
  - Pay careful attention to hand hygiene before and after all patient contact or contact with items potentially contaminated with respiratory secretions.
- **Contact Precautions**
  - Use gloves and gown for all patient contact.
  - Use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.
- **Eye protection** (i.e., goggles or face shields)
  - Wear when within 3 feet of the patient.
- **Airborne Precautions**
  - Place the patient in an airborne isolation room (AIR). Such rooms should have monitored negative air pressure in relation to corridor, with 6 to 12 air changes per hour (ACH), and exhaust air directly outside or have recirculated air filtered by a high efficiency particulate air (HEPA) filter. If an AIR is unavailable, contact the health-care facility engineer to assist or use portable HEPA filters (see *Environmental Infection Control Guidelines* available at: [http://www.cdc.gov/ncidod/dhqp/gl\\_enviroinfection.html](http://www.cdc.gov/ncidod/dhqp/gl_enviroinfection.html)) to augment the number of ACH.
  - Use a fit-tested respirator, at least as protective as a National Institute of Occupational Safety and Health (NIOSH)-approved N-95 filtering facepiece (i.e., disposable) respirator, when entering the room.\*

\* Respirators should be used in the context of a complete respiratory protection program as required by the Occupational Safety and Health Administration (OSHA). This includes training, fit-testing, and fit-checking to ensure appropriate respirator selection and use. To be effective, respirators must provide a proper sealing surface on the wearer's face. Detailed information on a respiratory protection program is provided at the following OSHA web page: <http://www.osha.gov/SLTC/etools/respiratory/>.

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**NYSDOH Human Influenza A(H5) Case Screening Form**

For additional information regarding these and other health-care isolation precautions, see the *Guidelines for Isolation Precautions in Hospitals*, available at: [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation.html). These precautions should be continued for 14 days after onset of symptoms or until either an alternative diagnosis is established or diagnostic test results indicate that the patient is not infected with influenza A virus. Patients managed as outpatients or hospitalized patients discharged before 14 days with suspected avian influenza should be isolated in the home setting on the basis of principles outlined for the home isolation of SARS patients (see <http://www.cdc.gov/ncidod/sars/guidance/i/pdf/i.pdf>).

- **Vaccination of Health-Care Workers against Human Influenza**

Health-care workers involved in the care of patients with documented or suspected avian influenza should be vaccinated with the most recent seasonal human influenza vaccine. In addition to providing protection against the predominant circulating influenza strain, this measure is intended to reduce the likelihood of a health-care worker's being co-infected with human and avian strains, where genetic rearrangement could take place, leading to the emergence of a potential pandemic strain.

- **Surveillance and Monitoring of Health-Care Workers**

- Instruct health-care workers to be vigilant for the development of fever, respiratory symptoms, and/or conjunctivitis (i.e., eye infections) for 1 week after last exposure to avian influenza-infected patients.
- Health-care workers who become ill should seek medical care and, prior to arrival, notify their health-care provider that they may have been exposed to avian influenza. In addition, employees should notify occupational health and infection control personnel at their facility.
- With the exception of visiting a health-care provider, health-care workers who become ill should be advised to stay home until 24 hours after resolution of fever, unless an alternative diagnosis is established or diagnostic tests are negative for influenza A virus.
- While at home, ill persons should practice good *Respiratory Hygiene and Cough Etiquette*, available at: <http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm> to lower the risk of transmission of virus to others.

- **See Also:**

- *Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza Pandemic*, available at: <http://www.pandemicflu.gov/plan/healthcare/maskguidancehc.html>.

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## NYSDOH Diagnostic Laboratory Testing for Novel Influenza

### Suspect cases of avian influenza A(H5N1) or other novel influenza virus

- Prior to shipment of a specimen from a patient meeting the CDC case criteria for suspected avian influenza A(H5N1) or other novel influenza virus, medical providers must contact the LHD. The LHD will work with the NYSDOH Regional Epidemiologist to arrange testing of the specimen at the Wadsworth Center, if appropriate. **Do not send specimens to the Wadsworth Center without prior approval.**

### Method and timing of specimen collection

- Respiratory specimens should be collected within 72 hours of symptom onset.
- All specimens must be clearly labeled with the patient identifier, type of specimen, and date and time of collection.

