# EAR, NOSE AND THROAT – POST OPERATIVE MANAGEMENT - CHW

## PRACTICE GUIDELINE ©

## DOCUMENT SUMMARY/KEY POINTS

- The purpose of this document is to outline the indications and post-operative care for Ear Nose and Throat (ENT) surgery, along with a guide to management of possible complications.
- The guidelines include instructions for care both during the hospital stay and education needs of parents prior to discharge.
- The document is a guide only and does not take away the need for clinical judgement in individual cases.

## CHANGE SUMMARY

- Changed scope from Network to CHW-only. (SCH has a different Tonsillectomy MoC)
- Due for mandatory review with minor changes made throughout and links updated.
- **11/07/24:** Minor review. Updated page 11.

## READ ACKNOWLEDGEMENT

- All clinical staff who provide clinical care to this patient group should read and acknowledge they understand the contents of this document.



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| **Approved by:** | SCHN Policy, Procedure and Guideline Committee | |
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| **Team leader** | ENT CNC | **Area/Dept:** Surgery |

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# 1 Scope / Introduction

The purpose of this document is to outline the indications and post-operative care for the most common Ear Nose and Throat (ENT) surgery performed at The Children's Hospital at Westmead (CHW) along with a guide to management of possible complications.

The guideline includes instructions for care both during the hospital stay and education needs of parents and carers prior to discharge.

The document is a guide only and does not take away the need for clinical judgement in individual cases.

# 2 Post Operative Pain Management and Fluids

## Hydration

- Intravenous (IV) therapy as ordered - an Intravenous Cannula should remain insitu until the child tolerates oral fluids.
- Upgrade from clear fluids to full diet as tolerated.
- Most children will return to the ward with a capped intravenous cannula. This will remain insitu until the following morning for use in the case of children who are unable to tolerate oral fluids or who have bleeding post operatively.

## Pain Management

- Pain will be dependent upon the procedure and the pain assessment of the child. Analgesia may be prescribed regularly, PRN or in combination (Refer to Pain Management Practice Guidelines). Aspirin is not to be used because of its anticoagulant properties.
- Pain is uncommon after ear surgery, but discomfort is common. Stronger analgesic should not be given until patient is reassessed by ENT Registrar or Consultant.
- Tonsillectomy and Adenotonsillectomy patients will have pain post operatively; regular analgesia is required as ordered.

# 3 Ear Surgery

## Cochlear Implant

Cochlear implant surgery is performed after extensive testing and assessment of the child's hearing. Usually, the child will have undergone auditory brain stem testing some weeks prior to the surgery. Only total or nearly totally deaf children are eligible. The parents will have been fully informed of the procedure, possible complications and alternative methods.

### *Post-operative Monitoring and Observations including possible complications*

- Respiratory rate (RR), Heart Rate (HR), Oxygen Saturation (SpO2), temperature and blood pressure (BP) on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter 4$^{th}$ hourly RR, HR, SpO2, temp and 8 hourly BP if satisfactory.
- Observe for any signs of facial weakness and inform medical officer immediately.
- Mark any ooze/bleeding and report to the medical officer. The head bandage should only be removed on the registrar or consultant's instructions. Reinforcement and replacement of the bandage may be necessary if patient dislodges or removes bandage.
- Report two or more vomits immediately to the medical officer, because of proximity of surgery to cranial nerves.
- All children are given antibiotic cover.

### *Discharge Criteria and Special Instructions for Parents*

- If surgery is uncomplicated the child is usually discharged the day after surgery.
- The ENT team removes the bandage and dressings.
- A light bandage can be applied to protect the wound in a young active child.
- The stitches are absorbable so no removal is needed.
- The child is to complete the course of antibiotics.
- The child will have an X-ray to check placement of the implant prior to discharge.
- A follow up appointment needs to be made at NextSense (CHW), the Shepherd Centre or ENT Outpatient clinic one week post operatively for wound review.
- If the child is of school age, they can return to school after this follow-up appointment.
- Advise parents to restrict the child's physical activity for one week. Any friends who have upper respiratory tract infections should be discouraged from visiting.

# Mastoidectomy

Mastoidectomy is performed to remove infection; drain accumulated pus; prevent further bone damage and the formation of a cholesteatoma; and to create access to neural structures. The surgery is performed through a post-auricular incision and drilling of the mastoid bone.

