

# Specimen Collection: Nose and Throat (Ambulatory)- CE

## ALERT

**Do not attempt to collect a throat specimen swab if acute epiglottitis is suspected because trauma from the swab may cause increased edema, resulting in airway occlusion.<sup>4</sup>**

**Collect oropharyngeal and nasopharyngeal specimens within 3 days of symptom onset if possible but no later than 7 days of symptom onset and before the start of antimicrobial therapy.<sup>1</sup>**

**Don appropriate personal protective equipment (PPE) based on the patient's signs and symptoms and indications for isolation precautions.**

## OVERVIEW

A nose-throat swab specimen is used to detect pathogenic microorganisms in the nose and throat. To determine the degree of infection, the specimen is placed on a culture or transport media in the laboratory to determine if pathogenic organisms grow.

Pathogenic organisms that may be identified by this specimen include group A beta-hemolytic streptococci, *Bordetella pertussis*, *Corynebacterium diphtheriae*, and *Staphylococcus aureus*. Other organisms, including *Haemophilus influenzae*, *Streptococcus pneumoniae*, and *Candida albicans*, are considered abnormal if found in large amounts. The test results help determine which antibiotic therapy or treatment is appropriate.

A nose-throat swab may cause discomfort to sensitive mucosal membranes. Collecting a throat specimen sometimes causes gagging. The patient's clear understanding of the specimen collection technique may minimize his or her anxiety or discomfort. Nasal washing may provide an effective, more comfortable alternative to swabbing, when necessary.

## EDUCATION

- Explain to the patient that the procedure may cause some discomfort to sensitive mucosal membranes that lasts only a few seconds.
- Explain that obtaining a throat specimen may cause a tickling sensation or gagging and that obtaining a nasal specimen may cause an urge to sneeze.
- Discuss the patient's role in collecting the specimen.
- Explain how and why the specimen is being collected.
- Discuss the relationship between the test results and the medication and treatment prescribed.
- Discuss the reason for the time delay in receiving test results.
- Encourage questions and answer them as they arise.

## PROCEDURE

1. Perform hand hygiene.
2. Introduce yourself to the patient.
3. Verify the correct patient using two identifiers.
4. Explain the procedure to the patient and ensure that he or she agrees to treatment.

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5. Ensure that evaluation findings and laboratory results are communicated to the clinical team leader per the organization's practice.
6. Determine the patient's understanding of the purpose of the procedure and his or her ability to cooperate.
7. Evaluate the patient's nasal mucosa, posterior pharynx, and sinuses and observe for any drainage.
8. Check the practitioner's order for the type of specimen ordered and specifications.
9. Obtain assistance for collecting the throat specimen as needed.

### Collecting a Throat Specimen

1. Perform hand hygiene and don gloves and appropriate PPE based on the patient's signs and symptoms and indications for isolation precautions.
2. Verify the correct patient using two identifiers.
3. Explain the procedure to the patient and ensure that he or she agrees to treatment.
4. Instruct the patient to sit erect in a bed or in a chair and face him or her. A patient who is acutely ill or a young child may lie back against the bed with the head of the bed raised.
5. Have the swab and the sterile tube or culture tube ready for use. If using a prepackaged swab in a tube, loosen the top so the swab can be removed easily.

Rationale: Having the swab and the sterile tube or culture tube ready allows the health care team member to grasp the swab easily without danger of contamination.

6. Instruct the patient to tilt his or her head back. If the patient is in a bed, place a pillow behind his or her shoulders.
7. Ask the patient to open his or her mouth and say "ah."
8. Depress the anterior third of the tongue with a tongue blade and observe for inflamed areas of the pharynx or tonsils. Illuminate the area with a penlight as needed.

Rationale: Depressing the tongue permits exposure of the pharynx, relaxes throat muscles, and minimizes the gag reflex. The area to be swabbed should be clearly visible.

**Do not place the tongue blade along the back of the tongue; doing so is likely to initiate the gag reflex. If the patient gags, remove the tongue blade and allow the patient to relax before reinserting it.**

9. Insert the swab without touching the lips, teeth, tongue, cheeks, or uvula.

Rationale: Touching the lips, teeth, tongue, cheeks, or uvula with the swab may cause contamination with organisms from the oral cavity.

10. Gently but quickly swab the tonsillar area from side to side, contacting any inflamed or purulent sites.

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Rationale: The inflamed or purulent sites in the tonsillar area contain the most microorganisms.

11. Carefully withdraw the swab without touching the oral structures.
12. Insert the swab immediately into the sterile tube or culture tube (Figure 2). and push the tip into the liquid medium at the bottom of the tube or follow instructions specific to specimen collection per the organization's practice.

Rationale: Mixing the swab tip with the culture or transport medium helps ensure live bacteria or virus for testing.

13. Place the top securely on the tube.
14. In the presence of the patient, label the specimen per the organization's practice.<sup>3</sup>
15. Prepare the specimen for transport. Place the labeled specimen in a biohazard bag.
16. Transport the specimen to the laboratory immediately per the organization's practice.
17. Discard supplies, remove PPE, and perform hand hygiene.
18. Document the procedure in the patient's record.