### Specimen Collection Guidelines

- Collect one specimen set for submission to the Wadsworth Center for molecular testing. The specimen set should consist of one nasopharyngeal swab, aspirate or wash and one oropharyngeal (throat) swab. **Use only Dacron, rayon, or flocked swabs with a plastic shaft for oropharyngeal swab, and a fine-tip flexible shaft swab for nasopharyngeal swab. Do not use calcium alginate or wooden-shafted swabs. Place swabs in a sterile vial containing at least 2ml of viral transport medium. Keep all samples cold (4°C) after collection.**
  - **Nasopharyngeal swab:** Use a swab with a long fine, flexible shaft; either Dacron or rayon with a metal shaft, or flocked tip with a plastic shaft. Insert swab into posterior nasopharynx. Rub swab against mucosal surface and leave in place for 5 seconds to absorb secretions. Collection of specimens from both nostrils increases amount of material available for analysis. Place swab in a vial of viral transport medium. Use scissors to cut the shaft if metal, snap if plastic, so top of vial can be screwed on tightly.
  - **Oropharyngeal (throat) swab:** Use only sterile Dacron, rayon, or flocked swabs with plastic shafts. Swab both posterior and tonsillar areas, avoiding the tongue. Place swab in a vial of viral transport medium and break shaft.
  - **Nasopharyngeal aspirate:** Requires source of suction (syringe, vacuum pump, or wall suction), specimen trap with two outlets, and catheter (no. 6 to 14 depending on size of patient). Without applying suction, insert catheter through nose into posterior nasopharynx (approximately the distance from tip of the nose to the external opening of the ear when measured in a straight line). Apply gentle suction, leaving catheter in place for a few seconds, then withdraw slowly. Suction contents of a vial of viral transport medium or non-bacteriostatic saline through catheter

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## NYSDOH Diagnostic Laboratory Testing for Novel Influenza

tubing to assist in moving material from tubing into trap and to add viral transport medium to specimen. Transfer specimen to a sterile screw cap tube for transport to laboratory.

- **Nasopharyngeal wash:** Use rubber bulb (1-2oz for infants) or syringe to instill 3-5 ml of non-bacteriostatic saline into one nostril while occluding the other. If patient is able to cooperate, instruct them to close glottis by making a humming sound with mouth open. If a rubber bulb is used, release pressure on bulb to allow saline and mucus to enter bulb. Remove from nose and squeeze into vial of viral transport medium. If syringe is used, apply suction to syringe to recover saline and nasal secretions. Alternately, hold sterile container, such as a urine cup, under patient's nose and ask patient to expel material into it. In either case, add recovered saline-nasal secretions to a vial of viral transport medium.
- **Serum specimen:** Obtain a blood specimen (not anti-coagulated) from the suspect case, separate serum by centrifugation, and submit the serum, not the blood sample, along with the respiratory samples. In addition to the patient identifier, label the serum tube with the date and time of collection. Serum samples will be stored at Wadsworth until forwarding is requested by the CDC.
- Additional note: While it appears that lower respiratory tract secretions may have a higher viral load than upper respiratory secretions in patients infected with the avian influenza A(H5N1) virus or other novel influenza viruses, collecting such specimens may present a risk to health care providers. **If appropriate personal protective equipment is not available, lower respiratory tract secretions should NOT be collected and sample collection should be restricted to nasopharyngeal and oropharyngeal specimens as described above.**

### Clinical Laboratory Testing

- Clinical laboratories may perform a rapid influenza antigen detection assay using standard BSL-2 work practices in a Class II biological safety cabinet. Specimens should still be referred to the Wadsworth Center for testing, regardless of the rapid EIA result.
- Viral culture should **NOT** be performed on respiratory specimens from patients with suspected avian influenza A(H5N1) or other novel influenza. Highly pathogenic avian influenza A(H5N1) must only be cultured under Biosafety Level (BSL) 3+ laboratory conditions. This includes controlled access, double door entry with change room and shower, use of respirators, decontamination of all wastes, and showering out of all personnel. Laboratories working with these viruses must be certified by the U.S. Department of Agriculture.

