

# NASOPHARYNGEAL SPECIMEN COLLECTION PRACTICE GUIDELINE<sup>®</sup>

## DOCUMENT SUMMARY/KEY POINTS

- Nasopharyngeal specimen collection is an aerosol-generating procedure which may pose infection transmission risks to healthcare workers as well as to nearby patients, staff and carers. The procedure should be performed in keeping with local infection control transmission-based guidelines and precautions. Nasopharyngeal aspiration (NPA) or Nasopharyngeal swab is performed to detect respiratory pathogens.
- Appropriate PPE (Personal Protective Equipment) must be worn by staff during collection. This procedure should only be performed where there is access to monitoring, oxygen therapy and an emergency/arrest alert system.
- **Same Day Results** will only be available if specimens reach NSW (New South Wales) Health Pathology for SCH (Sydney Childrens Hospital,) or the CHW (Children s Hospital at Westmead) (Children s Hospital at Westmead) Molecular Pathology Dept.:

### **SCH**

- **Pertussis testing** before 11am Monday, Wednesday and Friday.
- **Respiratory viral testing** before 11am Monday to Sunday-except for rapid flu and RSV (Respiratory Syncytial Virus) during influenza season at SCH.
- **If urgent results required, ring lab to notify incoming specimens before 1030am**
- Retesting is generally not indicated for non-immunocompromised inpatients

### **CHW**

- **Respiratory viral and bacterial testing** send to Molecular Pathology ASAP for processing Monday to Friday and before 8am on Saturday. (no service on Sunday).
- **Refer to the SCHN COVID19 testing criteria for 'rapids', Contact Molecular Pathology (after hours Microbiology) to notify incoming specimens for Flu, RSV and SARS-COV2 only.**
- Clinicians are recommended to order "MP Upper Respiratory Pathogens PCR".
- Deliver the specimen immediately to the Molecular Pathology Dept.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure & Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> November 2023	<b>Review Period:</b> 3 years
<b>Team Leader:</b>	CNC Respiratory	<b>Area/Dept:</b> Respiratory

## CHANGE SUMMARY

- Change of title
- Include nasopharyngeal swabs and nasopharyngeal aspirate sample
- Included adverse events and contraindications
- Included appropriate suction pressure for sample collection

## READ ACKNOWLEDGEMENT

- Clinical Nursing staff or medical staff who collect nasopharyngeal specimens should read and acknowledge this procedure document.

## TABLE OF CONTENTS

<b>Introduction .....</b>	<b>3</b>
Collection.....	3
<b>Nasopharyngeal Swabs .....</b>	<b>4</b>
Equipment .....	4
Procedure.....	4
<b>Nasopharyngeal Aspiration (NPA).....</b>	<b>5</b>
Equipment .....	5
Procedure.....	5
<b>Adverse Events/Risks .....</b>	<b>7</b>
Management of Adverse Events/Risks .....	7
Contraindications.....	7
<b>Additional information .....</b>	<b>8</b>
At SCH .....	8
At CHW .....	8
<b>References .....</b>	<b>8</b>

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure & Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> November 2023	<b>Review Period:</b> 3 years
<b>Team Leader:</b>	CNC Respiratory	<b>Area/Dept:</b> Respiratory

## Introduction

Nasopharyngeal specimen collections are obtained to determine a respiratory pathogen and treatment. Most viral respiratory infections are transmitted via direct contact with respiratory droplets or fomites. Some viruses can persist on hands or environmental surfaces for up to several hours.

The virus is detected by a multiplex PCR from a nasopharyngeal swab (nose and throat swab) or from nasopharyngeal aspirate (NPA).

Although identifying a respiratory pathogen may be important in some clinical scenarios, the nasopharyngeal specimen is not a routine investigation for acute respiratory tract infections or bronchiolitis in children. Children with viral respiratory infections should be cared for under guidance of the [Infection Prevention and Control Practice Guideline](#). Patients with respiratory infections, including suspected or laboratory-confirmed viral infections, should be managed in an isolation room or cohorted with patients with similar infections (refer to the ARI and Isolation PG [SCHN ePolicy \(nsw.gov.au\)](#)). In general, these patients should be isolated from patients at increased risk of complications from viral infections. Respiratory symptoms should be considered when deciding to deisolate patients. PCR positivity or negativity should not be used to make decisions about de-isolation.

**If Pertussis** or “whooping cough” is suspected, then specimen collection should be performed via nasal swab. For more information, please refer to the [Pertussis Practice Guideline](#)

Avian influenza, SARS, Legionella and Pertussis infections are mandated as a reportable infection to Public Health Units as per [Notification of Infectious Diseases under the Public Health Act](#) (which the Lab will notify directly).

- A Reportable Incident Brief (RIB) will be sent to NSW Department of Health related to any potential media interests or problems. This is currently the responsibility of the Executive Assistant to the CE (Chief Executive).
- The Microbiologist or Infection Prevention and Control Practitioner will notify the Director of Clinical Operations of identification of any known clusters of respiratory infections. The Director of Clinical Operations will in turn notify the Chief Executive.

