

Quick Guide to Collecting Respiratory Specimens

Specimen Collection

The New Jersey Public Health and Environmental Laboratories (PHEL) can accept respiratory specimens to test for pathogens such as Influenza A and B viruses, SARS-CoV-2 (the virus which causes COVID-19) and other respiratory pathogens. Proper collection, storage and transport of a respiratory specimen is critical to ensure specimen integrity and test accuracy. This document provides general guidance on how to collect various respiratory specimen types.

Preferred specimen type:

- **In critical cases, PHEL suggests submission of a Nasopharyngeal (NP) swab** as this is cleared on all testing platforms in use at PHEL, and the only specimen type cleared for non-influenza, non-COVID-19 respiratory viral testing.
- NP swab should be placed in a transport tube containing 1-3 mL viral transport media.
- **Other Accepted Specimens:**
 - Nasal mid turbinate swabs and anterior nasal swabs in viral transport media- these may be tested for influenza or COVID-19 testing, but are **not accepted** specimen types for non-influenza respiratory testing at PHEL.
 - Oropharyngeal (OP) swab in viral transport media
 - Nasopharyngeal wash/aspirate or nasal wash/aspirate
 - Bronchoalveolar lavage, tracheal aspirate, pleural fluid, lung biopsy
 - **Hologic Panther Aptima Direct Load Tubes**- These tubes are provided directly by PHEL specifically for use at PHEL. Contact phel.mmu@doh.nj.gov to request tubes

Specimen Storage and Transport

- Diagnostic specimens can be stored at 2-8°C for up to 72 hours after collection. Specimens not received refrigerated within the 72-hour window will be rejected.
- If testing is expected to occur after 72 hours of collection, store specimens frozen at -70°C or below and ship on dry ice.
 - Specimens frozen at -20°C or below will be accepted, but this could result in sample degradation and may result in a false negative test result.
- Specimens may be shipped to the laboratory for receipt Monday- Friday from 8am – 5pm. NJ PHEL is closed on weekends and state holidays.
- For detailed instructions on how to ship specimens to PHEL, please refer to our guidelines available [here](#). Questions can be directed to PHEL.SpecimenReceiving@doh.nj.gov

Appendix:

Attached specimen collection desk reference and visual guide documents are available from the CDC, along with other resources, here: <https://www.cdc.gov/flu/professionals/diagnosis/index.htm>

Influenza Specimen Collection

Nasopharyngeal Swab	Nasopharyngeal/Nasal Aspirate	Nasopharyngeal/Nasal Wash	Deep Nasal Swab	Combined Nasal & Throat Swab
Materials <ul style="list-style-type: none">• Sterile Dacron/nylon swab• Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)	<ul style="list-style-type: none">• Sterile suction catheter/suction apparatus• Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)	<ul style="list-style-type: none">• Sterile suction catheter/suction apparatus• Sterile normal saline	<ul style="list-style-type: none">• Sterile polyester swab (aluminum or plastic shaft preferred)• Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)	<ul style="list-style-type: none">• 2 dry sterile polyester swabs (aluminum or plastic shafts preferred)• Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)
Procedure <ol style="list-style-type: none">1 Tilt patient's head back 70 degrees.2 Insert swab into nostril. (Swab should reach depth equal to distance from nostrils to outer opening of the ear.) Leave swab in place for several seconds to absorb secretions.3 Slowly remove swab while rotating it. (Swab both nostrils with same swab.)4 Place tip of swab into sterile viral transport media tube and snap/cut off the applicator stick.	<ol style="list-style-type: none">1 Attach catheter to suction apparatus.2 Tilt patient's head back 70 degrees.3 Insert catheter into nostril. (Catheter should reach depth equal to distance from nostrils to outer opening of ear.)4 Begin gentle suction. Remove catheter while rotating it gently.5 Place specimen in sterile viral transport media tube. <p><i>Note: NP aspirate may not be possible to conduct in infants</i></p>	<ol style="list-style-type: none">1 Attach catheter to suction apparatus.2 Tilt patient's head back 70 degrees.3 Insert several drops of sterile normal saline into each nostril.4 Insert catheter into nostril. (Catheter should reach depth equal to distance from nostrils to outer opening of ear.)5 Begin gentle suction. Remove catheter while rotating it gently.6 Place specimen in sterile viral transport media tube. <p><i>Note: NP aspirate may not be possible to conduct in infants</i></p>	<ol style="list-style-type: none">1 Tilt patient's head back 70 degrees.2 While gently rotating the swab, insert swab less than one inch into nostril (until resistance is met at turbinates).3 Rotate the swab several times against nasal wall and repeat in other nostril using the same swab.4 Place tip of the swab into sterile viral transport media tube and cut off the applicator stick.	<ol style="list-style-type: none">1 Tilt patient's head back 70 degrees.2 While gently rotating the swab, insert swab less than one inch into nostril (until resistance is met at turbinates).3 Rotate the swab several times against nasal wall and repeat in other nostril using the same swab.4 Place tip of the swab into sterile viral transport media tube and cut off the applicator stick.5 For throat swab, take a second dry polyester swab, insert into mouth, and swab the posterior pharynx and tonsillar areas. (Avoid the tongue.)6 Place tip of swab into the same tube and cut off the applicator tip.

