PROCEDURE	
Tracheostomy management	
Scope (Staff):	Community health staff
Scope (Area):	CAHS-CH, WACHS

This document should be read in conjunction with this DISCLAIMER

Contents

Aim

To provide guidance on the emergency reinsertion of a tracheostomy tube and tracheostomy tube suction to ensure optimal management when caring for a client with a tracheostomy in the school setting.

Risk

Client care and safety may be compromised if correct tracheostomy procedures are not followed. Suctioning performed improperly can cause complications such as hypoxia, atelectasis, bradycardia, trauma and infection. Airway impairment can be life threatening.

Background

A tracheostomy is a surgical opening into the trachea below the larynx through which an indwelling tube is placed to overcome upper airway obstruction, facilitate mechanical ventilator support and/or the removal of tracheo-bronchial secretions.[1]

Airway Profile

All children in Western Australia with a tracheostomy will have an Airway Profile. Discuss with your Clinical Nurse Manager how to gain access to these if required.

The Airway Profile will outline;[2]

- the client's tracheostomy tube type (cuffed /uncuffed), size and the appropriate smaller size tube

- suction depth
- client specific airway information
- ventilator settings, if applicable
- If client has a speaking valve, whether it is drilled / undrilled and if used throughout the day.

Key Points

- All staff must work within their scope of practice.
- Procedures to be performed only by nurses that have completed CAHS-CH training. WACHS nurses to discuss relevant training requirements with their line manager.
- Follow Client health care plan and Airway Profile to guide clinical care.

Tracheostomy Mandatory Equipment

- Nurses should check the tracheostomy equipment each day, including the expiry date, when the client arrives to school.
- Parents/caregivers are to provide all of the mandatory equipment in a dedicated bag. This is to be kept with the client at all times.

Provided by parent/caregiver	Provided by school
• Current Airway Profile • Tracheostomy tube – same size and one size smaller ○ Tubes that are reusable need to be checked for integrity and stored in an enclosed container or clean plastic bag[2] • Self-inflating bag and face mask • Suction unit - Pressure should be checked to ensure it is between 80-120mmHg • Suction catheters • Normal saline ampoules and 2ml syringes (not used in Education support school settings) • Humidification vent (Humidification moisture exchangers) • Spare tracheostomy tapes or bead chains • Introducer for the tube in situ • Scissors or bead chain cutters • Water soluble lubricant • Roll for under the shoulders • Saturation monitor, if required per Client health care plan • Oxygen, if on Client health care plan	• Mask • Protective eyewear • Non-latex gloves • Rubbish bag

For a client with a patent upper airway: • Tegaderm® (or similar) airtight dressing • Suitable sized face mask for bag and mask ventilation.	

Part A: Emergency tube change or reinsertion

Aim

To re-establish a patent airway when a tracheostomy tube has become dislodged or blocked.

Background

Routine changes of tracheostomy tubes are not conducted in the community health setting. This emergency procedure will occur in response to tracheostomy airway impairment.

Tracheostomy airway impairment may occur due to:

- **Partially blocked tube**
- **Completely blocked tube**
- **Accidental decannulation or dislodgement of the tube.**

These situations may result in the following signs of respiratory deterioration[2]:

- A sudden increase in the client's work of breathing
- Colour change and/or reduction in oxygen saturations
- Unusual vocal, upper or lower airway sounds such as stridor, wheeze or louder than usual crying which indicates exhaled air is passing through the upper airway rather than the tracheostomy tube
- Nil or reduced air flow out of the tracheostomy tube
- Change in level of consciousness.

- **Emphasis is on *early* recognition of any change in the client's respiratory status and tube patency to avoid an emergency event. [2]**
- **Late signs of impending respiratory collapse include cyanosis, bradycardia and apnoea - do not wait for these to develop before intervening.[2]**
- **Use the *Respiratory management distress flowchart* in this document if this situation occurs.**

Key points

- Tracheostomy tube reinsertion and replacement requires two people, one of whom must be a nurse trained in reinsertion of a tracheostomy tube and who can delegate to their assistant appropriately. However, if a client is discovered without their tube in situ and in respiratory distress a competent nurse can replace the tube alone if help is not immediately available.
- Insert the new tube with the introducer in situ – unless an emergency situation outweighs this.