**Indications for Surgery:**

- Chronic otitis media
- Chronic mastoiditis
- Cholesteatoma
- Acute mastoiditis with complication

### *Post-operative Monitoring and Observations including possible complications*

- RR, HR, SpO2, temp and BP on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter 4th hourly RR, HR, SpO2, temp and 8th hourly BP if satisfactory.
- Report excessive swelling, ooze, pain, unusual rise in temperature, facial weakness or neck stiffness immediately to Medical Officer (MO).
- Record type and amount of vomitus and report excessive vomiting to MO.
- Leave dressings in place until reviewed by ENT team. There are a variety of dressings and ear packing that may be used. Dressing instructions will be clearly documented in the operation report. Replace external operative dressing with dry dressing if necessary. Dressings inside the ear canal are not touched. The ear canal may be packed with ribbon gauze and a cotton ball. The cotton ball can be changed PRN, but it is essential the packing remains insitu.
- Slight imbalance can occur after ear surgery, but giddiness is a concern and must be reported immediately to ENT team.

### *Discharge Criteria and Special Instructions for Parents*

- Instruct parents on suitable analgesia - Paracetamol PRN is recommended. Aspirin should be avoided due to anticoagulant properties.
- Keep water off ear until advised at follow up.
- Explain possibility of earache for a few days after surgery. If earache is prolonged and there is any swelling/redness and temperature they should contact their Medical Officer.
- Advise parents on need to observe suture line for redness or swelling.
- Ensure parents have follow-up appointment.
- Packing will be removed at follow-up appointment, if packing falls out then contact medical officer.
- Parents should limit activity for the child as instructed by ENT team
- School age children may return to school as indicated by doctor at follow-up appointment.

## Tympanoplasty

Tympanoplasty is a reconstructive operation on the middle ear which includes the tympanic membrane (ear drum) and the middle ear bones (ossicles). If only the ear drum is repaired (to close a perforation) the procedure is a Type 1 Tympanoplasty, which is called a myringoplasty.

### *Post-Operative Monitoring and Observations including possible complications*

- RR, HR, SpO2, temp and BP on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter 4th hourly RR, HR, SpO2, temp and 8th hourly BP if satisfactory.
- Report excessive swelling, ooze, pain, unusual rise in temperature immediately to Medical Officer (MO).
- Record type and amount of vomitus and report excessive vomiting to MO.
- Leave dressings in place until reviewed by ENT team. There are a variety of dressings and ear packing that may be used. Dressing instructions will be clearly documented in the operation report. Replace external operative dressing with dry dressing if necessary. Dressings inside the ear canal are not touched. The ear canal may be packed with ribbon gauze and a cotton ball. The cotton ball can be changed PRN but it is essential the packing remains insitu.

### *Special Instructions for Parents on Discharge*

- Instruct parents on suitable analgesia - Paracetamol PRN is recommended.
- Keep the ear dry until follow up appointment
- Explain possibility of earache for a few days after surgery. If earache is prolonged and there is any swelling/redness and temperature they should contact their Medical Officer.
- Advise parents on need to observe suture line if present for redness or swelling.
- Ensure parents have follow-up appointment.
- Packing will be removed at follow-up appointment, if packing falls out then contact medical officer.
- Parents should limit activity for the child as instructed by ENT team
- School age children may return to school as indicated by doctor at follow-up appointment.

## Myringotomy and Insertion of Ventilation Tubes

A myringotomy is a surgical opening made in the tympanic membrane. It may be performed on its own to allow drainage of fluid from the middle ear but is more often combined with insertion of a 'grommet' which is a small tube to keep the ventilation hole from closing too quickly.

The procedure is usually performed as a day stay admission.

**Indications for Surgery**

- Otitis media with effusion (glue ear)
- Recurrent middle ear infections
- Mastoiditis

### *Post-Operative Monitoring and Observations including possible complications*

- If Middleton Day Surgery patient, length of stay postoperatively is 2 hours.
- Please refer to the Care of Patients in Middleton Day Surgery Unit Practice Guideline for monitoring and observations performed in recovery.
- Check ears for any discharge or bleeding. Notify Medical Officer if concerned.

### *Special Instructions for Parents on Discharge*

- Keep water from ears for 2 weeks. Then may shower or wash hair in shower without special precautions.
- No bath water or swimming pool water to enter ears at any time while grommets are in place.
- Follow up appointment 6-12 weeks with hearing test prior

## Ear – Parent Fact Sheets

All parent and carer fact sheets are available on the SCHN Internet page.