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## NYSDOH Diagnostic Laboratory Testing for Novel Influenza

### Specimen Storage Guidelines

- It is essential that specimens be sent to the Viral Reference and Surveillance Laboratory at the Wadsworth Center as soon as possible after collection.
  - If shipped within 48 hours of collection, store at 4°C and ship with frozen cold packs to maintain temperature at 4°C. Do not use wet ice.
  - If shipment is delayed more than 48 hours, then the specimens should be stored frozen at -70°C and shipped on dry ice.

### Specimen Shipping Guidelines

- The Wadsworth Center laboratory performs routine influenza testing during regular working hours Monday through Friday. Surveillance specimens should therefore ONLY be shipped on Sunday through Thursday so that appropriate laboratory personnel can be present to accept and process specimens. Specimens should not be shipped to arrive on a public holiday. However, arrangements will be made to perform urgent testing for suspected avian or novel influenza cases outside of business hours. The NYSDOH Regional Epidemiologist, in collaboration with the Wadsworth Center, must give prior approval for such after-hours testing before specimens should be shipped.
- Complete and submit the *Wadsworth Center Virus Detection History Form*. The form is available as Appendix 2-F. Place the completed form in a plastic bag on top of the outer container holding the specimens but inside the cardboard shipping box before sealing.
- All influenza specimens must be shipped in accordance with the International Air Transport Association (IATA) packing instructions 650 as a "Biological substance, category B." The following resources will be useful: (<http://www.iata.org/dangerousgoods/index>) and US DOT 49 CFR Parts 171-180 (<http://hazmat.dot.gov/rules.htm>). Appropriate UN/IATA certified shipping materials must be used. Diagnostic specimens transported under the IATA Regulations are assigned to UN Identification number 3373. Follow the step-by-step packaging guidelines given in "Packing Diagnostic Specimens for Transport: Summary Instructions" at <http://www.cdc.gov/ncidod/sars/pdf/packingspecimens-sars.pdf>. If shipment on dry ice is necessary, IATA hazardous material regulations must be followed.
- Note that it is the shipper's responsibility – not the transport company's – to provide the appropriate packaging materials and documentation that complies with the IATA regulations. Apart from the materials provided to participants in the Sentinel Provider Influenza Surveillance Network, the Wadsworth Center does NOT routinely provide shipping materials for influenza testing.

### **NYSDOH Diagnostic Laboratory Testing for Novel Influenza**

- All specimens must be shipped "Priority Overnight" and received within 24 hours via chosen carrier. Confirm that the selected carrier guarantees next day, morning delivery for diagnostic specimens.
- Shipping address:
  - Wadsworth Center, NYSDOH
  - Griffin Laboratory
  - Virus Reference and Surveillance Laboratory
  - 5668 State Farm Road (Route 155)
  - Slingerlands, NY 12159

#### **Contact Information**

- Griffin Laboratory, Wadsworth Center: 518-869-4500  
(during business hours Monday - Friday)
- NYSDOH Duty Officer: 1-866-881-2809 (during non-business hours)

**Virus Detection History**

New York State Department of Health  
 Wadsworth Center, Empire State Plaza  
 Virus Reference and Surveillance Laboratory  
 P.O. Box 509  
 Albany, New York 12201-0509  
 Phone (518) 869-4500 Fax (518) 869-6487  
 \* Please see instructions for shipping address

