

# Tracheostomy and Ventilator Education Program

## Module 5: Trach Care and Suctioning

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# Disclaimer

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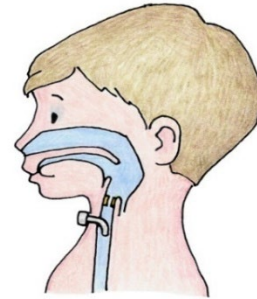
## Objectives:

- Introduction to how to safely perform trach care skills
- Introduction to how to safely perform suctioning skills



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## Trach care



- Trach care includes:
  - Knowing your child's tracheostomy tube type and history
  - Assessing the stoma and the skin
  - **Cleaning** and **drying** the stoma and the skin
  - Dressing changes
  - Tie changes and ensuring they are secure



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## Tracheostomy tubes



- There are many different types of tracheostomy tubes for specific needs
- Your child's first trach tube is chosen by the Ear Nose and Throat Specialist because it is the correct size and length to fit your child - it will most likely have an inflatable cuff to hold it in place
- That tube is changed a few days later to a new one that may be the same or may not have a cuff
- As your child grows and their airway needs change, your healthcare team will change tubes to meet these needs

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## All trach tubes



- All tracheostomy tubes have common features:
  - Markings on the flanges with:
    - The manufacturer of the tube
    - Whether it's an adult, pediatric, or neonatal tube
    - What size the tube is
    - The inner and outer diameters of the tube in millimeters
  - The same sized connector at the end of the tube which your child breathes through - can connect to baggers and ventilators if needed
  - Flanges on either side of the tube with holes on either end where the trach ties go through to secure the tube

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## All trach tubes

- Every trach tube comes with an obturator – a firm plastic guide that helps with tube insertion
- Each tube and obturator match in size
- **Important!** The obturator for your child's current trach tube must be in their emergency kit - so you know where it is if you need it



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## Trach tube features

- Cannula:
    - Smaller tubes are single cannula (one tube)
    - Larger tubes are double cannula (two tubes: big enough for an inner cannula that can be taken out and cleaned during trach care)
  - Tube sizes vary from adult to pediatric to neonatal
  - The shape of the curve that sits in the trachea can vary
  - Length to fit the size of airway – very short to very long
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## Trach tube features

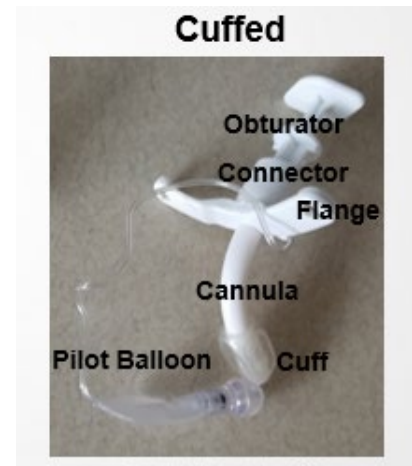
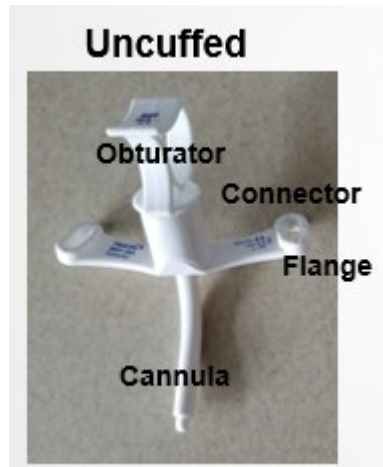
- Materials like silicone, plastic, or silicoplastic BPA + latex free
- Cuffed or uncuffed (a cuffed tube can be used to seal the trachea with ventilation to prevent pressure leaks)
- Larger adult sized tubes can come with a window called a fenestration which can allow air to go up through the vocal cords



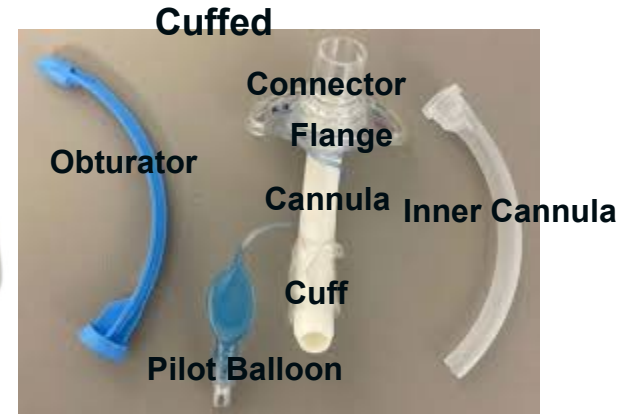
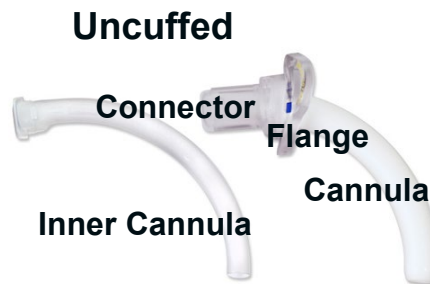
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# Trach tube features