Respiratory distress management flowchart[3]

Respiratory distress

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Assess **AIRWAY**
Look, Listen, Feel
(Tracheostomy tube opening, stoma, mouth and nose)
Is the tracheostomy tube
DISLODGED? **BLOCKED?**

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If **DISLODGED refer to Part A: Emergency tube change or reinsertion**
- Insert same sized tube
- If unable, insert smaller sized

If **BLOCKED refer to Part B: Tube Suction**
If client does not improve, change tracheostomy tube immediately

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Is the client breathing?
Look: For breathing movements of the chest
Listen: For breathing sounds from the tracheostomy tube or nose or mouth
Feel: For air coming from the tracheostomy tube or nose or mouth
YES **NO**

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Breathing on own:
- Position & reassure
- Inform family

Breathing still requires respiratory support:
Call ambulance 000

Direct assistant to **Call ambulance 000**

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The client has:		
Tracheostomy tube in place	**No Tracheostomy tube in place**	
	Patent Upper Airway	**Non Patent Upper Airway**
• Commence respiratory support with self-inflating bag **OR** • Connect self-inflating bag with oxygen (if supplied by parent/caregiver) to the tracheostomy tube and commence bagging	• Dry stoma area • Cover stoma with air tight dressing e.g. Tegaderm® • Use self-inflating bag and appropriate sized face mask covering mouth and nose and commence bagging • Apply gentle pressure over stoma, if required.	• Position to optimise airway and breathing • Use self-inflating bag and neonatal size face mask covering the stoma and attempt to give 2 breaths.[2] *(Bag & mask via nose/mouth or stoma likely to be ineffective)*

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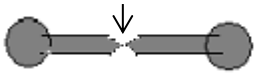
Continue basic life support until ambulance arrives
Inform line manager and complete relevant CAHS-CH and WACHS forms

Part A: Emergency tube change or reinsertion

Steps	Additional Information
1. Before commencing intervention undertake the following. • Check Client health care plan and Airway Profile to guide clinical care.	• A current, signed Client health care plan complies with consent requirements.
2. Employ infection control principles, perform hand hygiene and don gloves and other personal protective equipment (PPE) if time allows.	• Addressing the emergency takes precedence over infection control procedures.
3. Position the client. • Position the client in the most developmentally appropriate position, taking into consideration their clinical status and usual position. ○ client can remain in wheelchair in a reclined position with shoulder roll if the airway can be adequately maintained. • Maintain the client's head in midline position.	• A young client may be placed in a semi-recumbent position exposing the tracheostomy tube. • Open/remove the client's shirt to ensure good visibility of the chest and stoma. • A rolled up towel placed under the shoulders assists to extend the neck and expose the stoma and tube.[2] 
4. Prepare the equipment using aseptic principles and a non-touch technique.[1]	• Maintain the sterility of the tube by not touching the inner cannula. • See airway profile, Client health care plan or check size on tube in situ. • Open a replacement tube the same size as the one in situ. • Place the unopened smaller tube within easy reach. • Avoid touching the inner cannula of the tube. • The same tracheostomy tube can be reinserted if a replacement is not readily available, using the introducer in the

Steps	Additional Information
	provided equipment bag.
5. In an emergency cut the tapes and/or chains. • Always remove the tracheostomy tapes/chain prior to reinserting a tracheostomy tube.	 • For chains, identify the link (space between balls) to be cut and only use the bead chain cutters on that link. • **Do not press** the bead chain cutters onto a link you do not intend to cut as this may weaken the link.
6. Removal of tracheostomy tube **a) Uncuffed tube** • Remove the tube gently with a smooth continuous motion of the hand away from client's chest. • Check the stoma for redness, granulation, bleeding, and abrasions. • Wipe away excessive secretions with a cloth.	• It is a normal reflex for the client to cough on removal.[2] 
b) Cuffed tube • Suction the tracheostomy tube to remove secretions released from above the cuff.[2] • Deflate the cuff with a syringe just before removing the tracheostomy tube.	• Ensure the cuff pilot balloon is completely deflated. • If the cuff is inflated and/or manual inflation occurs this can compress the trachea and cause emphysema. • It is essential to remove oropharyngeal secretions to prevent these moving into the trachea.[2]

7. Lubricant
• A small amount of water soluble lubricant can be used to aid tracheostomy tube insertion. This is only required if:
  ○ the tube does not insert easily
  ○ there is a history of difficult tube changes.
	• Coat the outside of the tube with a small amount of water soluble lubricant if required.
	• Only use single use sachets of lubricant for infection control reasons.
	• Ensure that the lumen of the tube does not become obstructed with lubricant.

