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Care of Adult Patients in Acute Care Facilities with a Tracheostomy

Intensive Care Coordination & Monitoring Unit

Clinical Program Design and Implementation

Respiratory Network

Agenda

- **Case for Change**
- Development of Guidelines
- Tracheostomy review team
- Implementation

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The Case for Change[1]

CEC Reports:

Dec 2007 – Nov 2008

- 8 RCAs
- 7 Deaths

Jan 2009 – Nov 2012

- 11 SAC1s
- 45 SAC2s
- 11 Deaths

Findings:

Deficits:

- Clinical handover
- NFR Orders
- Clinical competency
- Appropriate action (esp. A/hours)
- Risk recognition

Contributing Factors:

- Clinician skill & knowledge (82%)
- Equipment (64%)

1. Source: CEC Reports - unpublished

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Putting patients first

- Improve patient outcomes
- Whole of hospital approach
- Care delivered by a multidisciplinary team
- Not multiple teams or individuals
- Effective communication and decision making.

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Guideline Development Process

1. ICCMU commissioned to develop CPG by SSDB
2. Clinical Expert Group (ICU/ Respiratory / ENT)
3. Define Scope / Systematic review
4. Consensus Development Conference
6. Extensive NSW Health consultation
7. Feedback revised/ guideline amended
8. Implementation plan and clinical tools
9. Guideline and toolkit published (ACI/ IC wiki)

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Key Concepts of Guideline

1. Establish model/s of care that ensure patients receive comprehensive multi-disciplinary care.
2. Ensure a safe environment
3. Local documentation methods
4. Provide appropriate resources to patients/carers from CALD backgrounds
5. Appropriate humidification available
6. Minimise risk of healthcare associated infections
7. Periodic evaluation of IIMs

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Equipment

Within patient bed area

- tracheostomy emergency response plan specific to critical nature of patient airway
- suction equipment
- oxygen supply and attachments cuff manometer and 10 mL
- personal protective equipment
- humidification devices as appropriate
- appropriate waste receptacles
- bottle of sterile water
- spare inner cannula (where dual lumen tracheostomy tubes are in use)

Within ward

- Two spare tracheostomy tubes
- Consider tracheal dilators
- Emergency trolley

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Emergency tracheostomy management - Patent upper airway

Call for airway expert help
Look, listen & feel at the mouth and tracheostomy
A Mapleson C system (e.g. 'Waters circuit') may help assessment if available
Use **waveform capnography** when available: exhaled carbon dioxide indicates a patent or partially patent airway

Is the patient breathing?

No → Call Resuscitation Team
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** (if present)
Remove **inner tube**
Some inner tubes need re-inserting to connect to breathing circuits

Can you pass a suction catheter?

Yes → **The tracheostomy tube is patent**
Perform tracheal suction
Consider partial obstruction
Ventilate (via tracheostomy) if not breathing
Continue ABCDE assessment

No → Deflate the **cuff** (if present)
Look, listen & feel at the mouth and tracheostomy
Use waveform capnography or Mapleson C if available

Is the patient stable or improving?

Yes → **Tracheostomy tube partially obstructed or displaced**
Continue ABCDE assessment

No → **REMOVE THE TRACHEOSTOMY TUBE**
Look, listen & feel at the mouth and tracheostomy. Ensure oxygen re-applied to face and stoma
Use waveform capnography or Mapleson C if available

Is the patient breathing?

Yes → Continue ABCDE assessment

No → Call Resuscitation team
CPR if no pulse / signs of life

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
LMA applied to stoma

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

National Tracheostomy Safety Project. Review date 1/4/14. Feedback & resources at **www.tracheostomy.org.uk**

Emergency laryngectomy management

Call for airway expert help
Look, listen & feel at the mouth and laryngectomy stoma
A Mapleson C system (e.g. 'Waters circuit') may help assessment if available
Use **waveform capnography** whenever available: exhaled carbon dioxide indicates a patent or partially patent airway

Is the patient breathing?

No → Call Resuscitation Team
CPR if no pulse / signs of life

Yes → **Apply high flow oxygen to laryngectomy stoma**
If any doubt whether patient has a laryngectomy, apply oxygen to face also*

Assess laryngectomy stoma patency

Most laryngectomy stomas will NOT have a tube in situ

Remove **stoma cover** (if present)
Remove **inner tube** (if present)
Some inner tubes need re-inserting to connect to breathing circuits
Do not remove a tracheoesophageal puncture (TEP) prosthesis

Can you pass a suction catheter?

Yes → **The laryngectomy stoma is patent**
Perform tracheal suction
Consider partial obstruction
Ventilate via stoma if not breathing
Continue ABCDE assessment

No → Deflate the **cuff** (if present)
Look, listen & feel at the laryngectomy stoma or tube
Use waveform capnography or Mapleson C if available

Is the patient stable or improving?

Yes → Continue ABCDE assessment

No → **REMOVE THE TUBE FROM THE LARYNGECTOMY STOMA if present**
Look, listen & feel at the laryngectomy stoma. Ensure oxygen is re-applied to stoma
Use waveform capnography or Mapleson C if available

Is the patient breathing?

Yes → Continue ABCDE assessment

No → Call Resuscitation Team
CPR if no pulse / signs of life

Primary emergency oxygenation

Laryngectomy stoma ventilation via either
Paediatric face mask applied to stoma
LMA applied to stoma

Secondary emergency oxygenation

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

* Laryngectomy patients have an end stoma and **cannot be oxygenated via the mouth or nose**
Applying oxygen to the face and stoma is the default emergency action for all patients with a tracheostomy

National Tracheostomy Safety Project. Review date 1/4/14. Feedback & resources at **www.tracheostomy.org.uk**

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Tracheostomy Review Team

specialist nurse, speech pathologist
physiotherapist, medical officer

↓ **time to decannulation, hospital LOS, adverse events, readmit to ICU**

↑ **care consistent with protocol, inter-professional decision making, effective and efficient care, transfer to wards, patient outcomes**

Garruba,M. 2009. Critical Care. **13**(6): p. R177

Cameron,T. 2009. Critical Care and Resuscitation, **11**(1): p. 14-9.

LeBlanc,J. 2010. Journal of Head Trauma Rehabilitation, **25**(5): p. 362-5.

Mitchell,R. 2013. International Journal of Nursing Studies, **: 50:** p**.** 536-542

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Implementation approach

- Led and driven by clinicians
- Implementation led by LHDs
- Implementation support from ACI

  Respiratory /ICCMU / Implementation Team
- Free webex education/ pod casts
- Correspondence to LHD CEO
  - - Clinical Champion
  - - Executive lead
  - - Local Implementation officer

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Role of DO/GMs

- Generate Local Executive sponsorship and support
- Escalate concerns/questions to the ACI Implementation team, ACI Respiratory Network Manager or ICCMU
- Monitor responsiveness at individual sites
- Internal systems for monitoring tracheostomy patient outcomes

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ACI Tracheostomy guideline

ACI-website

http://www.aci.health.nsw.gov.au/resources/clinician-resources

IC Wiki

http://intensivecare.hsnet.nsw.gov.au/icwiki/index.php/Tracheostomy

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CPG resources

Audit tools	Tracheostomy care: audit tool and spreadsheet (ACI)
Powerpoint presentations	Tracheostomy UK tools
CPG examples	RPAH (NSW) tracheostomy guideline SESIAH (NSW) tracheostomy guideline SWAHS (NSW) tracheostomy guideline Liverpool (NSW) Tracheostomy suction Armadale(WA)Tracheostomy Care Bundle 2012 Auckland (NZ)Adult Tracheostomy Management NHS Scotland Tracheostomy 2007
Emergency procedures	Liverpool (NSW) Management of a tracheostomy emergency
Handover tools	Armadale (WA)– Safe Management of a patient with a tracheostomy Liverpool (NSW) Tracheostomy Care template
Observational tools	Armadale (WA)Tracheostomy observation chart Concord (NSW) Tracheostomy Care Chart
Competencies	St George (NSW) ENT Tracheostomy competency
Head of bed sign	ACI Head of Bed Sign

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- Clinical Excellence Commission
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- ICCMU
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