

Neonatal Clinical Procedure Guideline

Premedication and Intubation Guideline

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AUDIT STANDARDS	
STANDARD	EXPECTED COMPLIANCE RATE
Procedure is documented contemporaneously in infant's medical record with safety checklist completed	100 %
Premedication administered as per guidance (choice and sequence) before non-emergency intubation	100 %
Intubator airway capability should be in line with BAPM neonatal airway safety standards recommendations (INTERMEDIATE) with adequate senior supervision available if capability of intubator 'STANDARD' & below	100 %
End tidal Carbon-Dioxide monitor is used to check tube placement in trachea and findings documented	100 %

GLOSSARY OF TERMS (ABBREVIATIONS)

AAP	American Academy of Pediatrics
ANNP	Advanced Neonatal Nurse Practitioner
BAPM	British Association of Perinatal Medicine
CPAP	Continuous Positive Airway Pressure
ENT	Ear, Nose and Throat
ETT	Endotracheal Tube
ILCOR	International Liaison Committee on Resuscitation
INSURE	INtubate, SURfactant and Extubate
IPPV	Intermittent Positive Pressure Ventilation
MV	Mechanical Ventilation
NLS	Newborn Life Support
NRP	Neonatal Resuscitation Programme
RCPCH	Royal College of Paediatrics and Child Health
VL	Video Laryngoscope



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Contents

INTRODUCTION	6
KEY CONSIDERATIONS	8
NEONATAL AIRWAY	10
INDICATIONS.....	11
EQUIPMENT LIST	12
PREMEDICATION	13
INTUBATION PROCEDURE	17
VIDEOLARYNGSCOPE GUIDED INTUBATION	22
REFERENCES	23
APPENDIX 1	25
APPENDIX 2.....	26
APPENDIX 3.....	28

INTRODUCTION

Neonatal tracheal intubation is a highly skilled clinical procedure. It requires a skilled operator and human factors driven collaborative teamwork. The decision to intubate should follow a rapid but thorough clinical assessment, with consideration of the risks, available alternatives, and the infant's overall stability.

Intubation can precipitate significant cardio-respiratory changes, including bradycardia, desaturation, and fluctuations in blood pressure. Mechanical trauma to the airway structures may also occur, with potential for serious injury. These risks emphasise the need for careful preparation, appropriate equipment, operator skill level and good awareness of local escalation pathways.

Neonatal intubation should be performed by clinicians with proven competence (BAPM **INTERMEDIATE** airway capability or higher)¹. Practitioners who have not achieved **INTERMEDIATE** capability in clinical practice may intubate only under direct supervision and guidance of a clinician holding **ADVANCED** airway capability and is able to take over immediately. The sole exception is an out-of-hours, time-critical emergency when **ADVANCED** support is not immediately available, in which case the most experienced available clinician proceeds while simultaneously escalating for help.

Over recent years, the shift towards non-invasive ventilation has reduced exposure to intubation for trainees making competence harder to achieve. From 2022, RCPCH has removed neonatal intubation competencies from mandatory list of assessments before a trainee could progress to middle grade duties.

While tracheal intubation remains a vital skill, it is not always the first-line intervention. Many neonates can be adequately managed with simpler airway techniques such as a correctly fitted facemask or laryngeal mask airway, particularly during initial resuscitation or while awaiting advanced airway support.

Videolaryngoscopy is increasingly used as both a teaching tool and a method to improve safety by allowing shared visualisation and real-time guidance during the procedure.

This guideline is primarily intended for non-emergency neonatal intubations. Emergency intubations, typically in delivery environments, require similar core technical skills but may

justifiably adapt elements such as premedication, videolaryngoscope use, and pre-procedure checklists to suit the urgency of the situation.