## Collection

Nasopharyngeal specimen collection can be collected via nasopharyngeal aspirate or via nasopharyngeal swab.

## Nasopharyngeal Swabs

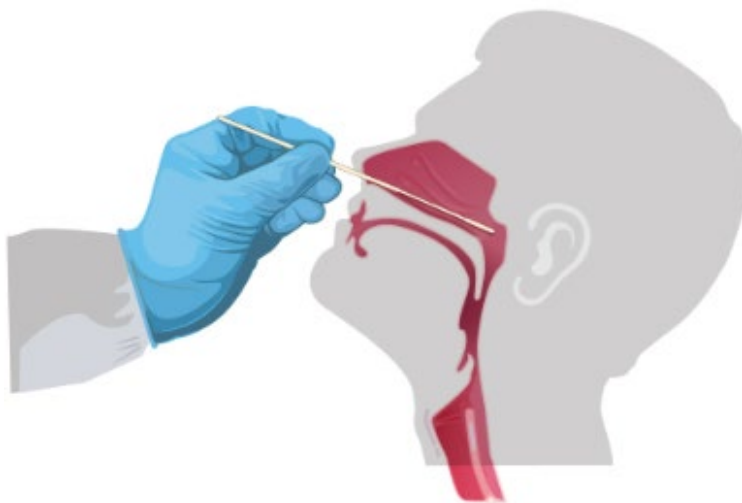
A swab is used to take a small sample of cells from the nasopharynx, the top part of the nose and throat. The long, thin part of the swab is made of flexible plastic or wire. There is a 'flocked' sterile tip on the end of the swab that absorbs a sample of fluid from your nasopharynx.

### Equipment

- 1 "flocked" sterile swab.
- 1 Transport Medium tube (UTM or VTF) (these may come as a Kit)
- Biohazard specimen bag

### Procedure

1. Label the container with patient details.
2. Ensure that the patient is in a comfortable and in a secure position.
3. Perform hand hygiene and don appropriate personal protective equipment.
4. Using the flocked swab, obtain a deep (posterior) nasopharyngeal swab via the most patent nostril, as shown in the diagram below. (If adequate fluid is visible for a sample from one nostril is collected, you don't need to insert the swab into the other nostril. But if there was a problem getting a sample, you may try to get a sample from the other nostril using the same flocked swab.
5. Directly place the swab into the tube. Snap off the shaft, and tightly cap the tube containing the swab tip. Place and seal in the biohazard bag and request form/ward label sticker placed in the side pocket.
6. Doff PPE and perform hand hygiene.
7. Specimens can be transported via the LAMSON carrier system or hand delivered to the appropriate Laboratory.



*Centre for Disease Control and Prevention (2021)*

## Nasopharyngeal Aspiration (NPA)

### Equipment

- Sterile suction catheter (e.g., Pedi-Y catheters) - size of catheter chosen will depend on age/size of child's nares and tenacity of secretions. A guide is as follows:
  - Size 6 (FG) neonates
  - Size 8 (FG) young child (usually up to 5 years of age)
  - Size 8 -10 (FG) older child (usually 6 - 10 years of age)
  - Size 10 - 12 (FG) adolescents
- Wall or portable suction checked prior to procedure.
- Wall or portable oxygen therapy and emergency/arrest alert system
- Oxygen saturation monitor and oximetry probe
- Continuous 3 lead ECG monitoring (for unstable patients)
- Oxygen face mask
- Suction tubing
- Personal protective equipment (PPE) (non-sterile gloves, impervious gown, N95 mask and an eye/face shield)
- Consider lubricating gel, however, ensure suction holes are not occluded by gel.

### Procedure

Ideally, nasopharyngeal aspirate should be a 2-person procedure.

1. Perform hand hygiene prior to touching the patient and don PPE (non-sterile gloves and eye/face shield (nonsterile gloves, impervious gown, N95 mask and an eye/face shield)
2. Explain procedure to parent and child in age-appropriate manner and gain verbal consent if able.
3. Ensure child is positioned appropriately.
4. Assemble equipment: sputum trap & suction catheter to relevant suction tubing careful not to contaminate the end of the catheter.
5. Turning suction on and ensure suction pressure is checked. Set the suction on the wall to the appropriate level. To check the pressure settings the suction catheter should be occluded. If a pressure gauge is available, the recommended suction pressures are listed in table below:

	<1 year	1-5 years	6 years and above
Maximum Suction Pressure	60-80mm Hg (8-10kPa)	90-110mm Hg (10 - 15kPa)	110-150mm Hg (15 - 20kPa)

