

Clinical Guideline Fixation and Management of Oral Endotracheal Tubes

SETTING	Wales and West Acute Transport for Children
FOR STAFF	All clinical staff involved in the intubation of children
PATIENTS	All children with an oral endotracheal tube (ETT) in situ

KEY PRINCIPLES

- **Please do *not* cut endotracheal tubes** to calculated length for age – this is particularly important in children with upper airway obstructions e.g. croup / epiglottitis and for children with facial / airway burns, but equally applies to any infant or child in the acute situation.
- The preferred method for strapping ETTs is detailed in the ‘How to Guide’ on page 2.
- Unless the child has a known allergy to elastoplast please use this to secure the ETT.
- A chest X-ray post intubation must be undertaken before a child is transferred. Wherever possible, these images should be made available to the receiving Paediatric Intensive Care Unit (PICU) through the PACS system.

ETT POSITION ON CXR

The position of the ETT is dependent on the position of the head. If the neck is flexed, the tip of the tube descends in the trachea while if the neck is extended, the tip of the tube moves up the trachea towards the vocal cords.

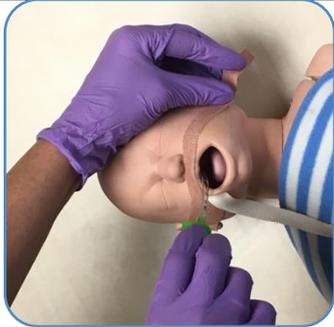
The ideal position for an ETT is for the tip of the tube to be sitting between T2 and T3 (with head midline and chin in neutral position). This is approximately 1 – 1.5cm above the carina. Clinical staff involved in transporting a child (including WATCH staff) should clearly document the ET tube position in their clinical note.

ANALGESIA / SEDATION / MUSCLE RELAXANTS

- Children who are going to be transferred by the WATCH team will be muscle relaxed for the transfer, unless specifically directed otherwise. Intravenous analgesia, sedation and muscle relaxant infusions (see below) should be commenced as soon as possible after intubation and before the arrival of the WATCH team.
- Inhalational anaesthetic agents should be discontinued as soon as possible after the infusions are commenced. A bolus of each medication should be given to facilitate the transition between inhalational and intravenous sedation.

Neonates (< 28 days)		Infants (> 28 days) and Older Children	
Morphine	10 – 40mcg/kg/hour	Morphine	10 – 40mcg/kg/hour
OR		AND	
Fentanyl / Vecuronium Mix	0.1 – 0.2mls/kg/hour	Midazolam	50 – 100mcg/kg/hour (can run at a higher rate of 200mcg/kg/hour short term)
Muscle Relaxants (as infusions)			
1. Rocuronium 600 – 1200 mcg/kg/hour			
2. Vecuronium 60 – 180 mcg/kg/hour			
3. Atracurium 300 – 600 mcg/kg/hour			

HOW TO GUIDE – STRAPPING AN ORAL ENDOTRACHEAL TUBE

STEP ONE	STEP TWO	TOP TIP
		
<p>Prepare equipment –</p> <ul style="list-style-type: none"> • Elastoplast • Scissors • Comfeel if available <p>Cut two 'trouser leg' tapes, ensuring they are long enough to reach across the child's face side to side</p>	<ul style="list-style-type: none"> • Apply two sheets of Comfeel, one to each side of the face. • Position from the corner of the mouth on either side of the face towards the ears <p>Check that ETT position is correct before beginning to tape.</p>	<p>As you are applying each tape to the face ensure that they are STRETCHED to improve fixation of ETT.</p>
STEP THREE	STEP FOUR	FIRST SIDE SECURED
		
<ul style="list-style-type: none"> • Align the first piece of Elastoplast over the Comfeel on the SAME side of the face to the ETT. • Apply the UPPER trouser leg along the upper lip, avoiding the vermilion border, to the other side of the face ensuring the lip and nares are kept visible. 	<ul style="list-style-type: none"> • Reconfirm the position of the tube before wrapping the bottom trouser leg around the ETT close to the lips, winding up the ETT twice in a spiral movement. • Cut the end of the tape and fold over a small piece in order to aid removal of the tapes later 	
STEP FIVE	STEP SIX	FINISHED TAPES
		<ul style="list-style-type: none"> • Cautiously trim loose ends on both sides to avoid tape sticking to the child's hair and or ears
<ul style="list-style-type: none"> • Align the second piece of Elastoplast over the Comfeel again on the OPPOSITE side of the face to the ETT. • Apply the LOWER trouser leg UNDER the lips to the other side of the face. 	<ul style="list-style-type: none"> • Wrap the UPPER leg of the tape around the tube twice ensuring the correct position is maintained. • Bring the tape back on itself and secure the remaining length of tape on the SAME side of the face as the ETT. 	