Packing:

- Label the specimen on viral transport media tube and ensure cap on tube is tightly sealed. (Do not use a pencil or pen for labeling, as they can rub off or smear. Instead, use a bar code or permanent marker).
- Fill out paperwork in accordance with state health department guidelines.
- Include a frozen cold pack with the specimen(s).
- Pack specimens in accordance with U.S. Department of Transportation regulations regarding shipment of biological substances, see www.cdc.gov/flu/professionals/diagnosis/index.htm.

Storing:

- Specimens should be placed into sterile viral transport media and immediately placed on refrigerant gel packs or at 4 degrees Celsius (refrigerator) for transport to the state public health laboratory.
- Keep specimens refrigerated (2-8 degrees Celsius, 26-46 degrees Fahrenheit) prior to shipping.

Shipping:

- Ship specimens for testing as soon as possible.
- If delivery will be delayed for more than 3-4 days, specimen should be frozen at -70 degrees Celsius (-94 degrees Fahrenheit).
- Ensure specimen will be received by the public health laboratory during normal business hours.

Considerations:

- A nasopharyngeal (NP) swab is the optimal upper respiratory tract specimen collection method for influenza testing. However, such specimens cannot be collected from infants and many older patients may not allow an NP specimen to be collected. Alternatively, a combined nasal and throat swab specimen or aspirate specimens can provide good influenza virus yield.
- Some influenza tests are approved only for use with certain kinds of respiratory tract specimens, so follow guidelines provided by test. Also, some tests (e.g., rapid influenza diagnostic tests) are only approved for certain kinds of respiratory tract specimens.
- For best results (i.e., highest influenza virus yield), collect respiratory tract specimens within four days of illness onset.
- Most sensitive and accurate tests for influenza virus detection are molecular or nucleic acid amplification tests (RT-PCR).
- Negative test results obtained from rapid influenza diagnostic tests (RIDTs) **that detect influenza viral antigens** do not exclude influenza virus infection in patients with signs and symptoms of influenza. A negative test result could be a false negative and should not preclude further diagnostic testing (such as RT-PCR) and starting empiric antiviral treatment.
- A surgical mask and gloves are recommended at a minimum for all procedures. For some patients and procedures, additional precautions may be indicated, see Standard Precautions at www.cdc.gov/hicpac/2007IP/2007ip_part4.html#a4.



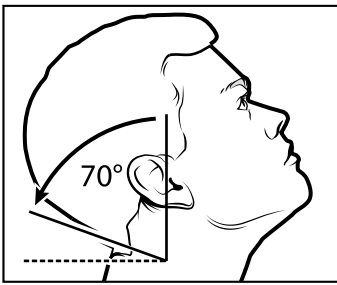
U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Influenza Specimen Collection

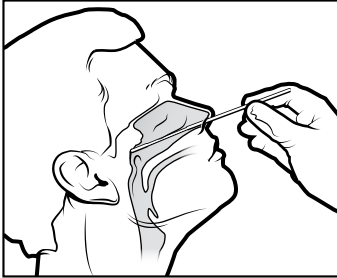
Nasopharyngeal Swab

- Materials**
- Sterile Dacron/nylon swab
 - Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)

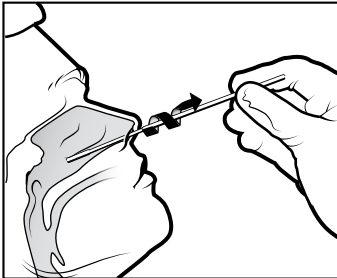
Procedure



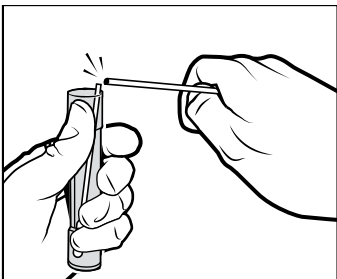
1 Tilt patient's head back 70 degrees.



2 Insert swab into nostril. (Swab should reach depth equal to distance from nostrils to outer opening of the ear.) Leave swab in place for several seconds to absorb secretions.