- Single Cannula



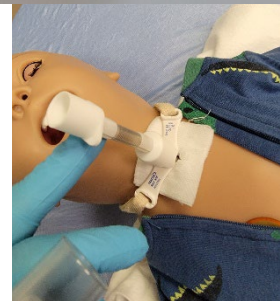
- Double Cannula



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## Trach tube features

- Some tubes have metal coils in them to prevent the cannula from kinking
  - if your child needs an MRI, this tube must be changed to one without metal for the test
- Some tubes have an extra long connector length from the flange to decrease the risk of skin breakdown in infants
- There is also a connector that can be added to all tubes to increase this connector length if needed
- Some inner cannulas are disposable and others are reusable and can be cleaned



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## Your child's trach tube

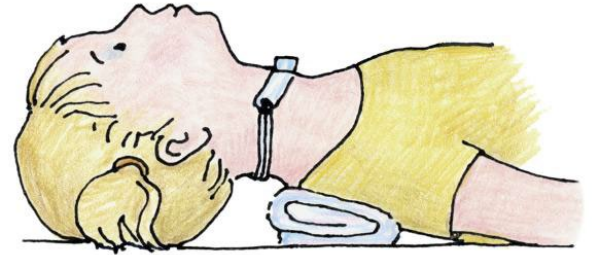


- You should have a record of your child's diagnosis and why their trach was placed
- Which tube they have now and why
- When their last trach change was done
- What the size of the tube is and the suction depth measurement for this tube
- Any issues with trach care or trach changes

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## Trach care

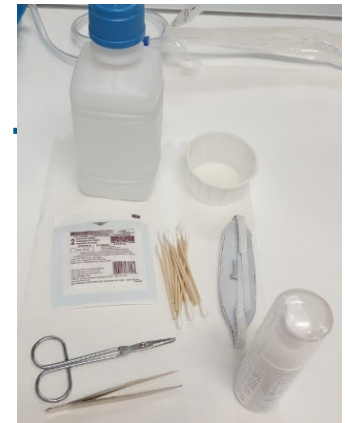
- Trach care includes:
  - Assessing the stoma and the skin
  - **Cleaning** and **drying** the stoma, the skin, and the outer portion of the tracheostomy tube
  - Dressing changes
  - Tie changes and ensuring they are secure
  - **CLEAN** and **DRY** to keep everything **clean**, **dry**, decrease the risk of infection and skin irritation or breakdown, and keep the tube secure



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## Trach care preparation

- Wash your hands
- If you should be wearing protective equipment like gloves or a mask , put them on
- Get your supplies ready:
  - Distilled water (for home)
  - A clean cup
  - Cotton tipped applicators (or gauze folded over into a point around a cotton tipped applicator to hold in place for bigger children)
  - Tweezers and scissors
  - New dressings and ties
  - Wash cloth
  - Suction supplies and your emergency kit



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## Trach care preparation



- Trach care can be done by 1 person, but tie changes **MUST** be done by 2 people (1 person maintains the tube securely while the other changes the ties) - make sure you have help if you are changing ties
- Set your supplies on a clean surface
- Position your child so they are comfortable
  - Each child is different in how they tolerate trach care and what position works best for trach care – sitting up, laying down
  - Some families find that a roll under the shoulders is helpful
  - Some families find that swaddling a child can help keep busy hands out of the way

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# Trach care



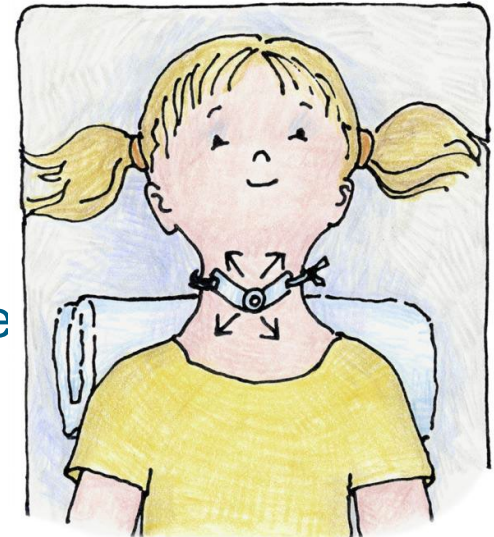
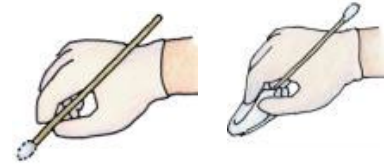
- When ready, gently remove the old dressing if there is one
  - Assess for drainage on the dressing and around the tube
  - Assess the skin under both flanges, under the ties, and around the neck for signs of redness, irritation, or skin breakdown (pressure injury, rash, wounds)
    - This might mean that you need to apply a barrier cream or a barrier dressing under the flanges to prevent them from further irritating the skin
    - This could mean the ties are too tight and should be fixed
  - Assess the stoma for redness, irritation, or signs of an infection like a rash
    - This might mean that you need to apply a cream for an infection **AROUND BUT NOT IN** the stoma



