



# NJDOH GUIDELINES FOR THE CONTROL OF RESPIRATORY VIRUS OUTBREAKS IN LONG-TERM CARE AND OTHER INSTITUTIONAL SETTINGS

## Introduction

New Jersey Administrative Code, Title 8, Chapter 57 mandates that long-term care and other institutional facilities immediately report any known or suspect communicable disease outbreak, by phone to the local health department (LHD) with jurisdiction over the facility.<sup>1</sup> State facilities are to report directly to the New Jersey Department of Health (NJDOH) which is responsible for leading state facility investigations. NJDOH shall inform the LHD and regional agency of a state facility outbreak to assure they are aware of communicable disease issues that may affect them, and request assistance as appropriate.

## Respiratory Outbreaks

Each year outbreaks of respiratory illness including pneumonia occur in institutional settings such as nursing homes and other long-term care facilities (LTCFs). Because of their underlying health status, residents in LTCFs are at high risk for developing serious complications or dying when they become acutely ill. Historically, specific emphasis has been placed on influenza, but other respiratory viruses can also be problematic in this setting; some of these include adenovirus, respiratory syncytial virus (RSV), human meta-pneumovirus, rhinovirus and parainfluenza.

Influenza is a contagious respiratory disease that can cause substantial illness and death among LTCF residents and illness among LTCF personnel. In the United States, annual epidemics of influenza occur typically during late fall through early spring. On average, more than 200,000 people in the United States are hospitalized each year for respiratory and heart conditions associated with seasonal influenza virus infections.<sup>2</sup>

Influenza vaccination of health care personnel and LTCF residents combined with basic infection control practices can help prevent transmission of influenza. Every effort should be made to ensure compliance with influenza vaccination recommendations each season. However, influenza outbreaks can still occur even when vaccine coverage among LTCF residents is high.

As soon as a respiratory outbreak is suspected, the response to it should include laboratory testing (i.e., rapid antigen testing, PCR, and/or viral isolation) to evaluate residents and staff and determine the etiology of the outbreak. Once an *influenza* outbreak is confirmed, appropriate use of antivirals for prophylaxis of residents and potentially staff should be initiated. However, treatment with antivirals for ill residents suspected of having influenza should not wait for laboratory confirmation.<sup>3</sup>

The following guidelines have been established to facilitate the investigation of viral respiratory disease outbreaks and the implementation of control measures. Vaccination of residents **and healthcare workers** against influenza, meticulous hand washing and respiratory hygiene programs are crucial in preventing respiratory outbreaks. In order to protect against complications of viral illnesses, as well as from primary bacterial infections, pneumococcal vaccination of residents is also recommended. These guidelines emphasize priorities regarding respiratory outbreak control as follows:

- Early detection of an outbreak
- Stopping transmission through control measures
- Measuring morbidity and mortality
- Identifying the agent responsible for the outbreak
- Using antiviral agents to help control influenza outbreaks

## **Reporting**

Reporting communicable disease outbreaks in healthcare institutions serves many purposes. **The immediate goal is to control further spread of the disease.** Beyond that, information gained from outbreak investigations can help healthcare facilities and public health agencies identify and eliminate infection sources such as contaminated products, learn about emerging problems, identify carriers to mitigate their role in disease transmission, and implement new strategies for prevention within facilities.

Often in a residential setting it is difficult to determine whether or not an outbreak exists. Following are some examples of confirmed or suspected outbreaks which should be reported by the facility to their LHD. This is not a comprehensive list. If the situation does not fit any of these criteria but you think an outbreak might be occurring, you should consult your LHD for guidance.

An outbreak may be occurring if:

1. Several residents who exhibit similar respiratory symptoms are in the same room, the same wing of a facility or attended a common activity.
2. Two or more residents develop respiratory illness within 72 hours of each other.
3. There is an increase in employee absences with many staff reporting similar respiratory symptoms.

Reporting refers not only to the initial outbreak notification, but also to the provision of routine updates on the status of the outbreak. The facility and the LHD shall be in frequent contact regarding case numbers, control measures taken, and other pertinent information. Upon receiving the initial report, the LHD shall immediately inform the NJDOH of the situation.