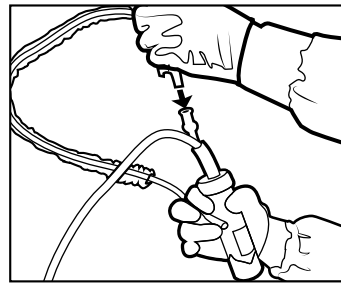
3 Slowly remove swab while rotating it. (Swab both nostrils with same swab.)



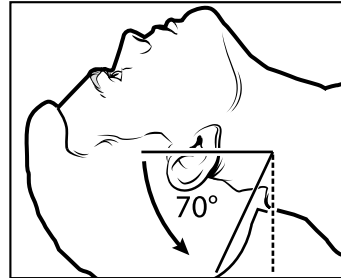
4 Place tip of swab into sterile viral transport media tube and snap/cut off the applicator stick.

Nasopharyngeal/Nasal Aspirate

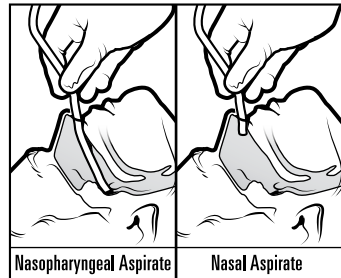
- Materials**
- Sterile suction catheter/suction apparatus
 - Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)



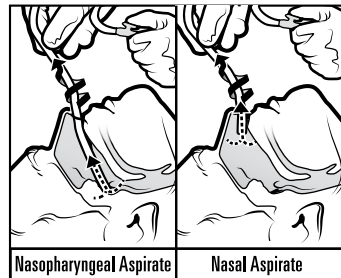
1 Attach catheter to suction apparatus.



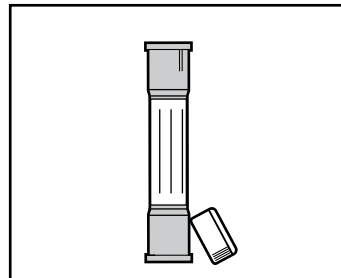
2 Tilt patient's head back 70 degrees.



3 Insert catheter into nostril. (Catheter should reach depth equal to distance from nostrils to outer opening of ear.)



4 Begin gentle suction. Remove catheter while rotating it gently.

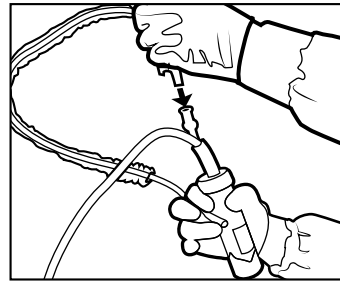


5 Place specimen in sterile viral transport media tube.

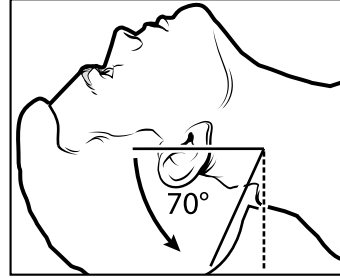
Note: NP aspirate may not be possible to conduct in infants

Nasopharyngeal/Nasal Wash

- Materials**
- Sterile suction catheter/suction apparatus
 - Sterile normal saline



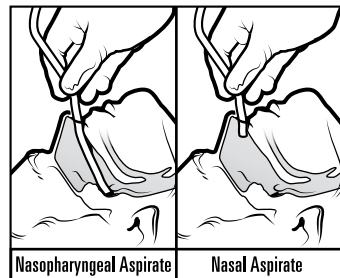
1 Attach catheter to suction apparatus.



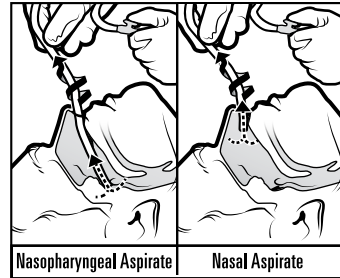
2 Tilt patient's head back 70 degrees.



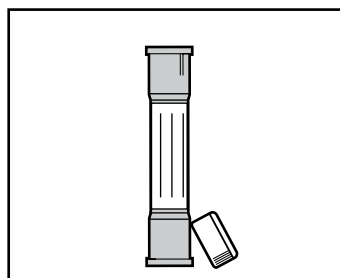
3 Insert several drops of sterile normal saline into each nostril.



