

GUIDELINE ON THE INSERTION OF A NASOPHARYNGEAL AIRWAY (NPA) FOR INFANTS AND CHILDREN, WHO ARE UNDER THE CARE OF THE ENT OR RESPIRATORY TEAM


Version Number	V1
Date of Issue	May 2017
Reference Number	INPAICENTRT-05-2017-SF
Review Interval	3 yearly
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Document Review History

Review Date	Reviewed By	Signature
2020		


Document Change History

Change to Document	Reason for Change

Our Lady's Children's Hospital, Crumlin		
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1.0 Introduction

Some children are unable to maintain a patent airway which can cause difficulty in breathing and can lead to severe respiratory distress. Artificial airways are inserted to maintain a patent air passage for infants/children whose airway has become or may become obstructed (Kozier et al 2008). An NPA is one of the artificial airways which can be used and may be indicated in an array of conditions such as Pierre Robin Sequence, post cranio-facial surgery, post adenotonsillectomy, post cleft lip and palate repair or for the use of an emergency airway (Cooke *et al.* 2016). The aim of this guideline is to provide nursing staff with a framework for the insertion of a NPA.

Note: This guideline does not pertain to a NPA inserted by the plastic surgeons. Some children have a NPA inserted intraoperatively during cleft palate repair surgery by the Plastic surgeons, this often remains in situ until post-operative swelling subsides, which is usually 24 or 48 hours post operatively.

2.0 Definition of a Nasopharyngeal Airway

A NPA is a clear coloured, soft flexible tube that is made from soft PVC (Polyvinylchloride) and comes in various sizes. It is designed to be inserted into the nasal passageway and it aims to bypass upper airway obstruction at the level of the nose, naso-pharynx or base of the tongue. It acts as a splint which maintains airway patency by keeping the tongue from falling back on the posterior pharyngeal wall and occluding the airway, thereby preventing airway obstruction, hypoxia and asphyxia (GOSH 2016).

3.0 Applicable to

All nursing staff employed by OLCCH that are involved in the insertion and care of child with a NPA who are under the care of the ENT or Respiratory teams.

4.0 Purpose of the NPA


The purposes of the NPA are as follows:

- To support an obstructed airway and to maintain an airway's patency (Guys 2013)
- To alleviate obstructive sleep apnoea, improve a stridor or to treat the reduction in oxygen levels in the blood due to underlying conditions (Guys 2013)
- To act as a 'splint' which prevents the tongue falling backwards on the pharyngeal wall and causing obstruction

To improve secretion clearance (Dinwiddle *et al.* 1997)

5.0 Indications for insertion of an NPA (adapted from Whitelaw, RCHM, 2016)

- Obstructive episodes witnessed by staff which are indicative of upper airway obstruction
- Overnight oximetry indicative of hypoxic episodes related to upper airway obstruction
- Sleep study indicative of obstructive episodes
- Poor feeding tolerance and failure to thrive
- Significant respiratory distress
- Elevated blood Carbon Dioxide level

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6.0 Cautions and Contraindications

- Bleeding disorders
- Nasal or cranial trauma (Roberts *et al.* 2005)
- New born septal deviation
- Nasal polyps
- Craniofacial abnormality

7.0 Objectives of the Guideline

- To standardise the care of a child during insertion of a NPA
- To ensure and maintain patient safely during the insertion of a NPA
- To ensure research based knowledge underpins nursing practice

8.0 The principle aims during the insertion of an NPA are:

- To ensure safety of a) the child, b), the child's airway c) the NPA
- To maintain skin integrity
- To promote the comfort and wellbeing of the child
- To prevent infection

9.0 Complications associated with NPA insertion


Using the correct technique when inserting a nasopharyngeal airway will assist in the prevention of complications, which can include:

- Accidental dislodgement/displacement/blockage of the NPA
- Anxiety and fear
- Discomfort
- Skin infection
- Altered skin integrity
- Cross infection

Note: Options for keeping the child/infant still during the procedure are discussed with the child and parents/carer, swaddling children or infants is not routinely performed in OLCCHC and may cause increased distress (Department of Children and Youth Affairs, 2011). Involve the play specialist if necessary.