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## Trach care

- When ready, gently **clean** around the stoma
  - You will use a new clean cotton tipped applicator or folded gauze to clean only once and then dispose of it
  - Dip it into the water to moisten it
  - Start from the stoma and roll while you wipe outwards to prevent introducing bacteria to the stoma area
  - Dispose of it and repeat until you have cleaned around the stoma and under both flanges
  - You may also need to use a new moistened cotton tipped applicator to **clean** mucus from the front of the trach tube as well

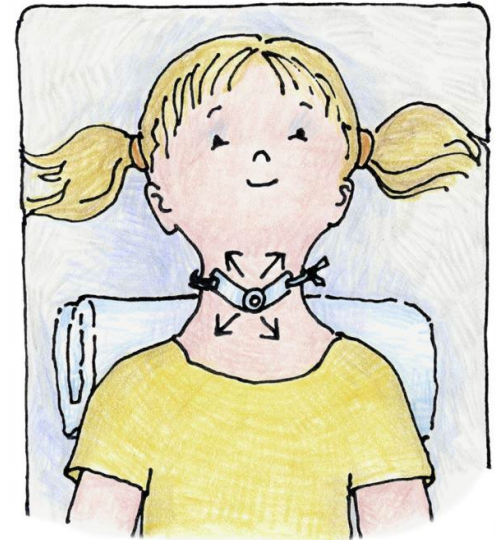
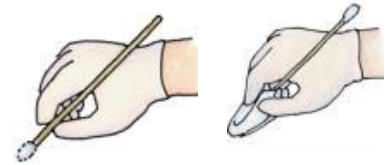


**CLEAN**

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## Trach care

- When ready, gently **dry** around the stoma
  - You will use a new clean cotton tipped applicator or folded gauze to **dry** only once and then dispose of it
  - Do not moisten it
  - Start from the stoma and roll while you wipe outwards to prevent introducing bacteria to the stoma area
  - Dispose of it and repeat until you have **dried** around the stoma and under both flanges



**DRY**

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## Trach care

- When ready, it's time to change the dressing and the ties – it doesn't matter which one you change first
- Dressings:
  - Dressings are used for drainage from the stoma or increased respiratory secretions
  - They should be changed when wet or soiled
  - Only use the dressings provided for you – some dressings shouldn't be used for trach dressings because they are made of gauze that has loose fibers (which can stick to the stoma or be inhaled into the lungs)
  - You may be prescribed ointments or creams to be applied to the stoma before placing the dressings – do not use any substance on the stoma unless you talk to your healthcare team



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# Trach care

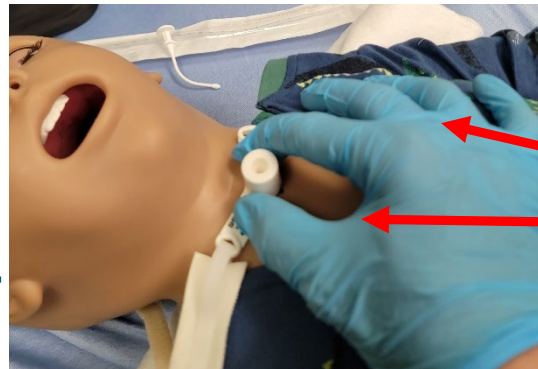
- Ties:
  - A trach holder that goes around the neck to secure the trach tube
  - There are many types of ties available from twill tape to neoprene
  - Only use the ties provided for you which are durable and can be washed at home, made of non-fraying material, and have Velcro for adjustability



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## Trach care

- Ties:
  - Ties should be changed when they are wet or soiled and whenever a trach change happens
  - In the hospital, the trach ties will be changed once per day at minimum
  - Have one person positioned and holding the trach tube **securely** to prevent the tube from becoming dislodged during this tie change



**E-C** hand  
position:  
**E** on the chest  
**C** on the tube!

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## Trach care

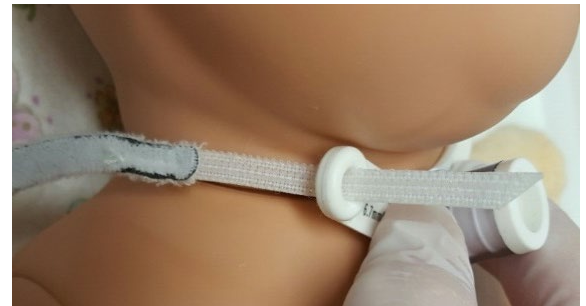
- Ties:
  - Have the other person safely:
    - Gently remove one end of the old tie and leave the other end of the old tie in place
    - Assess the skin around the neck quickly for redness or irritation
    - Quickly **clean** and **dry** the skin around the neck with washcloths

*We leave the old tie on 1 side in case we need to use both the old/new together to hold the tube in at the back of the head during a tie change*

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## Trach care

- Ties:
  - Thread the new tie end into the flange where the old tie is out and then gently feed the tie around the back of the neck, holding **securely**, and remove the old tie completely and finish by threading the other end of the tie into the open flange end and tighten safely
  - Place one pinkie finger gently under the tie to ensure the tie is tight enough