### **The facility shall:**

- Immediately contact their LHD to report every suspected or confirmed respiratory outbreak by phone. Contact information for LHD can be found at: [www.localhealth.nj.gov](http://www.localhealth.nj.gov); and after hours at: [www.nj.gov/health/lh/documents/lhd\\_after\\_hours\\_emerg\\_contact\\_numbers.pdf](http://www.nj.gov/health/lh/documents/lhd_after_hours_emerg_contact_numbers.pdf)
- Notify the New Jersey Division of Health Facilities Evaluation and Licensing at 609-292-0412. (*This applies to Assisted Living Facilities, Assisted Living Programs, Comprehensive Personal Care Homes, Residential Health Care Facilities, and Adult and Pediatric Day Health Services Facilities ONLY.*)
- When LHD staff cannot be reached, the facility shall make the report by phone directly to NJDOH who will then contact the LHD. Call numbers are 609-826-5964 during business hours or 609-392-2020 on nights/weekends and holidays.

**The LHD shall: Immediately** notify NJDOH at 609-826-5964 during business hours or 609-392-2020 after hours.



**State facilities shall:**

Make the report directly to NJDOH at 609-826-5964 during business hours or 609-392-2020 on nights/weekends and holidays.

**Case Investigation and Outbreak Investigation Steps**

Upon notification, NJDOH will assign an “E” number to the outbreak, which should be used for all outbreak correspondence and any laboratory samples.

The LHD, in consultation with the NJDOH epidemiologist, shall lead the investigation by providing the facility with guidance, support and assistance. The LHD should consider making an on-site visit for initial evaluation and ongoing assessment. The facility shall follow the basic steps listed below.

Note: Steps may or may not occur simultaneously during the course of the investigation.

1. Confirm that an outbreak exists.
2. Verify the diagnosis using clinical, epidemiological and lab test information, considering seasonal disease occurrence.
3. Develop a case definition based on clinical and laboratory criteria.
4. Perform active surveillance.
5. Document cases in a line list.
6. Identify and eliminate transmission sources when possible.
7. Institute control measures, balancing infection control concerns with disruption of residents’ quality of life routines.
8. Evaluate effectiveness of control measures and modify as needed.
9. Summarize the investigation in a written report to communicate findings.

**1. Confirm that an outbreak exists**

Gather information to confirm an outbreak is occurring within the facility; this would include initial information on the number of ill and well residents and staff.

**Definition of a Respiratory Virus Outbreak in LTC Settings:**

1. One laboratory-confirmed positive case (e.g., influenza, RSV, adenovirus) in a resident along with other cases of respiratory illnesses on the unit;

**OR**

2. A sudden increase over the normal background rate of acute respiratory illness (ARI)\* cases, with or without documented fever (temperature  $\geq 100^{\circ}\text{F}$  OR  $2^{\circ}$  above the established baseline for that resident).

*\*ARI includes any two of the following symptoms: fever, sore throat, cough, rhinorrhea, and nasal congestion in the absence of a known cause (e.g., seasonal allergies, COPD).*

*Note: Elderly or medically fragile persons may manifest atypical signs of respiratory virus infection and may not present with fever.*