10.0 Sizing and measuring the NPA

Prior to insertion of the NPA; the diameter and length of the NPA needs to be ascertained – this is usually selected by the ENT surgeon or anaesthetist. The length is more important than the diameter (Roberts K *et al.* 2005), the NPA needs to be positioned so that the tip lies just above the epiglottis. If the NPA is too long the child will be uncomfortable with coughing, gagging, and regurgitation of liquids or food through the NPA. If the NPA is too short, the upper airway obstruction will not be relieved (Roberts K *et al.* 2005). Once the internal diameter of the NPA has been selected the length is determined by measuring the distance from the lateral aspect of the nose to the tragus of the ear on the same side (Baillie *et al* 2008, APLS 2016) – see [appendix 1 a](#). Occasionally the NPA is measured under direct vision in theatre during an airway assessment.

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The internal diameter of the NPA is estimated by measuring the diameter of the NPA to the size of the infant's nostril, when inserted it should not cause blanching to the tissue of the nostril.

11.0 Preparing the NPA

Sutures are placed in the trumpet of the pre-measured NPA using vinyl sutures or a needle and strong thread at the 12, 3 and 9 o'clock positions. (See [appendix 2](#) for same)


Note: A member of the medical, anaesthetic or ENT team usually inserts the initial NPA. The ENT team will establish during the initial assessment if both nares can be used for insertion of the NPA. The ENT team will indicate how often the NPA is to be changed.

12.0 Equipment needed


NPA – pre-measured
Water based lubricant e.g Optilube
Tegaderm
Duoderm
Gloves & Apron
Cleansing soap, water and gauze
Clean kitchen / stethoscope
Sutures (non-absorbable e.g 2.0 Sofsilk cutting) Sewing needle and thread

13.0 Bedside Equipment needed

- Functioning suction equipment
- appropriately sized suction catheters
- sterile water and galipots
- Yankeur suction
- BVM with appropriately sized face mask
- Appropriately sized non-re-breather mask
- functioning wall oxygen
- A sign printed and attached to cot with child's name, size of NPA, size of suction catheter and depth of suctioning required
- 1 extra NPA in same size, that is sutured and ready for use

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ACTION	RATIONALE & REFERENCE
The nurse prepares the child/infant by ensuring that the procedure is performed at least one hour before or after food has been consumed, but not when the child is hungry	Reduces the risk of vomiting and distress
Passing an NPA tube may be a 1-2 person procedure depending on the size of infant / /child.	The insertion of an NPA tube can be traumatic. For this reason the assistance of a second person can help relax and distract the child (Howe et al 2010)
Explain procedure to child / parent / carer. If necessary, contact play specialist to distract the child. If the baby uses a soother ensure one is available.	To gain co-operation and alleviate fears and encourage child to relax (Hockenberry et al 2015).
Assess the child's level of pain and administer the appropriate analgesia prior to performing procedure if necessary.	To reduce the pain associated with the procedure, thus increasing the child's comfort (Trigg and Mohammed 2010).
Standard precautions must be used: <ul style="list-style-type: none"> • Decontaminate hands • Apply an apron • Put on gloves 	To adhere to standard infection control precautions and prevent the cross of infection (ICP Dept. 2013).
Re-check measurement of NPA by measuring from the side of the nose to the tragus of the ear (Bailie <i>et al</i> 2008, APLS 2016).	To ensure correct size is being used for maximum efficacy. If the artificial airway is too narrow it will not be an effective airway; if it is too wide it may cause the skin to break down (Cooke <i>et al</i> 2014).
Prepare the skin by cleansing with warm soapy water and dry.	To protect the underlying skin (Elson <i>et al</i> 2011).
Apply skin protector such as a Cavilon stick to both cheeks.	To prevent the breakdown of skin (Elson <i>et al</i> 2011).
Apply duoderm on each cheek and on the top of the nose in between the eyebrows.	To allow sutures to be secured to skin so that the NPA is not dislodged.
Ensure the cot/bed is elevated. Position the child/infant with assistance, if appropriate, so that the nostril can be easily accessed. Position them on their back on the elevated part of the bed/cot.	To protect employees health and safety. To ensure comfort and facilitate passage of the tube.
Lubricate the sides of the tube with KY jelly or water based lubricant solution.	To reduce risk of trauma and to ensure the NPA is passed safely and easily into the nasopharyngeal channel (Clegg 2014).
Insert tube gently into the selected nostril with the dominant hand, curved end facing downward. Continue by pushing the curve along the nostril aiming parallel to the nasal floor rather than upwards. At approximately 4 cm some resistance may be felt.	To ease the passage of the NPA through the canal and to reduce the risk of trauma (Clegg 2014).
Gently rotate the NPA until it moves down. Advance until the tube is fully inserted and the trumpet is flush with the end of the nostril.	To ensure the NPA is not forced into the nostril as this may cause unnecessary oedema and trauma (Cooke <i>et al</i> 2014).