- **Ear infections and glue ear**: https://www.schn.health.nsw.gov.au/ear-infections-and-glue-ear-factsheet
- **Grommets Procedure**: https://www.schn.health.nsw.gov.au/grommets-procedure-factsheet
- **Hearing loss in children:** https://www.schn.health.nsw.gov.au/hearing-loss-children-factsheet
- **Ear problems in Children:** https://www.schn.health.nsw.gov.au/ear-problems-children-factsheet

**How to instil Ear Drops:**

- refer to Appendix 1: Instillation of Ear Drops

# 4 Nose Surgery

## Functional Endoscopy Sinus Surgery (F.E.S.S.)

Functional Endoscopy Sinus Surgery is performed to improve the normal drainage of the sinuses. This is a very delicate surgery of the sinuses that are close to the orbit (eye cavity) and the bones separating the nasal cavity from the intracranial cavity.

A CT Scan of the sinuses must be available with the patient or on the Hospital's Medical Imaging system.

### *Post-Operative Monitoring and Observations including possible complications*

- RR, HR, SpO2, temp and BP on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter $4^{th}$ hourly RR, HR, SpO2, temp and $8^{th}$ hourly BP if satisfactory.
- **FESS Observations for 24 hours; hourly for first four hours, fourth hourly thereafter. FESS observations include:**
    - **Proptosis:** the eye appears to protrude out of the orbital cavity
    - **Periorbital Haemorrhage:** bruising of tissues around the eyes.
    - **Subconjunctival Haemorrhage:** bleeding into the white of the eyes.
    - **Subcutaneous Emphysema**: the skin around the eye will feel as if there are rice bubbles under it.
    - **Restricted ocular movement**: laterally, medially, up and down.
    - **Pupils non-reactive** in response to light.
    - **Vision blurred** if there is pressure on the optic nerve.
- A small amount of bloodstained mucous is normal.
- If there is packing in the nostrils then patient is not to try to blow nose. Packing will usually be removed the next morning by the ENT team.
- If no packing then the child may blow nose gently.
- Nasal saline spray is used frequently to clean and clear the nose
- Drixine, or similar decongestant nasal spray, is often prescribed for up to 5 days after surgery, used 2-3 times daily.

### *Special instructions on Discharge*

- The child is normally discharged the day after surgery
- They must complete their antibiotics at home.
- Child may gently blow nose, one nostril at a time. Do not block both nostrils at the same time.
- Blood-stained mucous may continue for some weeks after surgery.
- Parents are taught how to administer nasal sprays.

- Paracetamol may be given for pain relief.
- If any bleeding, pain in the eye or swelling and bruising in the region of the eye should occur, then the child must be brought back to the hospital to be seen by the ENT registrar.
- If the child develops a fever, or feels unwell, in office hours contact ENT Clinical Nurse Consultant, or out of hours either the GP or Emergency Department, depending on severity. There is a risk of infection spreading internally from the sinuses. This could become serious
- Follow up 1-2 weeks after surgery
- The child should be kept as quiet as possible and off school until reviewed.

**How to instil nose drops:**

- Refer to Appendix 2: Instillation of Nasal Drops/Sprays

## Turbinoplasty/Coblation of Turbinates

A turbinoplasty is a procedure used to reduce the size of the turbinates allowing greater nasal airflow

- A small amount of blood stained mucous is normal.
- If there is packing in the nostrils the patient is not to try to blow their nose. Packing will usually be removed the next morning by the ENT team.
- If no packing the child may blow their nose gently.
- Nasal saline spray or rinse is used frequently to clean and clear the nose
- Drixine, or similar decongestant nasal spray, is often prescribed for up to 5 days after surgery, used 2-3 times daily.

**Day Surgery - CHW**

- If Middleton Day Surgery patient, length of stay postoperatively is 2-4 hours. Coblation of turbinates requires 2 hour length of stay, turbinoplasty requires 4 hour length of stay.
- Please refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for monitoring and observations performed in recovery.

# 5 Throat Surgery

## Tonsillectomy with or without adenoidectomy

- **Tonsils:** Are two clumps of lymphoid tissue located on both sides of the throat.
- **Adenoids:** Are a single clump of lymphoid tissue located on the back wall of the throat (or back of the nose) just above the uvula.

**Indications for Surgery**

- Enlargement causing Obstructive Sleep Apnoea and snoring
- Chronic and recurrent tonsillitis.
- "Chronic cryptic tonsillitis" or white debris in the tonsils, causing bad breath.
- Unusual enlargement or appearance (possible tumour).