8.Insert and remove the introducer several times to ensure it can be easily removed and leave in situ prior to insertion.[2]	• Introducers in new tubes can often be tight to remove. • The introducer gives structure to the tube and reduces the risk of tissue

Steps	Additional Information
	damage.
9. Remove excess secretions/vomit present.	• If necessary, suction the tracheostomy tube. See Part B: Tube Suction • **Do not insert** a suction catheter directly into the stoma.
10. Insert the tracheostomy tube. • Ensure client's head is in a midline position. • Insert the tube with an introducer. • Approach stoma from the chest and insert using a curving motion.	• If stomal granulation is observed, discuss this with the parent/caregiver. If granulation is causing issues with tracheostomy tube changes, advise parent/caregiver to seek follow up with a medical practitioner.[2] • A tube inserted under tension is more likely to enter a false passage. 
11. Hold tube in place, and then remove the introducer. • Secure tracheostomy tube neck plate with ties and check that only one little finger can fit between the child's neck and the ties.[2] • Hold tube in place while client is assisted to a sitting position.[2] • Place your little finger under the tape at the back of the neck.[2] • Ensure device is firm but not tight. Lay the client back down to adjust the ties and recheck tension until it is correct.[2] • Check the tapes after 15 minutes[2] and readjust if necessary.	• Velcro tapes should be trimmed to form a point (as shown below).  • **Do not shorten** the length of the Velcro – less Velcro means the airway is less secure.[2] • **It should only be possible to slip your little finger** comfortably between the ties and the client's neck whilst they are in a sitting position.[2] • For foam and Velcro tapes it may be necessary to secure using adhesive tapes.  • If tapes/beads are too tight, pressure areas will develop.[2] • Retain the introducer in case the tube

Steps	Additional Information
	needs replacing again.
12. Following insertion of a cuffed tube: • Inflate the cuff with air/water as specified on the clients Airway Profile as soon as the tube is in place.	• Inflate cuff to the desired volume as stipulated on the Airway Profile. • Over inflation of the cuff can cause trauma to the tracheal wall. • The cuff should only be inflated with the smallest volume possible to reduce leakage around the tracheostomy tube. Pressure should **always be less than 25cm H_2O.**[2] • Refer to Perth Children's Hospital (PCH) *Tracheostomy Management procedure* for further information.

13. Check breathing.
• Look, listen and feel
  ○ Chest rise,
  ○ Breath sounds,
  ○ Airflow from the tube,
  ○ Assess colour.
• Suction the tracheostomy tube if required.[2]
• If airflow is not present (client may be distressed +/- cyanosed) remove the tube and insert smaller size tube.
• Reassess breathing.
	• Use an ungloved finger over the connector to assess airflow from the tracheostomy tube.
	• Very rarely the tracheostomy tube may be inserted into a false passage. Airflow will not be felt from the tracheostomy tube if this occurs.

14. If the client vomits during a tube change: • Continue to insert tube and secure. • Position on to side. • Assess breathing. • Suction tracheostomy tube. • **Call ambulance if required.**	• If concerned, or there is respiratory distress following the tube change, assess for aspiration. • Complete clinical handover using the iSoBAR tool if a client is transported by ambulance. • WACHS nurses should follow local processes as required.

Steps	Additional Information
15. Contact parent/caregiver to inform them of tracheostomy tube change.	• Report any difficulties in tube reinsertion to the parents/caregivers. • Complete a *Clinical handover/Referral form* (CHS 663- CAHS-CH only), if required. • WACHS nurses should follow local processes as required.

Documentation

Community health nurses will document relevant findings and actions according to CAHS-CH and WACHS processes.

Inform line manager and complete relevant forms as per CAHS-CH and WACHS processes.

Part B: Tube Suction

Aim

Suction should maximise removal of secretions while minimising tissue damage and hypoxia in order to maintain a patent airway and allow effective ventilation.

Key points

- Perform suctioning as per A*irway Profile*, Client health care plan and when clinically indicated (see below).
- The routine suction depth will be recorded on the client's *Airway Profile*. Deep suctioning **is not** to be performed by nurses, unless in specific circumstances when an individual has a Client health care plan in place which includes deep suctioning *and* when staff member(s) have received specific training to conduct deep suctioning.
- If the client is able to cough up their own secretions this should be encouraged.
- Suction can raise intracranial pressure and should be used with caution in clients with a head injury and conditions related to raised blood or intracranial pressure.
- In accordance with CAHS S*tandard and Transmission Based Precautions* - masks, protective eye wear and gloves should be worn when suctioning a client.

