# Managing the Difficult Airway: Guideline for the Neonatal Unit

NHS University Hospitals of Leicester NHS Trust

**Trust ref: C5/2014**

## 1. Introduction and Who Guideline applies to

This guideline is aimed at all Health care professionals involved in the care of infants within the Neonatal Service.

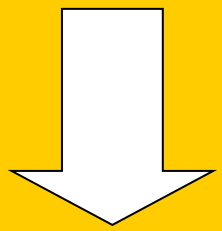
## Key Points

1. Call for senior help early when a problem is identified in managing the airway.
2. It may be possible to maintain an airway and oxygenation with airway manoeuvres, increased oxygen and mask ventilation rather than repeated attempts at intubation.
3. The equipment for managing the difficult airway is kept on both neonatal units.
4. Endotracheal intubation in these circumstances should be confirmed with a Pedi-cap.
5. **Plan C** below refers to the emergency procedure when **UNABLE TO INTUBATE and UNABLE TO VENTILATE**.

## Related documents:

**Premedication for Neonatal Intubation UHL Neonatal Guideline** **UHL Trust ref: C13/2007**

**Resuscitation at Birth UHL Neonatal Guideline** **UHL Trust ref: B35/2008**

<table>
<tr>
<td rowspan="2">Plan A<br><br>Failed intubation<br><br>Difficult to intubate<br><br>but<br><br>Ventilation<br><br>Able to maintain ventilation with a mask</td>
<td>Stop attempts to intubate<br>after two attempts<br>Focus on mask technique<br><br>Call<br>Call for help-<br>More experienced trainee<br>Consultant Neonatologist<br>(mobile phone or via switchboard)</td>
<td>Prepare<br><br>Prepare equipment for further attempts to intubate</td>
<td rowspan="2">When second person fails to intubate<br><br>  <br><br>Plan B</td>
</tr>
<tr>
<td>Mask technique<br><br>2 person jaw thrust<br>Laryngeal mask<br>Consider Oropharyngeal airway<br><br>Give additional<br>oxygen to maintain<br>appropriate saturation levels<br><br>Decompress stomach (nasogastric tube)</td>
<td>When re-attempting intubation consider<br><br>Head position<br>External laryngeal pressure<br>(cricoid pressure)<br><br>Size of laryngoscope blade<br>Consider smaller tube<br>Decompress stomach</td>
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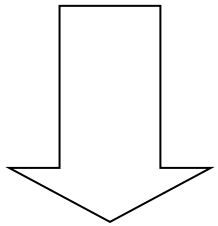
**Always confirm tracheal intubation with a Pedi-cap (colormetric end-tidal carbon dioxide detector)**

<table>
<tr>
<td rowspan="2">Plan B<br><br>Failed intubation<br><br>Second person fails to intubate<br><br>but<br><br>Ventilation<br><br>Still able to maintain ventilation with a mask</td>
<td>Stop attempts to intubate<br>Focus on oxygenation / maintaining saturations<br>And mask technique<br><br>Call<br>Confirm help has been called for<br>CONSULTANT SHOULD BE AWARE IF THERE ARE MORE THAN 3 ATTEMPTS TO INTUBATE<br>by senior staff</td>
<td>Prepare<br><br>Prepare advanced airway box / video laryngoscope<br><br>Prepare premedication intubation drugs<br>(if not already prepared/used)</td>
<td rowspan="2">Unable to intubate<br><br>Plan next steps:<br>Paed Anaesthetic / ENT assistance.<br><br>Consider transfer to theatre for fibreoptic intubation</td>
</tr>
<tr>
<td>Mask technique<br><br>2 person jaw thrust<br>Oropharyngeal airway<br><br>Give additional oxygen to maintain appropriate saturation levels<br><br>Decompress stomach</td>
<td>Options for experienced staff<br><br>Video laryngoscope<br>Airtraq intubation device<br>Consider using different type of laryngoscope blade<br>Consider the use of a soft bougie<br>(do not use intubation stylet as a bougie)</td>
</tr>
</table>

**Always confirm tracheal intubation with a Pedi-cap (colormetric end-tidal carbon dioxide detector)**

<table>
<tr>
<td rowspan="2">Plan C<br><br>Unable to intubate<br><br>and<br><br>Unable to ventilate</td>
<td>Stop attempts to intubate<br>Focus on maintaining oxygenation saturations whilst making plans for the next steps<br>Consider reversal of sedation<br><br>Call<br>Call for URGENT help- Consultant Neonatologist in the first instance.<br>(mobile via switchboard)<br>Consider additional options for help: PICU, Anaesthetic , ENT</td>
<td>Prepare<br><br>Difficult airway box<br>Do not give premedication until senior help available<br><br>Options for experienced staff<br><br>Video laryngoscope<br>Airtraq intubation device<br>Consider using different type of laryngoscope blade<br>Consider the use of a soft bougie</td>
<td rowspan="2">Senior staff fail to intubate with ‘difficult airway equipment’<br>Unable to ventilate<br><br>  <br><br>Call Paediatric Anaesthesia and ENT<br>urgently to NNU<br>for<br>fibreoptic intubation or emergency tracheostomy</td>
</tr>
<tr>
<td>Mask technique<br><br>Head position<br>Mask technique<br>2 person jaw thrust<br><br>Give 100 %<br>oxygen to maintain appropriate saturation levels<br><br>Decompress stomach</td>
<td>Further Options<br><br>Oropharyngeal or<br>Nasopharyngeal airway<br><br>CPAP with mask or prongs<br><br>Laryngeal mask airway<br><br>Prone position<br>if there is a small jaw</td>
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## Difficult Airway Emergency Box- Kept in intubation trolley in ITU area of NNU

