

Tracheostomy and Ventilator Education Program

Module 7: Emergencies

Disclaimer

This material is intended for use by trained family members and caregivers of children with tracheostomies who are patients at the Alberta Children's Hospital. Although reasonable efforts were made to confirm the accuracy of the information, Alberta Health Services does not make any representation or warranty, express, implied or statutory, as to the accuracy, reliability, completeness, applicability or fitness for a particular purpose of such information. This material is not a substitute for the advice of a qualified health professional, so please seek medical advice from an appropriate health professional for questions regarding the care and treatment of any patient. Alberta Health Services expressly disclaims all liability for the use of these materials, and for any claims, actions, demands or suits arising from such use.

Objectives:

- An introduction about trach emergencies that may occur at home and in the community



Planning and preparing

Having a child with a trach in the community has an associated level of risk where there is a potential for harm, injury, or death because of the trach

- Learning how to anticipate, plan, and prepare for such events and how to deal with them will help reduce the chances of an emergency occurring and the impacts of an emergency should one occur

Planning and preparing

- **ALWAYS** check your emergency kit supplies to make sure they are updated and stocked
- Have a plan for back up power in case the power goes out in your home:
 - Your health care team will notify your power company because your child is power dependent
 - Keep a flashlight with fresh batteries near your child at home
 - Have a plan if the power is going to be out for long periods of time

Planning and preparing

- Have a plan for communication if your phone is not working – an extra phone, phone battery, or access to a neighbor's phone would be helpful
- Talk to your health care team about planning for transportation in inclement weather and how to prepare for that
- Check your smoke and carbon monoxide detectors regularly
- Make an emergency plan with your whole family so everyone knows what to expect in the case of an emergency

Types of emergencies

Any emergency can occur at any time from having a flat tire to being exposed to Covid

Children with trachs may experience emergencies due to their trach or equipment:

- Not having emergency kit/equipment when you need it
- Dead batteries on the suction or the ventilator
- No equipment or supplies when needed
- Illness
- Trach emergencies (trach coming out or becoming blocked), respiratory distress, needing CPR)

Being prepared for emergencies

Being prepared means knowing your child's baseline, knowing what you have, knowing how to use it, and knowing when to get help

For your **“BEST”** day with your trached child, **ALWAYS**:

- **B**: Check your child's baseline and breathing ✓
- **E**: Check your emergency equipment in case you need it ✓
- **S**: Check your suction equipment in case you need it ✓
- **T**: Check your child's ties for tightness and safety ✓

Taking 5 minutes to check BEST will save the day!



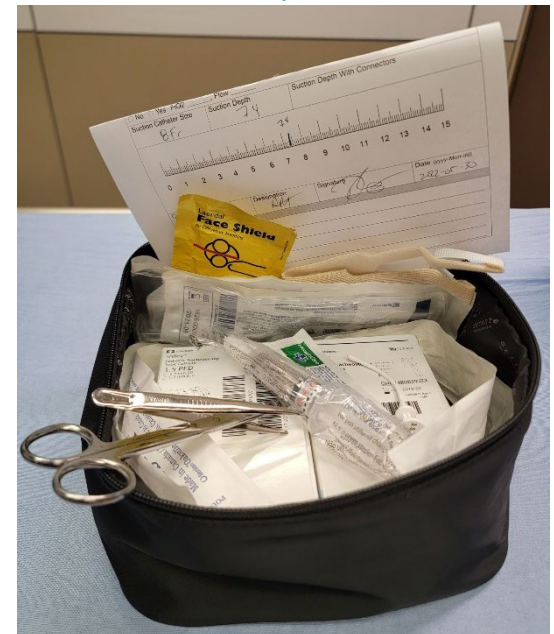
Not having emergency kit/equipment when you need it:

To prevent this from happening:

- Always make sure your child and their emergency kit are always together
- Always check your emergency kit/supplies daily

FAMILY Emergency Kit (MUST be with your child at all times):

- Obturator from current tracheostomy tube (in a plastic bag)
- 2 extra tracheostomy tubes (current size and one size smaller)
- Trach ties
- 2 Suction catheters (current size)
- Sterile Normal Saline syringes for instillation
- Scissors and Tweezers or Forceps
- Sterile water soluble lubricant
- Hand sanitizer and disposable gloves
- Barrier device
- Delee (mouth) emergency suction
- **Suction depth measurement guide**



FAMILY MUST keep with their child's Emergency Kit:

- Fully charged suction machine, charger, and suction supplies (including water and cups for rinsing catheters)
- Trach dressings, cotton tipped applicators, alcohol swabs
- HMEs as appropriate
- Trach information, Emergency algorithms
- Contact information – Family, Health Care Team, Emergency
- We recommend having access to a phone at all times

FAMILY SHOULD also have as supplies at home:

Fully charged second suction machine and charger, suction filters, canisters, and tubings

IF VENTILATED: FAMILY MUST also have:

Ventilator charger, spare circuit, spare connectors, ventilator settings, ROP contact information, and a bagger with mask/connector along with their child's Emergency Kit
Second ventilator and charger, spare circuits, spare connectors, humidifier supplies, HME's as supplies at home

If your child requires Oxygen, having extra Oxygen supplies as appropriate for your child (tubing, connectors) would be helpful