KEY CONSIDERATIONS

- Ensure the need for intubation is appropriate (airway protection, surfactant, ventilation support).
- Conduct a pre-intubation personnel, equipment checks and conduct a safety brief using intubation checklist
- Videolaryngoscopy (VL) improves first-pass success rates, reduces airway-related adverse effects, and offers more robust training opportunities, and therefore should be used as first-line.² While VL is considered the gold standard and is supported by evidence, it is recognised that there may be variability between clinicians and units in terms of familiarity and training with videolaryngoscope equipment. These factors should be considered when implementing VL as standard practice, with appropriate training and support provided to ensure safe and consistent use.
- Intubator capabilities should align with BAPM Neonatal Airway Safety Standards 2024¹ and appropriate, direct supervision should be available for professionals learning intubation skills. Encourage closed-loop communication, situational awareness, and assertiveness from all team members regardless of hierarchy
- Where possible, parents should be informed about the need for intubation, verbal consent sought and documented. They should be offered a choice to be present during the procedure with staff available to guide and reassure them
- Optimise infant's physiological status before starting the procedure by adequate pre-oxygenation and vital parameter checks. Nasal high flow oxygen therapy during oral intubation improves infant stability and first attempt success rates.³
- Premedications should be given for all non-emergency intubations^{4,5}. Consider safety, drug choice, dosing accuracy, and potential side effects. Emergency intubations may require deviation from standard premedication protocols.
- Continuous physiologic monitoring should be in place before, during and post procedure. End tidal Carbon-dioxide monitoring should be used to confirm tube placement.
- Intubation attempts should be short (≤ 30 seconds). First-pass success is critical; avoid multiple prolonged attempts that worsen hypoxia and instability.

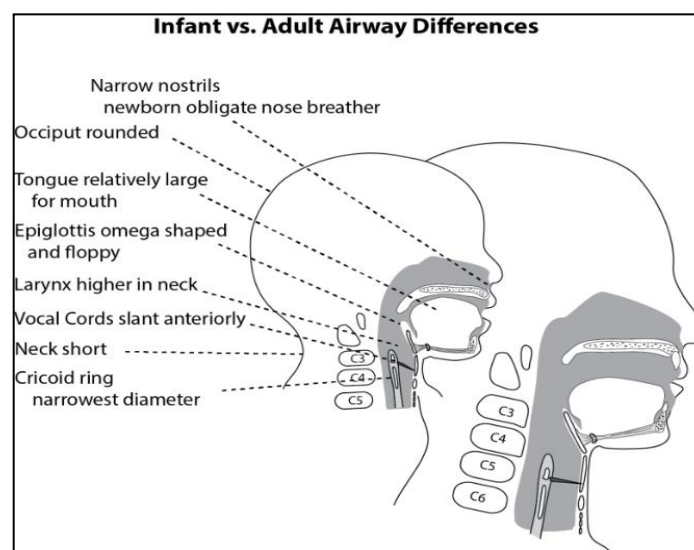
- Staff involved in neonatal intubation should be aware of local escalation pathways (anaesthetics, ENT, retrieval teams) and difficult neonatal airway protocol.
- Post procedure, ensure infant's clinical stability, review complications, document the procedure, and where possible debrief the team (learning, emotional impact, human factors reflection).
- Parents should be informed of procedure outcome and baby's condition during and after the procedure. Any queries should be addressed, and discussion documented in clinical records.

NEONATAL AIRWAY

Neonatal airways differ significantly from that of older children and adults. These anatomical and physiological differences have important implications for neonatal airway management and intubation techniques.

- Neonates have a large occiput leading to natural flexion of the neck in supine position. This can make airway alignment more challenging, and a shoulder roll is often needed to optimise alignment of oral, pharyngeal and laryngeal axes.
- Tongue is relatively large compared to oral cavity, predisposed to airway obstruction. During laryngoscopy, careful insertion of the blade and avoidance of excessive force are required to optimise visualisation of airway structures and prevent trauma.
- Larynx is higher and more anterior (C2-3 in Neonates vs C4-5 in adults) and therefore view of glottis may be difficult and needs appropriate alignment and angulation
- Neonatal epiglottis is long, floppy and U-shaped and can obstruct view of glottis. Straight blades are therefore preferred as they allow direct elevation of epiglottis when compared to curved blades. VL facilitates much better and easier epiglottis management.
- Subglottic area (cricoid cartilage level) is the narrowest point of the Neonatal airway unlike vocal cords in adults. This has implications for endotracheal tube sizing. Nomograms available based on gestation age and weight
- Neonates have highly compliant chest walls with less functional residual capacity making them prone to rapid desaturation. This necessitates adequate premedication, pre-oxygenation and limiting intubation attempts to less than 30 seconds.

