Tracheostomy and Ventilator Education Program
Module 6: Suctioning
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.
Suctioning

• A basic introduction about the principles of suctioning

• Suctioning is when we use a tube to clear secretions like mucus from the trach tube, mouth and nose

• Secretions is a term for what we suction – mucus, sputum, saliva
Secretions

• Secretions are mucus and saliva mixed with cellular debris
• Saliva is the thin watery fluid that moisturizes our oral cavity and our tongues
• Mucus is a clear watery substance produced by the mucous membranes of our lungs
  o Mucus helps humidify the dry air that we breathe in
  o Mucus helps get rid of dust particles, bacteria, and other inhaled debris in our lungs
  o Mucus is moved by finger-like projections called cilia out of the lungs, through our larger airways, and up into our mouths and noses
• We clear secretions by blowing our noses, coughing, or swallowing them
Secretions with a Trach

• With a trach tube in place, the upward movement of secretions can be affected because of the trach tube sitting in the airway
• This can lead to secretions building up in and around the tube
• Sometimes children with trachs have good strong coughs and can clear their secretions well
• Sometimes some children can’t clear their secretions with coughing alone – that’s when we can help with suctioning
• Your child with a trach may not be able to clear their secretions well because:
  o They may have an infection that is creating more secretions
  o They may have a diagnosis that affects how mobile their secretions is or how strong their cough is
Suctioning

• Suctioning helps clear secretions from the airway
• Suctioning helps the trach tube stay clear and prevent secretions from building up and plugging the tube
• Your health care team will help you learn about how and when to suction
• Knowing your child will help you understand the signs of when they need suctioning
Suctioning

• You can see, feel and hear when your child needs to be suctioned
• Some signs that may mean suctioning is needed:
  o Secretions that you can hear or see bubbling from the trach
  o Seeing that your child’s respiratory effort has increased
  o Feeling “rattling” inside the chest
  o Seeing that your child is becoming irritable or restless
  o Your child is coughing more
Suctioning

• Suctioning may also be needed:
  o If you think your child may have aspirated (breathed in) any liquids, foods, or other objects
  o After any episode of vomiting
  o Before or after your child has been asleep
  o If they show signs of needing suctioning around eating
  o After any activity that may stimulate your child to cough like running and playing

7/30/2018
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
Suction Equipment

- Your health care team will help arrange for your respiratory vendor to provide you with a portable suction machine to go home with – with funding from AADL
- Your machine will come with a carrying bag, filters, and chargers
- In the home, some of your supplies will be provided for you by Pediatric Home Care and some you will be responsible for
- You should be able to apply for 1 portable and 1 stationary unit for suction
Suctioning Technique

• The suction technique (sterile or clean) may differ between different settings due to varying 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
  o PICU staff perform all sterile suctioning
• Clean technique is used once your child has their first trach change and their stoma has adequately healed
  o Staff will support you to perform clean suctioning when your child is stable enough for you to provide their care
Suctioning – Infection Prevention

• Good hand washing should always be performed before and after suctioning, regardless of where it is performed
• In the hospital, gloves are worn and the suction catheter is thrown away after each suction event
• You may be advised by staff that additional personal protective equipment, such as gowns or masks, must be worn
• In the home:
  o You can decide whether you use gloves or not when suctioning
  o All non-family caregivers are required to wear gloves when suctioning
  o Suction catheters are cleaned and reused
  o Currently families are funded for 2 catheters / 24 hours through AADL
Suctioning Technique

- You will be shown how to suction tracheally
- You may be shown how to suction the mouth and nose depending on your child’s needs
- Different supplies are used to suction the mouth and nose
- Never use your tracheal suction catheter to suction the mouth and nose
- Secretions from the mouth and nose may carry bacteria that shouldn’t be introduced into the lungs
Suctioning Supplies

- Gloves if indicated
- Suction machine or wall suction in the hospital
- Measuring guide for suction depth
- Suction catheters – correct size for your child
- Distilled water (for home)
- Cups
- Sterile normal saline for instillation
- Tissues to wipe secretions away if coughed up
- Alcohol swabs
- Oral/nasal suction device, if indicated

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
DISTILLED H2O
Getting Ready for Suctioning