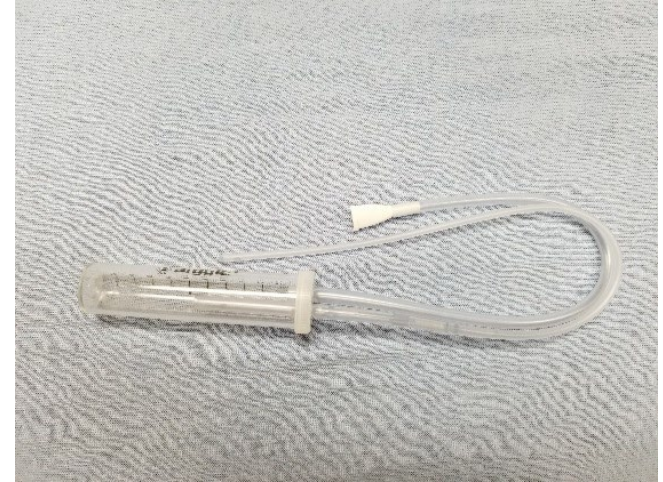
Dead batteries: portable suction unit

- Always confirm that your portable suction unit is fully plugged in and charging whenever possible
- Check your portable suction unit before you go anywhere to assess how much battery power you have
- You have a car charger for your portable suction in the travel bag



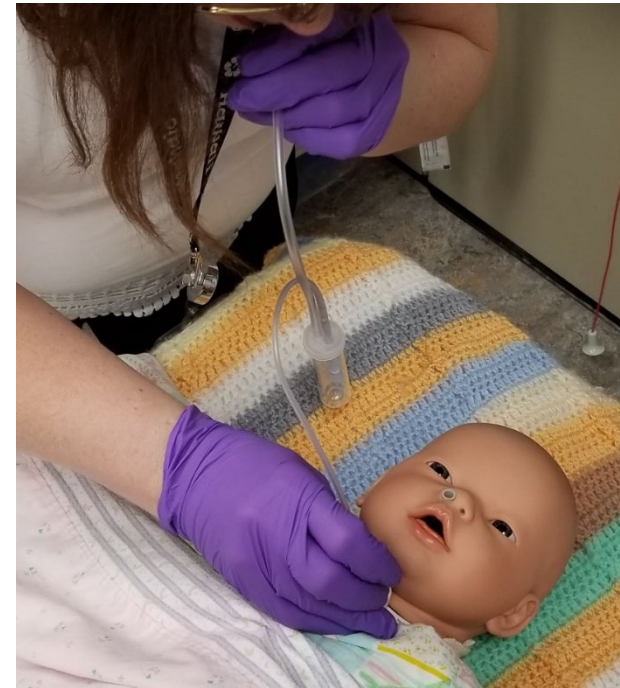
Delee (mouth) emergency suction

- If your regular suction unit is not working, you can use this device as an emergency substitute for powered suction
 - It is not as strong as powered suction, but will work in the case of an emergency + one time use only
 - Remove the unit from the package
 - Lubricate the suction catheter in water and measure for your child's depth
 - Put the catheter into your child's trach tube to the correct depth
-



Delee (mouth) emergency suction

- Put the mouthpiece attachment into your mouth and suck in like a straw while holding the mucus trap attachment upright
 - You will see secretions fill into the mucus trap - stop suctioning after 5 seconds like normal suctioning
 - You can repeat this again if needed
 - This suction unit does not hold a lot of fluid, so you will have to empty it once you have suctioned and rinsed distilled water through the unit if you need to continue suctioning
-



If you have to use your emergency suction unit, talk to your case manager about getting a replacement for your emergency kit!

Dead batteries: ventilators

Always bring your ventilator plug-in with you to charge when you can!

- Always confirm that both ventilators, the portable and stationary, are fully plugged in and charging at all times
- Check your portable ventilator before you go anywhere to assess how much battery power you have
- You can also take the detachable battery from your stationary vent with you for 3 extra hours of power

Battery power readout



Detachable battery



No equipment or supplies

- **ALWAYS** check your emergency kit = **every day every time**
- Keep your equipment and supplies stored in an orderly manner to make it easy to see when you are running low
- Plan to check your equipment and supplies on a schedule and use a whiteboard to track your stock
- Contact your Home Care team for supplies as soon as you need them
- Contact your Respiratory Vendor for trachs as soon as you know you need to order another one
- Contact ROP for supplies as needed

Illness

- Use your assessment skills with your child so you know when they are not at their baseline
- Call your Home Care team for illness management advice
 - They may ask you to get a secretion sample (they will show you how to do this before you go home)
 - They may get medications sent to your pharmacy for your child
 - They may tell you to come to hospital
- Your team will help you support your child at home if they are mildly ill
- If you do bring your child to hospital, bring your emergency kit, suction, and other equipment if needed

Trach emergencies (trach coming out or becoming blocked), respiratory distress, needing CPR)

In order to prevent trach emergencies like this, **PLANNED** trach changes occur regularly (monthly) to keep the trach clean and safe

- To prevent gradual mucus build-up inside the tube
- To meet manufacturer's guidelines
- To maintain cleanliness

With a planned trach change, you will be able to organize your supplies and equipment ahead of time

Trach emergencies (trach coming out or becoming blocked), respiratory distress, needing CPR)

A trach change that is **UNPLANNED** is when you have to replace/change a tube:

- The tube is obstructed and you cannot clear the obstruction
- The tube needs to be changed because it is dislodged
- These tube changes are emergency situations that you have practiced and prepared for in advance
- You will **NOT** be able to organize your supplies and equipment ahead of time – this is why your emergency supplies need to be checked regularly and should always be with your child

Trach change

Any trach change - **PLANNED** or **UNPLANNED** - is the same:

- You checked **BEST** beforehand, so you know you have the equipment and supplies you need
- You know your child
- You have performed a **PLANNED** trach change before

