NETS WA
Newborn Emergency Transport Service

Difficult Airway on Retrieval (NETS WA)

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Contents

Aim

Preparation for a difficult airway on NETS WA retrievals requires a standardised and structured approach whilst promoting good communication, teamwork and situational awareness.

Risk

Delays in recognition and/or management of neonates with **difficult** airway**s** can place neonates at increased risk of deterioration and adverse events. A standardised approach to assessment and management aims to minimise these risks**.**

Key points

The PRIMARY goal is OXYGENATION not INTUBATION

- Difficult airways can be anticipated or unexpected and management of such should be discussed prior to ANY intubation.
- Call for help early. Phone NETS and speak to the NETS Consultant on call.
- Repeated attempts at intubation may lead to a **'can't intubate, can't ventilate'** scenario
- Consider less invasive airway management. Neonates with a true difficult airway can be very difficult to intubate and specialist assistance (ENT) may be required.
- Front-of- Neck-Airway (FONA) (tracheostomy/ scalpel cricothyroidotomy) is NOT recommended in the management of a difficult airway in any setting outside Perth Children's Hospital and without ENT in attendance.

Definition of Difficult Airway

A difficult airway is a situation where an experienced clinician (>20 prior intubations) has difficulty with:

- Face mask ventilation
- Tracheal intubation
- Supraglottic Airway ventilation, or
- All of the above

Background

A difficult airway may be due to:

- External compression
- Structural compromise to the airway

- Craniofacial structural abnormalities
- Neuromuscular abnormalities

Assessment and risk factors

- History of prolonged intubation e.g., ex preterm and subglottic stenosis
- History of previous difficult intubation
- Head and neck abnormalities:
    - Micrognathia e.g. Pierre Robin Sequence
    - Partial or complete nasal obstruction e.g. Choanal Atresia
    - Neck swellings e.g. Cystic hygroma

Indications for intubation

There may be different criteria for intubation on transport to ensure airway stability. An emergency intubation in the confined space of an ambulance/ aircraft is potentially more difficult and may lead to a higher likelihood of intubation failure and a difficult airway scenario.

Difficult Airway Pathway - Appendix 1

Plan A:

Good preparation is the key to a successful intubation.

- Make the 1st attempt at intubation the best one.
- Use the NETS WA intubation checklist.
- Identify and verbalise intubation plan and availability of help EVEN if not anticipating intubation difficulty.
- After each failed attempt, at least one thing should be changed to optimise the next attempt at intubation
- Premedication is **mandatory** on retrievals unless intubating in an emergency

Failed Intubation - Ensure the basics are being done optimally and set in motion process of getting help. Try:

- Different sized ETT
- Different operator
- Use of Videolaryngoscope (CMAC)
- Use of introducer

Plan B – **Can** Oxygenate **Can** Ventilate

Declare: 'This is a difficult airway with failed intubation. I'm activating the difficult airway algorithm'

Call for help and think about alternative means to ventilate/deliver oxygen

- Optimise ventilation - mask seal, 2-person ventilation, higher PIP/ PEEP, 100% oxygen, chin lift, jaw thrust, change to bag and mask, deflate air in stomach
- Use of Supraglottic Airway – LMA if >28 weeks and/or >1.25kg
- Use of video laryngoscope (CMAC)
- Use of Guedel Airway/ Nasopharyngeal Airway

Plan C – Can't Ventilate, Can't Oxygenate.

- This is a Medical Emergency. Will need expert help to secure the airway
- Get additional help – call emergency code in peripheral centre. What additional staff are available? - Anaesthetics/ Paediatric/ ENT?
- Phone NETS URGENTLY. Call conference with NETS Consultant on call for further advice.

Airway Adjuncts

Supraglottic Airways – Laryngeal masks (LMA)

An LMA can be inserted by any person who is trained LMA usage. LMA's have been successfully used in babies >1200g with case reports in <1000g.

Insertion of LMA:

- Choose size 1.0 LMA (< 5kg)
- If using a cuffed LMA, check it inflates/deflates prior to use – size 1 will require up to 4mLs of air
- Position yourself as if you are going to perform an intubation. Preoxygenate using T-piece/ Laerdel bag and mask
- Lubricate back and sides of LMA with normal saline
- Tilt babies head back slightly, open mouth and apply jaw thrust
- Hold LMA in right hand and insert along hard palate with open side facing tongue (fig 1). Continue pushing along the back of posterior pharynx until resistance is felt. If using a cuffed LMA, inflate cuff gently.
- CO_2 detector (PediCap™) will turn gold if LMA correctly placed (fig 2)
- Give breaths via the T-Piece/ BVM and look for adequate chest wall movement

- Secure in the midline by standard oral ETT taping (fig 3)

Fig 1.

Fig 2.

Fig 3

Trouble shooting LMA

- Incorrect placement – due to tip of cuff folding over during over during insertion
- Inadvertent displacement can occur with smaller LMA usually due to rotation once circuit or BVM is attached.
- In all cases, if any doubt about correct positioning or adequate ventilation, remove and reinsert or revert to face mask ventilation

Oropharyngeal Airway (Guedel)

Insertion of a Guedel can improve ventilation by allowing a patent airway between the tongue and posterior pharyngeal wall. Guedel may increase airway obstruction.