6. If the child has inadequate secretions insert 0.1mL- 0.2mL sodium chloride 0.9% into each nostril.
7. Measure the distance from the patients' nostril to nasopharynx (distance from the nostril to tragus of the ear). Do not advance the suction catheter past this point.
8. With catheter tubing pinched off, (or Y port open) pass the catheter into the nostril to the nasopharynx then slowly withdraw un-pinching (or Y- port closed) the catheter to enable suction.
9. The suctioning should only take a maximum of 5 –10 seconds. Do not force suction catheter, if you are unable to gently pass catheter, stop procedure and seek senior nursing or medical advice.
10. Ensure secretions are captured in the trap or catheter.
11. Repeat if necessary to obtain adequate secretions.
12. **It is not** necessary to flush catheter with 0.9% sodium chloride.
13. Discard catheter & PPE
14. Perform hand hygiene.
15. Settle child.
16. Label specimen and send to Pathology Department with request form.
17. Document procedure and patients' tolerance of same in patient electronic medical record.

## Adverse Events/Risks

Adverse events associated with nasopharyngeal specimen collection may include:

- Desaturation (O<sub>2</sub> saturation <90%),
- Hypoxia
- Bradycardia/bradyarrhythmia
- Bronchoconstriction/bronchospasm
- Laryngospasm
- Hypotension
- Mechanical trauma
- Infection
- Paroxysmal and uncontrolled coughing
- Retching, gagging, vomiting, aspiration
- Pain
- Mechanical Trauma due to misdirection of catheter
- Raised intracranial pressure

## Management of Adverse Events/Risks

- **Stop specimen collection immediately should an adverse reaction occur, provide airway support and oxygen as required and seek medical attention.**
- If vomiting occurs:
  - Position patient to allow ease of removal of vomitus.
  - If the patient is unable to clear his/her own secretions, gently suction oropharynx.

### **ALERT: Clinical Deterioration**

Any clinical deterioration during the collection procedure should result in an escalation of care as the [Clinical Emergency Response System \(CERS\)](#) protocol.

## Contraindications

Swab/Suction specimens may be required in the below situations but should be carefully discussed with the treating team before commencing:

- Suspected Pertussis
- Suspected base of skull fractures
- Acute head, facial or neck injury
- Laryngospasm
- Coagulation or bleeding disorders
- Post-operative ear, nose or throat surgery and cleft palate repair due to the risk of interrupting haemostasis.
- Nasal bleeding
- Occluded nasal passages, for example choanal atresia.
- Raised intracranial pressure.



## Additional information

### At SCH

- NSW Health Pathology Inquiries: 93829601
- **Sample must be received by 10am on Monday to Sunday** to be tested that day. Respiratory virus PCR results will be available by **4PM on the day** of assay. **For urgent tests or queries**, call the virology laboratory on **93829133 or 93823282**.
- Pertussis PCR results are available **before 5 PM** on the day of assay. Out of hours and urgent requests need to be approved by the microbiologist on-call, and specific transport for specimens may need to be arranged. For urgent tests or queries, call the laboratory on **02 9113 3329**.

### At CHW

- **Sample must be received ASAP for processing Monday to Friday and before 8am on Saturday (there is no service on Sunday)**.
- If urgent results required, follow the SCHN COVID-19 testing criteria contact Infection Prevention and Control or Molecular Pathology/Microbiology Lab (Monday to Friday business hours) to notify incoming specimens for Flu, RSV and SARS-COV2 only.
- Repeat testing is generally not indicated and should only be ordered in consultation with Respiratory Medicine or Infectious Diseases. NPAs (Nasopharyngeal Aspiration) may be unpleasant for children and respiratory viral testing is a substantial ongoing cost to the hospital.
- Test requests for unusual pathogens should be discussed with the microbiologist on-call.

## References

1. Clinical Excellence Commission (CEC) Infection Prevention and Control Practice Handbook (2020): [https://www.cec.health.nsw.gov.au/\\_data/assets/pdf\\_file/0010/383239/IPC-Practice-Handbook-2020.PDF](https://www.cec.health.nsw.gov.au/_data/assets/pdf_file/0010/383239/IPC-Practice-Handbook-2020.PDF) (accessed 26/10/23)
2. NSW Ministry of Health Policy Directive (PD2023\_025) "Infection Prevention and Control in Healthcare Settings": [https://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=PD2023\\_025](https://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=PD2023_025) (accessed 26/10/23)
3. Centre for Disease Control and Prevention (2021) "Guidelines for Collecting and Handling of Clinical Specimens for COVID-19 Testing" <https://www.cdc.gov/coronavirus/2019-ncov/lab/guidelines-clinical-specimens.html> (accessed 26/10/23)

### Copyright notice and disclaimer:

The use of this document outside Sydney Children's Hospitals Network (SCHN), or its reproduction in whole or in part, is subject to acknowledgement that it is the property of SCHN. SCHN has done everything practicable to make this document accurate, up-to-date and in accordance with accepted legislation and standards at the date of publication. SCHN is not responsible for consequences arising from the use of this document outside SCHN. A current version of this document is only available electronically from the Hospitals. If this document is printed, it is only valid to the date of printing.