



Department
of Health

H5N1 Specimen Collection

Training on Nasopharyngeal, Nasal,
Oropharyngeal (Throat), and Conjunctival Swabbing
July 19, 2024

Deborah C. Trahan, MPH, MSN, PPCNP-BC
NYSDOH Epidemiology Preparedness Unit

Training Agenda

- Obtaining Interpreter Services
- Obtaining Consent
- Contraindications
- Infection Prevention
- Equipment Considerations
- Types of Specimens to be Collected
 - Nasopharyngeal Swab
 - Nasal Swab
 - Oropharyngeal Swab
 - Conjunctival Swab
- Medical Waste Disposal
- Documentation
- Agricultural Biosecurity
- Resources

Before Specimen Collection

Interpreter Services

- If person does not speak English, access interpreter services.
- This also applies to persons using American Sign Language.
- Use **professional** interpretation services.
 - Ensure you have access to translation services or interpreters before deployment.
 - Check with your supervisor for the phone number, account, and any other information they need to access translation services.

Consent

- Obtain verbal consent for specimen collection, which includes describing the types of specimens to be collected.
- Do not collect specimens unless the person is adequately informed and consents to specimen collection.
- For minor persons (under 18 years old) and persons incapable of consenting to specimen collection before a specimen may be collected
 - Either a person legally responsible for the person must give prior written consent to the specimen being collected, or
 - A person legally responsible for the patient must be present during the specimen collection and consent to the specimen collection.

Contraindications

- Potential H5N1 specimen collection contraindications may include:
 - recent face, eye, nose, mouth, sinus, or head surgery or significant trauma
 - marked deviation of nasal septum
 - known coagulopathy (bleeding disorder)
- If potential contraindications exist, consult with the ordering provider or his/her delegate before proceeding with specimen collection.

Infection Prevention in the Field

- Hand hygiene
- Personal protective equipment (PPE)
 - Gloves
 - Gowns
 - N95 respirator (fit-tested)
 - Eye protection (goggles or face shields)
 - Personal eyeglasses and contact lenses are not adequate eye protection
- Other precautions
 - If possible, collect patient specimens in open, well-ventilated areas or outdoors
 - If collecting specimens indoors, room should remain vacant for at least 1 hour after patient leaves (airborne precautions)

PPE Refresher

Donning

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

- 1. GOWN**
 - Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
 - Fasten in back of neck and waist
- 2. MASK OR RESPIRATOR**
 - Secure ties or elastic bands at middle of head and neck
 - Fit flexible band to nose bridge
 - Fit snug to face and below chin
 - Fit-check respirator
- 3. GOGGLES OR FACE SHIELD**
 - Place over face and eyes and adjust to fit
- 4. GLOVES**
 - Extend to cover wrist of isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

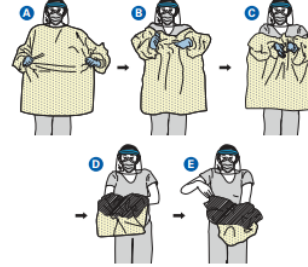


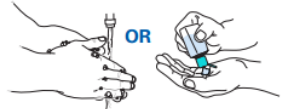
- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene




Doffing

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

- 1. GOWN AND GLOVES**
 - Gown front and sleeves and the outside of gloves are contaminated!
 - If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
 - While removing the gown, fold or roll the gown inside-out into a bundle
 - As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container
- 2. GOGGLES OR FACE SHIELD**
 - Outside of goggles or face shield are contaminated!
 - If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
 - If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container
- 3. MASK OR RESPIRATOR**
 - Front of mask/respirator is contaminated — DO NOT TOUCH!
 - If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
 - Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
 - Discard in a waste container
- 4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**


PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



Required Specimens and Equipment

Specimens Required for H5N1 Testing

Collect these 3 specimens:

1. Nasopharyngeal swab (put in a vial by itself)
 2. Nasal swab (put in *same* vial as oropharyngeal swab)
 3. Oropharyngeal swab (put in *same* vial as nasal swab)
- } Put these swabs in the same vial