All features described above are depicted in the image below;



INDICATIONS

- To provide sustained positive pressure ventilation
- Severe upper airway obstruction unresponsive to noninvasive respiratory support
(seek for additional help early and refer to local difficult airway guidelines)
- Prophylactic or Rescue Surfactant therapy (INSURE)
- Elective intubation for surgery / transfer / imaging
- Airway protection (neuromuscular conditions, seizures, pulmonary haemorrhage)

COMPLICATIONS

- Oesophageal intubation/perforation
- Tracheal perforation
- Laryngeal oedema
- Palatal grooves (from long term oral intubation)
- Subglottic stenosis (from long term intubation)
- Infection
- Airway and pharyngeal damage
- Air leak
- Desaturations and bradycardia during procedure

INTUBATION ROUTE

- Oro-tracheal preferred
- Easier and quicker with higher first pass success rates and recommended by resuscitation guidelines (UK NLS, AAP, ILCOR)
- Naso-tracheal intubation – used in certain situations, outside scope of this guideline

EQUIPMENT LIST

Item	
Airway & Intubation equipment	☐
Single use Direct Laryngoscope x 2 with straight blades (Miller or Mac 00, 0, 1)	☐
Videolaryngoscope (brand selection at local level with local SOP) with suitable blades; typically, Miller or Mac #0, #1	☐
Endotracheal tubes (sizes 2.0–3.5 mm ID, uncuffed), if using cuffed tubes avoid upsizing, outer diameter should not exceed what would be normally used. Refer to ET tube sizing guide in document	☐
Introducer (neonatal)	☐
ETT securing tapes/devices – e.g., Neofit, Colloid dressing, Skin protection	☐
Supraglottic airways e.g., iGel size 1 OR equivalent for 34 weeks and above, alternative brands available size 0, 0.5 for babies < 2 kg	☐
Resuscitation & Ventilation	
T-piece resuscitator (Neopuff or equivalent)	☐
Face masks (sizes 0, 1)	☐
Self-inflating bag (500 mL) with blow-off valve	☐
Suction catheters (6–10 FG)	☐
Yankauer suction catheter (typically in resuscitation settings immediately after birth)	☐
Monitoring & Confirmation	
Pulse oximeter with neonatal probe	☐
End-tidal CO2 monitor (colorimetric or in-line)	☐
Stethoscope	☐
IV Access & Drugs	
IV cannula flushed and ready	☐
Premedication drugs (see section in this guideline)	☐
Flush syringes with saline	☐
Timer (usually available on the resuscitaire/incubator) to ensure 1- 2min Fentanyl administration	☐
Safety & Support	
Warmed environment	☐
Pre-intubation checklist & drug doses	☐
Awareness of local difficult airway guideline and equipment location/availability	☐
Appropriate risk assessment and awareness of local escalation pathways	☐

Units may typically have to modify this equipment checklist to allow for local brand variations

PREMEDICATION

Intubation is a painful and uncomfortable experience for the baby. Premedication improves safety, tolerance and success by providing analgesia, jaw relaxation, vocal cord immobilization and temporarily suppressing airway reflexes such as coughing and gagging.⁵ Overall, it results in infant comfort and simultaneously improving operator success rates. Premedication should be used for most neonatal intubations except for emergency intubations which typically occur in delivery settings.

While evidence on the optimal sedative–muscle relaxant combination is limited, the regime described in this document is the most evidenced and widely used in preterm and term newborns.⁴ A typical premedication regime should have an analgesic, a vagolytic and a muscle relaxant.

Fentanyl is widely used and is the recommended analgesic; **Morphine** should only be considered if no alternatives are available. **Should be given slowly over 1 -2 minutes including the following flush.** **Atropine** should be given routinely as part of premedication to prevent reflex bradycardia and cardiovascular instability during laryngoscopy.

Suxamethonium remains the preferred paralytic agent due to its rapid onset and short duration of action. Doses, preparation and administration guidance in Table 1.

Recommended sequence would be to administer Fentanyl slowly, followed by atropine and then suxamethonium. All drugs must be prepared and checked before the first is given. All staff involved must be familiar with safe administration procedures, and the team leader should confirm this before starting. **Use Naloxone in the event of chest wall rigidity.** Peak inflation pressures may have to be increased temporarily to expand lungs.

In specific cases, such as cardiac infants, alternatives (e.g. ketamine as a sedative) may be more appropriate, with decisions discussed with the on-call consultant or relevant specialty team.