PLANNED trach change

A **PLANNED** trach change:

- You have an extra person
- You position your child either sitting or with a shoulder roll to optimize airway positioning
- You use videos or music to distract your child and keep them still during the trach change
- You check your suction machine and have suction set up and ready to go
- You check your emergency equipment is available

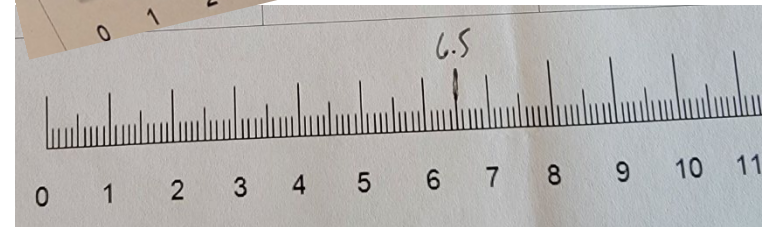
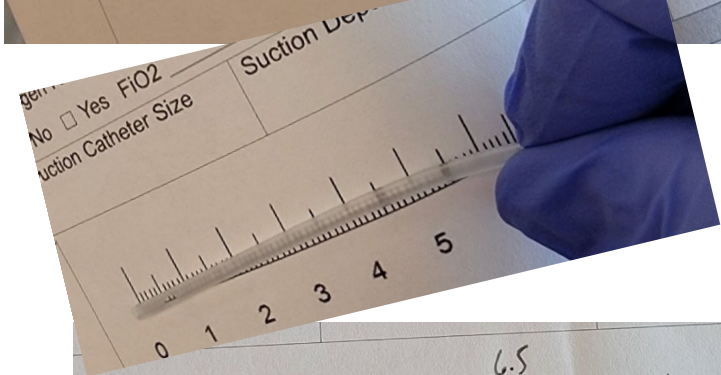
PLANNED trach change

- Prepare new tracheostomy tube:
 - Choose the correct size/type of tube
 - Using gloved hands, cleanly open new trach tube
 - Save label for tube information



PLANNED trach change

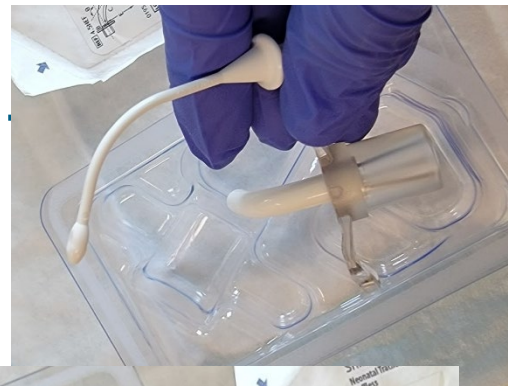
- Use a clean suction catheter to carefully measure the new suction depth for this new tube and include extra 5 mm to clear end of the tube
- Measure with a vent connector for the second measurement if needed
- Record suction depth and new tube information on new suction measuring guide



Even if the tube is exactly the same size, we always recommend that you measure suction depth each time and track your trach changes!

PLANNED trach change

- Inspect the new tube
- Insert the obturator
- Attach a prepared tie to one side of tube flange
- Lubricate the tube end
- Place tube back cleanly inside the plastic container of the trach box to keep it clean



PLANNED trach change

- Suction prior if needed
- Position your child so you have good access to their neck – shoulder roll if needed
- Position yourself and your second person to help you
- While you secure the old tube, have your second person undo the old tube's ties and remove the dressing
- Gently but quickly remove old tube with an outward and slightly curved motion
- Gently but quickly put the new prepared tube in with a downward curving motion



PLANNED trach change

- Immediately remove the obturator while holding tube securely
- If you are unable to insert the same size tube – follow your **Emergency Algorithms**
- Let your child take a breath
- Secure the tie with your second person around the neck while holding the tube securely
- Check the tie tightness and positioning
- Perform trach care and suctioning as needed afterwards
- 15 minutes afterwards, re-check pinkie tightness



UNPLANNED trach change

An **UNPLANNED** trach change:

- It is unexpected and may be because you have an obstructed tube you have tried to clear without success or the tube has come out
- You may not have an extra person
- You will not have optimal positioning or time to prep
- You know you have done your **BEST**
- You know you have done a **PLANNED** trach change before

UNPLANNED trach change

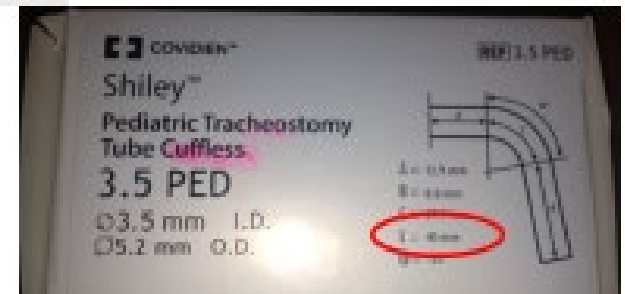
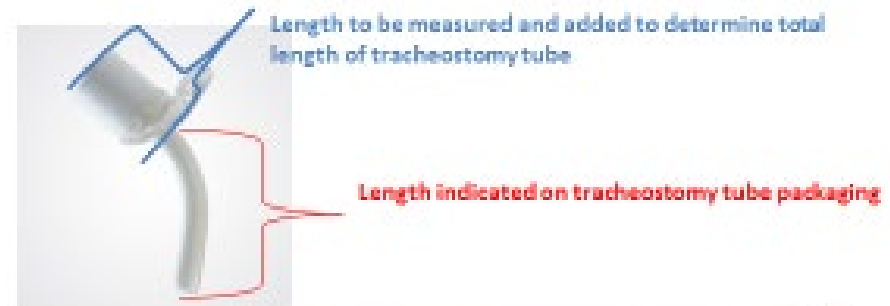
- Be safe, clean, fast - clean your hands quickly with hand sanitizer and prepare the necessary equipment and supplies as quickly as you can
- Get help if you can and call **911** if you need them
- You need your suction ready to go and a new tube from your emergency kit prepared with the obturator inside and water soluble lubricant on it
- Get new ties out if you have time, use the old ones if you don't