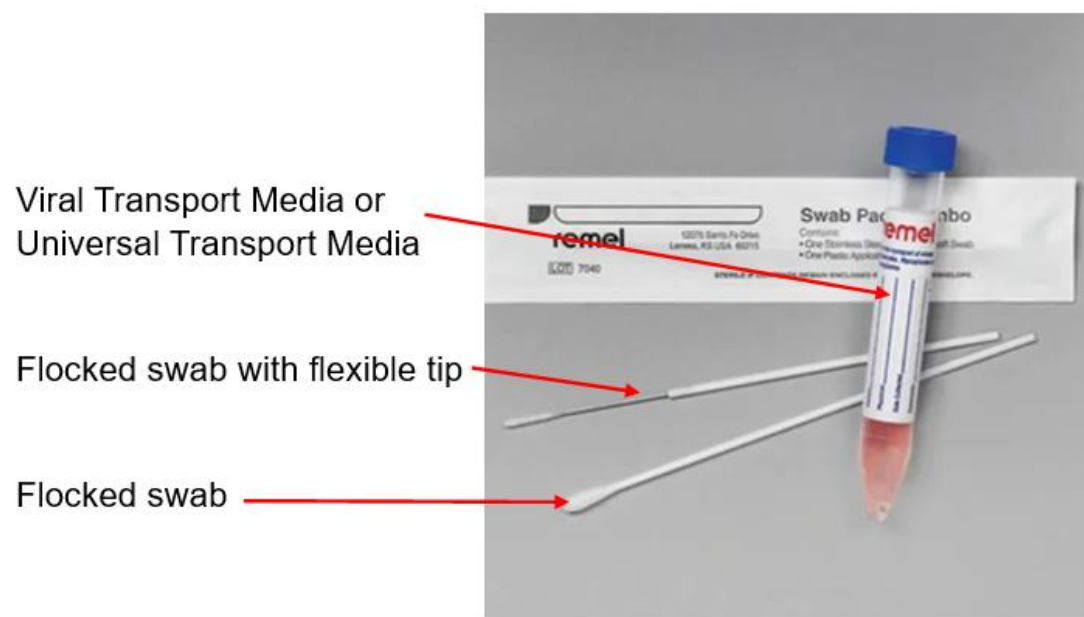
If signs or symptoms of conjunctivitis are present*, collect a 4th specimen:

4. Conjunctival swab (put in a vial by itself)

- If unable to collect all specimens, collect any of the above that you can
- Specimens may be collected in any order

* Eye redness, swelling, tearing/watering, discharge, crusting, foreign-body sensation, and/or itching/burning/discomfort

Specimen Collection Equipment



<https://www.indiamart.com/proddetail/thermo-fisher-microtest-universal-vtm-kits-icmr-approved-23512328073.html>

- Transport media
 - Viral transport media (VTM) or universal transport media* (UTM)
- Sterile flocked swabs are preferred
 - Sterile Dacron or rayon swabs with plastic or another flexible shaft may also be used.
 - Do NOT use cotton or calcium alginate swabs or swabs with wooden shafts as they may contain substances that inactivate viruses and inhibit PCR tests.

* FDA-approved for use (Date: July 12, 2024)



Department
of Health

Transport Media

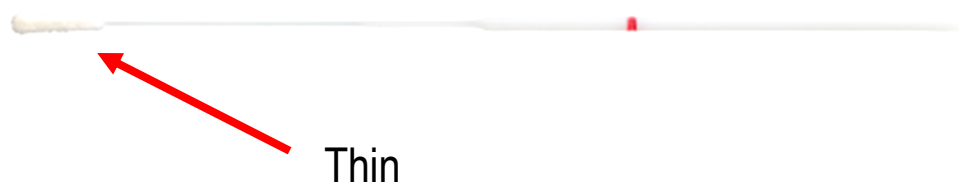


- There are two types of tubes used for viral specimen collection:
 - Viral transport media (VTM)
 - Universal transport media (UTM)
 - They look almost identical
- Either viral transport media (VTM) or universal transport media (UTM) may be used for HPAI H5N1 testing
- Ensure tube caps are seated properly and screwed on tightly after specimen collection and before transport

Sterile Flocked Swab

Nasopharyngeal Swab

- The thin, flexible minitip flocked swab is used



<https://www.copanusa.com/products/flocked-swabs-traditional-swabs/flogswabs-flocked-swabs/503cs01/>

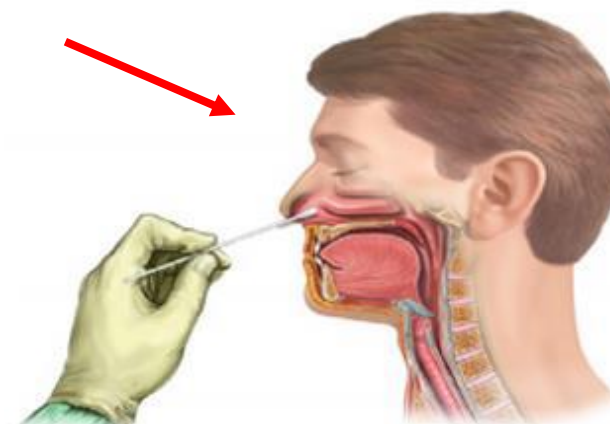
Nasal, oropharyngeal, and conjunctival swab

- The regular flocked swab is used



<https://www.copanusa.com/products/flocked-swabs-traditional-swabs/flogswabs-flocked-swabs/502cs01/>

CORRECT nasal swab placement



Use the right swab for the right collection site

- A nasal swab has a **thicker** shaft and swab than an NP swab
- A nasal swab should never be used to collect an NP specimen

Collection Procedures

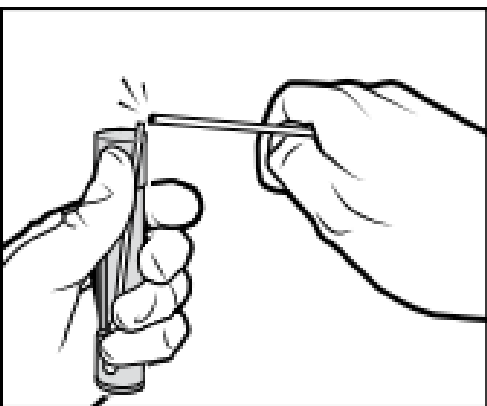
Nasopharyngeal Swab

Equipment:

- Swab: Thin, flexible minitip flocked NP swab
- Transport: Viral transport media (VTM) or universal transport media (UTM)

Technique:

- Tilt head back slightly.
- **Gently** insert NP swab through one of the nares to a depth equal to distance from nostril to outer opening of the ear.
- Direct swab in plane toward opening of the ear.
- Met resistance confirms contact with the nasopharynx. **Do not force the swab.**
- Allow contact time of several seconds to absorb secretions.
- Slowly rotate NP swab tip while removing swab to collect cellular material.
- **Swab only one nares using only one swab.**
- Insert NP swab in a single VTM/UTM vial. Ensure media covers swab tip.
- Break or cut swab shaft at breakpoint and screw the vial lid on **tightly**.

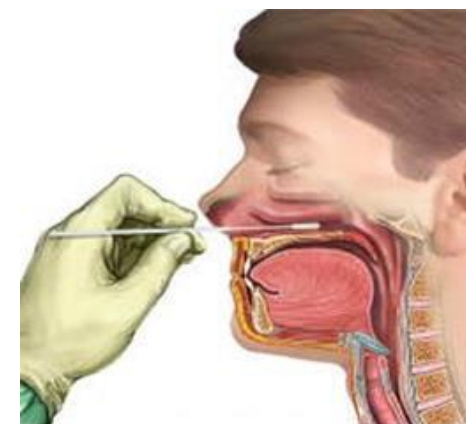


Demonstration

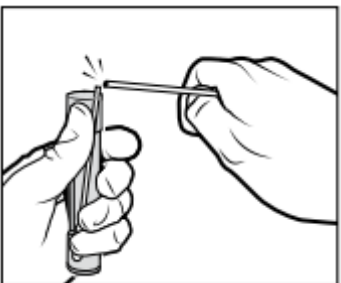
- <https://www.youtube.com/watch?v=DVJNWefmHjE> (Collection of NP Specimen Swab NEJM)
- https://www.youtube.com/watch?v=iW_P_c5eHNQ (NP Swab Demonstration- Joseph Brant Hospital)
- https://www.youtube.com/watch?v=ar2Grm_t8X8 (NP swab - children examples)
 - 0-3:32 mins: toddler
 - At 4 mins-5:20 mins: 10 months
 - 5:25-7 mins: 6 years old
 - 7 mins on: older children

Tips:

- Use side that is least “stuffy”/blocked for easier insertion
- Have person sit in a supportive chair with a back
- Have the person take a deep breath in before insertion



Anterior Nasal Swab



Equipment:

- Swab: Regular flocked swab
- Transport: Viral transport media (VTM) or universal transport media (UTM)

Technique:

- Position patient with head upward
- Insert the entire soft tip of the nasal swab into a nostril no more than $\frac{3}{4}$ of an inch (1.5 cm)
- Gently rotate the swab several times against the nasal wall and **repeat in the other nostril with the same swab.**
- Insert nasal swab in a single VTM/UTM vial. Ensure media covers swab tip.
- Break or cut swab shaft at breakpoint and screw the vial lid on **tightly.**

Demonstration

- <https://www.youtube.com/watch?v=AqvloK3UuMo> (Anterior Nasal Swab-Puritan)

Tips:

- Have person sit in a supportive chair with a back
- Have the person take a deep breath in before insertion



Oropharyngeal (Throat) Swab

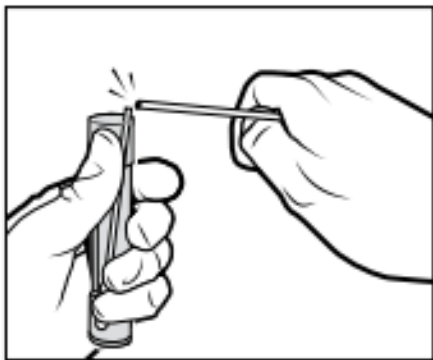


Equipment:

- Swab: Regular flocked swab, tongue depressor
- Transport: Viral transport media (VTM) or universal transport media (UTM)

Technique:

- Have person sit in supportive chair with back, tilt head back
- Have them open mouth wide and make the “ahhh” sound
- Insert swab and collect the sample from the posterior pharynx and tonsillar area, twisting the swab slowly to increase chance of adequate sample
- Remove swab avoiding tongue, teeth, and gums
- Insert throat swab into the same VTM/UTM vial as the nasal swab.
- Ensure VTM/UTM covers swab tip.
- Break or cut swab shaft at breakpoint and screw the vial lid on tightly.



Demonstration

- <https://www.youtube.com/watch?v=VZ8NEgGLbco> (Throat Swab- Puritan)
- <https://www.youtube.com/watch?v=mfZYAMDpGNk> (Oropharyngeal swab- 2:46 min mark)

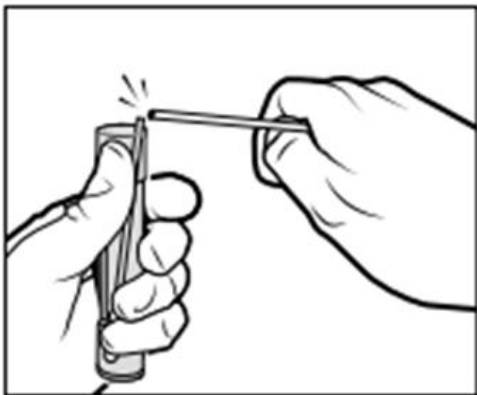


This is a similar procedure to that of swabbing for Strep throat.

Conjunctival Swab



Conjunctival specimen collection.
Source: British Journal of General Practice



<https://www.nicd.ac.za/wp-content/uploads/2024/03/Specimen-collection-Conjunctivitis.pdf>

Equipment:

- Swab: Regular flocked swab
- Transport: Viral transport media (VTM) or universal transport media (UTM)

Technique:

- Have person sit in supportive chair with back, tilt head back
- Gently pull down the lower eyelid of the person's affected eye to expose the conjunctiva that lines the inner surface of eyelid. Have person look up.
- Gently rotate the swab over the inner surface of the eyelid 2-3 times, avoiding touching the cornea.
- Remove the swab and place it into a single VTM/UTM vial.
- Ensure VTM/UTM covers swab tip.
- **If both eyes are affected, repeat these procedures on the other eyelid, using a separate new swab.** Place swab into same vial used for the first eyelid's swab.
- Break or cut swab shaft(s) at breakpoint and screw the vial lid on tightly.

Demonstration

- https://www.youtube.com/watch?v=GnxrJ_Yhvlk (Eye specimen - at 4:25- 4:35 min mark)
- In clinical practice, either a thin, flexible minitip flocced swab or the regular flocced swab can be used for conjunctival specimen collection.
- In the specimen collection kits, a regular flocced swab is included for the conjunctival swab (the minitip flocced swab is for the nasopharyngeal specimen).
- Note this video shows use of a thin, flexible mini-tip flocced swab. In the field, when using NYSDOH-provided specimen collection kits, **use a regular flocced swab for the conjunctival specimen collection.**

Holding and Distraction Techniques for Children Needing Specimen Collection

- Vancouver Coastal Health Child swab and holding technique
 - <https://www.youtube.com/watch?v=ndMrEMyRgQM>
- Mayo Clinic on Supporting child during specimen collection
 - <https://www.youtube.com/watch?v=mCIDZ9DsaKU>

After Specimen Collection

Medical Waste Disposal

- Regulated medical waste
 - During H5N1 specimen collection and while the specimens are being tested at Wadsworth Center, the specimens are considered **Category B** biological substance under 49 CFR 173.134(a)(1)(ii).
 - Contaminated swabs or others dropped, broken, or otherwise rendered unusable during specimen collection need to be disposed of as medical waste (i.e., put into a red bag).
 - Adhere to transportation requirements for medical waste
- Regular waste
 - Routine waste stream
 - PPE generated during specimen collection would be disposed of as **regular waste**, not regulated medical waste.
 - Exception: If PPE is visibly contaminated, then it needs to be treated as regulated medical waste

Document the following information:

- ✓ Name and date of birth of each person who was tested or was eligible but refused testing
- ✓ Receipt or refusal of the test
- ✓ Use of the non-patient-specific standing order
- ✓ Verbal consent
- ✓ Use of interpreter services, if any
- ✓ Date and time of testing
- ✓ Contact information for disclosing test results and follow-up
- ✓ Name of administering nurse

Practice Agriculture Biosecurity

- What is off the farm, should stay off the farm; what is on the farm, should stay on the farm.
- Consult with farm owner/operator for direction on preventing accidental pathogen spread through footwear, clothing, equipment, vehicles, etc.
 - e.g., going through a carwash after leaving a farm

For additional information about biosecurity:

- U.S. Department of Agriculture, Animal and Plant Health Inspection Service, *Defend the Flock*
 - <https://www.aphis.usda.gov/livestock-poultry-disease/avian/defend-the-flock>
- U.S. Department of Agriculture, Animal and Plant Health Inspection Service, *Highly Pathogenic Avian Influenza (HPAI) H5N1 Personal Protective Equipment Recommendations - May 29, 2024*
 - <https://www.aphis.usda.gov/sites/default/files/hpai-ppe-recommendations.pdf>

Resources

- Donning and Doffing PPE handout: <https://stacks.cdc.gov/view/cdc/24767>
- NYS Department of Health, Wadsworth Center - Virology - Specimen Collection & Shipping
<https://wadsworth.org/programs/id/virology/services/specimen-collection>
- CDC- Conjunctival Swab Specimen Collection for Detection of Avian Influenza A(H5) Viruses: <https://www.cdc.gov/bird-flu/media/pdfs/2024/07/conjunctival-swab-collection-avian-influenza.pdf>
- CDC - Highly Pathogenic Avian Influenza A(H5N1) Virus in Animals: Interim Recommendations for Prevention, Monitoring, and Public Health Investigations
<https://www.cdc.gov/bird-flu/prevention/hpai-interim-recommendations.html>

Questions about H5N1 Specimen Collection?

- Please note to call for urgent matters, otherwise email.
- If you have questions about the training or LMS, please contact:
 - Training issues can be directed to prepedap@health.ny.gov
 - LMS technical support issues can be directed to edlearn@health.ny.gov.
- If you need assistance when collecting specimens, please contact:
 - Consult with the ordering provider or his/her delegate
 - NYSDOH contacts:
 - Business hours - BCDC: 518-473-4439
 - After hours - NYSDOH Public Health Duty Officer: 866-881-2809

Video Credits & Disclaimer

Nasopharyngeal Specimen Collection:

Collection of Nasopharyngeal Specimens with the Swab Technique. 11/23/2009. New England Journal of Medicine

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

Nasopharyngeal (NP) Swab Demonstration. 05/12/2020. Joseph Brant Hospital, Ontario, Canada

https://www.youtube.com/watch?v=iW_P_c5eHNQ

How to Collect Nasopharyngeal Samples for Flu Testing Using COPAN Flocked Swabs. 01/17/2027. COPAN Diagnostics Inc.

https://www.youtube.com/watch?v=ar2Grm_t8X8

Anterior Nasal Specimen Collection:

How to Collect a Nasal Swab Specimen. 05/28/2020. Puritan Medical Products

<https://www.youtube.com/watch?v=AqvloK3UuMo>

Oropharyngeal (Throat) Specimen Collection:

How to Swab for Strep Throat. 01/28/2020. Puritan Medical Products

<https://www.youtube.com/watch?v=VZ8NEgGLbco>

Nasopharyngeal and Oropharyngeal Swabs. 12/26/2012. Pan American Health Organization (PAHO) TV

<https://www.youtube.com/watch?v=mfZYAMDpGNk> (Oropharyngeal swab - 2:46 min)

Conjunctival Specimen Collection:

How to Use Copan's Flocked Swabs (FLOQSwabs™) Eye Specimen Collection (Viral or Bacterial). 02/09/2017. COPAN Diagnostics Inc.

https://www.youtube.com/watch?v=GnxrJ_Yhvlk (Eye specimen - 4:25- 4:35 min)

DISCLAIMER: The New York State Department of Health does not endorse or recommend any specific equipment or product referenced in this training.