4 Insert catheter into nostril. (Catheter should reach depth equal to distance from nostrils to outer opening of ear.)



5 Begin gentle suction. Remove catheter while rotating it gently.

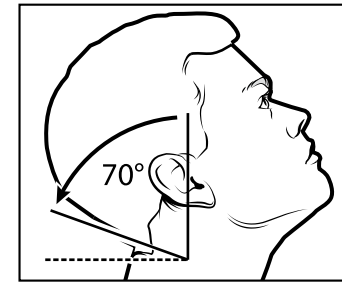


6 Place specimen in sterile viral transport media tube.

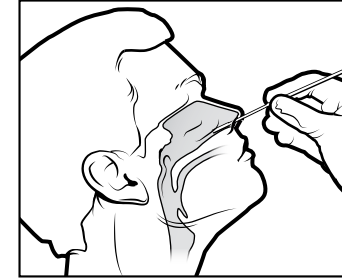
Note: NP aspirate may not be possible to conduct in infants

Deep Nasal Swab

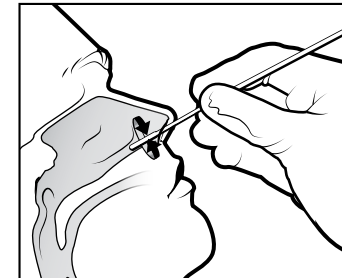
- Materials**
- Sterile polyester swab (aluminum or plastic shaft preferred)
 - Viral transport media tube (should contain 1-3 ML of sterile viral transport medium)



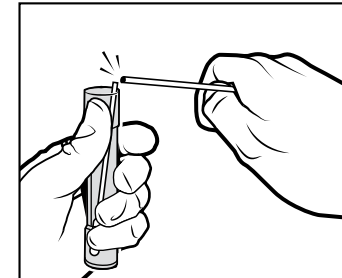
1 Tilt patient's head back 70 degrees.



2 While gently rotating the swab, insert swab less than one inch into nostril (until resistance is met at turbinates).



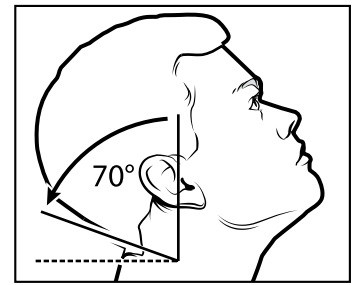
3 Rotate the swab several times against nasal wall and repeat in other nostril using the same swab.



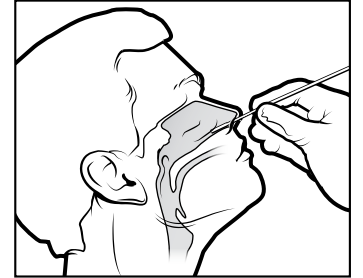
4 Place tip of the swab into sterile viral transport media tube and cut off the applicator stick.

Combined Nasal & Throat Swab

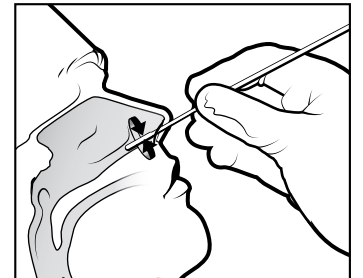
- Materials**
- 2 dry sterile polyester swabs (aluminum or plastic shafts preferred)
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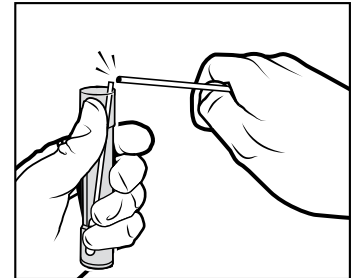
1 Tilt patient's head back 70 degrees.



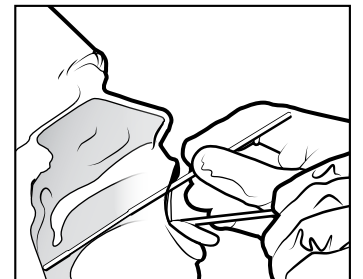
2 While gently rotating the swab, insert swab less than one inch into nostril (until resistance is met at turbinates).



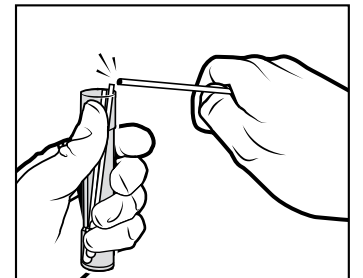
3 Rotate the swab several times against nasal wall and repeat in other nostril using the same swab.



4 Place tip of the swab into sterile viral transport media tube and cut off the applicator stick.



5 For throat swab, take a second dry polyester swab, insert into mouth, and swab the posterior pharynx and tonsillar areas. (Avoid the tongue.)



6 Place tip of swab into the same tube and cut off the applicator tip.

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- A surgical mask and gloves are recommended at a minimum for all procedures. For some patients and procedures, additional precautions may be indicated, see Standard Precautions at www.cdc.gov/hicpac/2007IP/2007ip_part4.html#a4.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention