excellent
kind
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St George's University Hospitals NHS
NHS Foundation Trust

The essential principles of tracheostomy care

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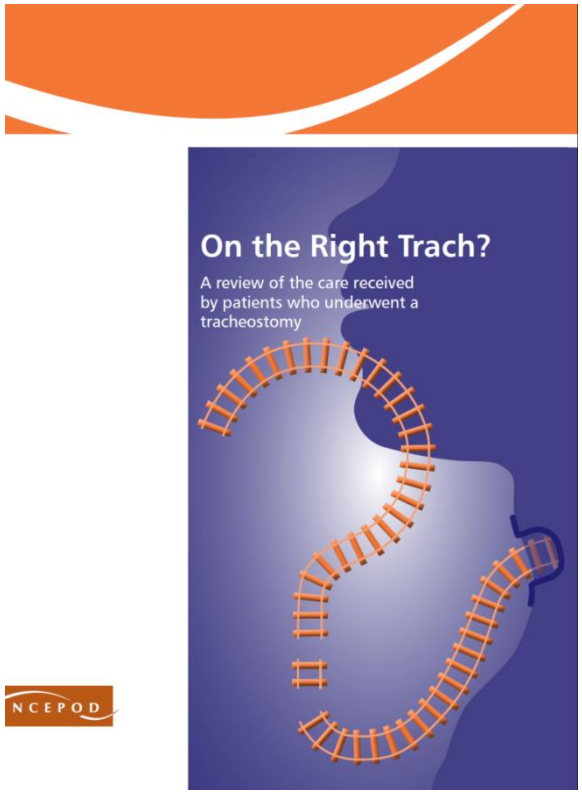
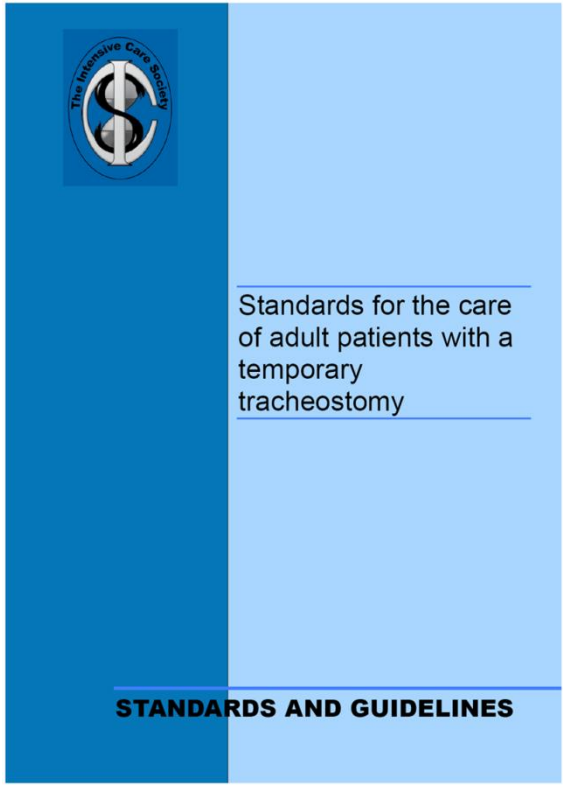
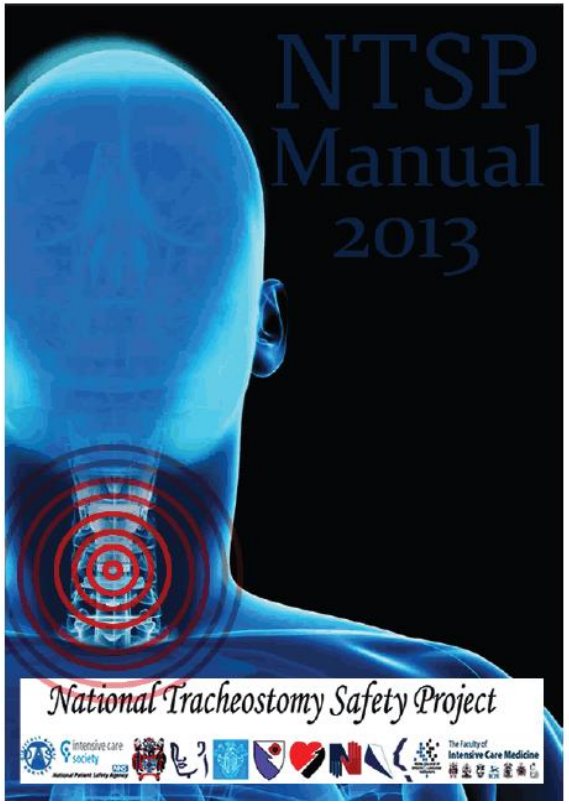
Excellence in specialist and community healthcare