Midazolam alone is not recommended in neonates because it provides only sedation without analgesia, has a long half-life, and carries risks of hypotension and poor tolerance; it may only be considered in combination with a fast-acting opioid. Propofol can provide adequate

sedation and comfort, but its frequent association with hypotension limits its use compared with the more evidence-based and safer combination of opioid plus muscle relaxant.⁵

Table 1: Drugs for premedication before non-emergency intubation

Medication	Preparation	Dose	Administration	Onset, peak and duration of action	Side effect
FENTANYL (Analgesic, Controlled Drug)	50 micrograms/ml 2ml size Diluent: 0.9% sodium chloride or 5% <u>glucose</u>	2 micrograms/kg (Range 1 – 4 micrograms/kg) ⁶ IV <u>slowly over 1-2 minutes</u> followed by a slow 0.9% sodium chloride flush Repeat dose of 3 micrograms/kg can be given if required	Draw 0.2mls (10micrograms) and dilute to 1ml with glucose 5% in a 1ml syringe = 10micrograms/ml, then give 0.1- 0.4 mls for each Kg of baby's weight	Onset of action: IV- almost immediate Peak effect: 5- 15 minutes Duration of analgesic effect: 30 – 60 minutes	Chest wall rigidity (can be reversed with naloxone or muscle relaxant), seizure-like activity, respiratory depression, bradycardia
ATROPINE (Vagolytic)	600 micrograms/ml 1ml size Dilution not recommended	20 micrograms/kg stat rapid IV bolus ^{6,7}	Draw up 0.033mls (20 micrograms) for each kg of baby's weight Alternatively, dilute to 60 micrograms/ml solution (0.1 ml from 600 micrograms/ml solution to 0.9 ml of 0.9% sodium chloride to make up a final volume of 1 ml) & draw up 0.33 ml for each Kg of baby's weight	Onset of action: Immediate Peak effects: 12-16 min, Duration of action: 4-6 hrs	Tachycardia (self resolving)

SUXAMETHONIUM (Muscle Relaxant)	50 mg/ml 2ml size in fridge 0.9% Sodium chloride or 5% glucose	2 mg/kg stat IV bolus ^{6,7}	Draw 0.2ml (10mg) and dilute to 1ml with 5% glucose in a 1ml syringe = 10 mg/ml then draw up 0.2ml (2 mg of diluted solution) for each Kg of baby's weight	Onset of action: 1-2 minutes Duration of action: 5-10 minutes	Bradycardia especially after second dose of suxamethonium, transient hyperkalemia, malignant hyperthermia
NALOXONE (Opioid Antagonist – to reverse Fentanyl related respiratory depression or chest wall rigidity)	400 micrograms/ml solution for injection OR Available as 400 micrograms/ml minijets	10 micrograms/kg IV bolus Can be repeated every 2-3 minutes to a cumulative dose of 100 micrograms/kg if necessary BUT risks complete reversion of opioid analgesia	Draw 0.1 ml (40 micrograms) and dilute to 1 ml with 0.9 % sodium chloride = 40 micrograms/ml then draw up 0.25 ml for each Kg of baby's weight	Onset of action: 1-2 minutes Duration 3-4 hours	Arrhythmias Hypertension Hypotension (rare)

Administration of premedication agents

- At least two practitioners (of whom one should be trained in neonatal resuscitation and qualified in speciality nurse) should be involved in the procedure including a dedicated assistant not involved in any other aspect of the infant's care. Second checker for medication administration in required.
- Incidence of chest wall rigidity with Fentanyl falls from around 20% to <5% when given slowly. However, as rigidity can still lead to rapid hypoxia, it is sensible to have naloxone prepared at the bedside to reverse fentanyl's effects and enable effective ventilation.
- After completion of 'read out and check' intubation checklist (BAPM checklist, page 15) administer pre-medication in the order of Fentanyl, Atropine and Suxamethonium. Fentanyl should be given slowly over 1-2 minutes to reduce risk of chest wall rigidity. Atropine and Suxamethonium should be given as rapid push.
- Document time of start /finish in checklist and/or drug chart and any other relevant clinical records
- Use a neonatal pain assessment tool (Neonatal Infant Pain Score - NIPS) during procedure.