## 2. *Verify the diagnosis*

- Determine the cause of acute respiratory illness based on the history, physical exam and/or laboratory findings of the resident or staff member. Diagnostic testing can aid clinical judgment and guide outbreak control decisions. Be alert for noninfectious causes of symptoms such as COPD exacerbations. Influenza infections are seasonal, with higher incidence from December through April. During these months, when signs and symptoms are clinically compatible, strongly consider influenza.
- Regardless of laboratory findings, public health control measures still need to be implemented.
- Obtain laboratory confirmation of the infecting organism by testing specimens from several residents or staff within 48-72 hours of illness onset. Rapid antigen viral testing, PCR and viral culture should be done by collecting two simultaneous swabs. Use one swab for on-site rapid testing (if available), and send the second swab to the laboratory for PCR or virus culture. Some laboratories perform a respiratory virus panel, which would also include results for influenza. Bacterial culture should be considered as well, particularly during an outbreak of pneumonia. Strictly follow the protocol entitled “Instructions for Collection, Testing, and Shipping of Respiratory Virus Specimens” since the techniques used for the collection and submission of specimens can influence the outcome of test results.
- Lab testing in an outbreak setting may be done through the facility’s standard procedures or at the state Public Health and Environmental Laboratory (PHEL). The LHD or NJDOH epidemiologist can assist with facilitating laboratory testing and/or specimen transport. **All specimens sent to PHEL must be pre-approved by NJDOH and properly labeled and packaged.**
- After a single laboratory-confirmed case of influenza or other respiratory virus among residents has been identified, it is likely that subsequent cases of associated respiratory illness are also caused by the same organism; mixed outbreaks due to other respiratory pathogens may sometimes occur. Persons developing compatible symptoms should be tested for respiratory pathogens. Ideally, at least two laboratory-confirmed cases within an incubation period are needed to confirm an outbreak’s etiology. When necessary, collect additional specimens from newly ill cases. When fewer than two laboratory-confirmed cases are found, a probable infectious agent can be inferred through clinical signs and symptoms.

## 3. *Develop a case definition*

An outbreak case definition describes the criteria that an individual must meet to be counted as an outbreak case. This includes clinical signs & symptoms, physical location and specific time period. Every outbreak will have a unique outbreak case definition. The outbreak case definition will be developed by the LHD or NJDOH epidemiologist with cooperation from the facility based on the current situation. The NJDOH epidemiologist is available for consultation as needed. Two examples of case definitions for acute respiratory illness associated with a LTCF setting are shown below:

1. Residents or staff on XYZ Unit experiencing an illness that is characterized by **fever** and at least two of the following, on or after mm/dd/yy: rhinorrhea (runny nose), nasal congestion, sore throat, cough (productive or non-productive), change in appetite, change in mental status, headache, lethargy, myalgia, respiratory distress, dyspnea, shortness of breath, pleuritic chest pain, or radiographic evidence of a pulmonary infiltrate.
2. Laboratory evidence of a respiratory pathogen such as influenza in a resident or staff member of Unit XYZ on or after mm/dd/yy **AND** at least one symptom or sign compatible with respiratory infection (e.g., rhinitis, pharyngitis, laryngitis, cough or pneumonia).

#### **4. Perform active surveillance**

- Seek out additional cases of respiratory illness among residents and staff. Be alert for new-onset illness among exposed persons, and review resident and staff histories to identify previous onsets of illness that may not have been correctly recognized as being part of the outbreak.
- Use influenza and other respiratory viral testing promptly in newly identified cases of respiratory illness so that infection control measures specific to respiratory outbreaks can be initiated to prevent spread (e.g., antiviral prophylaxis.)

#### **5. Document and count cases**

- The facility shall develop and maintain a line list. Starting and maintaining a line list helps track the progress of an outbreak. A sample line list for residents with acute respiratory illness may be found at <http://nj.gov/health/forms/cds-11.dot>.
- The LHD investigator shall review the line list frequently with the facility and the NJDOH epidemiologist to assess the status of the outbreak, and make recommendations regarding control measures.

#### **6. Identify and eliminate possible transmission sources**

- A floor plan may be used in conjunction with the line list to document the physical locations of case-patients and ill staff to identify possible transmission routes.
- **Exclude sick staff.** Staff members who become sick with a fever and/or respiratory symptoms shall be sent home immediately. Before sending staff home, perform rapid influenza testing and use an antiviral agent for treatment and prophylaxis as appropriate.
- **Monitor personnel absenteeism.** Monitor personnel absenteeism due to respiratory symptoms and exclude those with influenza-like symptoms from work until at least 24 hours after they no longer have a fever.<sup>4</sup>
- **Inform receiving facilities of the outbreak when transferring residents.** Transfer notification applies to both ill residents and exposed well residents. If at all possible, limit transfers to medical necessity.

- The facility, LHD and NJDOH epidemiologist should collaborate to determine the outbreak source. Occasionally, even with thorough investigation, the source might not be identified.