NYS Lab Number \_\_\_\_\_

Date Received \_\_\_\_\_

Please type or print legibly in black ink

Patient

Last Name		First Name		MI	DOB MM / DD / YY	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female
Street Address		City/State		Zip Code	County of Residence	

Specimen

Original Material     Isolate Cell line \_\_\_\_\_     Autopsy     Biopsy

NYS DOH Outbreak # \_\_\_\_\_ CDESS Case ID \_\_\_\_\_ Submitter Lab # \_\_\_\_\_

DOH Influenza Sentinel Specimen  Yes  No    SARS suspect  Yes  No     Calicivirus testing

Source <input type="checkbox"/> Stool <input type="checkbox"/> NPS <input type="checkbox"/> Genital <input type="checkbox"/> Urine <input type="checkbox"/> CSF <input type="checkbox"/> Blood <input type="checkbox"/> Vesicle <input type="checkbox"/> Other _____	Date Collected MM / DD / YY	Onset Date MM / DD / YY
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**Requesting Medical Provider Name and Address** \_\_\_\_\_ **Laboratory PFI** \_\_\_\_\_

**Contact person** \_\_\_\_\_ **Email** \_\_\_\_\_

**Telephone** \_\_\_\_\_ **Fax** \_\_\_\_\_

**Comments**

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

<b>Diagnosis</b> _____	<b>Virus Suspected</b> _____
<b>Diagnosis/Signs/Symptoms (Please check)</b>	
<input type="checkbox"/> Fever Max. temp. _____ Duration _____  <b>Rash</b> <input type="checkbox"/> Maculopapular <input type="checkbox"/> Hemorrhagic <input type="checkbox"/> Vesicular <input type="checkbox"/> Other _____  <b>Respiratory</b> <input type="checkbox"/> Cough <input type="checkbox"/> Upper Resp./Rhinitis pharyngitis <input type="checkbox"/> Pneumonia, type _____ <input type="checkbox"/> X-ray _____ <input type="checkbox"/> Bronchitis <input type="checkbox"/> Pleurisy <input type="checkbox"/> Other _____  <input type="checkbox"/> Pregnant    Trimester _____ <input type="checkbox"/> Recent Viral Vaccinations or Infections specify date _____  <input type="checkbox"/> Abnormal laboratory results specify date _____	<b>Cardiovascular</b> <input type="checkbox"/> Myocarditis <input type="checkbox"/> Pericarditis <input type="checkbox"/> Endocarditis  <b>Gastrointestinal</b> <input type="checkbox"/> Diarrhea <input type="checkbox"/> Nausea/Vomiting <input type="checkbox"/> Other _____  <b>Central Nervous System</b> <input type="checkbox"/> Headache <input type="checkbox"/> Stiff neck <input type="checkbox"/> Abnormal CSF <input type="checkbox"/> Microcephalus <input type="checkbox"/> Seizures <input type="checkbox"/> Paralysis <input type="checkbox"/> Other _____
<b>Miscellaneous</b> <input type="checkbox"/> Immunodeficient <input type="checkbox"/> Immunosuppressed <input type="checkbox"/> Lymphadenopathy <input type="checkbox"/> Splenomegaly <input type="checkbox"/> Hepatomegaly <input type="checkbox"/> Jaundice <input type="checkbox"/> Mucous Membrane Lesion <input type="checkbox"/> Skin Lesion <input type="checkbox"/> Conjunctivitis <input type="checkbox"/> Myalgia <input type="checkbox"/> Pleurodynia <input type="checkbox"/> Chorioretinitis <input type="checkbox"/> Other _____  <b>Exposure/Travel History</b> <input type="checkbox"/> Contact with a known case <input type="checkbox"/> Exposure to animal specify _____ <input type="checkbox"/> Insect bite specify _____ <input type="checkbox"/> Health care worker <input type="checkbox"/> Travel _____  <input type="checkbox"/> Antiviral therapy specify Start date _____	

DOH-1795 (Mar-09)