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INTUBATION PROCEDURE

Choice of Intubator

- Intubation frequency is low. Competent professionals need to maintain their skills and at the same time less experienced professionals need to learn
- Choice of intubator should be case-specific, considering infant, team skill mix, and setting.
- Where possible an opportunity needs to be offered to a less experienced professional but STRICTLY under direct supervision of a senior, competent professional
- Videolaryngoscopy enhances learning, improves first pass success rates and offers opportunity for review of clips which helps with focussed reflection

Delivery Room Intubations

- Intubation at birth is rare and stressful, with lower success rates for novices
- Delivery-room intubations are typically time-critical and occur outside the controlled environment of the neonatal unit; therefore, ideally not to be undertaken by novice operators unless immediate, direct supervision by a clinician with ADVANCED airway capability is available, and videolaryngoscopy is used wherever feasible

Neonatal Unit Intubations

- Neonatal unit allows more controlled practice; novices and less experienced professionals may intubate under direct supervision, ideally with VL
- VL improves success across all grades, especially the less experienced professionals
- Infants who are clinically unstable and labile are unsuitable for inexperienced intubators

Escalation Planning

- Team must agree a clear escalation plan before starting
- Inexperienced intubators must seek senior support; mask ventilation or LMA may be used temporarily
- Inexperienced intubators should have a maximum of two attempts; third attempt must be by the most experienced clinician

PREPARATION



GA (weeks)	Body wt.	ET size	Length at lips
<28	500 – 699	2.5	5.5
	700 – 899	2.5	6.0
	900 – 1000	2.5	6.5
28 – 34	1001 – 1499	2.5 – 3.0	7.0
	1500 – 1899	3.0	7.5
	1900 – 2499	3.0	8.0
> 34	2500 – 3000	3.0 - 3.5	8.5
	3000 – 4200	3.5	9.0
	> 4200	3.5	10

Adapted from NRP 8th edition

INTUBATION PAUSE / TIMEOUT



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Intubation checklist

To be completed before every intubation and filed in patients notes afterwards.
Has this infant previously been intubated or received LISA?
If so, check their records.

Patient demographics

Name: _____

DOB: _____

Hospital number: _____

1. Equipment

Airway:

- ☐ Correct sized mask
- ☐ LM/oropharyngeal airway
- ☐ Working suction

Breathing:

- ☐ Ventilator settings
- ☐ T- piece resuscitator settings
- ☐ Stethoscope
- ☐ High flow therapy

Intubation:

- ☐ Laryngoscope (VL & Direct)
- ☐ ET tubes (size expected & one size above and below)
- ☐ Stylet
- ☐ End tidal CO2 monitoring
- ☐ ETT securing equipment

Premedication drugs

- ☐ Check location of difficult airway box. Do you need it?

2. Patient

☐ Confirm baby identity

Indication for intubation: _____

- Parents aware/informed? Y ☐ N ☐
- If not, why? _____
- Parents present: _____
- Consultant aware? Y ☐ N ☐ (if applicable)

☐ Correct baby position.

☐ Thermal care plan.

☐ Continuous monitoring (HR/SaO2 minimum)

☐ nHFT 8L/min being used?

☐ Secure IV access.

☐ NGT/OGT aspirated.

☐ Preoxygenate with appropriate FiO2 target.

3. Team

Roles

Team lead: _____

Airway lead (airway and intubation): _____

Airway support

(airway equipment, auscultation, assists 2 person technique)

Patient comfort (IV drugs, comfort measures, suction): _____

Patient obs (obs, NGT/OGT aspiration, assist with ETT fixation): _____

- Summarise procedure plan.
- Difficult airway anticipated?
- Pre medication drugs
- **Escalation plan:**
Pause before 3rd attempt.
Need most experienced intubator available.
Do you need help?
Who will activate Difficult Airway Pathway?
Who will you call and how will you do this?
Questions?

4. Intubation note

Number of attempts: _____

Intubated by: _____

Role: _____

Grade of view (circle)

Grade 1: most of cords seen

Grade 2: <50% cords seen

Grade 3: epiglottis only

Grade 4: no laryngeal structures seen

ETT size and position at lips/nares: _____

☐ Confirm with CO2 detection, auscultation, SpO2 & heart rate.

☐ Confirm ETT fixed securely (push-pull test).

ETT position on CXR: _____

☐ Post intubation blood gas

Any Difficulties? (circle all that apply)

Poor view/ multiple attempts/ change of device/ change of operator

Any complications?



