Clinical Guideline

WATCh – FIXATION AND MANAGEMENT OF AN ORAL ENDOTRACHEAL TUBE (ETT)

SETTING Wales and West Acute Transport for Children (WATCh)

FOR STAFF WATCh Team, South West and Wales District General Hospital medical and nursing teams.

PATIENTS All children with an oral endotracheal tube (ETT) in situ

GUIDANCE

- This guidance outlines the process for the fixation and management of an oral endotracheal tube in children**.**
- To ensure the correct positioning of oral endotracheal tubes in children is maintained through the use of the correct method of securing
- To reduce the risk of ETT's becoming dislodged or accidentally removed.

This procedure requires a minimum of two people to undertake safely:

- Medical and nursing staff that have been educated and clinically demonstrated competency in this procedure.

NB: A member of the medical team MUST be involved if the ETT position needs adjusting.

Glossary

ETT	Endotracheal Tube
CXR	Chest X-ray
PICU	Paediatric Intensive Care Unit
PACS	Picture Archiving and Communication System
$EtCO_2$	End tidal Carbon dioxide

RELATED DOCUMENTS	WATCh Intubation checklist WATCh – Management of Ventilated Children in General Intensive Care Units Securing and Ongoing Management of Endo-Tracheal Tubes on the PICU
AUTHORISING BODY	WATCh Governance Group
SAFETY	Call the WATCh team for advice and support
QUERIES	0300 0300 789

FIXATION AND MANAGEMENT OF ORAL ENDOTRACHEAL TUBES

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 3
- 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 ETT position in their clinical notes.

ANALGESIA / SEDATION / MUSCLE RELAXANTS

Children who are going to be transferred by the WATCh team will be sedated and muscle relaxed for the transfer, unless specifically directed otherwise.

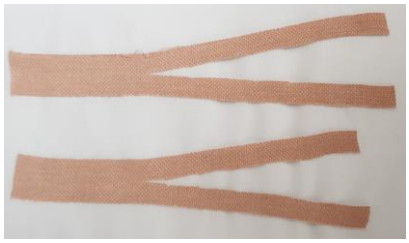
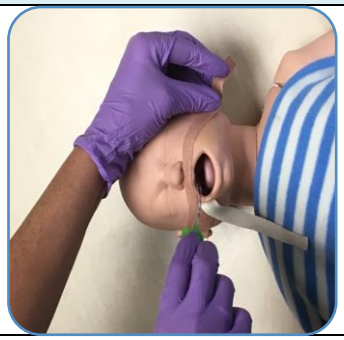
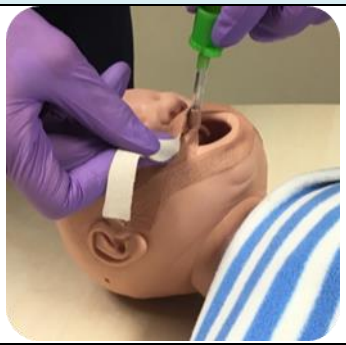
Intravenous analgesia, sedation and muscle relaxant infusions (see table below) should be commenced as soon as possible after intubation and before the arrival of the WATCh team.

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 – 40 micrograms/kg/hour	**Morphine**	10 – 40 micrograms /kg/hour
		AND	
		Midazolam	50 – 100 micrograms /kg/hour (can run at a higher rate of 200 micrograms/kg/hour short term)
Muscle Relaxants (as continuous IV infusions) 1. Rocuronium 600 – 1200 micrograms/kg/hour 2. Vecuronium 60 – 180 micrograms/kg/hour 3. Atracurium 300 – 600 micrograms/kg/hour			

FOLLOWING STRAPPING / RESTRAPPING OF ETT

- Auscultation for equal air entry
- Symmetrical chest movement
- Oxygen Saturations
- $EtCO_2$
- CXR – if appropriate i.e. ONLY if any of the above observations have significantly altered following re-strapping of the ETT
- Do not use as sole method of support for ventilator tubing, use a tubing support device

STEP 1	STEP 2	TOP TIP
		
Prepare equipment – • Elastoplast • Scissors • Comfeel if available Cut two 'trouser leg' tapes, ensuring they are long enough to reach across the child's face side to side	• 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 Check that ETT position and length is correct before beginning to tape.	As you are applying each tape to the face ensure that they are STRETCHED to improve fixation of ETT.
STEP 3	**STEP 4**	**FIRST SIDE SECURED**
		
• 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.	• Reconfirm ETT position 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 5	**STEP 6**	**FINISHED TAPES**
		• Cautiously trim loose ends on both sides to avoid tape sticking to the child's hair and or ears 
• 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.	• 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.	

Securing Oral ETTs size 5 and larger:

For oral ETT's size 5.0mm and larger the AnchorFast device may be used:
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Equipment:
- Anchorfast device (2 sizes available to aid fit on face both for size 5 ETT and larger
- Non-sting barrier film

1. Apply non-sting barrier film
2. Place non-absorbent upper lip stabiliser so it rests on the skin between nose and lip.
3. Remove backing and secure skin barrier pads to cheeks.
4. **Cuffs should be positioned underneath the ETT and left free of the AnchorFast device**
5. Secure ETT tube using ETT wrap ensuring backing from sticky pad removed with non-slip grippers and one clip security clamp (note: ensure tube is secured but not too tight as you can occlude tube and prevent suction catheters being passed through).
6. Position gliding tube shuttle; reposition for oral care and pressure relief.
7. Secure material straps around patients neck for extra security.

If the ETT requires advancing or pulling back this can be done without changing the AnchorFast device