Key publications







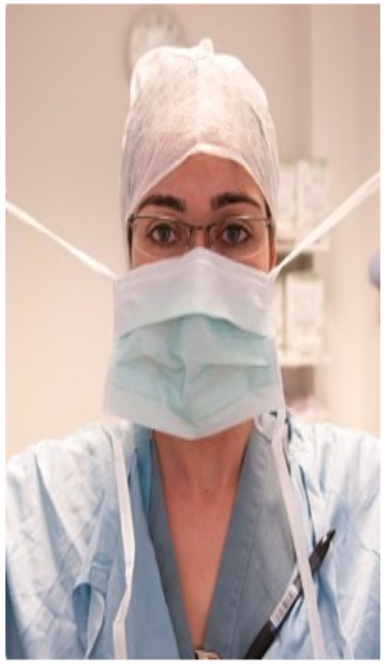
https://www.stgeorges.nhs.uk/gps-and-clinicians/clinical-resources/tracheostomy-guidelines/

Tracheostomy guidelines

A trachestomy is a surgical opening in the anterior wall of the trachea to facilitate ventilation; the opening is usually maintained by use of a tracheostomy tube. The procedure may be performed either surgically or by a percutaneous method.

St George's Healthcare is a national leader in tracheostomy guidance and the following pages, provided specifically for healthcare professionals performing tracheostomy or caring for tracheostomised patients, outline the most current guidance provided by the Trust.

For more information about these pages please contact Deborah Dawson on email: deborah.dawson@stgeorges.nhs.uk



Aims

- Tube types
- Inner cannula management
- The options for humidification
- Safe suctioning
- Oral hygiene
- Dressings
- Weaning from a tracheostomy including communication and swallowing
- Emergency scenarios
- Documentation