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## Trach care

- Ties:
  - With the other person still holding the tube, position the child so you can see that the tie is placed evenly, is not pulling on one side or the other, the Velcro is secure and not scratching any skin, and the tie is pinkie tight – adjust if needed while you have someone holding the tube
  - Always **recheck** tightness 15 minutes after a tie change + adjust if needed with 2 people

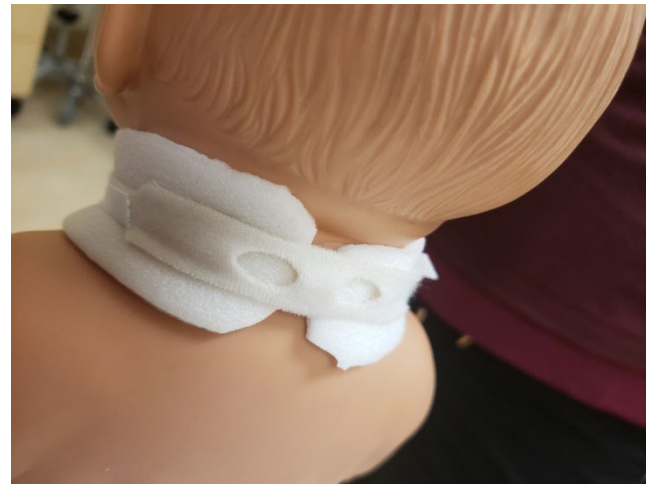




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## Trach care

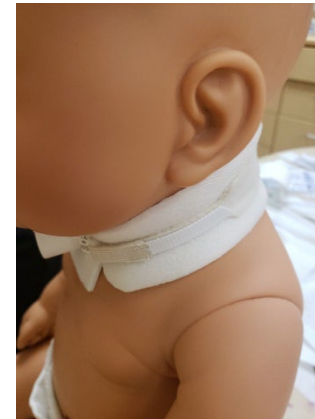
- Barrier Dressings:
  - If there are signs of redness, irritation, or skin breakdown – your healthcare team may place a barrier dressing underneath the new ties or new dressing
  - These will need to be cut for the shape and size needed and will need to be placed carefully to **clean dry** skin before new ties or new dressings are placed



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## Trach care

- Trach care can take time to complete and sometimes your child may need a suction or a break during trach care
- Placing the dressing or threading the ties can be difficult and does get easier with practice





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## Trach care – trach with an inner cannula

- If your child's trach has an inner cannula, you will need to change/clean this daily
  - Inner cannulas are either disposable (marked with DO NOT CLEAN) or reusable
  - During daily trach care, the inner cannula will need to be cleaned or changed for a new one
  - You will need:
    - A small bowl or container to soak the dirty inner cannula in if it's reusable
    - A trach brush to clean the inner cannula
    - Spare inner cannula
    - Solution for cleaning: Sterile water in-hospital (sterile normal saline if heavily soiled) or distilled water at home
    - All the trach care supplies you need
  - Before you start trach care, gently remove the inner cannula by securing the flanges and pinching in the tulip tops of the inner cannula
  - If the inner cannula is disposable, throw it away

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## Trach care – trach with an inner cannula

- If it's reusable, gently insert your clean spare inner cannula into your child's trach
- Soak the dirty inner cannula in your bowl of solution
- Agitate it in the solution by moving it around in the bowl
- If heavily soiled or coated with secretions, you may need sterile normal saline to soak off the secretions OR you could gently use a trach brush to scrub the inside and outside of the inner cannula to remove the secretions
- Once cleaned, rinse well with clean solution and shake off excess solution
- You can then remove the spare inner cannula and replace it with your now cleaned inner cannula
- You will clean the spare inner cannula the same way and store in a clean container once dry
- Complete the rest of trach care as you normally would

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# Suctioning

- Suctioning includes:
  - Why suctioning is important
  - Tracheal suctioning
  - Oral/nasal suctioning
  - Instilling



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## Why suctioning is important

- We normally produce secretions like mucus and saliva to keep our airways lubricated
  - Saliva is the thin watery fluid that moisturizes our oral cavity and our tongues
  - Mucus is a clear watery substance produced by mucus membranes in our lungs that helps humidify the dry air that we breathe in and remove dust particles, bacteria, and other inhaled debris in our lungs by carrying these out of the lungs through our larger airways and out the mouth/nose
- We clear secretions by blowing our noses, coughing, or swallowing them

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## Why suctioning is important

- When a trach tube is placed, it can affect the normal pathway for secretions to leave the body but it also allows easy access for suctioning to clear these secretions
- A child with a trach requires regular suctioning to keep the trach tube clear and to prevent secretions from pooling in the lungs or around/in the trach tube
- Cough strength can also affect secretion clearance and regular suctioning will stimulate coughing to help move secretions





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## When to suction

- You can see, feel and hear when your child needs to be suctioned
  - Secretions that you can hear or see bubbling from the trach
  - Seeing that your child's respiratory effort has increased
  - Feeling “rattling” inside the chest
  - Seeing that your child is becoming irritable or restless
  - Your child is coughing more
- You may need to suction when:
  - You think your child may have aspirated food or fluids
  - After any episode of vomiting
  - After sleeping
  - If they are coughing a lot



