

Endotracheal Intubation NICU QHB Full Clinical Guideline

Reference no: WC/NP/46N

1 Introduction

Endotracheal intubation is a commonly required procedure on the Neonatal Unit, and it should be performed expeditiously in as controlled environment as possible to reduce physiological disturbances and complications.

2 Purpose

Aim to provide intubation in a safe and controlled clinical environment.

3 Preparation (see intubation checklist)

This procedure should only be undertaken or supervised by an experienced person.

- Ensure working IV access in place.
- Ensure monitoring equipment (SpO₂, ECG) is attached and working.
- If NGT in place, aspirate stomach.

May not all be available in an emergency, e.g. on labour ward

4 Equipment

The equipment required are: suction, oxygen with a pressure-limiting device and bag, appropriate size mask, ETT fixing device, forceps, scissors, laryngoscopes x 2, stethoscope, ETT x 2 (see below for sizes), CO2 detector, Oropharyngeal airway, Laryngeal mask airway (i-Gel)

5 Intubation medications

The aims of administering medications prior to intubation are to reduce pain and the physiological disturbances during the procedure. This will increase the chances of a successful intubation as well as reduce complications.

- **Fentanyl 2 micrograms/kg** (analgesic to control pain)
- **Rocuronium 600 micrograms/kg** (muscle relaxant to improve intubation conditions)
- **Atropine 20 micrograms/kg** (vagolytic to prevent reflex bradycardia)
- **Sugammadex 16mg/kg** (for emergency reversal of rocuronium if required)

All medications should be prescribed on the intubation drug chart or EPMA

6 Procedure

Neonates are orally intubated.

1. Pre-oxygenate for 2 minutes with 100% oxygen via bag-valve mask or facial oxygen.
2. Decompress stomach with NG tube aspiration.
3. Administer pre-intubation medication - Give **fentanyl** bolus slowly over 30 secs to 1 min

followed immediately by **Rocuronium**. Have **Atropine** ready to give in case there is reflex bradycardia

4. Place laryngoscope into the right side of the mouth, then lift up the tongue and jaw to visualize vocal cords and larynx.
5. Apply cricoid pressure (by assistant).
6. Insert endotracheal tube (ETT) with an introducer. Introducer tip should not protrude beyond end of ETT.
7. Advance ETT until black mark at end of tube is just beyond vocal cords. Check length of the tube at the lips.
8. Remove the introducer.
9. Confirm position of ETT. If there is a significant air leak, a larger diameter tube may be required.
 - a. Auscultate for equal air entry on both sides of the chest.
 - b. Observe for equal chest expansion with ventilation breaths.
 - c. Assess exhaled CO₂ with CO₂ detector.
10. Secure tube
11. Record tube length on nursing ventilation chart and in notes. Update parents.
12. Request Chest X-Ray to determine position (tip of ETT at vertebra T2, between the clavicular heads).

WEIGHT (kg)	DIAMETER (mm)	LENGTH (cm) at the lips
< 1.0	2.5	5.5
1 – 1.5	2.5	6.0
1.5 – 2.0	3.0	6.5 – 7.0
2.0 – 2.5	3.0	7.0
2.5 – 3.0	3.0 / 3.5	8.0 – 8.5
3.0 – 3.5	3.5	8.5 – 9.0
>3.5	3.5 / 4.0	9.5

7. Documentation Controls

Reference Number WC/NP/46N - NICU	Version: 8		Status Final	
Version / Amendment History	Version	Date	Author	Reason
	V8	Aug 2024	Dr J Koh Dr D Mugobo	Review and Renew
Intended Recipients: Paediatric Consultants & Nursing staff at Derby Hospital				
Training and Dissemination: Cascade the information via BU newsletter and address training				
Development of Guideline: Dr D Muogbo Job Title: Consultant Paediatrician				
In Consultation with: All Paediatric Medical Staff All Paediatric Nursing Staff All Senior Nursing/Midwifery				
Linked Documents:				
Keywords: Neonatal Intensive Care Unit; Oxygen Administration; Premedication; Muscle Relaxant; Endotracheal Tube; NICU; Premed; Pre-medication; Pre medication; ETT				
Business Unit Sign Off			Group: Paediatric Guidelines Group Date: 19/08/2024	
Divisional Sign Off			Group: Women's and Children's Clinical Governance Group Date: 20/08/2024	
Date of Upload			28/08/2024	
Review Date			Aug 2027	
Contact for Review			Dr Muogbo	

8 Intubation Checklist

See Intubation Safety Checklist below.

INTUBATION SAFETY CHECKLIST

PREPARE: PROCEDURE
<input type="checkbox"/> What is the indication for intubation?
<input type="checkbox"/> Is difficulty intubation anticipated?
<input type="checkbox"/> Additional equipment (NP, OP, LMA) required?
<input type="checkbox"/> Have drugs been prescribed? Is surfactant required?
<input type="checkbox"/> Ventilator set up?

PREPARE: TEAM
<input type="checkbox"/> Role allocation clarified <ul style="list-style-type: none"> • Intubator • Assistant • Drug nurse • Scribe
<input type="checkbox"/> Is senior help required?

PREPARE: PATIENT
<input type="checkbox"/> Confirm patient ID
<input type="checkbox"/> Patient position optimised?
<input type="checkbox"/> Incubator/resuscitator height optimised?
<input type="checkbox"/> Monitoring
<input type="checkbox"/> Monitor attached? (SpO2, ECG)
<input type="checkbox"/> NG aspirated?
<input type="checkbox"/> Is cricoid pressure considered?
<input type="checkbox"/> Temperature control aids prepared?



Time out for....
EQUIPMENT CHECK
<input type="checkbox"/> Monitoring
<input type="checkbox"/> Suction
<input type="checkbox"/> Oxygen supply
<input type="checkbox"/> Bag-valve
<input type="checkbox"/> Neopuff / T-piece
<input type="checkbox"/> Mask
<input type="checkbox"/> Ventilator connected + Working
<input type="checkbox"/> Laryngoscopes x2
<input type="checkbox"/> ET Tubes (sized) x2
<input type="checkbox"/> Introducer
<input type="checkbox"/> Airway adjuncts
<input type="checkbox"/> Stethoscope
<input type="checkbox"/> CO2 detector
<input type="checkbox"/> ETT fixing device
<input type="checkbox"/> Forceps
<input type="checkbox"/> Scissors
DRUG CHECK
<input type="checkbox"/> Fentanyl
<input type="checkbox"/> Rocuronium
<input type="checkbox"/> Saline flush
<input type="checkbox"/> Atropine
<input type="checkbox"/> Sugammadex
PATIENT CHECK
<input type="checkbox"/> Preoxygenated?
<input type="checkbox"/> NG aspirated?

"Procedure start" + Time in

SUCCESSFUL INTUBATION
<input type="checkbox"/> Confirm placement? <ul style="list-style-type: none"> • Auscultation • Chest expansion • CO2 detector
<input type="checkbox"/> Confirm ET tube size/length + secure
<input type="checkbox"/> Ventilator settings confirmed + connected
<input type="checkbox"/> Post-intubation drugs (infusions) started?
<input type="checkbox"/> Chest X-ray ordered?
<input type="checkbox"/> Documentation + update parents
<input type="checkbox"/> Blood gas early or within 1 hour
<input type="checkbox"/> Oxygen prescribed?

No. of attempts	
ET Tube size (mm)	
ET Tube Length at lips (cm)	
Ventilator Settings	PIP: PEEP: RR: FiO2:
Time start	
Time finish	

Intubation Safety Checklist Ver2.0
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