- Choose the correct size of guedel by measuring from the centre of the mouth to angle of mandible
- Lubricate Guedel with saliva or normal saline
- Insert over tongue concave side down
- Recheck airway patency and look for clinical improvement. Continue ventilation by T-Piece/ BVM
- If no clinical improvement, remove Guedel and continue with face mask ventilation as the Guedel may be increasing obstruction

Nasopharyngeal Airway (NPA)

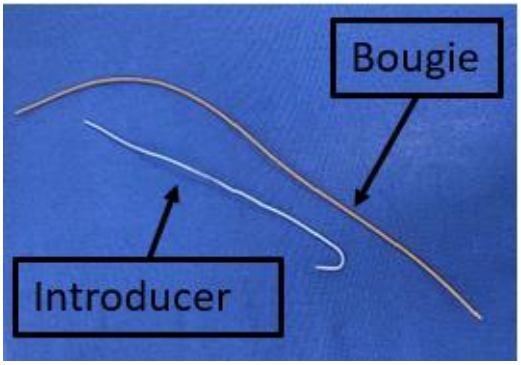
May be used in a difficult airway to bypass an upper airway obstruction at the level of the nose, nasopharynx or base of tongue such as micrognathia in Pierre Robin Syndrome.

- Can use an appropriately sized ETT tube as an NPA.
- Measure insertion distance from the lateral edge of the nostrils to the tragus of the ear
- Lubricate the ETT and insert into the nostril. Push gently posteriorly along the floor of the nose. The ETT will pass the turbinates and once in the pharynx you will feel a ‘give’ and decrease in resistance.
- Insert to pre-determined distance and secure as per usual nasal ETT taping.
- Recheck airway patency and look for clinical improvement. Continue ventilation by T-piece/ BVM

Bougie

A bougie (Fig 4) is a long thin orange introducer which can be a helpful adjunct in a difficult airway. The bougie should **only** be used by experienced personnel as there is increased risk of airway trauma and pneumothorax.

Fig 4. Bougie with introducer as comparison



- This procedure must be done under direct vision and by experienced personnel only. It is a minimum 2-person procedure.
- Insert the bougie through the vocal cords into the trachea under direct vision. Once placed, the bougie can be kept steady and a colleague can thread an ETT over it and into the trachea.
- The bougie is found in the orange side pocket in NETS Bag 2.

APPENDIX 1

DIFFICULT AIRWAY PATHWAY

PLAN A **PRIMARY APPROACH** **Optimise oxygenation and ventilation**	Good preparation the key Make the 1st attempt at intubation the best one MAX 3 attempts by same operator Change at least 1 thing after every attempt	• Preintubation Checklist • Assign Roles • Premedication Consider: • Introducer • Different ETT/ blade • Cricoid pressure • Different operator • Videolaryngoscope
PLAN B **ALTERNATIVE STRATEGY** **Priority is to maintain oxygenation** If **CAN** ventilate and oxygenate then you have time for other options	**"This is a DIFFICULT AIRWAY situation with FAILED INTUBATION"** **CALL FOR HELP – local resources – Paeds. Anaesthetics/ ENT** **>28 weeks and >1.25kg** **Laryngeal Mask** Call NETS for further advice **< 28 weeks or LMA unable to be inserted** **Continue T-Piece/ BVM ventilation** Call NETS for further advice	Consider: • Optimise patient position • Optimise Bag and Mask/ T-piece ventilation – 2 hand technique • Mask Size • Good seal • Higher PIP/PEEP • Change to bag and mask • 100% Oxygen • Deflate air in stomach Airway adjuncts: • Guedel • Nasopharyngeal airway
PLAN C **CAN'T INTUBATE AND CAN'T VENTILATE**	**LIFE THREATENING EMERGENCY** Call medical code – local resources Anaesthetics/ ENT/ Paeds? Call NETS for further advice	• Laryngeal Mask if >28 weeks and 1.25kg • Continue T-piece/ bag and mask ventilation if unable to place LMA • Bougie – railroad ETT under direct vision by experienced operators ONLY

NETS WA - 1300 638 792

Related CAHS internal policies, procedures and guidelines *(if required)*
Resuscitation: Neonatal (Neonatology Clinical Guidelines) Difficult Airway (Neonatal) (Neonatology Clinical Guidelines) Intubation on NETS Retrievals (NETS WA Clinical Guideline)

References and related external legislation, policies, and guidelines *(if required)*

- Managing the Difficult Airway in the Neonate. BAPM Framework for Practice October 2020
- O'Shea J *et al* Safe emergency neonatal airway management: current challenges and potential approaches *Arch Dis Child Fetal Neonatal Ed* 2022;**107**: F236-241
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- Kamlin CO *et al* A randomized trial of oropharyngeal airways to assist stabilization of preterm infants in the delivery room. *Resuscitation* 2019; **144:106**-114

This document can be made available in alternative formats on request.

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