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STABILISE BABY



Pre-Oxygenate

- Nasal High Flow Oxygen reduces physiological instability and improves first pass success rates
- If already on high flow – continue during intubation and have ventilator ready
- If not on high flow – continue nasal cannula oxygen or CPAP but be mindful that CPAP interface may hinder conventional laryngoscopy views, not so much of a problem with VL
- If IPPV required following premedications, remove high flow/CPAP/nasal prongs and provide T piece ventilation with appropriate size face mask
- Maintain oxygen saturations above 95 % before starting premedications (this can only be over-ruled by the most senior person after a risk assessment before proceeding to premeds)

FENTANYL 2 micrograms/kg (1 – 4 micrograms) IV slowly over 1 – 2 minutes
(followed by a slow 0.5 – 1 ml flush over 1 minute)

F

ATROPINE 20 micrograms/kg IV over a few seconds
(followed by a 0.5 – 1 ml flush over few seconds)

A

SUXAMETHONIUM 2 mg/kg IV bolus
(followed by 0.5 – 1 ml flush over few seconds)

S

TUBE

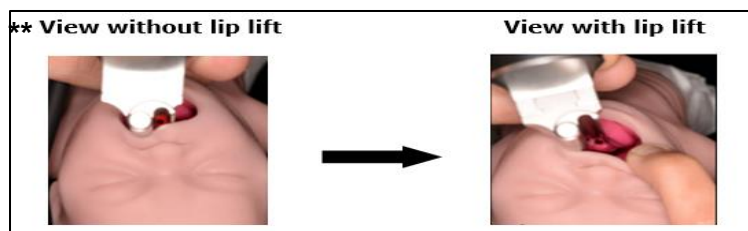
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PREMEDICATE

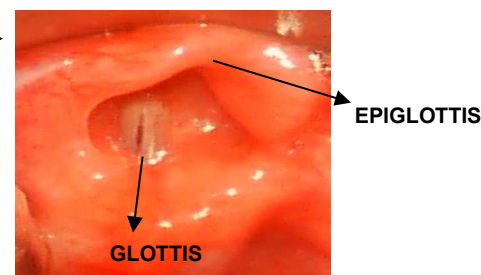


LARYNGOSCOPY AND TUBE PLACEMENT

- Hold the laryngoscope (video laryngoscope preferably) in the left hand, use the right hand to open the mouth gently, use your index or middle finger and pull the upper lip upwards. This will give a better view and space to place the laryngoscope blade



- Insert the blade gently, pushing the tongue to the left and advancing towards the throat
- Keep the blade in midline using uvula as the guide, if uvula drifts off view, reposition and bring the blade back to midline
- Try and maintain the oral, pharyngeal and laryngeal axis in alignment, this will improve success rates
- Advance the blade slowly, lift the handle up and forward. **DO NOT lever on the gums**
- As you advance laryngeal inlet should come to view →
- Withdraw the laryngoscope slightly and take the epiglottis under the blade so it doesn't obstruct the view of vocal cords
- Apply **gentle cricoid pressure** if needed
- Use suction only if secretions obscure your view
- Once you are comfortable with the view, ask the assistant to hand you the pre-selected ET tube, bevel up, advance it from the right corner of the mouth (direct laryngoscopy) or midline (indirect or video laryngoscopy) and pass it through the cords
- Insert until the black depth marker as a guide, then adjust to pre-calculated length at lips
- Make sure you do not insert the tube too deep
- Secure the tube against the palate or upper lip and remove the laryngoscope blade
- Attach end tidal CO2 detector and check for colour change or waveform (Appendix 1)
- Secure tube with appropriate fixation device (**Neofit**) – (Appendix 2)
- Provide IPPV once position is confirmed through fixation, connect to ventilator and check respiratory parameters



- Chest X-ray to confirm ET tip – 1 cm above carina (T2 – 3 vertebral level)
- Shorten ET tube to minimize dead space

Footnote - **Photo courtesy (manikin) – GGC Paediatric Guidelines Open-Source Webpage, Glottis VL view – author's own archive

VIDEOLARYNGOSCOPE GUIDED INTUBATION

Videolaryngoscopy (VL) allows visualization of the airway via a video screen during intubation, improving both ease and safety. Unlike direct laryngoscopy (DL), which requires a direct line of sight, VL provides indirect laryngeal visualization through fibreoptic or digital technology.