Flange

15mm connector

Shaft

Cuff

Obturator

Pilot balloon

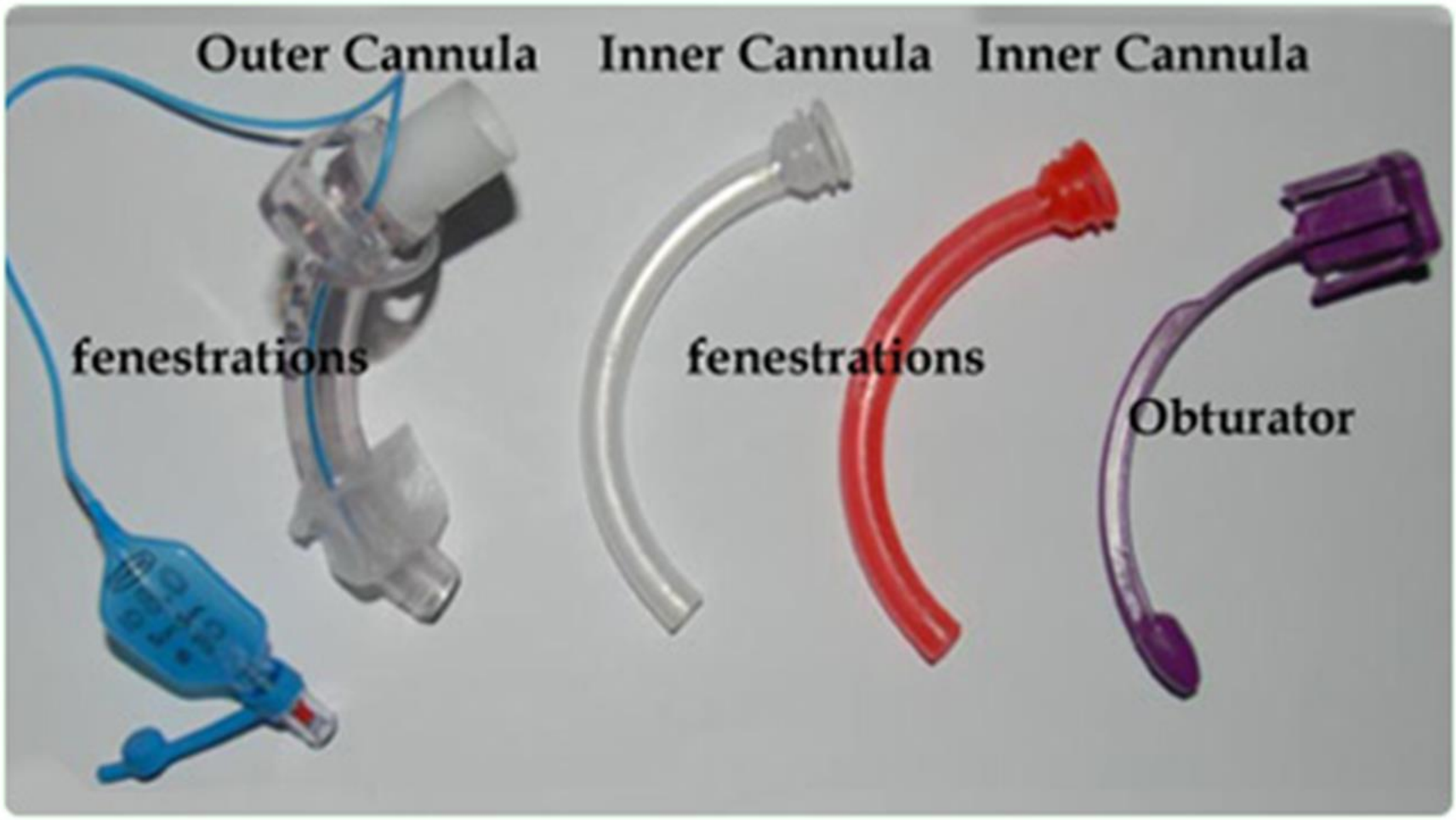
ICS, 2008

Table 3.4. Comparison of ID and OD of tracheostomy tubes with and without inner cannulae

Portex® Blue Line®			Portex® Blue Line Ultra®			Shiley® Dual Cannula Tube			Kapitex® Tracoetwist®		
ID with (mm)	**ID without (mm)**	OD (mm)	ID with (mm)	**ID without (mm)**	OD (mm)	ID with (mm)	ID without (mm)	OD (mm)	ID with (mm)	ID without (mm)	OD (mm)
									4.0	5.8	7.2
									5.0	7.0	8.6
n/a	**6.0**	8.3	5.0	**6.0**	9.2	5.0	6.7	9.4	**6.0**	8.1	9.2
5.0	**7.0**	9.7	5.5	**7.0**	10.5				**7.0**	8.9	10.4
			6.0	**7.5**	11.3						
6.0	**8.0**	11.0	6.5	**8.0**	11.9	6.4	8.1	10.8	**8.0**	10.1	11.4
			7.0	**8.5**	12.6						
7.0	**9.0**	12.4	7.5	**9.0**	13.3	7.6	9.1	12.2	**9.0**	10.8	12.5
n/a	**10.0**	13.8	8.5	**10.0**	14.0	8.9	10.7	13.8	**10.0**	11.9	13.8

Bold type indicates the dimension used to describe the tube commercially. Data for the Shiley® dual cannula tube refers to Jackson sizes 4, 6, 8 and 10 respectively.