UNPLANNED trach change

- You should always be assessing your child – if they lose consciousness or stop breathing at any time, you will need to call **911** and start rescue breathing and CPR

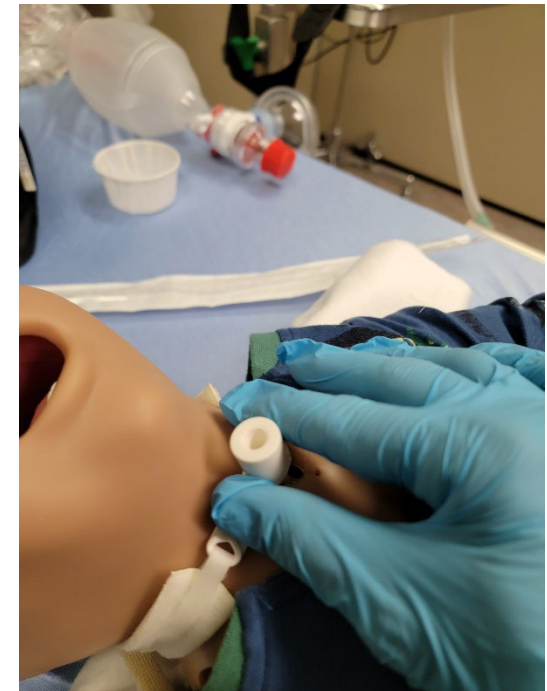
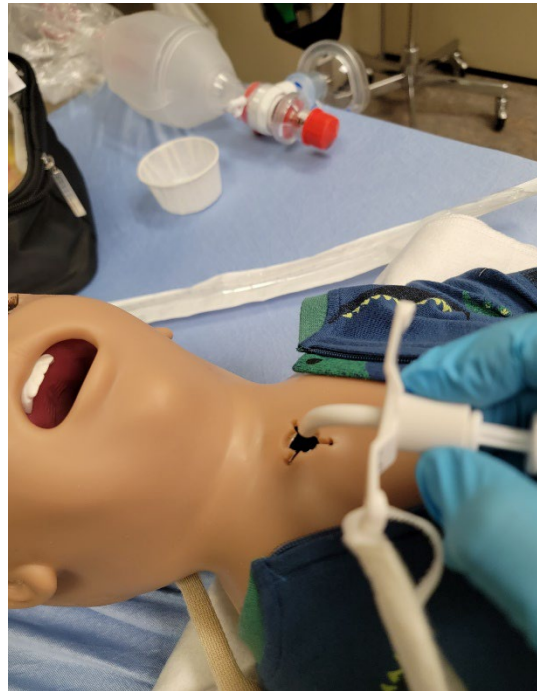
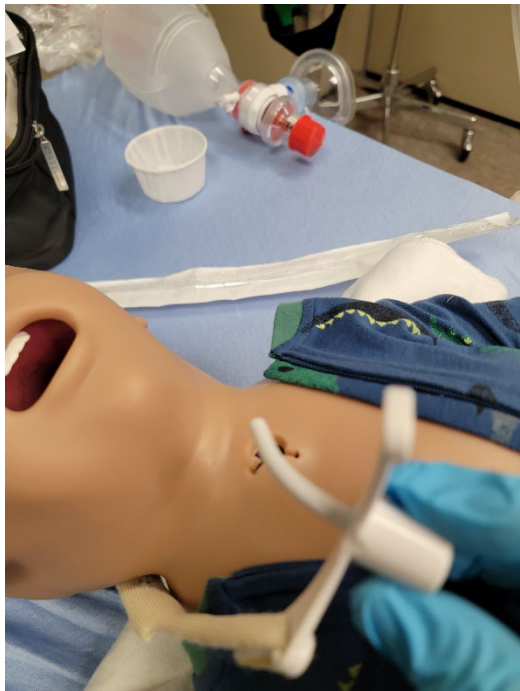
**OLD TUBE OUT → NEW TUBE IN → OBTURATOR OUT →
ASSESS YOUR CHILD → TIES → ASSESS YOUR CHILD**

If your emergency trachs are not the same brand as your child's – remember the suction depth might be different = quickly refer to the measurements on the box for the trach and add the connector length to that number



UNPLANNED trach change

OLD TUBE OUT → NEW TUBE IN → OBTURATOR OUT →
ASSESS YOUR CHILD → TIES → ASSESS YOUR CHILD



Trach changes

With any trach change:

- First insertion should go in if you have the neck positioned forward
- The tube should follow the curve of the previous tube and go in easily
- If the first attempt does not go in:
 - Reposition the child, neck forward, and try again
- If the second attempt does not go in:
 - Reposition the child, neck forward, and try again but this time - try inserting the trach from the side of the stoma and turning it as you insert into proper position (sometimes there is some swelling on the stoma that this might bypass)

Trach changes

- If the third attempt does not go in:
 - Assess your child and try again the same 3 times with the smaller trach
 - You should always be assessing your child – if they lose consciousness or stop breathing at any time, you will need to call **911** and start rescue breathing and CPR

Emergency algorithms

You have 3 Community Emergency Algorithms to refer to in the case of an emergency with your child's trach:

- Emergency Obstructed/Blocked Trach
 - Emergency Dislodged Trach
 - Emergency Trach Change
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- All 3 algorithms begin with the following instructions:

At any time a child is unresponsive - CALL 911!