## **Collecting a Nasal Specimen**

1. Perform hand hygiene and don gloves and appropriate PPE based on the patient's signs and symptoms and indications for isolation precautions.
2. Verify the correct patient using two identifiers.
3. Explain the procedure to the patient and ensure that he or she agrees to treatment.
4. Instruct the patient to sit erect in a bed or in a chair, and face him or her. A patient who is acutely ill or a young child may lie back against the bed with the head of the bed raised.
5. Have the swab and the sterile tube or culture tube ready for use. If using a prepackaged swab in a tube, loosen the top so the swab can be removed easily.

Rationale: Having the swab, sterile tube, or the culture tube ready allows the health care team member to grasp the swab easily without danger of contamination.

6. Ask the patient to occlude each nostril one at a time and exhale.

Rationale: As the patient breathes through each open nostril, the health care team member determines the nostril with the greater patency.

7. Position the patient with his or her head tilted back and use a penlight to check the nasal passages for patency. If the patient is on a bed, place a pillow behind his or her shoulders.
8. Carefully insert the swab into the nostril until it reaches the portion of mucosa that is inflamed or contains exudate. Rotate the swab quickly and gently.

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Rationale: The swab should remain sterile until it reaches the area to be tested. Rotating the swab ensures that it touches all surfaces where exudate is present.

9. Remove the swab without touching the sides of the nose.

Rationale: Avoiding contact with the sides of the nose prevents contaminating the swab with resident bacteria or virus.

10. Offer the patient a facial tissue to blow his or her nose if needed.
11. Insert the swab into the sterile tube or culture tube and push the tip into the liquid medium at the bottom of the tube or follow instructions specific to specimen collection per the organization's practice.

Rationale: Mixing the swab tip with culture or transport medium helps ensure live bacteria or virus for testing.

12. Place the top securely on the tube.
13. In the presence of the patient, label the specimen per the organization's practice.<sup>3</sup>
14. Prepare the specimen for transport. Place the labeled specimen in a biohazard bag.
15. Transport the specimen to the laboratory immediately per the organization's practice.
16. Discard supplies, remove PPE, and perform hand hygiene.
17. Document the procedure in the patient's record.

### Collecting a Nasopharyngeal Specimen: Swab Method

1. Perform hand hygiene and don gloves and appropriate PPE based on the patient's signs and symptoms and indications for isolation precautions.
2. Verify the correct patient using two identifiers.
3. Explain the procedure to the patient and ensure that he or she agrees to treatment.
4. Instruct the patient to sit erect in a bed or in a chair, and face him or her. A patient who is acutely ill or a young child may lie back against the bed with the head of the bed raised.
5. Have the nasopharyngeal swab (on flexible wire) and the sterile tube or culture tube ready for use. If using a prepackaged swab in a tube, loosen the top so the swab can be removed easily.

Rationale: Having the swab and sterile tube or the culture tube ready allows the health care team member to grasp the swab easily without danger of contamination. Use of a specially designed nasopharyngeal swab allows access to the difficult-to-reach nasopharyngeal area.

6. Position the patient with his or her head tilted back and use a penlight to check the nasal passages for patency. If the patient is on a bed, place a pillow behind his or her shoulders.
7. Gently advance the swab to the nasopharynx until resistance is met.
8. Roll the swab and allow it to remain in place for several seconds.

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Rationale: Leaving the swab tip in contact with the nasopharynx facilitates absorption of fluid into the swab.

9. Insert the swab into the sterile tube or culture tube and push the tip into the liquid medium at the bottom of the tube or follow instructions specific to specimen collection per the organization's practice.

Rationale: Mixing the swab tip with the medium helps ensure live bacteria or virus for testing.

10. Place the top securely on the sterile tube or culture tube.

11. Offer the patient a facial tissue to blow his or her nose if needed.

12. In the presence of the patient, label the specimen per the organization's practice.<sup>3</sup>

13. Prepare the specimen for transport. Place the labeled specimen in a biohazard bag.

14. Transport the specimen to the laboratory immediately per the organization's practice.

15. Discard supplies, remove PPE, and perform hand hygiene.

16. Document the procedure in the patient's record.

### Collecting a Nasopharyngeal Specimen: Wash Method with Suction

1. Perform hand hygiene and don gloves and appropriate PPE based on the patient's signs and symptoms and indications for isolation precautions.

2. Verify the correct patient using two identifiers.

3. Explain the procedure to the patient and ensure that he or she agrees to treatment.

4. Instruct the patient to sit erect in a bed or in a chair, and face him or her. A patient who is acutely ill or a young child may lie back against the bed with the head of the bed raised.

5. Attach the suction catheter to the suction specimen trap. Attach the specimen trap to the suction connecting tubing and adjust the suction.