Fenestrations and inner cannula


Outer Cannula
Inner Cannula
Inner Cannula
fenestrations
fenestrations
Obturator

Sub-glottic suction port


UniPerc
I.D. 8.0mm
O.D. 12.6mm

Inner cannula care

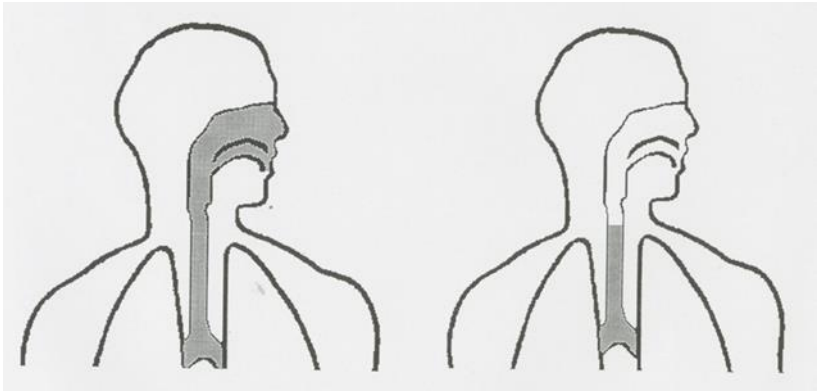
- Should be used routinely
  - What about patients on Mechanical Ventilation?
- Inspected four hourly
- Cleaned with sterile water or saline
- Dispose of cleaning fluids in a sluice
- Kept in a dry sealed box
- Documentation

Cuff management

- Check once a shift or if tube or patient moved
- Methods:
  - Cuff manometer (20-25cmH2O)
  - Minimal occlusion volume
  - Continuous measurement
- High pressure – potential causes
  - Too small tube
  - Poor tube positioning
  - Over-inflated cuff
  - Reduced lung compliance

Impaired humidification

- Increased viscosity of mucus
- Depressed ciliary function
- Increased risk of infection
- Micro-atelectasis
  - Impaired secretion removal
    - Obstruction of major airways
    - Tube blockage
    - Decreased cough
    - Infection



Humidification

- Systemic hydration
- Heat-moisture exchanger (HME)
- Heated water humidifiers
- Venturi humidifiers (cold water)
- Nebulisation
- Mucolytic agents
- Buchanon Protector

Suctioning

- Assess need
- Reserved for patients unable to clear own secretions

- ?Pre-oxygenate
- 10.6-16kPa vacuum
- ID mm -2x2 (cuffed tubes)
- Non-fenestrated inner cannula
- Insert 10-15cm, stop if resistance felt and withdraw 2cm

Oral hygiene

- Daily assessment of mouth
- Twice daily oral care
- Toothbrushing
- Cleaning dentures
- Lip salve
- Oral fluids where possible to maintain saliva production (Cuff up or down?)

Dressings

- Hyperoxygenate and suction prior to procedure if required
- Neck slightly extended, then flex to fasten holder
- Daily inspection of stoma, swab if looks infected
- Clean with normal saline
- Apply thin, pre-cut keyhole dressing and holder
- If excoriated film forming acrylate barrier
- Document