## **7. Institute control measures**

Control measures are the tools that can end the outbreak by halting transmission. The LHD, in consultation with the NJDOH epidemiologist, shall provide recommendations and guidance to the facility regarding control measures. Control measures can negatively impact residents' quality of life by restricting their lifestyle, and staffing limitations are difficult to implement. Nevertheless, the facility should make every effort to institute and maintain adequate control measures until the outbreak is declared over.

Basic control measures are listed below.

### **A. Cohort residents, staff, equipment and supplies according to the living/work area**

- Identify three cohort groups: 1.) "Ill" 2.) "Exposed" (not ill, but potentially incubating) and 3.) "Not ill/not exposed" (new admissions/staff.)
- Restrict use of equipment and supplies to use within a specific area, and do not allow residents/staff from one cohort to mix with other cohorts. (For example, suspend community dining or recreational activities where ill and well would otherwise intermingle.)
- Close the facility to new admissions if the physical set-up does not allow for complete segregation between "not ill/not exposed" and "ill/exposed" cohorts.
- Symptomatic residents should remain in their assigned room as much as possible, including having their meals served in their rooms, until 24 hours after their fever and respiratory signs and symptoms have resolved.
- If resident movement or transport is necessary, have the resident wear a facemask (e.g., surgical or procedure mask), if possible.
- Staff assigned to affected unit(s) should not rotate to unaffected units until the LHD and regional epidemiologist have determined that the outbreak is under control. This restriction includes prohibiting staff from working on unaffected units after completing their usual shift on the affected unit(s).

### **B. Maintain Standard Precaution**<sup>5</sup>

Standard Precautions are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent.

- Wear gloves if bare hand contact with respiratory secretions or potentially contaminated surfaces is anticipated. Dispose of gloves and wash hands after completing tasks before touching anything else.
- Wear a gown if soiling of clothes with a resident's respiratory secretions is anticipated.
- Remove gloves and gowns after each resident encounter and perform hand hygiene.

- Wash hands before and after touching the resident, the resident's environment, or after touching respiratory secretions, whether or not gloves are worn. Gloves do not replace the need for hand hygiene.

### **C. Institute Droplet Precautions**

The following information about Droplet Precautions is excerpted from CDC Guidelines for Isolation Precautions.<sup>6</sup> Droplet Precautions are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions.

- **RESIDENT PLACEMENT-** Acute care hospitals place patients who require droplet precautions in a single-patient room. In long-term care and other residential settings, make decisions regarding resident placement on a case-by-case basis, balancing infection risks to roommates with the adverse psychological impact room placement might have.
- **MASKS-** Wear a surgical or procedure mask upon entering the resident's room. Remove the mask when leaving the resident's room and dispose of the mask in a waste container.
- **RESIDENT TRANSPORT-** Limit transport and movement of residents outside of the room for medically necessary purposes. If transport or movement is necessary, instruct patient to wear a mask if possible.
- Droplet Precautions should be implemented for residents with suspected or confirmed influenza for seven days after illness onset or until 24 hours after the resolution of fever and respiratory symptoms, whichever is longer.
- Droplet Precautions should continue while the resident is taking antiviral therapy, as the resident with influenza may continue to shed virus while on therapy.
- Encourage persons who are coughing to sit at least three to about six feet from others. Residents with symptoms of respiratory infection should be discouraged from using common areas when feasible.

### **D. Reemphasize hand hygiene among residents, staff and visitors**

The CDC has identified hand washing as the single most important means of preventing the spread of infection at all times.<sup>7</sup> During the outbreak all staff, residents and visitors must be reminded to observe meticulous hand hygiene. The following points should be stressed:

- After soaping, all surfaces of the hands should be rubbed together vigorously for at least 15 seconds, then rinsed thoroughly. Hands should be dried completely, using a disposable paper towel.
- Hands should be washed before donning and doffing of gloves.
- Use of an alcohol-based hand rub is an acceptable alternative to hand washing when hands are not visibly soiled.

- Ensure that supplies for hand washing are available where sinks are located and provide dispensers of alcohol-based hand rubs in other locations. Provide hands-free waste receptacles where possible.