Indications for suction[2]

- Audible rattling sounds or visible secretions in the tube
- Decreased breath sounds on chest auscultation
- Increasing respiratory effort or distress
- Suspicion of blocked or partially blocked tracheostomy tube

- Client requests suction
- Consider suction prior to tracheostomy tube change, tape change, feeding, speaking valve use or after vomiting.

Cyanosis, bradycardia and apnoea are late signs of oxygen deficiency. Suctioning should be attended promptly before these signs occur.
Call 000 if these signs are present- see flowchart listed below for actions
Respiratory management distress flowchart

Suction catheter

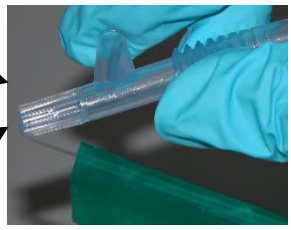
- Use graduated catheters in preference to non-graduated, if available, for measurement accuracy.[2]
- The external diameter of the suction catheter should be equal to one half of the internal diameter of the tracheostomy tube to prevent trauma and atelectasis.[4]
- Routine suction depth is 0.5cm beyond the tip of the tracheostomy tube. The suction depth on the Airway Profile already includes this 0.5cm.
- Table 1 below indicates appropriate suction catheter size according to tracheostomy tube size.

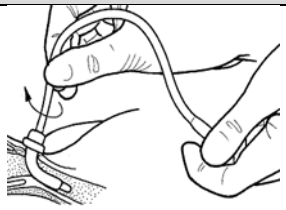
Table 1: Suction catheters sizing[2]

Tracheostomy tube size (mm)	3.0	3.5	4.0	4.5	5.0	6.0	7.0
Suction catheter size (Fr)	6.0	7.0	8.0	8.0	10.0	12.0	12.0

Tube suction procedure

Steps	Additional Information
1. Before commencing intervention undertake the following; • Check Client health care plan and Airway Profile to guide clinical care. • Check the identity of the client. • Explain the procedure to the client.	• A current, signed Client health care plan complies with consent requirements. • Some client's may be prescribed the administration of oxygen or an increase in oxygen before and after suction. Oxygen to be supplied by parent/caregiver. This should be documented in the Client health care plan. • Consider the presence of any external devices (e.g. Swedish nose, speaking valve) and whether they need to be

Steps	Additional Information
	removed prior to suction. • Ensure appropriate measurement as indicated in the Airway Profile.
2. Position the client, allowing access to the tracheostomy tube. ○ client can remain in wheelchair in a reclined position with shoulder roll.	• A young client may be placed in a semi-recumbent position exposing the tracheostomy tube. • An older client may prefer to sit.
3. Perform hand hygiene and put on personal protective equipment (PPE).	• Exposure to body fluids is to be assessed and appropriate PPE used as per *Exposures to Blood and Body Fluids* policy. • Maintain the sterility of the catheter.
4. Attach the suction catheter to suction tubing, remove packaging and turn on the suction.	• Test suction by using a finger to block the hole in the tube and check the pressure. • The suction unit should have a pressure gauge. **Pressure should be between 80- 120mmHg/10-16kpa.**[2, 4]
5. Check suction pressure. Place a thumb over the port and kink the flexible catheter just below the port. 	• Higher pressure may cause alveolar collapse, mucosal damage or catheter collapse. • Inadequate suction pressure may not remove enough secretions resulting in increased number of catheter passes.
6. Observe client during the procedure for signs of respiratory and cardiovascular instability and discomfort.	• If this occurs suction will need to be discontinued.
7. Insert catheter into tracheostomy tube. • Insert catheter into the tracheostomy tube to the predetermined depth as specified on the client's Airway Profile.[2]	• Protect the catheter tip from coming into contact with surfaces, hands and clothing – discard if contaminated and use a new catheter.[2] • If the catheter does not pass easily into the tracheostomy tube do not force, suspect a blocked or partially obstructed tube.[2] Refer to Respiratory distress management flowchart. • The suction depth on the Airway Profile