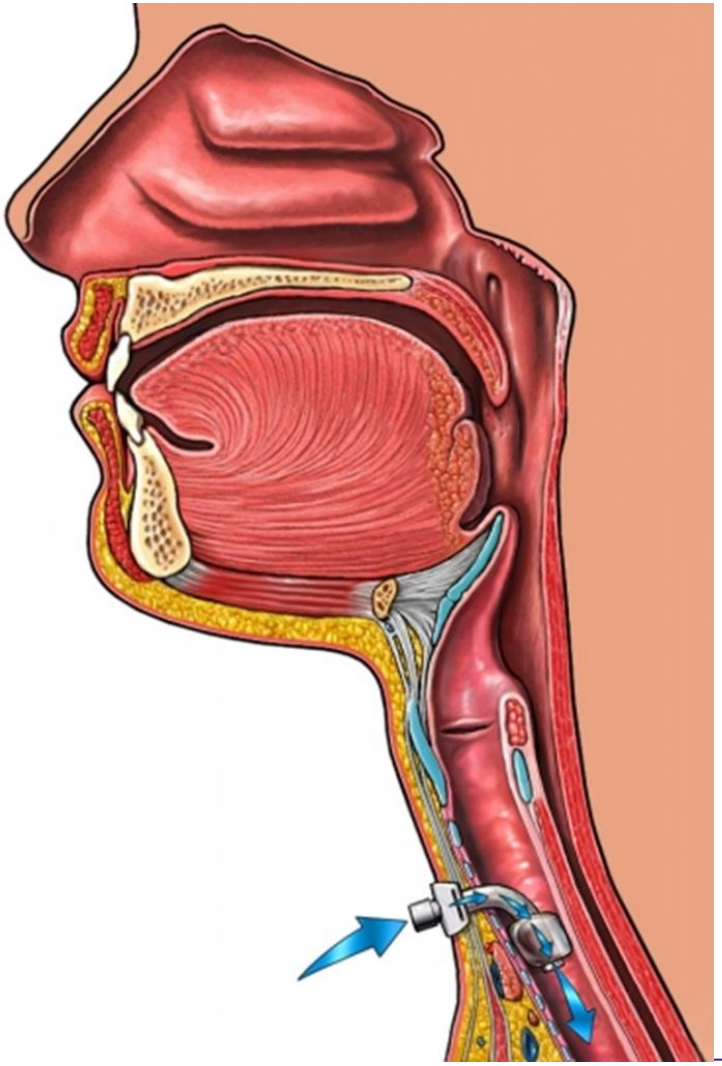
Swallow

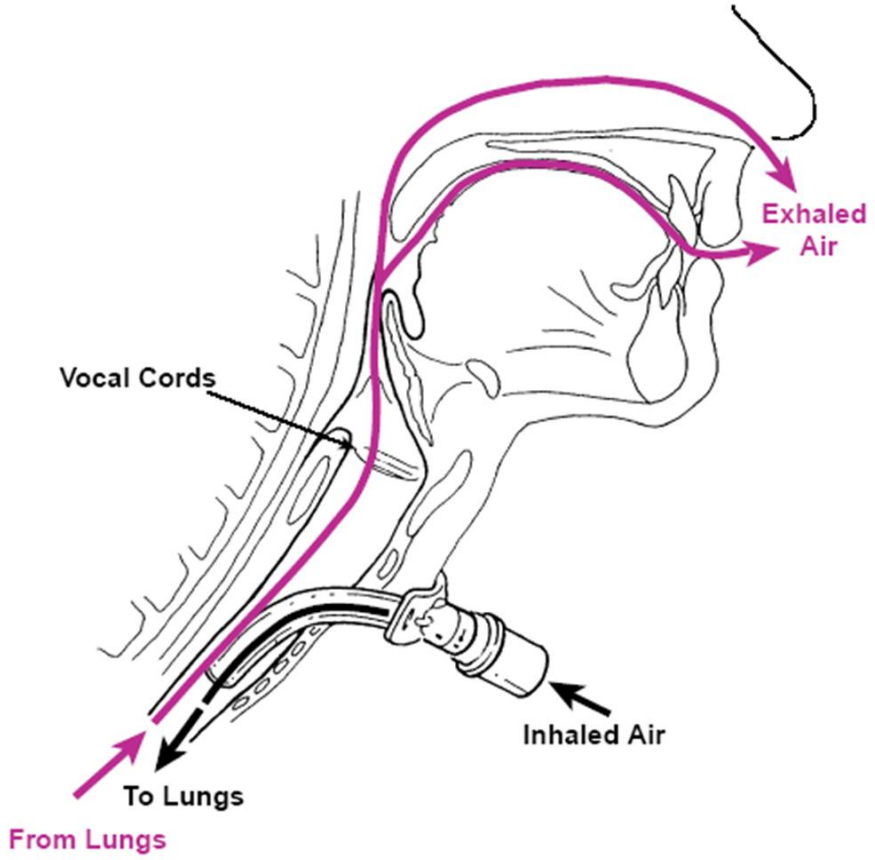
- Cuff will interfere with swallowing mechanics of larynx
- The muscles can waste if not used
- Predictors of swallowing difficulty:
  - Head and neck surgery
  - Lower cranial nerve palsy
  - Clinical signs of aspiration
  - Weak wet or gurgly cough during trials of cuff deflation

Weaning

- Change to a cuffless tube (if needed)
- Downsize tracheostomy (if needed)
- Cuff deflation
- Gloved finger occlusion
- One way (speaking) valve
- Capping (if needed)
- Decannulation
  - Airway Patency
  - Resolved Condition
  - Effective Cough Strength
  - Following MDT Discussion

Speaking valve





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Emergency Tracheostomy Management – Patent Upper Airway

Call for expert airway help – Anaesthetist bleep 6111 and ENT SpR – call switchboard to aircall SG818

Is the patient breathing?