**Day Surgery (see "Tonsillectomy Day Surgery Model of Care")**

Some CHW patients will be suitable for Adenotonsillectomy as a Day Surgery Procedure in Middleton. The following selection criteria must be met:

- 3 years and over for intracapsular tonsillectomy
- 5 years and over for extracapsular tonsillectomy
- Weighs more than 15 kilograms
- American Society of Anesthesiologists (ASA) 1 or 2 (absent or mild systemic illness)
- On sleep study or trolley study have mild to moderate Obstructive Sleep Apnoea (OSA)
- On clinical assessment have recurrent tonsillitis, sleep disordered breathing, mild or moderate OSA
- Lives within 1 hour drive from the Children's Hospital at Westmead.
- Recurrent tonsillitis for older children who require a total tonsillectomy
- Have no contraindications for the use of NSAIDs and paracetamol
- There should be no communication difficulties with the family. VirtualKIDS is a service providing post-operative audiovisual assessment. The parent/carer requires the use of a device to enable audiovisual consultation (smartphone with data available for connectivity is adequate) with effective communication skills via this platform.

### *Post-Operative Monitoring and Observations including possible complications*

- In Middleton Day Surgery, the child must be observed for four to six hours post-surgery for Tonsillectomy to ensure the high risk period of post-operative bleeding has elapsed.
- Please refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for monitoring and observations performed in recovery.

### *Discharge Criteria for Day Surgery Patients*

- Please refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for Nurse Initiated Discharge Criteria for day surgery patients.
- Patient must have tolerated oral fluids and be swallowing comfortably prior to discharge.
- Nil bleeding (macroscopic) from the tonsillectomy wound site. Observe for frequent swallowing or fresh blood in vomitus. Torch view of the back of the throat will be necessary.
- Ensure patient has had appropriate pain relief. One dose of oral oxycodone to be given in recovery. Anaesthetist to supply discharge oxycodone and dispensing instructions.
- Must have received 10-20mL/kg intra-operatively of IV fluids to prevent dehydration and nausea. Minimal vomiting prior to discharge.
- ENT team review required prior to discharge.
- On departure Middleton staff to contact VirtualKIDS. VirtualKIDS nursing staff will call patient/family 4 hours post discharge or at 2200hrs and again at 24 hours post discharge. The family will have the VirtualKIDS phone number to call in the first 24 hours post operatively.

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| When patient is ready to leave hospital, please transfer from the day surgery bed-board to the HITH virtual Kids CHW bed-board. The patient should not be discharged at this stage. |

**<u>Day of surgery admission</u>**

Some children will be admitted to the ward post-operatively for monitoring.

### *Post Operative Management and Observations for children admitted to the ward*

- Close monitoring for bleeding
- Continuous saturation monitoring from arrival to the ward. RR, HR, SpO2, temp and BP on return to the ward. Thereafter hourly RR, SpO2 and HR. 4 hourly temperature and 8 hourly BP unless indicated for 24 hours post operatively.
- Report and document any abnormal observations to the Medical Officer.
- Nurse in a position which is comfortable for the child, as long as their airway and breathing is maintained – this is usually on the side or with their head elevated.
- Report any excessive swallowing or bleeding from mouth or nose.
- Record all vomiting and describe contents e.g. old or new blood
- Discourage coughing, clearing of throat and blowing of nose as this may cause operative area to bleed.

## *Complications and management*

### Haemorrhage

- If the child has a significant post-operative bleed or becomes tachycardic, pale and sweaty activate the rapid response team as per the Between the Flags (BTF) – Clinical Emergency Response System (CERS) Procedure.
- All vomitus or blood-stained sheets should be saved for inspection.
- Pulse and respirations should be taken every 15 minutes and blood pressure 1/2 hourly until the child is reviewed and stable.

### Airway Obstruction

**Signs:** Stridor/stertor, respiratory distress, tachypnoea, restlessness/agitation, drooling.

- Sit child up at 45° angle
- Administer oxygen and monitor oxygen saturation
- Call Rapid Response team as per the CERS protocol
- Monitor temperature regularly. Notify RMO if above 38°C.
- Administer paracetamol as ordered.
- Administer antibiotics if ordered.
- Persistent vomiting should be treated with anti-emetics
- Observe for any bleeding after vomits.