#### **E. Administer antiviral treatments as indicated (Influenza ONLY)**

- Upon suspicion of influenza, the facility's medical director should administer antiviral treatment to residents. Once laboratory confirmation of influenza is obtained, chemoprophylaxis should be provided to residents and health care personnel as recommended by the Centers for Disease Control and Prevention.<sup>8</sup>
- TREATMENT: Antiviral treatment works best when started within the first two days of symptoms; however, these medications can still help when given after 48 hours to those that are very sick.
- CHEMOPROPHYLAXIS: All eligible residents in the entire LTCF (not just currently impacted wards) should receive antiviral chemoprophylaxis as soon as an influenza outbreak is determined; antiviral chemoprophylaxis is recommended for all non-ill residents, regardless of their influenza vaccination status.<sup>9</sup>
- The use of antivirals for chemoprophylaxis of influenza is a key component of influenza outbreak control in LTCFs and other residential institutions at higher risk of influenza complications.
- CDC recommends antiviral chemoprophylaxis for a minimum of two weeks and continuing for at least seven days after the last known case was identified, whichever is longer.

#### **F. Provide in-service education to ALL staff on ALL shifts**

- In addition to all direct caregivers employed by the facility, staff includes volunteers, private duty, contracted or agency personnel who perform housekeeping, recreational, laundry, dietary, social service, physical therapy and administrative activities.
- Education is mandatory for all shifts, even if a staff in-service program has been completed recently.
- Place major emphasis on meticulous hand hygiene since it is the most effective measure for preventing further spread. Provide information on the infecting organism and its transmission, standard and droplet precautions, and movement restriction.
- Contact the LHD for fact sheets or other pertinent educational materials.

#### **G. Restrict visits from family, friends and volunteers as necessary**

- Visitors with respiratory symptoms should be encouraged to postpone their visit until their symptoms resolve. However, a family member determined to visit may do so under any circumstance. For such visitors, consider offering a surgical mask, and encourage them to limit their visit only to their respective family members and to minimize touching of residents and environmental surfaces.



- Post signs to reinforce infection control measures including the need to adhere to droplet precautions and perform strict hand hygiene before entering and leaving resident rooms. Signage should be eye-catching and posted at building entrances as well as outside resident rooms.
- Educate all visitors (e.g., family, friends and volunteers) of the importance of vaccination to prevent infection.
- Provide tissues and/or masks to residents and visitors who are coughing or sneezing so that they can cover their mouth and nose.
- Provide tissues and alcohol-based hand rubs in common areas and waiting rooms.

#### **H. Environmental Measures**

Use routine cleaning and disinfecting strategies during influenza season. Focus on cleaning frequently touched surfaces in common areas and resident rooms. Special handling of soiled linens and dietary trays is not necessary.

- Use of disinfectants registered by the U.S. Environmental Protection Agency (EPA) is recommended whenever these are available. Lists of all registered disinfectants can be found at <http://www.epa.gov/oppad001/chemregindex.htm>. Many, if not all, of these products indicate potency for several target pathogens on the label. There are approximately 400 registered disinfectants with human influenza A and/or B listed on the product label, and all will inactivate respiratory viruses when used according to manufacturer instructions.<sup>10</sup>
- Environmental Services staff should use appropriate personal protective equipment (PPE) (i.e., gloves) as needed when preparing disinfectant and cleaning solutions and when applying these solutions.
- Clean and disinfect surfaces that are touched routinely by hand (e.g., doorknobs, bed rails, bedside and over-bed tables, bathroom surfaces, safety/pull-up bars, television controls, call buttons) on a more frequent schedule than that used for large housekeeping surfaces.
- Follow manufacturer instructions for proper use of disinfectants, especially with regards to the proper concentration of product and the time the product should be in contact with the surface being disinfected.
- Consult medical equipment instructions for appropriate methods of cleaning and disinfection for these items, and consider using barrier coverings for equipment that may be hard to clean or has accessible electronic components.
- Clean large housekeeping surfaces (e.g., floors) in resident -care areas with detergent/disinfectants in accordance with manufacturer instructions on a regular basis as per facility policy (i.e., at least daily and terminally cleaned at patient discharge).
- Avoid large-surface cleaning methods that produce mists or aerosols or disperse dust in resident -care areas (e.g., use wet dusting techniques, wipe application of cleaning and/or disinfectant solutions).

- Detergent and water are adequate for cleaning surfaces in nonresident -care areas (e.g., administrative offices).
- Follow facility procedures to ensure the cleanliness of cleaning and/or disinfectant solutions, rinse water, mop heads, and cloths (e.g., separate buckets for solutions and rinse water, frequent exchanges of solutions, replacing soiled mops heads and cloths with clean items, using microfiber mopping methods).
- Avoid placing influenza patients in rooms with carpeting if possible; use vacuums equipped with HEPA filtration when vacuuming carpets in resident -care areas.

### **8. Evaluate the effectiveness of control measures and modify as needed**

Generally, the outbreak is considered to be over when two incubation periods have passed without a new case being identified. Waiting two incubation periods allows for recognition of potential secondary case-patients that are still asymptomatic but in whom the disease may be incubating. For influenza, two incubation periods is approximately one week.

- If new cases are identified after control measures have been instituted for one incubation period, continue outbreak control measures in consultation with the facility administration, LHD and the regional epidemiologist. **Evaluate and enforce adherence to infection control precautions by all staff, residents and visitors.** Continue control measures until no new cases are identified for two incubation periods.
- When no new cases are identified after two incubation periods, control measures may be relaxed. Continue active surveillance for new cases according to LHD recommendations.

### **9. Summarize the investigation in a written report**

The LHD and facility shall collaborate on a final report and submit it to NJDOH within 30 days of completion of the investigation. See the NJDOH website for the report format, available at <http://www.state.nj.us/health/forms/cds-30.dot> (form CDS-30) and [http://www.state.nj.us/health/forms/cds-30\\_instr.doc](http://www.state.nj.us/health/forms/cds-30_instr.doc) (instructions for completion.)

## INSTRUCTIONS FOR COLLECTION, TESTING, AND SHIPPING OF RESPIRATORY VIRUS SPECIMENS

The New Jersey Department of Health Public Health and Environmental Laboratories (PHEL) has the ability to conduct PCR testing for both seasonal and novel influenza viruses. The following is a guide on appropriate collection, testing and shipping of influenza specimens to PHEL. Specimens collected using the protocols below can also be sent to many commercial laboratories for influenza and other viral respiratory pathogens. Facilities should check with contracting lab to determine which specimens are acceptable for testing at that laboratory. All samples being sent to PHEL should be collected, labeled, stored, packaged and shipped appropriately as described below, in conjunction with NJDOH epidemiologist. Facilities should adhere to contracting laboratory protocols for samples being sent to commercial laboratories.

### **General Considerations**

- Appropriate infection control procedures should be followed when collecting samples: <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>
- Detection of respiratory viruses is more likely from specimens collected within the first 3-4 days of illness onset.
- The following should be collected as soon as possible after illness onset: nasopharyngeal swab, nasal aspirate or wash or a combined nasopharyngeal swab with oropharyngeal swab. If these specimens cannot be collected, a nasal swab or oropharyngeal swab is acceptable. For patients who are intubated, an endotracheal aspirate should also be collected. Bronchoalveolar lavage (BAL) and sputum specimens are also acceptable. Collection instructions can be found below.
- Ideally, swab specimens should be collected using swabs with synthetic tips (e.g., polyester or Dacron®) and an aluminum or plastic shaft. Swabs with cotton tips and wooden shafts are not recommended. Specimens collected with swabs made of calcium alginate are not acceptable. The swab specimen collection vials should contain 1-3 ml of viral transport medium (e.g., containing protein stabilizer and antibiotics to discourage bacterial and fungal growth; buffer solution).
- Specimens should be placed into sterile viral transport media and immediately placed on refrigerant gel-packs or at 4°C (refrigerator) for transport.
- All specimens collected and sent to PHEL should be labeled with a minimum of two unique patient identifiers. Patient identifiers can include: patient's first and last name, date of birth, medical record number, date of collection, and specimen type. Ideally every specimen should include all of this information. If specimens will be sent to a contracting laboratory, facilities should follow their instructions for specimen labeling, which should include the E-number for the outbreak.