NO

Call Resuscitation Team 2222
CPR if no pulse / signs of life

YES

Apply high flow oxygen to **both** the face and the tracheostomy

Assess Tracheostomy Patency

Remove **speaking valve** or **cap**
Remove **inner tube / check patency**
Some inner tubes need re-inserting to connect to breathing circuits

Can you pass a suction catheter?

YES

The tracheostomy tube is patent
Ventilate/Oxygenate (via tracheostomy)
Connect CO_2 Monitoring
Continue ABCDE assessment

NO

Deflate the cuff (if present)
Look, listen and feel at the mouth and tracheostomy

Is the patient stable or improving?

YES

Consider Tracheostomy Change/FNE (call ENT)
Continue ABCDE assessment

NO

Remove the Tracheostomy tube / cover stoma
Look, listen and feel at the mouth and tracheostomy. Ensure oxygen re-applied to face

Is the patient breathing?

NO

Call Resuscitation team
CPR if no pulse / signs of life

YES

Continue ABCDE assessment

Primary Emergency Oxygenation

Standard **Oral airway** manoeuvres
Cover the stoma (swabs / hand). Use:
Bag-valve-mask
Oral or nasal airway adjuncts
Supraglottic airway device e.g. LMA

Tracheostomy Stoma ventilation
Paediatric face mask applied to stoma (in Resus Trolley)
OR LMA applied to stoma (in Difficult Airways Trolley)

Secondary Emergency Oxygenation

Attempt **Oral intubation**
Prepare for difficult intubation
Uncut tube, advanced beyond stoma

Attempt **intubation of Stoma**
Small tracheostomy tube / 6.0 cuffed ETT
Consider Aintree catheter and fibreoptic scope / Bougie / Airway exchange catheter

Adapted from: National Tracheostomy Safety Project: www.tracheostomy.org.uk

St George's Healthcare NHS

Emergency Laryngectomy Management

Patient breathes through neck: no upper airway
Patient cannot be oxygenated via the mouth or nose

Call for expert airway help – Anaesthetist bleep 6111 and ENT SpR

Is the patient breathing?

NO

Call Resuscitation Team **2222**
CPR if no pulse / signs of life

YES

Apply high flow oxygen to Laryngectomy Stoma

Assess Laryngectomy Stoma patency

Most Laryngectomy stomas will **not** have a tube in situ

Remove anything covering the stoma (if present)
Do **not** remove any voice prosthesis

Look, listen and feel at the Stoma
Can you feel Air?

YES

The Stoma is patent
Perform Tracheal Suction
Continue ABCDE

NO

Clear any visible obstruction **using forceps or suction catheter**
Encourage patient to cough

Call Resuscitation team
CPR if no pulse / signs of life

NO

Is the patient breathing?

YES

Continue ABCDE assessment

Primary Emergency Oxygenation

Tracheostomy Stoma ventilation
Paediatric face mask applied to Stoma (in Resus Trolley)
OR
LMA applied to Stoma (in Difficult Airways Trolley)

Secondary Emergency Oxygenation

Attempt **intubation of Stoma**
Small Tracheostomy tube/ 6.0. cuffed ETT
Consider Aintree catheter and fibreoptic scope / Bougie / Airway exchange catheter

Adapted from: National Tracheostomy Safety Project: www.tracheostomy.org.uk

Video

- https://www.youtube.com/watch?v=0dG1sEprbbE&feature=youtu.be

Documentation

- ICP
- Type and size of tracheostomy
- Tracheostomy procedure
- Patent/non patent upper airway
- Equipment check
- Care record inc. inner cannula, cuff and suctioning
- Weaning record

Thank you, any questions?