## *Discharge Instructions for Parents*

- Instruct parents on suitable analgesia - Paracetamol every 6 hours is recommended for the first 5-7 days. Parents may be given a prescription for stronger pain medication e.g. Oxycodone. Aspirin, Painstop and Codeine are not to be used post operatively.
- Encourage fluid intake to promote healing
- Explain the possibility of earache for a couple of days - this occurs in approximately 50% of patients and is due to referred pain from the tonsillar bed.
- Inform parents that blood tinged mucus is normal for 5-7 days.
- Discourage coughing and blowing of nose for at least three days.
- Explain the possibility of secondary bleeding and stress the need to seek urgent attention should bleeding occur, to both contact the hospital emergency department and return to hospital
- Antibiotics may be given post-operatively.
- Advise parents on the need to restrict their child's activity and monitor temperature. In the case of persistent high temperature see local doctor.
- Children can return to school/daycare after 2 weeks
- Written discharge instructions supplied to parents prior to discharge.

**Follow up**

- Follow up will be with a phone call from the ENT Registered Nurse in approximately 4-6 weeks after surgery.
- **Tonsillectomy Parent Fact sheet**: https://www.schn.health.nsw.gov.au/tonsillectomy-factsheet

## Adenoidectomy

Most children are admitted as day stay patients for routine adenoidectomy and discharged after two-four hours if satisfactory. Any child who has persistent vomiting or bleeding is admitted overnight in a general ward for observation.

**Indications for Surgery**

- Enlargement causing Obstructive Sleep Apnoea and snoring.

### *Post Operative Monitoring and Observations.*

- Close monitoring for bleeding
- RR, HR, SpO2, temp and BP on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter 4th hourly RR, HR, SpO2, temp and 8th hourly BP if satisfactory.
- Nurse in a position which is comfortable for the child, as long as their airway and breathing is maintained – this is usually on the side or head elevated
- Report any excessive swallowing or continuing bleeding from mouth or nose.
- Record all vomiting and describe contents e.g. old or new blood
- Discourage coughing, clearing of throat and blowing of nose as this may cause operative area to bleed.

**Day Surgery - CHW**

- If Middleton Day Surgery patient, length of stay postoperatively is 2-4 hours.
- Please refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for monitoring and observations performed in recovery.
- Surgical/Anaesthetic review required prior to discharge.

### *Discharge Criteria for Day Surgery Patients*

- Please also refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for Nurse Initiated Discharge Criteria for CHW day surgery patients.
- Must have received 10-20mL/kg intra-operatively of IV fluids to prevent dehydration and nausea. Minimal vomiting prior to discharge.
- Patient must have tolerated oral fluids and be swallowing comfortably prior to discharge.
- Nil bleeding - Observe for frequent swallowing or fresh blood in vomitus. Torch view of the back of the throat will be necessary.
- Ensure patient has had appropriate pain relief. One dose of oral oxycodone may be given in recovery.

## *Complications and management*

### Haemorrhage

- If the child has a significant post-operative bleed or become tachycardic, pale and sweaty activate the Rapid Response Team as per the Between the Flags (BTF) – Clinical Emergency Response System (CERS) Procedure
- All vomitus or blood-stained sheets should be saved for inspection.
- Pulse and respirations should be taken every 15 minutes and blood pressure 1/2 hourly until the child is reviewed and stable.

### Airway Obstruction

**Signs:** Stridor/stertor, respiratory distress, tachypnoea, restlessness/agitation, drooling.

- Sit child up at 45° angle
- Administer oxygen and monitor oxygen saturation
- Notify ENT or Paediatric Registrar immediately
- Monitor temperature regularly. Notify RMO if above 38° C.
- Administer paracetamol as ordered.
- Administer antibiotics if ordered.
- Persistent vomiting should be treated with anti-emetics
- Observe for any bleeding after vomits.

## *Discharge Instructions for Parents*

- Adenoidectomy is a relatively pain-free procedure. A mild to moderate sore throat can be expected for the first 24 hours
- Analgesia after that is rarely needed
- Paracetamol should be sufficient
- Activity should be restricted for 5 days, after which school children may go back to school.
- Any signs of bleeding after leaving hospital patient should return to the hospital Emergency Department for review

### Adenoidectomy Parent Fact sheet

- Adenoid removal (adenoidectomy): https://www.schn.health.nsw.gov.au/adenoid-removal-adenoidectomy-factsheet

## Post tonsillectomy bleed

This occurs in 1-2% of children. It occurs between 7-10 days but can occur any time up to 2 weeks. Most children will be admitted for 24 – 48 hours observation and need no surgical intervention. The decision on surgical intervention will be made by the ENT registrar and consultant on call.