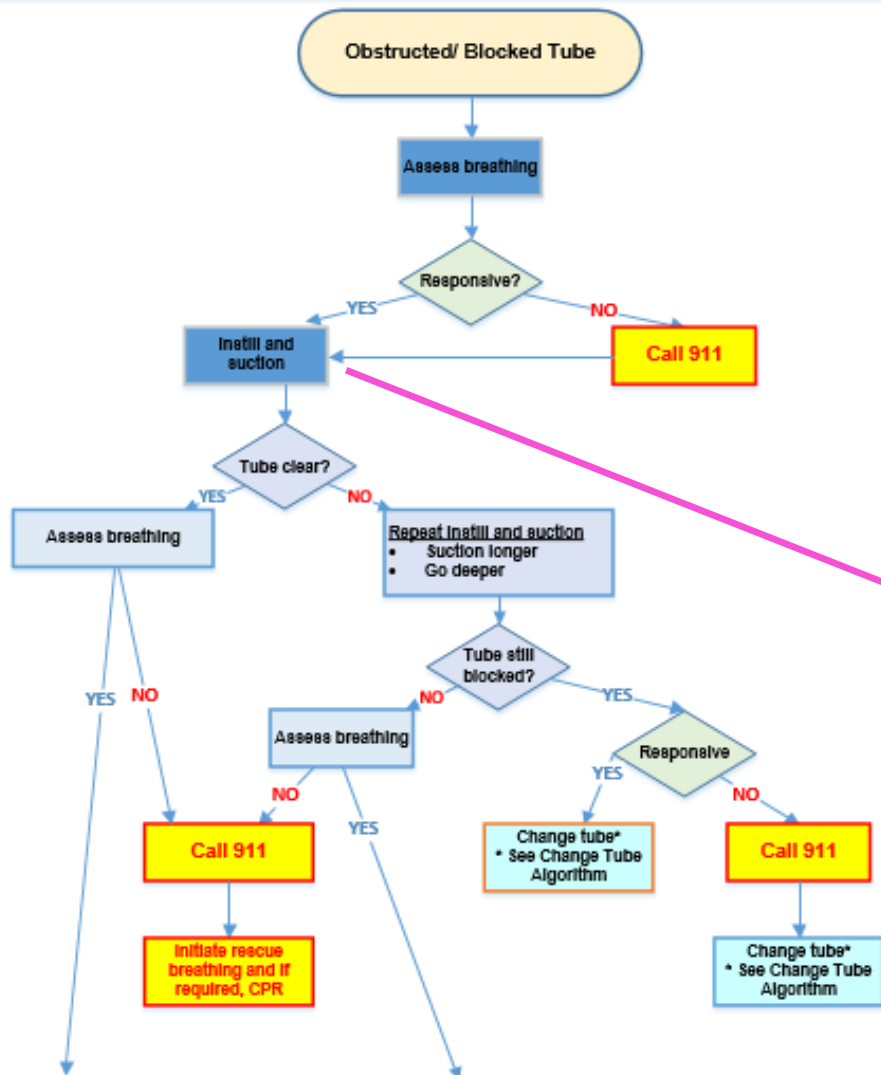
Advise 911 that the child has an airway emergency, a tracheostomy tube change is in progress, and your location. Initiate rescue breathing as required.

Community Emergency Intervention: Tracheostomy Tube Obstruction/Blockage

Alberta Children's Hospital Complex Airway Clinic – Updated 05- 2021

At any time a child is unresponsive - CALL 911!

Advise 911 that the child has an airway emergency, a tracheostomy tube change is in progress, and your location. Initiate rescue breathing as required.



Notify Respiriologist

No Problems

Call the Complex Airway Clinic Nurse between 8 am and 4 pm Monday to Friday at 403-943-1790

Problems? Concerns? After Clinic Hours?

Call the Alberta Children's Hospital switchboard at 403-955-7211 and ask for the Respiriologist on Call to be paged