Several VL systems exist, including non-channelled, rigid blade devices (e.g. C-MAC, Glidescope, TruView, McGrath), which are most commonly used in neonatal practice. Other types – channelled rigid blade (Airtraq, CTrach) and video-assisted intubating stylets (Optiscope).

The technique with Macintosh and Miller VL blades is broadly similar to DL, while hyper angulated blades offer improved views of anterior airways using a preformed stylet, with less need for axis alignment or tongue displacement.

VL provides several advantages: superior laryngeal view, intubation in a neutral position, reduced tissue force and sympathetic stimulation, real-time observation of cricoid pressure or manipulation, and additional benefits such as trainee supervision, second-opinion viewing, and video documentation.⁷

A recent Cochrane review² concluded that videolaryngoscopy increases first-pass success, reduces the number of attempts, and decreases airway-related adverse events, although it may not shorten intubation time. Importantly, it enhances team training by allowing supervisors to guide learners in real time.

Videolaryngoscopy should be considered the first-line approach for neonatal intubation. Units without access to VL or without established training in its use should urgently reassess their position and prioritise investment in VL equipment and structured training programmes. This document offers high level guidance on the benefits of VL. Since each unit may use a different brand or model, local standard operating procedures should be developed to support safe and consistent practice specific to the brand used.

BAPM Neonatal Airway Safety Standards framework¹ includes a Tips for videolaryngoscopy document which offers a handy, helpful guide for clinical practice – Appendix 3.

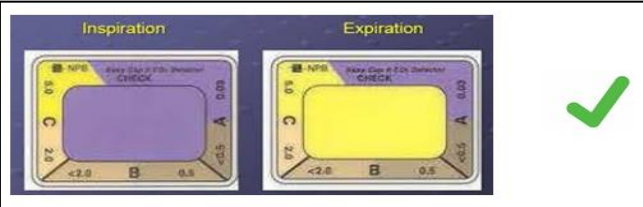
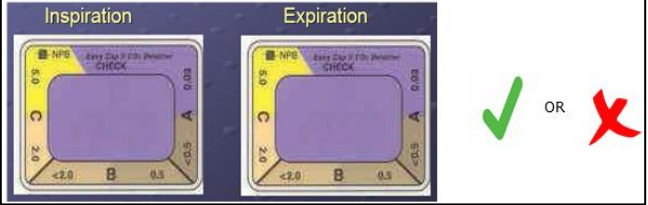
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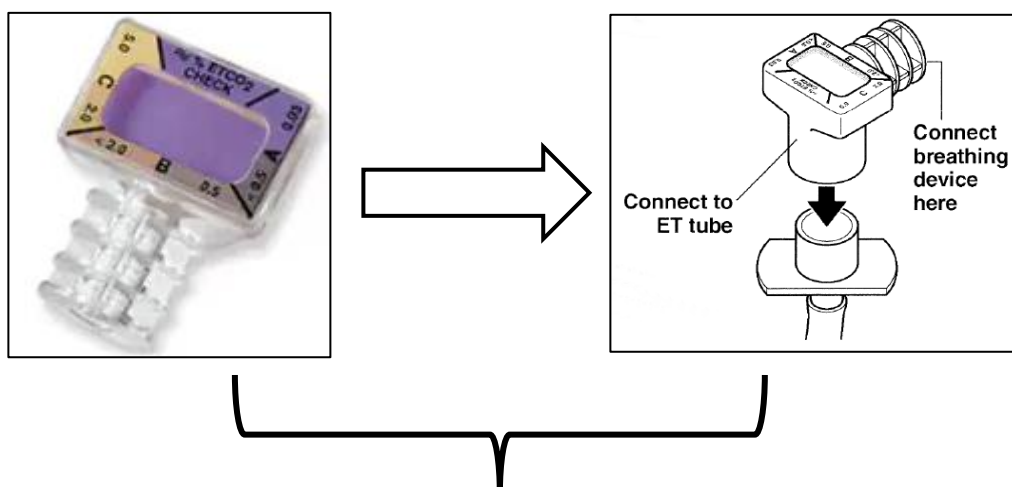
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APPENDIX 1

Confirmation of Endotracheal Tube Placement: Colorimetric End-Tidal CO₂ monitoring

