



Bedside Guide Routine Tracheostomy Care

Guidance from the Chartered Institute
of Ergonomics and Human Factors

Foreword

The Chartered Institute of Ergonomics & Human Factors (CIEHF) received its Royal Charter in 2014 to recognise the uniqueness and value of the scientific discipline and the pre-eminent role of the Institute in representing both the discipline and the profession in the UK. This includes the protected status of “Chartered Ergonomist and Human Factors Specialist” with the post-nominal C.ErgHF awarded to practising Registered Members/Fellows who are among a group of elite professionals working at a world-class level.

This bedside guide is intended for the use of all healthcare staff who are looking after adult patients with tracheostomies. The tasks described should NOT be attempted by those who have not received training or been deemed as competent in tracheostomy care and management.

This guide does not override the responsibility of the healthcare provider to use professional judgement and make decisions appropriate to the circumstances of each patient in consultation with the patient and/or guardian.

Whilst this document is aimed primarily at staff working in secondary care, much of the material is applicable to primary care (GPs, community care homes and carers). It is designed to help you provide consistent, high quality care for your patients with a tracheostomy.

Dr Noorzaman Rashid

Chief Executive

Chartered Institute of Ergonomics and Human Factors

The CIEHF has assembled expert panels consisting of clinicians and healthcare managers, scientists and engineers, academics and researchers, quality improvement, human factors professionals and ergonomists to support the development and review of guidance on a wide range of procedures.

Contact: Covid19@ergonomics.org.uk

Caveat: This Human Factors/Ergonomics (HFE) advice is offered by Chartered Ergonomists & Human Factors Specialists (C.ErgHF) on a rapid response basis in collaboration with the Academic Health Science Network and does not reflect a full HFE analysis. The advice was offered within the Chartered Institute of Ergonomics and Human Factors (CIEHF) scope of practice for a Chartered Registered Member/Fellow
https://www.ergonomics.org.uk/Public/membership/registered_member.aspx

This patient has a

TRACHEOSTOMY

There is a potentially patent upper airway (Intubation may be difficult)

Surgical / Percutaneous

☐ Cuffed
☐ Uncuffed

Performed on (date)

Tracheostomy tube size (if present)

Hospital / NHS number

Tube last changed (date)

Indicate location and function of any sutures.
Laryngoscopy grade and notes on upper airway management.
Any problems with this tracheostomy.



Percutaneous



Björk Flap



Slit type

Emergency Call:

www.tracheostomy.org.uk

Basic Tracheostomy Care Action Cards

Tracheostomy care procedure

Indications

Team Size

Action Card

MANAGE CUFF PRESSURE

- Cuff leak or overpressure
- Routine check to ensure cuff pressures within correct range
- Frequency: minimum 8-hourly.

1

1

CHANGE TAPES

- Insecure
- Contaminated.

2

2

SUCTIONING VIA A TRACHEOSTOMY (OPEN)

- Noisy
- Increased respiratory rate
- Effortful breathing
- Deterioration of vital signs.

1

3a

SUCTIONING VIA A TRACHEOSTOMY (CLOSED)

- Noisy
- Increased respiratory rate
- Effortful breathing
- Deterioration of vital signs.

1

3b

CHANGE INNER TUBE (SEE OVERLEAF)

- Noisy
- Increased respiratory rate
- Effortful breathing
- Deterioration of vital signs.

1

4

Guidelines for use

Scope of Practice: You must be trained to carry out a procedure. You must work within your scope of clinical practice.

Personal Protective Equipment: PPE for aerosol producing procedures must be used. Donning and doffing PPE must be guided by Trust and Unit protocols.

Dangers (hazards): Dangers to patients and clinical personnel are described on each card.

Waste: Disposal of clinical waste must be guided by Trust and Unit protocols.

Checklists: Each card has a checklist to help plan and manage the task.

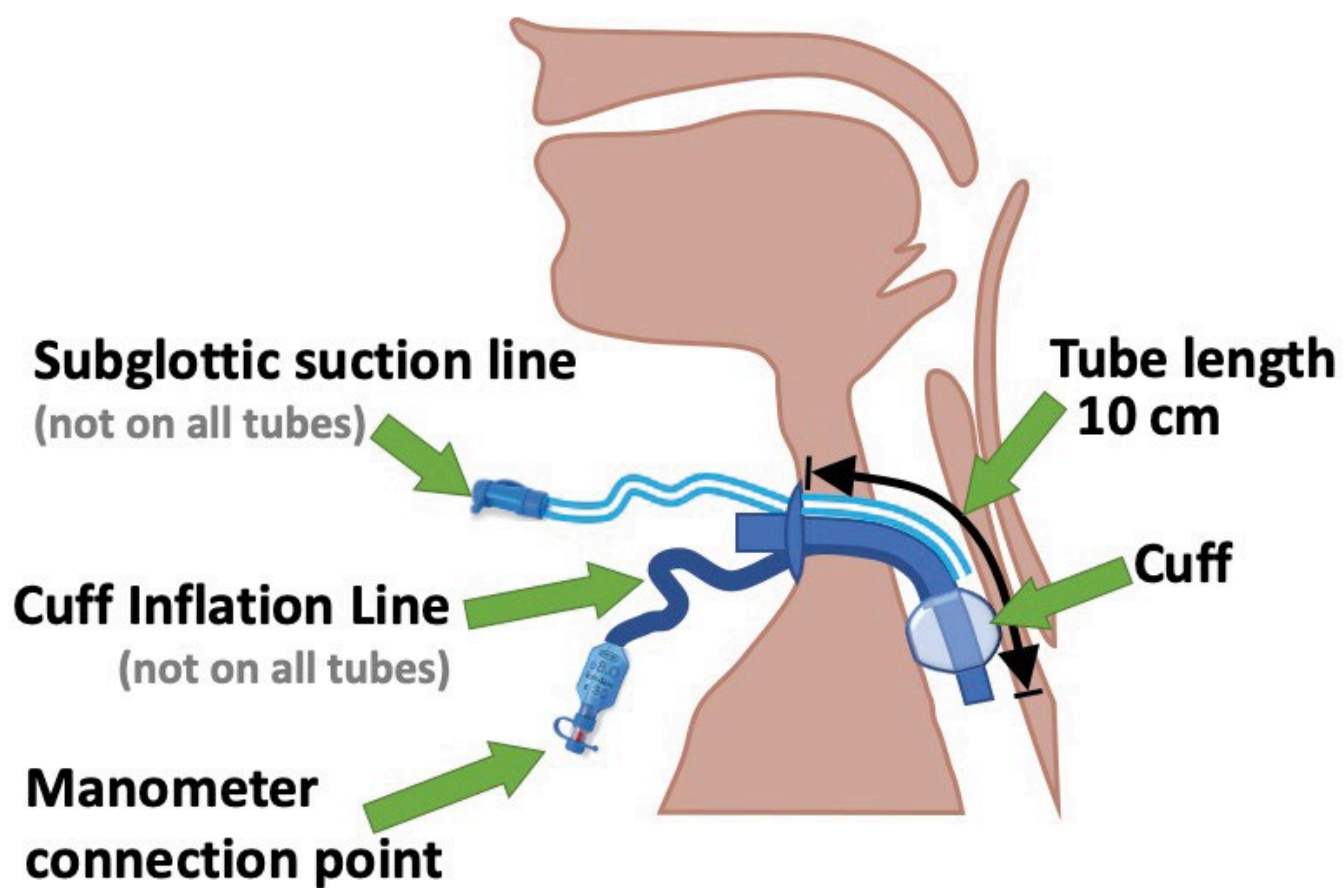
Calling for assistance:

Who to call if a situation escalates is included at the top of each card.

Remember:

- Personnel responding to a call for assistance may need to don PPE. This will increase the response time
- A compromised airway is an **EMERGENCY**
 - Call for emergency assistance
 - Use the emergency flowchart for airway management.

Basic Tracheostomy Care Action Cards



Essential steps to design work better

How to improve the design of work procedures



Create

01

- ✓ Ensure it's needed
- ✓ Involve the whole team at every stage
- ✓ Identify hazards
- ✓ Capture how your work is really done
- ✓ Ensure it's easy-to-follow



Test

02

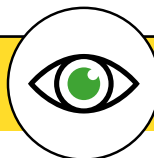
- ✓ Ask people who will use it to test it
- ✓ Use feedback to improve it
- ✓ Repeat until everyone is happy with the procedure



Use

03

- ✓ Train people in its use
- ✓ Spend time putting it into practice
- ✓ Make sure it's easy to find
- ✓ Share it with others



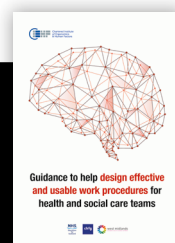
Review

04

- ✓ Review regularly
- ✓ If it's not being used, understand why
- ✓ Update it if it no longer reflects how you really work

For more visit the 10 key steps to designing work better process journey <https://bit.ly/DesignofWorkProcedures>

Read the full guidance on human-centred design of work procedures



Manage Cuff Pressure

Procedure No: Action Card 1	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Why?

Tracheostomy cuffs ensure direct ventilation to the lungs and prevent air or fluid transfer from the upper or lower airway. Maintain cuff pressure to seal the tracheostomy tube within the trachea safely.

What do I need?

Team: 1-person procedure. You must be trained to carry out this procedure. You must work within your scope of clinical practice.

Equipment: Cuff pressure gauge/manometer OR manometer and air adjustment syringe.

What should I be aware of?

Call for assistance if:

- Airway is compromised – **EMERGENCY**
- Cuff pressure needed to form a seal is close to 35 cmH₂O
- There is cuff leakage when cuff pressure is within **Recommended Pressure Range**
- Frequent cuff pressure adjustment is needed (more than every eight hours).

Dangers for the patient:

- Trachea damage & airway complications if cuff pressure is greater than 35 cmH₂O for more than 15 minutes
- Hypoxia and difficulty providing ventilation due to a cuff air leak
- Infection due to a cuff leak / low pressure allowing fluids into the lungs.

Dangers for clinical staff:

- Aerosolisation of secretions due to cuff leakage.

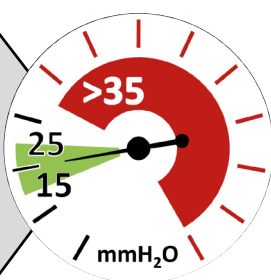


Checklist:

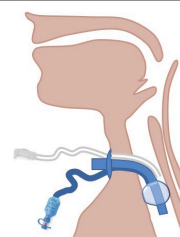
- ☐ Secretion load
- ☐ Patient condition – awake / sedated / cough reflex. Extra sedation required?
- ☐ Identify and check cuffed tracheostomy patients at least every eight hours
- ☐ Infection status of the patient
- ☐ Assistance: clinicians may require time to don PPE. This could delay the response.

Key Points

Keep pressure within
**Recommended
Pressure Range.**
DO NOT EXCEED
35 cmH₂O



Use minimal cuff
pressure to create
a seal. Cuffs **DO**
NOT hold the
tube in place



Signs of a cuff leak:

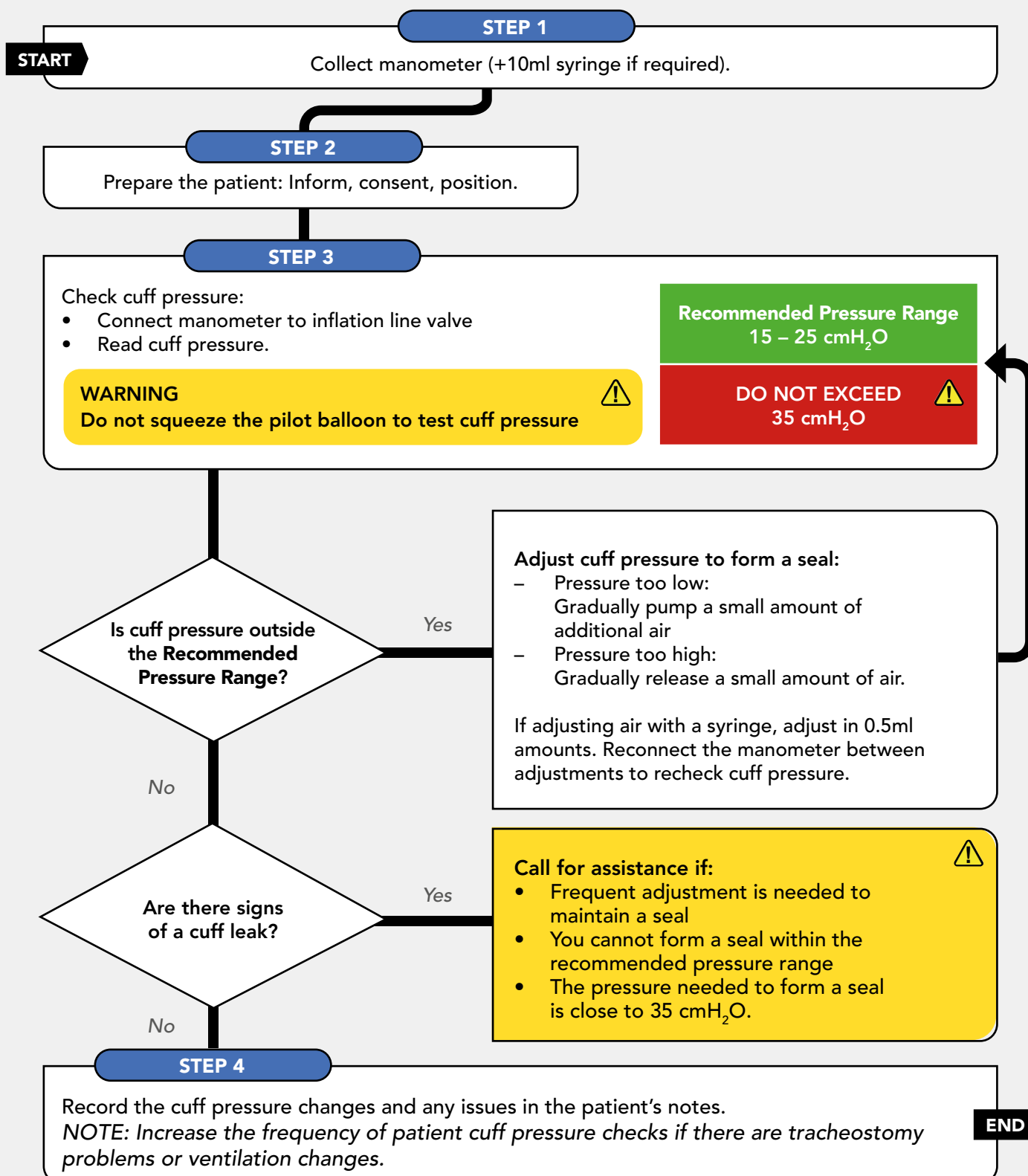
- Patient coughing or making vocal noises – speech, snores, grunts
- 'Bubbling' sound – air passing through fluids above cuff or at stoma
- Ventilator alarms or irregular EtCO₂/capnography wave form
- Frequent cuff pressure adjustment needed to maintain cuff seal.

TASK FLOWCHART

Manage Cuff Pressure

Procedure No: Action Card 1	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Task Steps



Change Tapes

Procedure No: Action Card 2	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Why?

Maintain hygiene and secure position of tracheostomy tube.

What do I need?

Team: This is a 2-person procedure. You must be trained to carry out this procedure. You must work within your scope of clinical practice. Communicate clearly and coordinate your actions. This is crucial when handing over support for the tracheostomy tube.

Equipment: New tapes of correct size (velcro straps / cotton tape / plastic strips integrated with support collar), scissors, antiseptic wipes, barrier cream, stoma dressing.

What should I be aware of?

Call for assistance if:

- Compromised airway - **EMERGENCY**. Use emergency flowchart for airway management
- Tracheostomy tube dislodged or ejected by coughing - Senior nurse/physiotherapist may be competent to assist.

Dangers for the patient:

- Compromised airway: loss or misplacement of the tracheostomy tube during the procedure
- Loose tapes: increased risk of dislodging the tube
- Tight tapes: increased risk of venous congestion and skin damage
- Introducing infection to the stoma and lungs. Use aseptic technique.

Dangers for clinical staff:

- Aerosolisation with increased risk of spreading infection.



Checklist:

- ☐ Agree roles - who does what?
- ☐ Assistance: clinicians may require time to don PPE. This could delay the response
- ☐ Type of tracheostomy – secure / cuffed
- ☐ Secretion load
- ☐ Patient condition – awake / comfortable / sedated / cough reflex. Extra sedation required?
- ☐ Equipment – correct tape size for the patient?
- ☐ Infection status of the patient.

Key Points

All tapes should lie flat against the skin.

Cotton tape only: correct attachment of looped tape to the flange.



Cotton tape only: correct positioning of a tape knot.

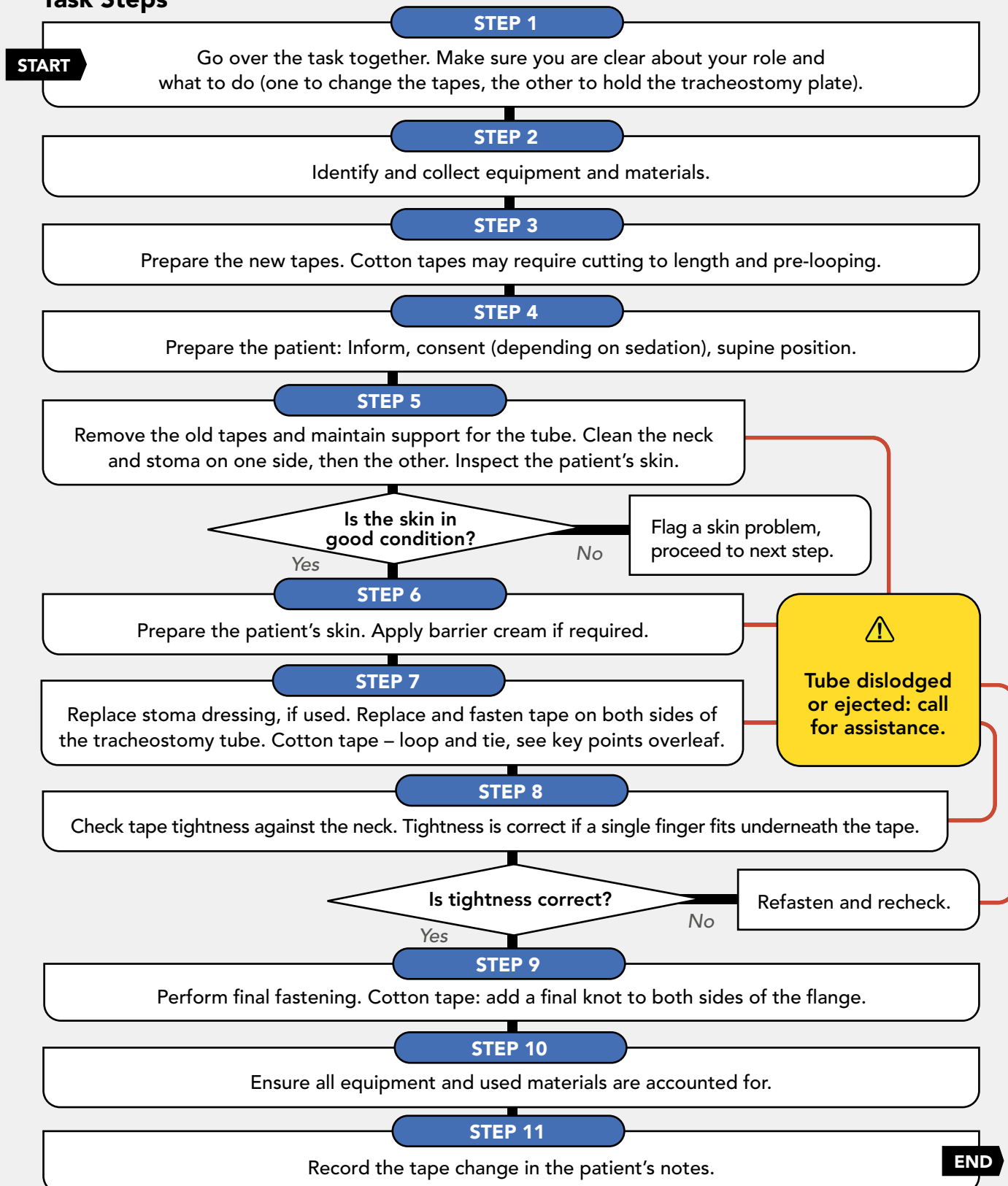


TASK FLOWCHART

Change Tapes

Procedure No: Action Card 2	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Task Steps



Open Suction

Procedure No: Action Card 3a	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Why?

Maintain a clear airway, maximise comfort and minimise infection.

What do I need?

Team: This is a 1-person procedure. You must be trained to carry out this procedure. You must work within your scope of clinical practice.

Equipment: Appropriately sized catheter tube, as recommended by local guidance, single sterile glove, saline ampoule.

What should I be aware of?

Call for assistance if:

- Compromised airway - **EMERGENCY**. Use emergency flowchart for airway management.
- Unable to pass the catheter / blood in aspirate / tracheostomy tube becomes dislodged or is ejected by coughing.
- Airway not compromised - Senior nurse/physiotherapist may be competent to assist.

Dangers for the patient:

- Compromised airway: displacement of tracheostomy tube
- Airway tissue damage: excessive/inappropriately located suctioning, catheter over-insertion
- Reduced oxygenation from lengthy suctioning procedures.

Dangers for clinical staff:

- Aerosolisation with increased risk of spreading infection
- Contamination from used catheter after withdrawal. Use aseptic technique
- Introducing infection: contaminated catheter tube.



Checklist:

- ☐ Patient condition - strong cough reflex may displace tracheostomy tube
- ☐ Status of tracheostomy tube - are tapes secure and the flaps against the skin?
- ☐ Catheter insertion depth: assess need for deep or shallow, see guide below.
- ☐ Infection status of the patient
- ☐ The type of tracheostomy – secure / cuffed
- ☐ Secretion load and viscosity - consider humidification
- ☐ Assistance: clinicians may require time to don PPE. This could delay the response.

Key Points

Use measurement to guide insertion depth.

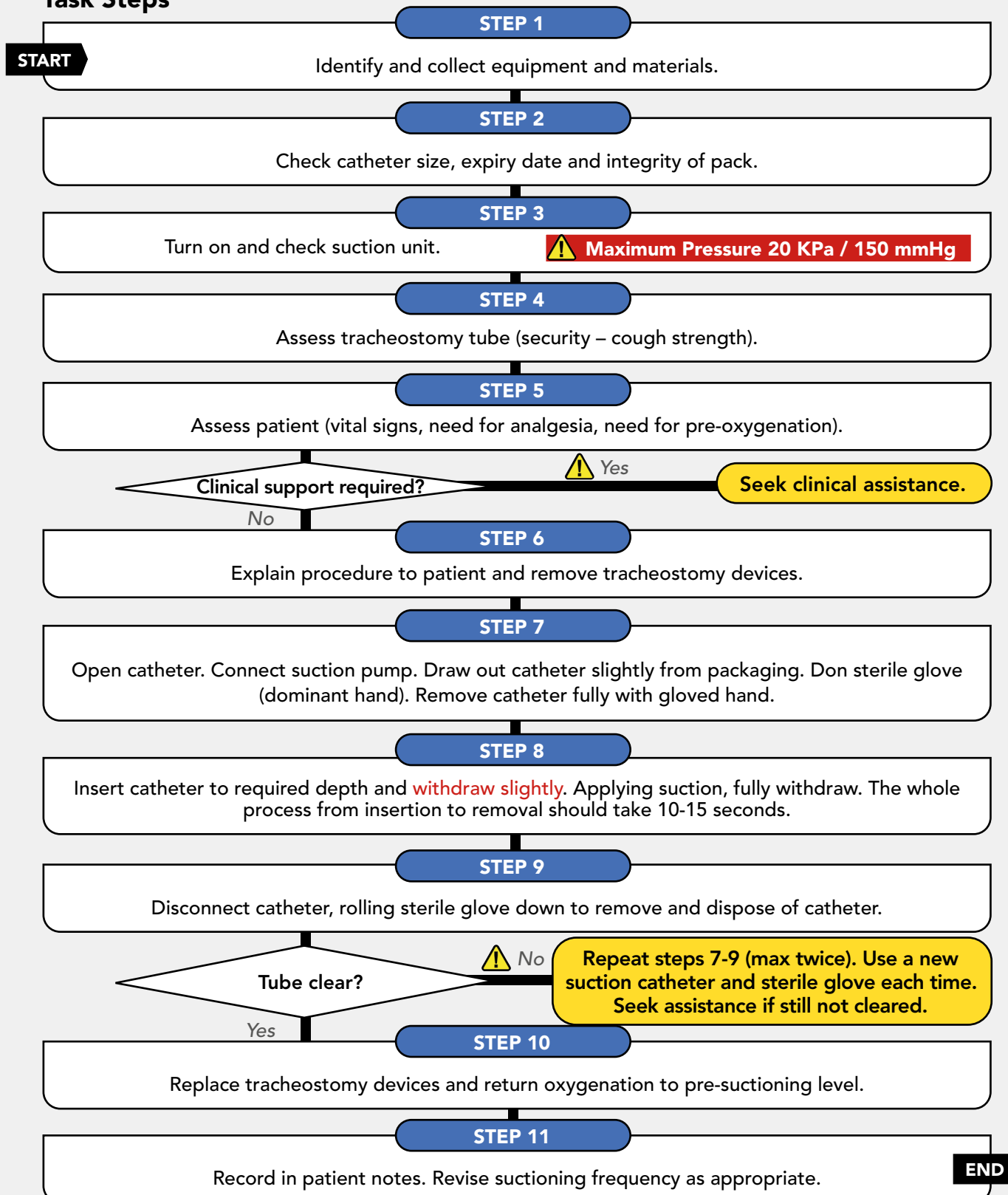
	ID without inner cannula	ID with inner cannula	Outside diameter	Length
Shiley LPC	n/a	7.6mm	12.2mm	81mm
Shiley DCT	n/a	7.6mm	12.2mm	79mm
Kapitex Tracheotwist	n/a	8.0mm	11.4mm	76mm
Portex Blue Line Ultra	8.0mm	6.5mm	11.9mm	75.5mm

TASK FLOWCHART

Open Suction

Procedure No: Action Card 3a	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Task Steps



Closed Suction

Procedure No: Action Card 3b	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Why?

Maintain a clear airway, maximise comfort and minimise infection.

What do I need?

Team: This is a 1-person procedure. You must be trained to carry out this procedure. You must work within your scope of clinical practice.

Equipment: Saline ampoule for cleaning.

What should I be aware of?

Call for assistance if:

- Compromised airway - **EMERGENCY**. Use emergency flowchart for airway management.
- Unable to pass the catheter / blood in aspirate / tracheostomy tube becomes dislodged or is ejected by coughing.
- Airway not compromised - Senior nurse/physiotherapist may be competent to assist.

Dangers for the patient:

- Compromised airway: displacement of tracheostomy tube
- Airway tissue damage: excessive/inappropriately located suctioning, catheter over insertion
- Reduced oxygenation from lengthy suctioning procedures.

Dangers for clinical staff:

- Aerosolisation with increased risk of spreading infection
- Contamination from used catheter after withdrawal. Use aseptic technique.



Checklist:

- ☐ Patient condition - strong cough reflex may displace tracheostomy tube
- ☐ Status of tracheostomy tube - are tapes secure and the flaps against the skin?
- ☐ Catheter insertion depth: Maximum depth is related to the length of tracheostomy tube
- ☐ Infection status of the patient
- ☐ The type of tracheostomy – secure / cuffed
- ☐ Secretion load and viscosity – consider humidification
- ☐ Assistance: clinicians may require time to don PPE. This could delay the response.

Key Points

Use measurement to guide insertion depth.

	ID without inner cannula	ID with inner cannula	Outside diameter	Length
Shiley LPC	n/a	7.6mm	12.2mm	81mm
Shiley DCT	n/a	7.6mm	12.2mm	79mm
Kapitex Tracheotwist	n/a	8.0mm	11.4mm	76mm
Portex Blue Line Ultra	8.0mm	6.5mm	11.9mm	75.5mm

Cleaning: Connect saline ampoule and flush through

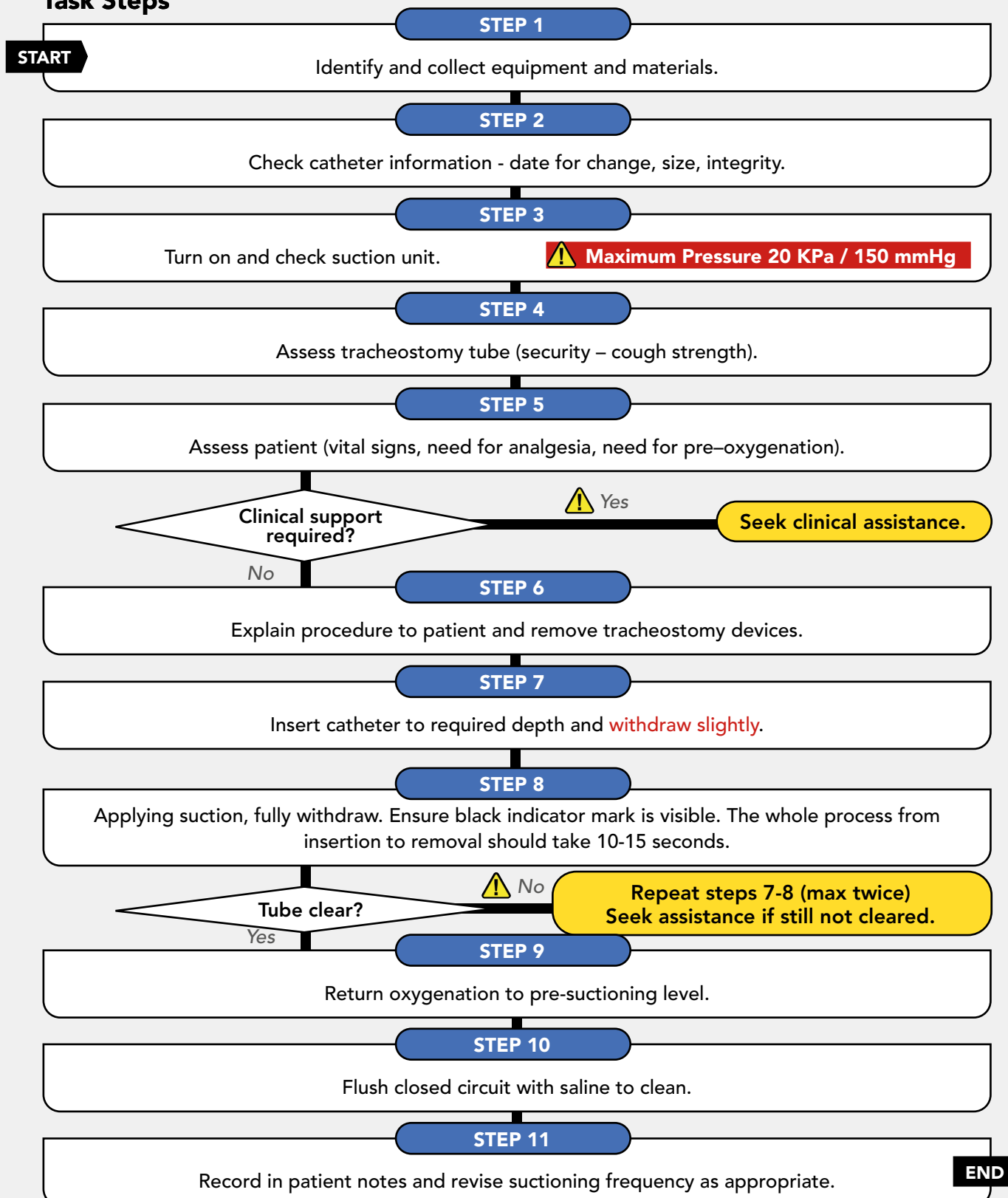


TASK FLOWCHART

Closed Suction

Procedure No: Action Card 3b	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Task Steps



Change Inner Tube

Procedure No: Action Card 4	Version No: 1.0	Date of publication: 11.06.2020	Escalation contact: _____
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Why?

Maintain a clear airway, maximise comfort and minimise infection.

What do I need?

Team: This is a 1-person procedure. You must be trained to carry out this procedure. You must work within your scope of clinical practice.

Equipment: New inner tube (if replacing), plastic tray, non-woven gauze, tracheostomy tube cleaning swabs and sterile saline (if cleaning and replacing tube).

What should I be aware of?

Call for assistance if:

- Compromised airway - **EMERGENCY**. Use emergency flowchart for airway management.
- Unable to pass the catheter / blood in aspirate / tracheostomy tube becomes dislodged or is ejected by coughing.
- Airway not compromised - Senior nurse/physiotherapist may be competent to assist.

Dangers for the patient:

- Compromised airway: displacement of tracheostomy tube, retention of foam swab
- Procedure requires disconnection from oxygen supply.

Dangers for clinical staff:

- Aerosolisation with increased risk of spreading infection
- Contamination from used inner tube. Use aseptic technique.

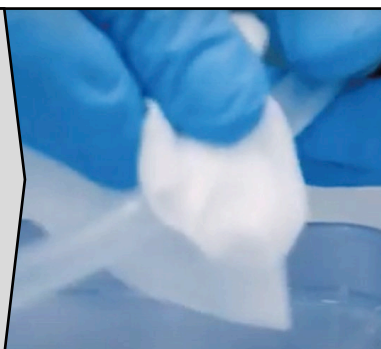


Checklist:

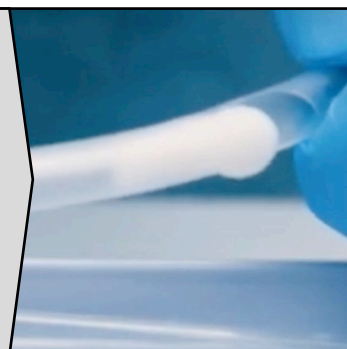
- ☐ Patient condition - strong cough reflex may displace tracheostomy tube
- ☐ Status of tracheostomy tube - are tapes secure and the flaps against the skin?
- ☐ Infection status of the patient
- ☐ Type of tracheostomy – secure / cuffed
- ☐ Secretion load
- ☐ Assistance: clinicians may require time to don PPE. This could delay the response
- ☐ Count foam swabs before and after.

Key Points

Clean outside of tube using non-woven gauze.



Clean inside of tube with tube cleaning swabs.



TASK FLOWCHART

Change Inner Tube

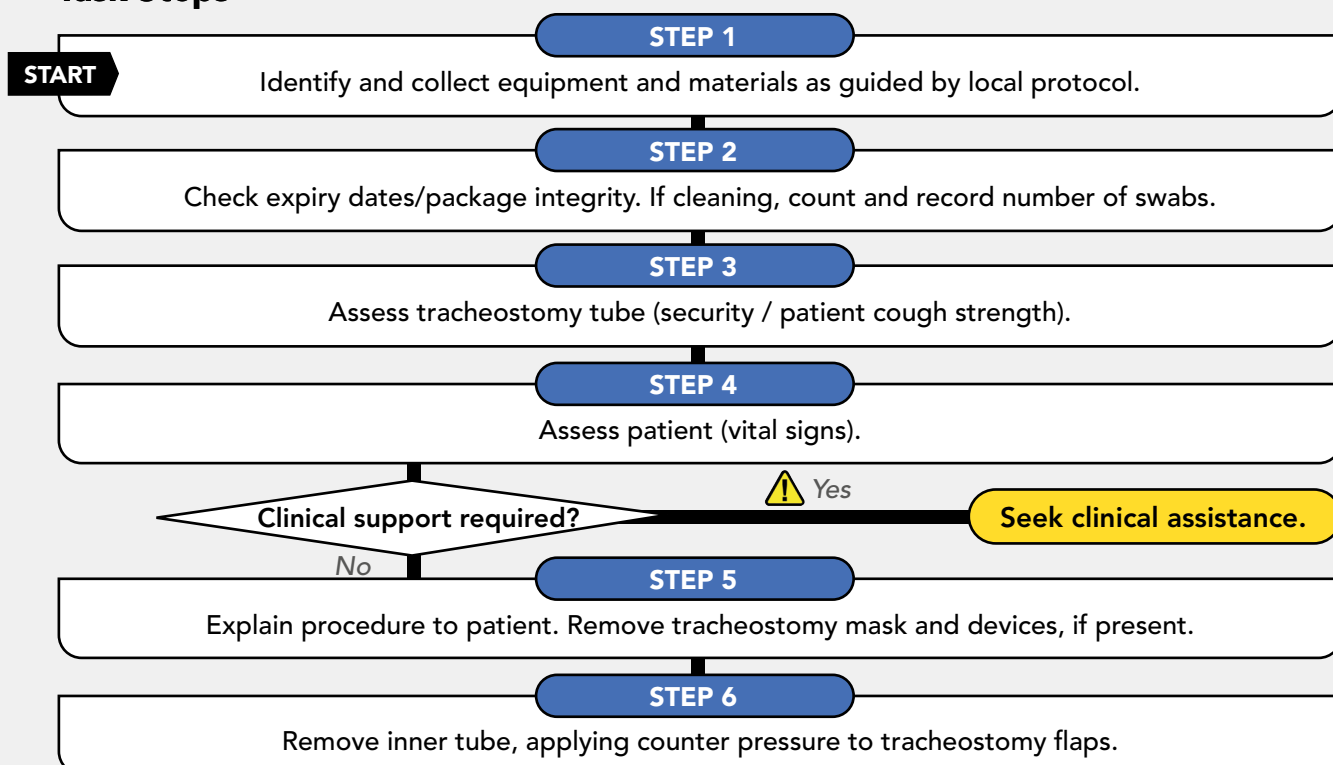
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Action Card 4

Version No:
1.0

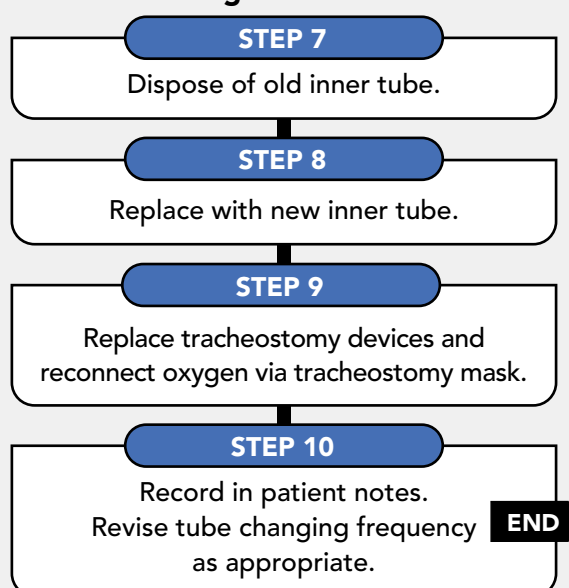
Date of
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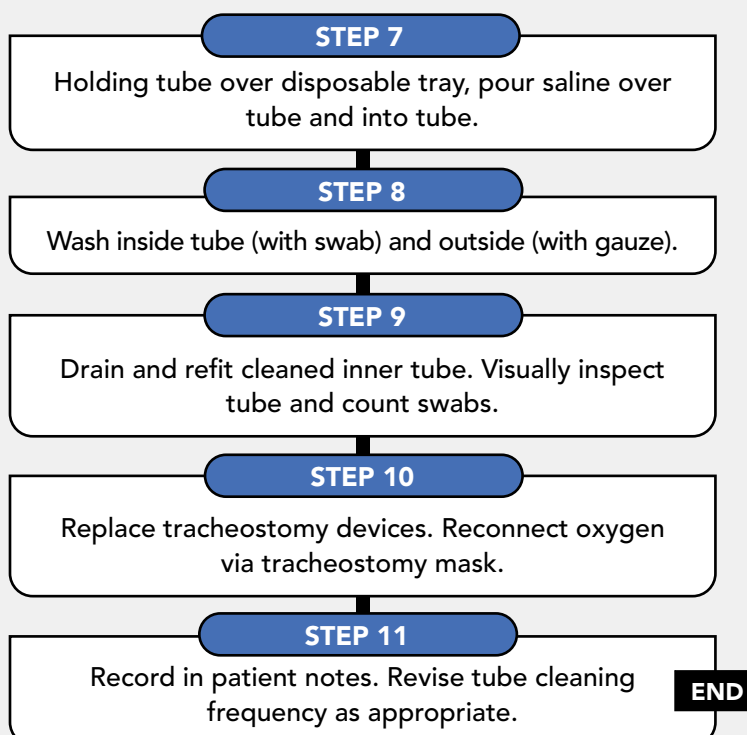
Task Steps



Change Inner Tube













Clean Inner Tube



Equipment for routine tracheostomy management

For use every shift (or as required)

Storage: Trachi-case			
Equipment	Picture	Quantity	Additional information
Equipment is contained in suitable box e.g. Trachi-case			This should be kept close to bedside and accessed at elbow height
Gloves			Double glove required for AGP
Closed- circuit tracheostomy suction catheter			To protect you and the patient
Sterile water			For cleaning suction tube
Suction catheter			Selection of appropriate suction catheters to accompany suction
Yankauer suction			For oral secretions
Mouth care pack			For oral use only
Spare (disposable) inner cannula of same size			Removed disposable cannula must be disposed of in clinical waste
Clean pot (with lid)			For spare inner cannula

Storage: Trachi-case			
Equipment	Picture	Quantity	Additional information
Sterile dressing pack			For dressing changes
Tracheostomy dressing			To keep the tracheostomy site clean
Scissors			For cutting tracheostomy tape
Spare tracheostomy tube		2	One tube same size Spare tracheostomy tube - one tube smaller)
Manometer (cuff pressure check)			The syringe is only needed when the manometer does not include a hand pump
10ml syringe			
Tracheostomy tape or tracheostomy tie or fastening device			To secure the tracheostomy in place
Water soluble lubricating jelly			For Oral Use only
Communication aids			Patient may not be able to verbalise. Patient may require an electrolarynx to communicate to the communication aids additional information
Nurse call bell			Patient may be unable to verbally call for help

Storage: Trachi-case			
Equipment	Picture	Quantity	Additional information
Humidification	<p>Humidification is directed by the needs of the patient.</p> <p>Refer to Humidification Ladder:</p> <ul style="list-style-type: none"> • 'Dry circuit' HME filter (change every 24 hours or sooner if visibly soiled with secretions) • Add mucolytics • Add saline / hypertonic saline nebulisers • Consider changing to a 'wet circuit'. 		

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