6. Draw up 1.5 ml of sterile nonbacteriostatic 0.9% sodium chloride solution into a 3-ml syringe.<sup>1</sup>

7. Instruct the patient to tilt his or her head back. If the patient is in a bed, place a pillow behind his or her shoulders.

8. Using the syringe, insert 1 to 1.5 ml of sterile nonbacteriostatic 0.9% sodium chloride solution into each nostril.<sup>1</sup>

9. Insert the suction catheter into one nostril and suction secretions.

10. Repeat the procedure for the other nostril per the practitioner's order.

11. Remove the specimen trap from the suction tubing and secure the ends per the manufacturer's instructions.

12. Offer the patient a facial tissue to blow his or her nose if needed.

13. In the presence of the patient, label the specimen per the organization's practice.<sup>3</sup>

14. Prepare the specimen for transport. Place the labeled specimen in a biohazard bag.

15. Transport the specimen to the laboratory immediately per the organization's practice.

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16. Discard supplies, remove PPE, and perform hand hygiene.
17. Document the procedure in the patient's record.

## **EXPECTED OUTCOMES**

- Patient does not experience bleeding of nasal mucosa.
- Specimen is not contaminated.
- Patient tolerates procedure without pain or discomfort.

## **UNEXPECTED OUTCOMES**

- Patient experiences nasal bleeding.
- Patient complains of pain during procedure.
- Specimen is contaminated by adjacent skin or tissue.

## **DOCUMENTATION**

- Type of test ordered
- Date and time of collection, and name of person who collected specimen
- Appearance of nasal and oral mucosal structures
- Patient's tolerance of procedure
- Evaluation findings and laboratory results communicated to the clinical team leader per the organization's practice
- Unexpected outcomes and related interventions
- Patient education

## **PEDIATRIC CONSIDERATIONS**

- Take the time to develop rapport and trust with a pediatric patient before beginning any invasive procedure. Include the family; if the family demonstrates trust, the patient will be less anxious.
- Take the time to include age appropriate distraction to manage pain and anxiety.
- Use a developmentally appropriate approach and explanation of the procedure.
- Encourage the family to remain present during the procedure.
- Show the tongue blade and penlight to the child and demonstrate how to say "ah" to help decrease anxiety.
- A school-aged and older child may be more cooperative if given an opportunity to ask questions about the procedure and results.
- Acute respiratory infections in infants and children are viral in origin with the respiratory syncytial virus (RSV) as a leading cause.<sup>2</sup>
- Nasopharyngeal aspiration and nasal washes can be used for the diagnosis of respiratory viruses.<sup>1</sup>
- Nasopharyngeal flocked swabbing is increasingly recognized as an alternative to nasopharyngeal washes and traditional nasopharyngeal aspiration.<sup>1</sup> Flocked swabs use nylon fibers sprayed onto the tip of the swab while held in an electrostatic field. The electrostatic field ensures that the sample stays as close as possible to the swab surface for fast and complete transfer.
- Using a firm, gentle, and kind manner, stabilize the child's head and arms when collecting nose or throat specimens. If necessary, ask another health care team member to assist.

## **OLDER ADULT CONSIDERATIONS**

- Some older adults need help keeping the mouth open during specimen collection.

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- Some older adults have poor dentition. Be careful not to break a tooth. Consider denture removal.
- If the patient is confused, someone may need to hold his or her hands while the specimen is collected.

## REFERENCES

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3. Joint Commission, The. (2020). National patient safety goals: Ambulatory health care accreditation program. Retrieved March 10, 2020, from [https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/npsg\\_chapter\\_ahc\\_jan2020.pdf](https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/npsg_chapter_ahc_jan2020.pdf)
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## Elsevier Skills Levels of Evidence

- Level I - Systematic review of all relevant randomized controlled trials
- Level II - At least one well-designed randomized controlled trial
- Level III - Well-designed controlled trials without randomization
- Level IV - Well-designed case-controlled or cohort studies
- Level V - Descriptive or qualitative studies
- Level VI - Single descriptive or qualitative study
- Level VII - Authority opinion or expert committee reports

## Supplies

- Gloves and PPE, as indicated
- Small biohazard plastic bag for delivery of specimen to laboratory (or container specified by the organization)
- Pillow (as needed)

### Collecting a Throat Specimen

- Sterile swab in sterile tube
- Tongue blade
- Penlight

### Collecting a Nasal Specimen

- Sterile swab in sterile tube
- Penlight
- Facial tissue

### Collecting a Nasopharyngeal Specimen: Swab Method

- Nasopharyngeal swab on a flexible wire swab in a sterile tube
- Penlight
- Facial tissue

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## **Collecting a Nasopharyngeal Specimen for: Wash Method with Suction**

- Sterile nonbacteriostatic 0.9% sodium chloride solution
- Facial tissue
- Suction catheter and suction specimen trap
- Syringe

Author: Karen Karaban, MSN, RN

Revised: Mary Ann Liddy, MSN/Ed, RNC-OB, RNC-MN

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