- Always wash your hands and wear gloves if indicated
- Fill your cup with water – you will use this to lubricate/rinse your catheter
- Confirm catheter size – you will have the size that best fits your child’s trach tube
- Connect your catheter to the suction tubing, keeping the catheter in the paper sleeve to keep it clean
- Turn on your suction and confirm the amount of suction pressure – it should be in the range of 100 mmHg on the gauge
- Most suction units are in mmHg, but you may see 100 cmH20 or 4 inHg
Checking Suction Pressure

Photo Used with Permission, JD 2017
Getting Ready for Suctioning

• Check suction depth:
  o We always measure how deep we suction by the measuring guide for your child even though the catheters have numbers on them
  o Each trach tube has a different depth and we only want to suction just past the tip of this tube to collect secretions
  o Suctioning too deep can cause injury and damage to the carina and can lead to bleeding
  o Suctioning too shallow will not clear the secretions effectively and can affect the patency of the tube
Your child may need to be suctioned from the trach connector directly or through a trach/vent connector if they are ventilated.

Your health care team will help you with the depth required for your child.

### Suction Depth Guide

<table>
<thead>
<tr>
<th>Suction Catheter Size</th>
<th>Suction Depth</th>
<th>Suction Depth With Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your child’s size</td>
<td>Your child’s suction depth to the trach connector</td>
<td>Your child’s suction depth to the trach/vent connector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
</table>

7/30/2018
Suction Depth Guide

• Always measure suction depth by the measuring guide even though there are markings on the suction catheter – they may not be accurate

• Measure from the trach tube connector and/or from the trach/vent connector
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
Tracheal Suctioning

- Put your thumb over the thumb port to apply suction and start withdrawing and rotating the catheter at the same time.
- 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.
- Suctioning should not take longer than 5 seconds once the catheter is in the tube.
Tracheal Suctioning

Thumb off  NO SUCTION

Thumb on  SUCTION ON

Children's Home Care Edmonton Zone 2016, Used with Permission
Suctioning
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 (more on this later...).
- Rinse water through the catheter to clean it out and suction again if you need to, 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, wipe the catheter once with an alcohol swab and place back in the paper sleeve to use again (for home).
What to Look For When Suctioning

• 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:
  o Amount - how much was suctioned compared to your child’s normal amount
  o Colour - what colour the mucus is
  o Odour – do the secretions have a smell
  o Consistency - how thick are the secretions

• Always keep track of how many passes it takes to suction and how many times you are suctioning every day
Normal Secretions

- The amount is usually small to moderate
- The colour is usually clear to white
- There is usually no odour
- The consistency is usually thin and watery
Instillation

• Instilling means to insert sterile normal saline into the tracheostomy tube
• Instillation is not routine
• You can instill to help clear an obstructed or plugged tube
• Sometimes instillation can help to stimulate a cough or help thin thick secretions
• Our bodies can absorb normal saline because it has the same salt content as we do
Instillation

• Your sterile normal saline will come in a sterile pre-filled syringe or bullet
• You will have a physician’s order for the amount of normal saline to use for your child as an order – amounts are usually:
  o 0.5 – 1.0 ml for less than 1 year old
  o 0.5 – 3.0 ml for 1 – 12 year olds
  o 0.5 – 5.0 ml for 13 – 18 year olds
• Always follow your physician’s orders
Instillation

- 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.
- 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.
Instillation

- If you instill on exhalation, the saline will not go into the trachea
- At home you can reseal the syringe for reuse up to 24 hours – then it needs to be discarded
- In the hospital syringes should be discarded after each use
- Only instill with provided pre-packed normal saline syringes or bullets
Oral/Nasal Suctioning

- If your child needs secretions removed from their mouth and nose, you can suction there as well.
- Different supplies are used to suction the mouth and nose.
- Never use the catheter you used 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.
Oral/Nasal Suctioning

- Check your suction pressure – it should be the same as for tracheal suctioning
- Connect your device to the suction tubing
- Dip your device tip in the water and apply suction to rinse and lubricate it
- Gently put the device tip into the nose or the mouth (be careful to only insert the tip)
- Put your thumb over the thumb port to apply suction
- You can repeat this as needed
- Once you are done suctioning, rinse water through the device to clean it out and then wipe once with an alcohol swab and place back in the sleeve to use again (for home)
Suctioning

• Your health care team will help you learn about when your child needs suctioning and how to suction

• It is important to remember that suctioning is a part of your child’s health care routine that will help keep them healthy