On arrival in the Emergency Department the child will need to be cannulated and a full blood count and coagulation study be collected.

**Maintain Hydration**

- Intravenous therapy will be commenced and the child will need to be Nil by Mouth (NBM) until review by ENT registrar.
- Tranexamic acid may be administered

**Observations**

- Hourly RR, HR, SpO2 for first four hours after admission and initial blood pressure should also be taken. If stable may then progress to 4th hourly RR, HR, SpO2 and 8th hourly BP.
- If child is taken to theatre, post operative observations as per routine tonsillectomy
- If any further bleeding occurs contact the ENT registrar.

## Removal of Laryngeal Papillomas

Laryngeal papillomas are caused by the human papilloma virus and are the most common tumour of the larynx in children. They sometimes disappear during adolescence and very rarely turn out to be malignant. They are pink, warty looking nodules that can occur anywhere in the larynx but more commonly on the vocal cords. Hoarseness is the initial sign/symptom and if left untreated can eventually lead to dyspnoea and sometimes airway obstruction.

**Note:** Papillomas are caused by a virus they cannot be cured but surgery is done to de-bulk them to improve the airway and the voice.

- Recurrence is usual and the child may need multiple admissions.
- Surgery is usually carried out as a Day Stay Procedure in Middleton by an instrument called a 'microdebrider' but sometimes a laser is used.

### *Post-Operative Monitoring and Observations including possible complications*

- RR, HR, SpO2, temp and BP on return to the ward. Hourly RR, HR, SpO2 for four hours. Thereafter 4th hourly RR, HR, SpO2, temp and 8th hourly BP if satisfactory.
- Tracheostomy patients may have some blood stained secretions overnight.
- Topical lignocaine is routinely used during anaesthesia; in such cases the child must remain nil by mouth for one hour post topical lignocaine. A sip test of sterile water is then offered and if tolerated the child can grade to clear fluids, free fluids and normal diet according to age.

**Day Surgery**

- If Middleton Day Surgery patient, length of stay postoperatively is 4 hours.
- Please refer to Care of Patients in Middleton Day Surgery Unit Practice Guideline for monitoring and observations performed in recovery.
- The child may be discharged after four hours if nurse initiated discharge criteria is met.

**Special Instructions on Discharge**

- Parents are educated how to recognise the signs of obstructive airway symptoms. If concerned they may call the ENT CNC, ENT registrar on-call or present to the Emergency Department.

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# Appendix 1: Instillation of Ear Drops

**Procedure:**

1. Wash hands.
2. Select appropriate ear drops and check against patient's medication chart. Drops should be labelled with the child's name and used only for that child.
3. Establish patient's identification against identification label.
4. Have child lie on unaffected side or in the supine position and gently tilt the child's head to one side with affected ear upward.
5. Straighten the patient's ear canal. For children less than 3 years pull auricle down and back as ear canal is straighter. For older children or adults pull the auricle up and back.
6. Using a light source examine the ear canal for discharge and gently wipe the external meatus with a cotton wool ball.
7. Place drop near ear canal opening and allow it to fall against the side of the canal. Avoid touching the ear canal.
8. Instruct patient to remain on his/her side for 5-10 minutes if possible. When getting up, excess drops can be wiped away with cotton wool or a tissue
9. The drops can be gently 'pumped' into the ear by pressing the tragus (the triangular cartilage) at the front of the ear canal
10. Clean and dry outer ear, leaving patient comfortable.
11. Wash hands.
12. Repeat procedure for other ear after 5-10 minutes if necessary.

# Appendix 2: Instillation of Nasal Drops/Sprays

**Procedure:**

1. Wash hands.
2. Check orders against medication order. Drops should be labelled and used only for the child for whom they have been prescribed.
3. The child's nose should be cleaned if possible by asking the child to blow the nose gently.
4. Tilt the child's head backwards and turned slightly to the side.
5. Place the dropper at the nostril and carefully give the required number of drops without touching the nostril.
6. Instruct the child to remain still for several minutes to allow for absorption. The child should be told not to blow the nose during this period.
7. The spray is held vertically and the head tilted forward with the nostril over spray; the sprayer is angled slightly to point toward the back of the ear on that side and one puff then another is pumped in