Steps	Additional Information
 • Occlude catheter suction port with thumb to apply suction and withdraw catheter.[2] • Each pass of the suction catheter should last no longer than 5-10 seconds.[2]	already includes the 0.5cm below the end of the tracheostomy tube. • Suction should be applied on withdrawal of the suction catheter to minimise mucosal damage in the respiratory tract.[4] • It is not necessary to rotate the catheter as the multiple eyelet catheters will remove secretions effectively.[2]
8. Assess the amount, colour and consistency of secretions removed.	
9. Assess the client and the effectiveness of secretion clearance.[2] • Repeat the procedure if necessary. • Do not contaminate the catheter tip between passes.	• If the suction catheter is not contaminated between suction passes it can be reused for multiple passes then discarded.[2] • Assess respiratory status and colour of the client.
10. Reattach any external devices (e.g. Swedish nose, speaking valve) which were removed prior to starting procedure.	
11. Dispose of suction catheter. Suction tap water through the suction tubing to clear it of secretions.[2]	• Before disposal, ensure that there is a new suction catheter available in the client's equipment.
12. Remove PPE and perform hand hygiene.	
13. Report abnormalities to the parent/caregiver and discuss medical follow-up or review.	• Notify parents/caregiver if increased frequency of suctioning is noted. • Secretions should be clear or white. • Yellow, green or odorous secretions may indicate infection. • A *small* amount of blood streaking may occur. Pink frothy secretions may indicate pulmonary oedema.

Documentation

Community health nurses will document relevant findings and actions according to CAHS-CH and WACHS processes.

Document the number of times you pass the suction catheter in progress notes.

Record colour, consistency, amount of secretions, or if there is an odour.

References
1. Royal Children's Hospital. Tracheostomy Management. In: Clinical Nursing Guidelines, editor. Melbourne Australia: The Royal Children's Hospital Melbourne; 2018. 2. Perth Children's Hospital. Tracheostomy Management Guideline. In: Clinical Practice Manual, editor. Perth: Child and Adolescent Health Services; 2018. 3. Perth Children's Hospital. Tracheostomy Resuscitation Procedure. Clinical Practice Manual. Perth: Child and Adolescent Health Services; 2017. 4. Credland N. How to suction via a tracheostomy. Nurs Stand. 2016;30(28):36-8.

Related policies, procedures and guidelines
The following documents can be accessed in the **Clinical Nursing Manual** via the HealthPoint link, Internet link or for WACHS staff in the WACHS Policy link
Acuity tool
Clinical Handover - Nursing
Student health care plans
The following documents can be accessed in the CAHS-CH Operational Manual
Abbreviations
Aseptic Technique
Blood and Body Fluid Exposure Management
Client Identification
Deterioration in Health Status - Unexpected and Acute
Exposures to Blood and Body Fluids
Hand Hygiene
Health / Medical Record Documentation
Home and Community Visits

Infection Control Manual
Latex Minimisation
Standard and Transmission Base Precautions
The following documents can be accessed in the CAHS Policy Manual
Tracheostomy Management Guideline (PCH)
Tracheostomy Resuscitation (PCH)
The following documents can be accessed in WACHS Policy
The following documents can be accessed in the Department of Health Policy Frameworks
Clinical Handover Policy (MP0095)
Clinical Incident Management Policy (MP 0122/19)

Related CAHS-CH forms
The following forms can be accessed from the CAHS-Community Health Forms page on HealthPoint
Community Health Acuity Tool (CHS070)
Clinical Handover/Referral Form (CHS663)
Clinical Handover/Referral Form – Electronic (CHS663E)
Clinical Handover/Referral Form envelope (CHS663-1)
Community Health Progress Notes (CHS800C)

Related CAHS-CH resources
The following resources can be accessed from the CAHS-Community Health Resources page on HealthPoint
Community health staff
Acuity (4 documents)
Child and Adolescent Community Health Practice Framework - Community Health Nurse (School)

Related external resources
DOE Student Health Care

This document can be made available in alternative formats on request for a person with a disability.

Document Owner:	Nurse Co-Director, Community Health		
Reviewer / Team:	Clinical Nursing Policy Team		
Date First Issued:	December 2014	Scheduled Review Date:	13 March 2023
Last Reviewed:	21 February 2020		
Approved by:	Community Health Clinical Nursing Policy Governance Group		
Endorsed by:	Executive Director Operations	Date:	13 March 2020
Standards:	NSQHS Standards: 1.7, 1.27		
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