### **Specimen Collection**

#### **Nasopharyngeal (NP)**

- Materials: Sterile Dacron/nylon swab; viral transport media tube (3 ml)
- Procedure:
  - Collect specimen with a sterile Dacron/nylon swab with a non-wooden shaft (do NOT use calcium alginate swabs or swabs with wooden sticks as they may contain

substances which can inactivate viruses or interfere with PCR testing).

- Insert the swab through the nostril, parallel to the palate to the posterior nasopharynx (distance from the nostrils to the external opening of the ear). The swab should be left in place for a few seconds to absorb secretions. Slowly withdraw the swab with a rotating motion. Swab both nostrils with the same swab.
- Put the tip of the swab into the plastic vial containing 3 ml of viral transport media and cut off the applicator stick.

#### Nasopharyngeal aspirates/wash

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

#### Nasal swab

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

#### Combined nasopharyngeal and oropharyngeal (throat) swab

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

- Put the tip of the swab into the same plastic vial containing the nasopharyngeal swab and break or cut off the applicator stick.

#### Bronchoalveolar lavage or tracheal aspirate

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

#### Storage, Packaging and Shipping

- The **vial containing the collected specimen** should be labeled with a minimum of two unique patient identifiers. Patient identifiers can include: patient's first and last name, date of birth, medical record number, date of collection, and specimen type. Ideally every specimen should include all of this information. **Samples which are not preapproved and labeled correctly will not be accepted for testing.**
- Respiratory specimens should be kept at 4°C for no longer than three days. Specimens can alternatively be frozen at ≤-70°C. Avoid freezing and thawing specimens if possible.
- The SRD-1 form (available at <http://www.state.nj.us/health/forms/srd-1.pdf>) should be completely filled out for each specimen that is sent to PHEL.
- Commercial carriers can be used to ship samples, which should be handled as Biologic Substance, Category B. Samples should be packaged in accordance with DOT regulation 49 CFR 178.199 utilizing packaging meeting DOT specifications for biological substances. Please include a frozen cold pack with the specimens to maintain the cold chain during shipment. Information on shipping regulations for these carriers can be found at [www.iata.org](http://www.iata.org) or [www.hazmat.dot.gov](http://www.hazmat.dot.gov).
- Facilities should ensure that the specimen will be received at PHEL during normal business hours Monday through Friday. Samples collected on Friday or Saturday should be held in refrigeration and shipped on Sunday or Monday.
- Specimens should be mailed to the following address:

New Jersey Public Health, Environmental  
and Agricultural Laboratories  
3 Schwarzkopf Drive  
Ewing, NJ 08628

#### Laboratory Resources

##### *Specimen collection*

<http://vimeo.com/7748371>

<http://www.youtube.com/watch?v=DVJNWefmHjE>

<http://www.cdc.gov/pertussis/clinical/diagnostic-testing/specimen-collection.html>

##### *Directions to NJDOH PHEL*

<http://www.state.nj.us/health/forms/vir-16inst.shtml>

<http://nj.gov/health/phel/documents/contact.pdf>

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## References

- <sup>1</sup> New Jersey Administrative Code, Title 8. Department of Health, Chapter 57: Communicable Diseases. Available at <http://www.nj.gov/health/cd/reporting.shtml>. Accessed January 2, 2015
- <sup>2</sup> Centers for Disease Control and Prevention, Seasonal Influenza-Associated Hospitalizations in the United States. Available at <http://www.cdc.gov/flu/about/ga/hospital.htm>. Accessed January 2, 2015
- <sup>3</sup> Centers for Disease Control and Prevention, Seasonal Influenza: Interim Guidance for Antiviral Use, Available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>. Accessed January 2, 2015
- <sup>4</sup> Centers for Disease Control and Prevention, Preventions Strategies for Seasonal Influenza in Healthcare Settings. Available at <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>
- <sup>5</sup>Centers for Disease Control and Prevention, Healthcare-associated Infections (HAIs). Available at <http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-gl-standared-precautions.html>. Accessed January 2, 2015
- <sup>6</sup> Centers for Disease Control and Prevention, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Available at <http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html>. Accessed January 2, 2015
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