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## Suction equipment

- In the hospital, the suction equipment is set up in your child's room on the wall behind the bed
- In the hospital, all of the supplies for suctioning your child are provided in your child's room
- While in hospital, you will have a portable suction machine if your child needs to go places within the hospital – this machine belongs to the hospital



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## Suction equipment

- Your healthcare team will help you to arrange for a portable suction machine and catheters before you go home and help stock your machine with:
  - Stock the carrying bag with suction supplies – catheters, alcohol swabs, saline, water, cups, gloves, hand sanitizer, **measurement guide**
- Your machine will come with a carrying bag, filters, and chargers
- You should also have access to another stationary unit for suction at home



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## Suctioning technique

- The suction technique will be different in different settings due to the risks for exposure to infections
- When your child first has their trach surgery, sterile technique is used to protect your child from a high risk of infection exposure because the stoma is a fresh wound that needs to heal
  - PICU staff perform all sterile suctioning
  - You may see suctioning done via inline suctioning if your child is on a ventilator in PICU



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## Suctioning technique

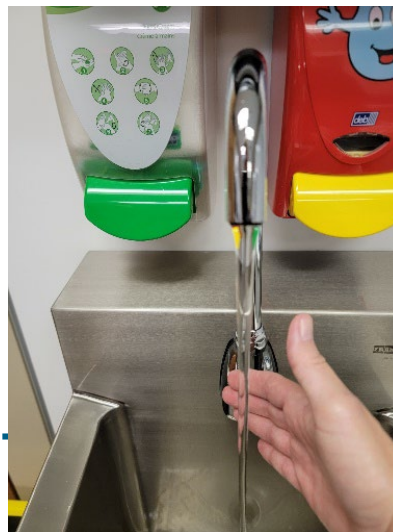
- Clean technique is used once your child has their first trach change and their stoma has healed
- Clean tracheal suctioning is when you directly suction the trach tube
- Clean vented suctioning is when you suction through a ventilator connector – you must always clean the connector with an alcohol swab before suctioning



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## Suctioning infection prevention

- Good hand washing should always be performed before and after suctioning in hospital and at home
- In the hospital, gloves are worn and the suction catheter is thrown away after each suction event
- As you learned before, suctioning can create an aerosol so you may see isolation precautions in use and you may be advised by staff that additional personal protective equipment



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## Suctioning infection prevention

- In the home:
  - You can decide whether you use gloves or not when suctioning
  - All non-family caregivers are required to wear gloves when suctioning
  - Suction catheters are cleaned and reused
  - Currently families are funded for 2 catheters / 24 hours through AADL



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## Suctioning supplies

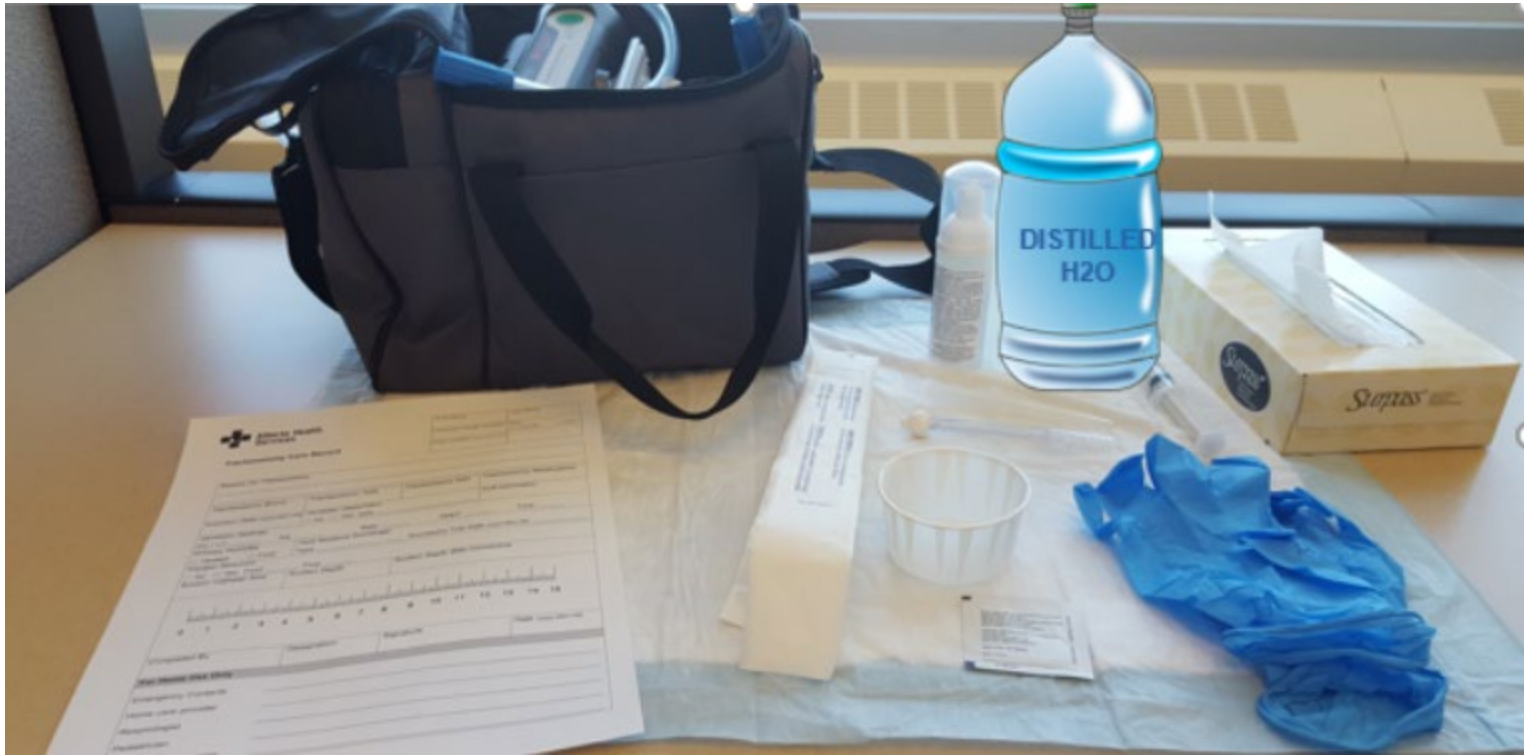
- Gloves and personal protective equipment if needed
- Suction machine
- Measuring guide for suction depth
- Suction catheters – correct size
- Distilled water (for home)
- Cups
- Sterile normal saline for instillation
- Tissues
- Alcohol swabs
- Oral/nasal suction device, if needed