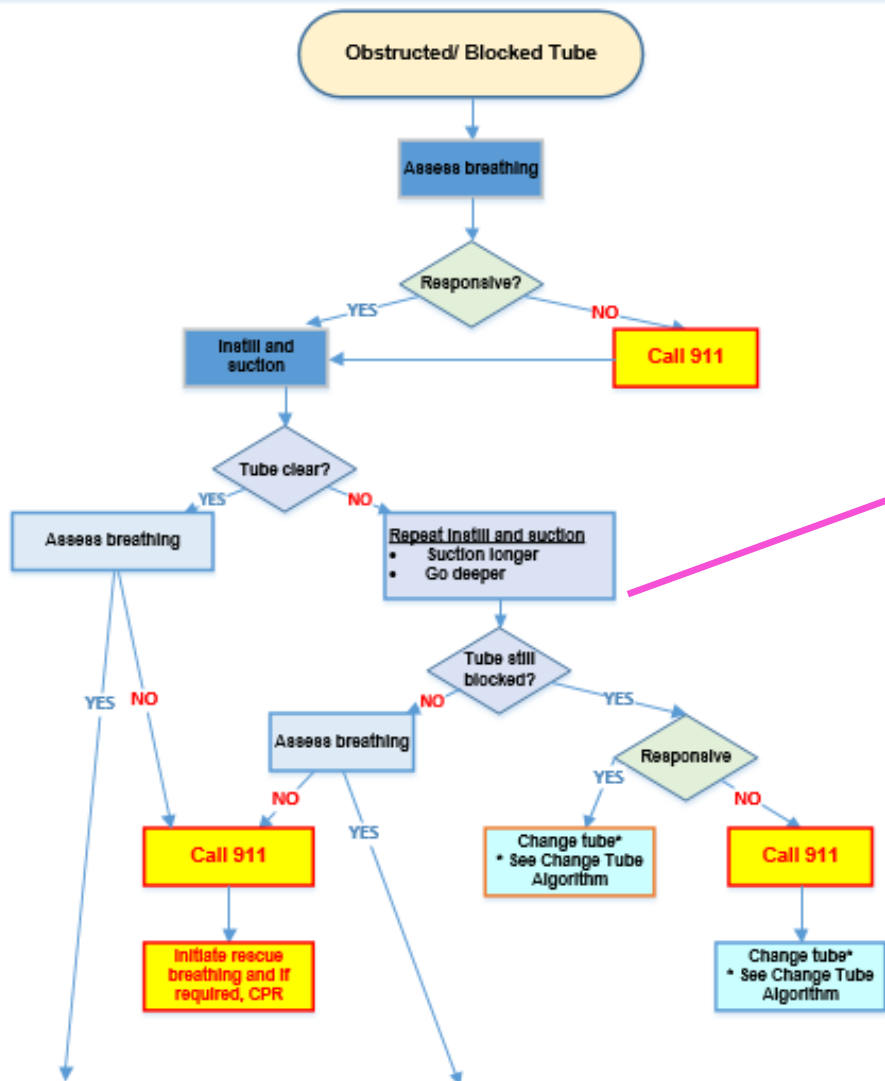
- If you think you are dealing with an obstructed or blocked tube – get help at home if you can and call **911** if you need to
- Be safe, clean, fast - clean your hands quickly with hand sanitizer and prepare the necessary equipment and supplies as quickly as you can
- If your child is breathing and responsive, you can try an instill followed immediately by a suction

Community Emergency Intervention: Tracheostomy Tube Obstruction/Blockage

Alberta Children's Hospital Complex Airway Clinic – Updated 05- 2021

At any time a child is unresponsive - CALL 911!

Advise 911 that the child has an airway emergency, a tracheostomy tube change is in progress, and your location. Initiate rescue breathing as required.



- If your child is responsive but you have not cleared the obstruction, you can try a second instill followed immediately by a suction
 - This time you can suction longer for up to 20 seconds and you can go 0.5 cm deeper than your child's regular suction depth to try and clear the obstruction
- If your child is still responsive and breathing but you have not cleared the obstruction, change the trach tube following the **Tube Change Algorithm**

Notify Respirologist

No Problems

Call the Complex Airway Clinic Nurse between 8 am and 4 pm Monday to Friday at 403-943-1790

Problems? Concerns? After Clinic Hours?

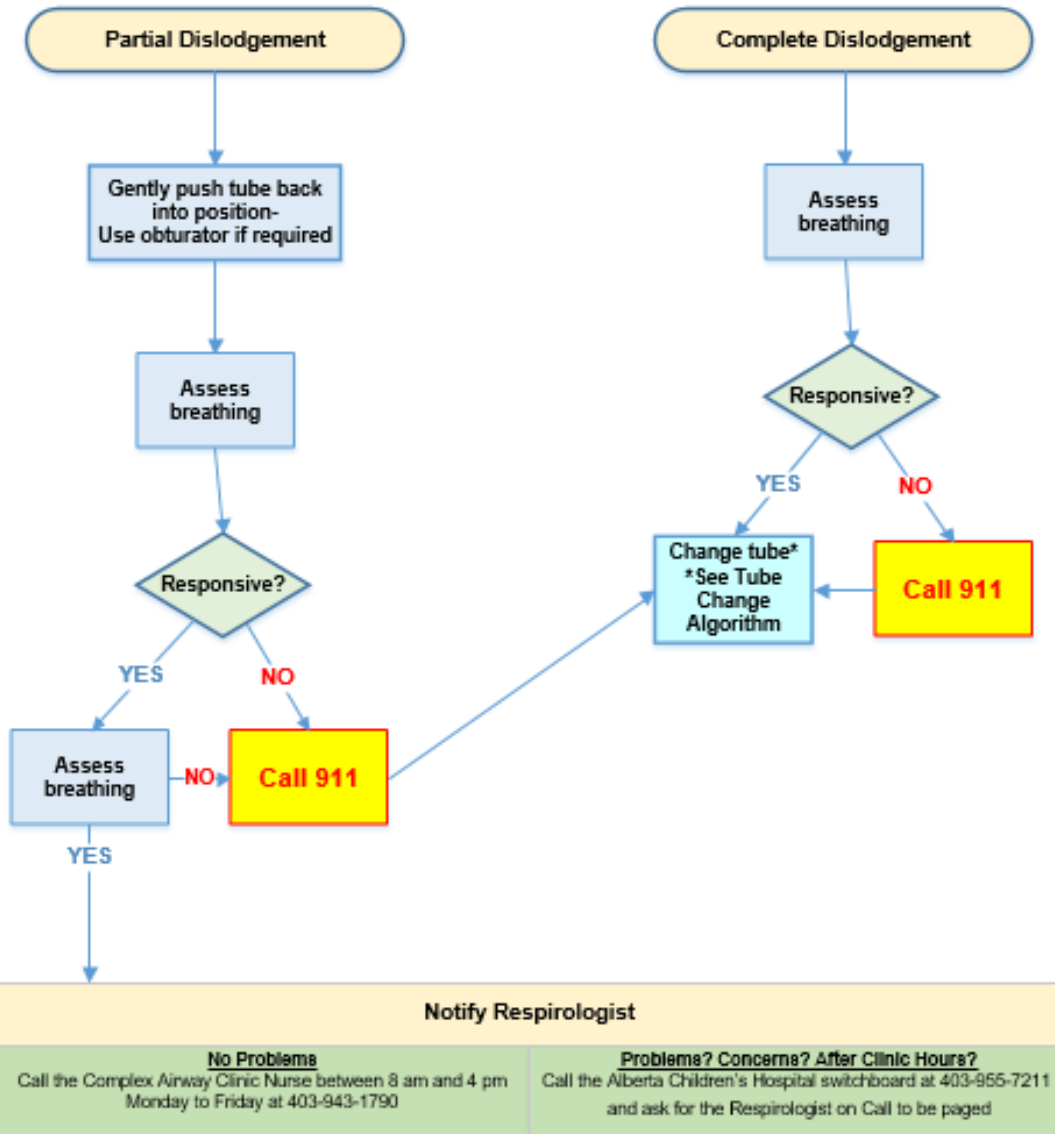
Call the Alberta Children's Hospital switchboard at 403-955-7211 and ask for the Respirologist on Call to be paged