SUCCESSFUL TRACHEAL INTUBATION	PURPLE TO GOLD 
OESOPHAGEAL INTUBATION	PURPLE TO BEIGE 
POSSIBLE TRACHEAL INTUBATION, IN CASES OF POOR OR ABSENT PULMONARY BLOOD FLOW NO CHANGE OR DELAY IN COLOUR CHANGE (ASSESS CLINICALLY & DECIDE)	STAYS PURPLE 



Images below taken from GGC Paediatric Guidelines Open-Source Webpage (acknowledged with thanks)

APPENDIX 2

NEOFIT ENDOTRACHEAL TUBE FIXATION DEVICE



↓₂₆



APPENDIX 3

Tips for Videolaryngoscopy – BAPM NEONATAL AIRWAY SAFETY STANDARD 2024

BAPM Neonatal Airway Safety Standard Tips for Videolaryngoscopy (Appendix B)

Tips for Videolaryngoscopy

General Points

- Find out which videolaryngoscope you have on your unit and become acquainted with it.
- Use videolaryngoscopy (VL) routinely for supervising intubations. Intubate with the VL either routinely or enough times to become comfortable using it. It is not ideal that it is used only as a last resort for a difficult airway situation.
- Practice with it on manikins before using it on babies. Techniques can vary depending on the type of VL used and can require different hand/eye coordination, particularly where the VL gives an indirect rather than direct view, such as when using a hyperangulated blade.

Basic Technique for Teaching and Support

- Position the VL directly in your line of vision so that you don't have to turn your head to see the screen, generally at the opposite side of incubator.
- Make sure those you are teaching, and your assistant can also see the screen.

Image 1: Videolaryngoscopy training

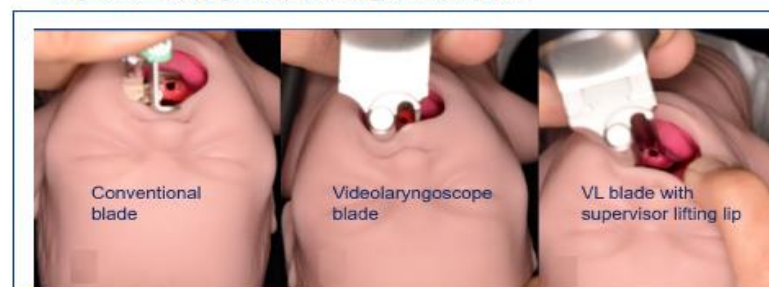


- Just before the intubation, wipe the light of the VL blade with an alcohol wipe to avoid misting.
- Sometimes during laryngoscopy the VL blade camera will get covered in secretions obscuring the view. Simply remove from the mouth, quickly wipe and reinsert.
- The person supervising/assisting the intubation should stand on the intubator's right hand side and place their right hand on the infant's neck. They can then feel the tip of the blade and help direct its position. They can then also provide guided airway manipulation if needed. They can also use their index finger on the left hand to lift the infant's lip to improve the space available to pass the tracheal tube. See pictures.

BAPM Neonatal Airway Safety Standard Tips for Videolaryngoscopy (Appendix B)

- You can either place the tip of the blade in the vallecula or go past the cords and bring the blade back on the epiglottis. Personal preferences vary and you should do whichever you find easiest.
- Some VL blades are a different shape to traditional direct laryngoscopes and give less space to see the cords and to pass the tracheal tube/catheter in from the side compared with tradition intubation. To help improve the view, the supervisor/helper can assist by **lifting the infant's lip on the right hand side** (see pictures) or an alternative is to pass the tracheal tube or catheter straight down the blade.

Image 2: View of laryngeal structures using different VL blades



- The supervisor/helper shares the view of the screen and can assist directing the intubation and confirm placement of the tracheal tube or LISA catheter.
- If the intubator is comfortable with an audience, let the whole team see the view. That way everyone in the team has the opportunity to see what an airway and intubation looks like.
- Inexperienced intubators generally find a large audience increases their stress and should be given the option of minimising the audience.

Advanced Technique

- A hyperangulated blade can be used to improve the view, for example in patients with an anterior larynx, but can make passage and insertion of the tracheal tube more challenging and require the use of a stylet, pre-shaped to the hyperangulated blade. This technique requires an additional learning curve and expertise.