### Distilled Water:

- Home Care Infection Prevention Guidelines recommend distilled water for suctioning
- Boiled and cooled tap water is not recommended
- Once a container of distilled water has been opened, it can be used for 24 hours – after that, it should be discarded

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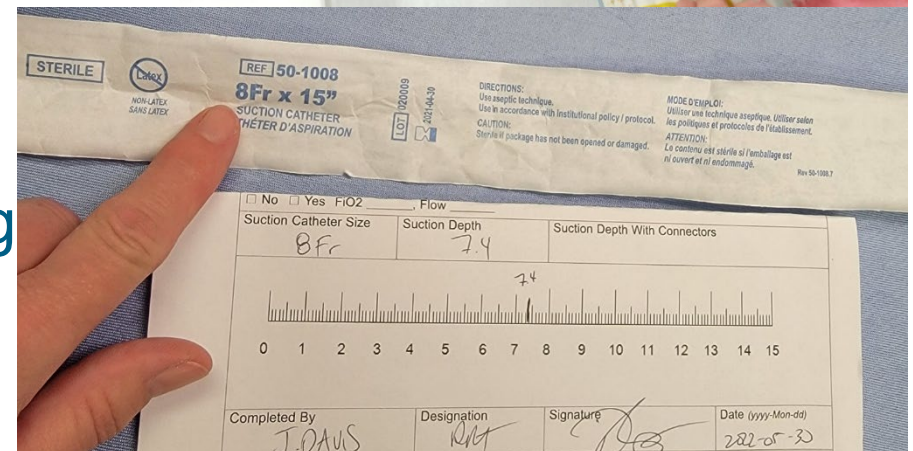
# Suctioning supplies





## Suctioning preparation

- Always wash your hands and wear gloves if indicated
- Only use freshly poured water to lubricate/rinse your catheter into a cup
- Confirm catheter size
- Connect your catheter to the suction tubing, keeping the catheter in the paper sleeve to keep it clean



## Suctioning preparation

- Turn on your suction and test the suction pressure by occluding the suction tubing – it should rise and hold at your set pressure on the gauge
  - If it doesn't rise: check for a leak in the canister or your battery power to correct this
- Set pressure should be 100 mmHg for small children or up to 120 mmHg in bigger children
- Most suction units are in mmHg, but some are in inHg or cmH2O
  - 100 mmHg = 4 inHg = 100 cmH2O
  - 120 mmHg = 5 inHg = 120 cmH2O



# Suctioning depth

- You will have a suction measurement guide prepared by your RRT (we measure a new tube with a sterile suction catheter and a new measuring guide before a trach change) - you will be shown how to measure your child's trach for home
- We use these measurements to prevent suctioning too deeply and injuring the carina or too shallowly and not clearing the tube
- If your child is on a ventilator, they may have 2 measurements



Alberta Health Services

Tracheostomy Care Record

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_  
Personal Health Number: \_\_\_\_\_ Sex:  Female  Male  
Date of Birth (yyyy-mm-dd): \_\_\_\_\_

Reason for Tracheostomy: \_\_\_\_\_

Tracheostomy Brand: \_\_\_\_\_ Tracheostomy Type: \_\_\_\_\_ Tracheostomy Size: \_\_\_\_\_ Tracheostomy Modifications: \_\_\_\_\_