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Place the securing sutures x 2 or thread on each piece of duoderm and secure with tegaderm. Apply the tegaderm as close to the nare as possible.	To secure position of NPA and to prevent the breakdown of skin secondary to friction. o prevent mobility of the tube.
Ensure no blanching of the skin can be detected on the outside of the nostril.	If blanching occurs the airway is too tight and a smaller size is required (Wheeler <i>et al</i> 2007)
During procedure, continuously monitor patient's behaviour/colour, oxygen saturations, respiratory rate and effort and heart rate.	To continuously observe for any undue respiratory distress (Cooke <i>et al</i> 2014).
Check NPA is patent by placing knife in front of same. If misting appears on knife, NPA is patent. Patency can also be checked by removing head of stethoscope and listening for bilateral air entry on both nostrils.	To ensure patency of NPA and airway.
Discard used supplies appropriately. Remove apron and discard in appropriate bin. Decontaminate hands.	To prevent cross infection. To reduce the transfer of micro-organisms (HSE 20010, Infection control and Prevention Department. OLCCHC 2013).
Reassure, praise and thank the child/infant.	To maintain a trusting relationship between the child and nurse (Hockenberry 2015).
Monitor PEWS closely and observe for signs and symptoms of respiratory distress.	To pre-empt any respiratory distress.
Document all the care given including the diameter and length of the NPA and the suction length. Record and report to the ENT team any abnormalities or difficulties experienced.	To maintain an accurate record of nursing care and to facilitate communication. To ensure safe practice and maintain accountability (NMBI 2015)

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Our Lady's Children's Hospital, Crumlin		 <p>Ospidéal Mhúire na Leanaí, Cramhúilín Our Lady's Children's Hospital, Crumlin</p>
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Appendix 1 - Nasopharyngeal Airway Measuring and Preparation

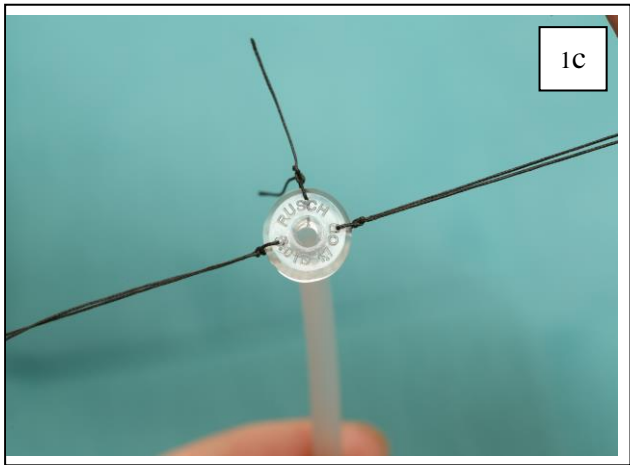
NASOPHARYNGEAL AIRWAY MEASURING AND PREPARATION



NPA in situ



Nasopharyngeal airway



NPS Suture Placement



NPA Measurement

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