Community Emergency Intervention: Tracheostomy Tube Dislodgement

Alberta Children's Hospital Complex Airway Clinic – Updated 09-2021

At any time a child is unresponsive - CALL 911!

Advise 911 that the child has an airway emergency, a tracheostomy tube change is in progress, and your location. Initiate rescue breathing as required.



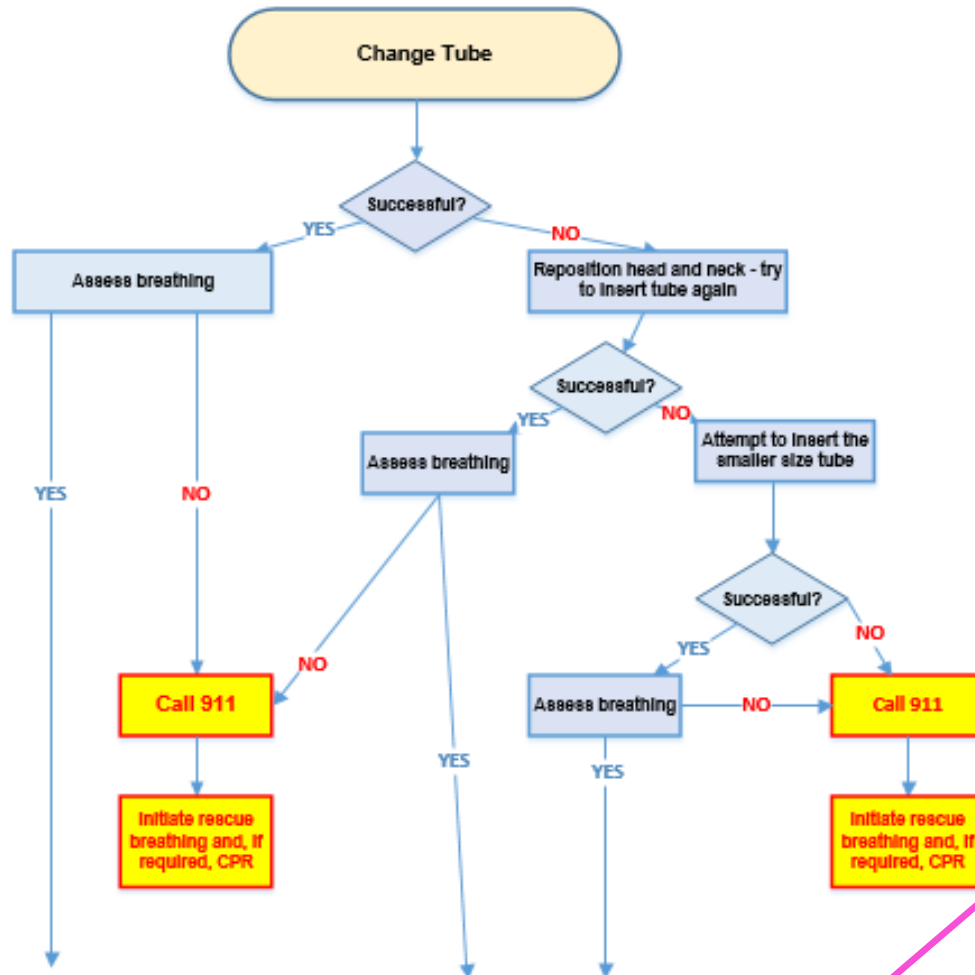
- If the tube is partially out and the end of the tube is still in the stoma, you can gently guide it back with place with/without your obturator
- If the tube is fully out, change the trach tube following the **Tube Change Algorithm**

Community Emergency Intervention: Tracheostomy Tube Change

Alberta Children's Hospital Complex Airway Clinic – Updated 09-2021

At any time a child is unresponsive - CALL 911!

Advise 911 that the child has an airway emergency, a tracheostomy tube change is in progress, and your location. Initiate rescue breathing as required.



Notify Respiriologist

No Problems

Call the Complex Airway Clinic Nurse between 8 am and 4 pm Monday to Friday at 403-943-1790

Problems? Concerns? After Clinic Hours?