Insertion Date (yyyy-mm-dd): \_\_\_\_\_ Ventilator Dependent:  No  Yes, type: \_\_\_\_\_ Cuff Information: \_\_\_\_\_

Ventilator Settings  
PC / VT: \_\_\_\_\_ PS: \_\_\_\_\_ Rate: \_\_\_\_\_ PEEP: \_\_\_\_\_ FIO2: \_\_\_\_\_  
Primary Humidity: \_\_\_\_\_ Heat Moisture Exchanger: \_\_\_\_\_  
 Heated  Cold Type: \_\_\_\_\_ Successful Trial Date (yyyy-mm-dd): \_\_\_\_\_

Oxygen Required  
 No  Yes FIO2: \_\_\_\_\_ Flow: \_\_\_\_\_

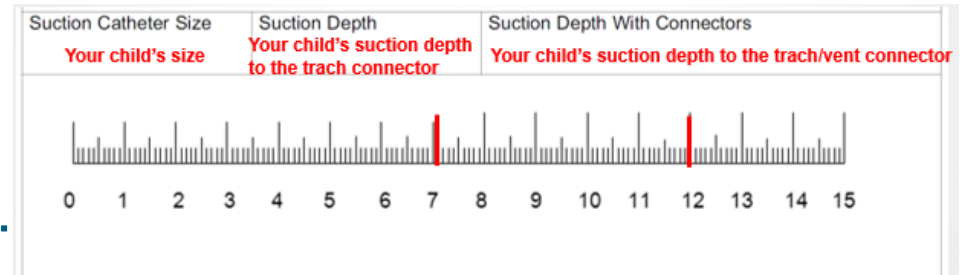
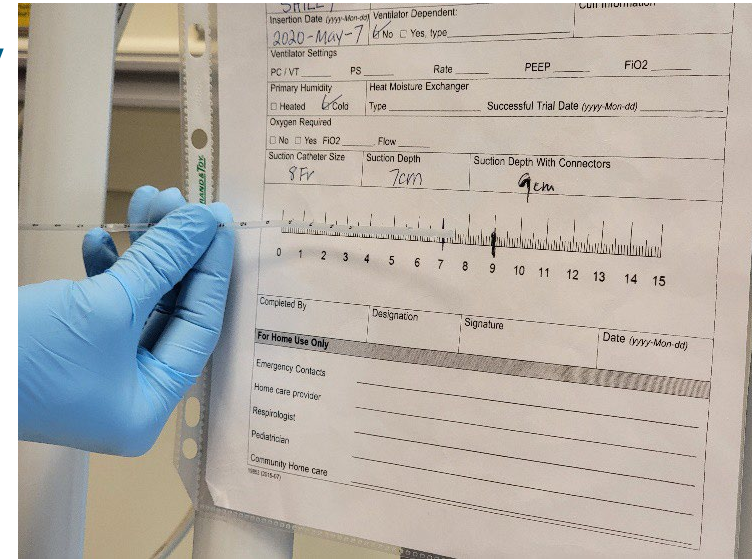
Suction Catheter Size	Suction Depth	Suction Depth With Connectors
Your child's size	Your child's suction depth to the trach connector	Your child's suction depth to the trach/vent connector

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

**IMPORTANT: these measurements all include 5 mm past the end of the tube to clear secretions – you don't need to add any extra length!**

# Suctioning depth

- Always measure suction depth by the measuring guide even though there are markings on the suction catheter - the catheter markings may not be accurate
- Measure from the trach tube connector and/or from the trach/vent connector if your child is on a ventilator





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## Tracheal suctioning

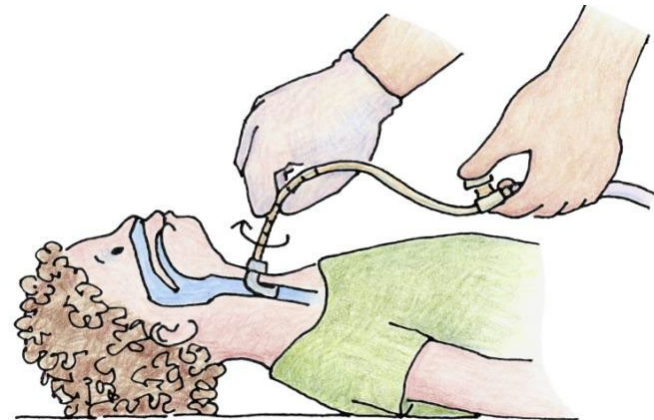
- Dip your catheter tip in the water to lubricate it – this keeps it from sticking in the trach tube
- You should also suction some water through the catheter – this will help confirm your suction is working
- Without applying suction, gently but quickly put the catheter into the trach tube to the depth that you have measured



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## Tracheal suctioning

- From the time the catheter goes in to the time it comes out, you should count “1 1000, 2 1000, 3 1000, 4 1000, 5 1000” to keep the time to 5 seconds to your measurement
- Suctioning should not take longer than 5 seconds once the catheter is in the tube for smaller children, bigger children can be suctioned for up to 10 seconds if tolerated