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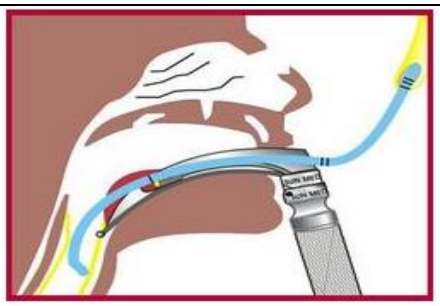
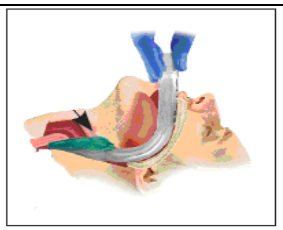
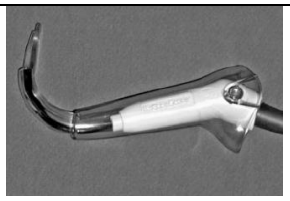
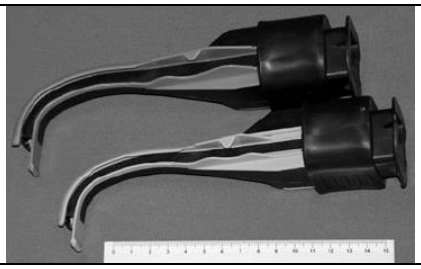
|---|---|
| **Laryngosope blades**: Seward Blade<br>This blade is wider than a Miller or Wisconsin blade and has a tip that is designed to help move a larger tongue out of the way. |  |
| **Bougie** (use a size 6 F for all neonatal tubes)<br>DO NOT USE AN INTUBATION STYLET AS A BOUGIE<br>The bougie has a soft tip.<br>Pass the endotracheal tube over the bougie.<br>Pass the tip of the bougie through the cords under direct vision.<br>Ask your assistant to feed the tube over the bougie and through the cords |  |
| **I-GEL Laryngeal mask**<br>The smallest size is size 1 (used from 2 to 5 Kg).There is no cuff. Hold the i-gel like a pen and slide down the hard palate until resistance is felt. Jaw thrust may be helpful during insertion.<br>Attach neopuff or self-inflating bag to ventilate. |  |
| **Video Laryngoscope**:<br>There are video laryngoscopes on both sites, a CMAC scope at the LGH and an Acutronic Infant View at the LRI (including small 00 blades)<br>The CenTre transport service have a mobile Infant View system should this be required<br>This can be used as a normal laryngoscope. It has a brighter light and can record still or movie images.<br>The camera provides good magnification and sometimes a clearer image of the cords can be seen on the screen. |  <br>  |
| There is a paediatric **glidescope** intubation device in theatres |  |
| **AirTraq: (**Size 0 for all babies)<br>The Airtraq is a single use intubation device that can be used to guide an endotracheal tube through the cords if it is difficult to visualise the cords with a standard laryngoscope. The tube is inserted down the channel in the Airtraq. May be difficult to use with limited mouth opening |  |

Essential Equipment in ALL UHL Neonatal Difficult Airway Boxes

1. Intubation bougies

2. Seward blade


3. Airtraq

4. Size one i-gel airway

## 3. Education and Training

None

## 4. Audit Standards

1. Confirm Intubation with Pedicap (100%)

## 5. Supporting References

Holm-Knudsen, R. (2011) The difficult pediatric airway – a review of new devices for indirect laryngoscopy in children younger than two years of age. Pediatric Anesthesia 21:98–103.

Intersurgical i-gel® single use supraglottic airway: User Guide.
http://docsinnovent.com/downloads/i-gel_User_Guide_English.pdf
(Intersurgical igel video is also available online)

Gowda H (2011) Should carbon dioxide detectors be used to check correct placement of endotracheal tubes in preterm and term neonates? Arch Dis Child 96:1201–1203

A BAPM Framework for Practice - Managing the Difficult Airway in Neonates 12 October 2020

## 6. Key Words

Intubate, Intubation, Laryngoscope, Oropharyngeal airway, Pedi-cap, Ventilate, Ventilation

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**The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.**
**As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.**

| CONTACT AND REVIEW DETAILS | | | |
|---|---|---|---|
| **Guideline Lead (Name and Title)**<br>R Miralles - Consultant<br>Sumit Mittal – Consultant guidelines lead | | | **Executive Lead**<br>Chief Medical Officer |
| **Details of Changes made during review:** | | | |
| **Date** | **Issue Number** | **Reviewed By** | **Description Of Changes (If Any)** |
| **Jan 2014** | **1** | Neonatal Unit Guidelines<br>Neonatal Governance | |

| | | | |
|---|---|---|---|
| **Sept 2016-Jun 2017** | **2** | Neonatal Unit Guidelines Neonatal Governance | Difficult airway box checklist added |
| **Jan 2020** | **3** | Neonatal Unit Guidelines Neonatal Governance | |
| **Sept 2020** | **4** | Neonatal Unit Guidelines Neonatal Governance | |
| **Dec 2022** | **5** | Neonatal Unit Guidelines Neonatal Governance | Minor Amendments<br>Added related documents |

## Appendix

See Preintubation Checklist Document on Badger Library.