Call the Alberta Children's Hospital switchboard at 403-965-7211 and ask for the Respiriologist on Call to be paged

**OLD TUBE OUT → NEW TUBE IN →
OBTURATOR OUT → ASSESS
YOUR CHILD → TIES → ASSESS
YOUR CHILD**

- No matter what situation you are dealing with – a blocked trach, a dislodged trach, or a trach change - you should always be assessing your child – if they lose consciousness or stop breathing at any time, you will need to call **911** and start rescue breathing and CPR
- Following any of the emergency algorithms will lead you to:
A solution to the emergency you are dealing with **OR**
A **911** call and advanced life support to help you

Emergency algorithms

Notify Respiriologist	
No Problems Call the Complex Airway Clinic Nurse between 8 am and 4 pm Monday to Friday at 403-943-1790	Problems? Concerns? After Clinic Hours? Call the Alberta Children's Hospital switchboard at 403-965-7211 and ask for the Respiriologist on Call to be paged

Notify Respiriologist:

- This mean that you have access 24 hours a day to contact a Respiriologist either through the Complex Airway Services phone number or through the main ACH Hospital switchboard number – you will be able to get clinical guidance and advice
- You can also contact a Complex Airway Nurse Case Manager or a Respiriologist to advise you on illness management as well

Trach tube changes

- Any trach tube change for any reason may lead to increased secretions over the next few hours due to irritation of the airway
- Any trach tube change can also lead to pink tinged secretions after the change because of irritation of the airway by the friction of removing and reinserting the tubes

CPR

- Cardiopulmonary resuscitation is how we can help improve survival when someone's heart has stopped or is not pumping well with chest pushes (compressions) and helping with their breathing (rescue breathing)
- We will review the basic procedures of CPR because your child has a trach – your child may never need CPR but it is important to know what to do
- This is not a certification course and we recommend that you and your family take CPR on a regular basis
- We will focus on the breathing part of CPR because they do not teach how to provide breathe with a trach tube in place

CPR

- CPR means being safe, knowing when someone needs help, calling **911**, and providing chest pushes and breaths as best you can until Emergency Medical Services (EMS) can take over for you
 - We start CPR as soon as possible to improve blood flow to the brain and organs
 - EMS can provide advanced life support and defibrillation and transport to hospital for stabilization
 - The hospital can provide post arrest care and support

CPR

- You may be afraid to give chest pushes and breaths because you are worried you won't do it right or might hurt your child
- It is better to call **911** and have them help you with CPR than to not try
- You have done a trach change and you know your child
 - Follow your **Emergency Algorithms**
 - Have **911** on speaker to help you
 - Always remember why your child has this trach (can they breathe on their own, can they breathe through their upper airway or not)
 - Remember how to assess your child:
 - Respiratory effort, color, responsiveness

CPR breaths

- **911** will help:
 - If your child has a pulse but is not breathing, you can give them rescue breaths – 1 breath every 3-5 seconds
 - If your child needs chest pushes and breaths, you give them 2 breaths between chest pushes
- Always try to position your child on a flat surface with their head tilted back and their chin lifted for the best airway position
- Breaths should be provided gently over 1 second while you watch for good chest rise with each breath
- If there is no chest rise, you can try to reposition the head

CPR breaths with a trach

- If your child has a tracheostomy tube and can breathe on their own normally – you will not have a bagging unit
- To provide rescue breaths for your child:
 - If they have a normal upper airway, you can provide breaths by mouth to mouth while blocking the tracheostomy tube/stoma with a gloved thumb/finger OR by mouth to tracheostomy tube/ stoma while blocking the mouth and nose as you have been instructed
 - If they do not have a normal upper airway, you can provide breaths by mouth to tracheostomy tube/stoma as you have been instructed

CPR breaths with a trach

- If your child has a tracheostomy tube and is ventilated – you will have a bagging unit
- To provide rescue breaths for your child:
 - Connect the bagging unit to the tracheostomy tube and ventilate by squeezing the bag gently as you have been instructed
 - If the tracheostomy tube is not in place, you can provide rescue breaths by holding the connector with a mask tightly over the stoma to create a seal for the breaths or over the face while blocking the stoma with a gloved finger or thumb as you have been instructed
 - You can provide mouth to tracheostomy tube/stoma as well if you can't use or find your bagging unit



CPR breaths with a trach

- You can use a barrier device to give your child rescue breaths to prevent direct contact with exhaled air or discharge from the stoma
- Your barrier will either be a plastic filter that you can connect to the trach or to a mask OR a folded one that you can use on both that you may need to trim to size



CPR

- Chest pushes and breaths together help pump blood to the brain and organs until EMS can help
- The following Laerdal videos are up to date for how to perform CPR and we will watch together to review for your child and their airway needs (click Browse Youtube)

[Family & Friends CPR – YouTube](#) (times 24:23 to 53:23 for child/53:25 to 1:23 for infant)

[Infant CPR 105 English – YouTube](#)

EMS

- Emergency medical services will follow their protocols and procedures when caring for your child
- Some children will have special protocols for EMS that will help them care for their specific needs – not every child has or needs these specialized treatment protocols
- If your child has one, you will learn about it and how to help EMS with your child
- They will ask for information – you are the expert in your child so tell them what's important

Emergencies

- In the case of an emergency, you will be able to provide CPR to your child if required
- Always call **911** when you have an emergency where you will need help
- Always follow **BEST**
- Always check your emergency supplies
- Always have a fully charged phone ready for emergencies
- Review your **Emergency Algorithms** and be prepared

Summary:

- This module has provided a basic introduction to the some of the trach emergencies that may occur with a child who has a trach
- If you have concerns or questions, please talk to your healthcare team