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## Tracheal suctioning



- Remember to suction only as you are withdrawing the catheter
- Once you have suctioned, look at the secretions that you suctioned for amount, color, and thickness
- Rinse water through the catheter to clean it out and suction again if needed (remember to re-measure if your fingers moved during the procedure), remembering to let your child catch their breath between suctioning passes = you may have to put oxygen back on or put them back on their vent
- When suctioning is done, rinse well with water, wipe the catheter once with an alcohol swab and place back in the paper sleeve to use again (for home)

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## Suctioning secretions

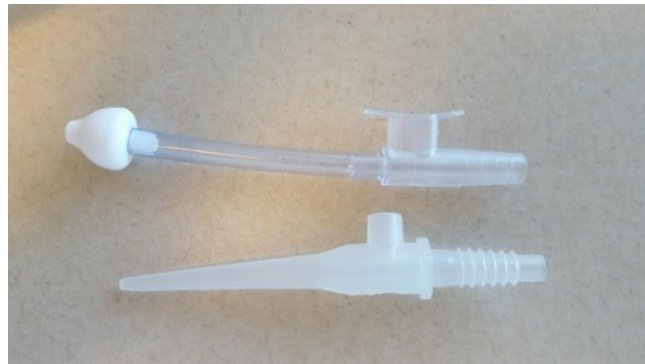
- Watch your child to see how they are tolerating suctioning
  - they will need breaks to catch their breath in between suctioning passes
- When assessing the secretions that have been suctioned, we look at:
  - **Amount** - how much was suctioned compared to your child's normal amount (usually small to moderate amounts)
  - **Color** - what color the mucus is (usually clear to white)
  - **Odor** – do the secretions have a smell (usual odor free)
  - **Consistency** - how thick are the secretions (usually thin and watery)
- Always keep track of how many passes it takes to clear and how many times you are suctioning every day



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## Oral/nasal suctioning

- If your child needs secretions removed from their mouth and nose, you can suction there as well
- You may have an oral or nasal soft catheter specifically for this type of suctioning



- Try not to use the catheter you use for tracheal suctioning that you use for oral/nasal suctioning - you don't want to contaminate the lungs with bacteria from the mouth and nose

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## Oral/nasal suctioning

- Oral/nasal secretions have different bacteria than lung secretions
- Remember that with your suction catheter you can suction the lungs then the mouth/nose if you don't have an oral/nasal device **BUT NEVER** suction the lungs after using your suction catheter to suction the mouth and nose *without cleaning it first*



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## Oral/nasal suctioning

- The technique for oral nasal suctioning is similar to tracheal suctioning
  - You use water to lubricate, test suction, clean afterwards, and store in a Ziploc bag when done



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## Instilling

- Instilling means to insert sterile normal saline into the tracheostomy tube to help clear secretions or an obstructed/blocked trach tube
- Instillation is **not** routine
- Sometimes instillation can help to stimulate a cough or help thin thick secretions
- Instillation is part of the **Emergency Algorithms** to help with an obstructed trach tube
- We use normal saline because we can absorb normal saline because it has the same salt content as we do



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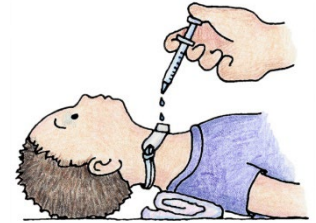
## Instilling

- Your sterile normal saline will come in a sterile pre-filled syringe or bullet and you will have a physician's order for the amount to use for your child – amounts are usually:
  - 0.5 – 1.0 ml for less than 1 year old
  - 0.5 – 3.0 ml for 1 – 12 year olds
  - 0.5 – 5.0 ml for 13 – 18 year olds



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## Instilling

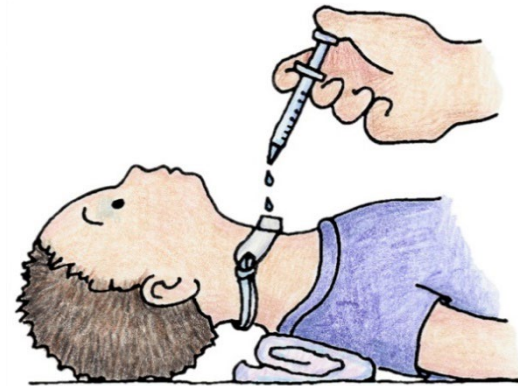


- As your child takes a breath in, quickly squirt the normal saline into the trach tube
- Hold the tip of the syringe close to the trach tube, trying not to touch the trach tube to prevent contaminating the tip of the syringe – if you do, dispose of it and get a new one
- Coughing is normal
- Always follow instillation with suctioning
- If you are instilling because of thick secretions or a mucus plug, you can try a second instillation if this first attempt was unsuccessful

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## Instilling

- At home you can reseal the syringe for reuse up to 24 hours if it was not contaminated
- In the hospital syringes should be discarded after each use
- Only instill with provided pre-packed normal saline syringes or bullets



## Summary:

- This module has provided a basic introduction of trach care and suctioning skills to care for your child's trach
- If you have concerns or questions, please talk to your healthcare team