

# **A Handbook for the Home Care of Your Child with a Tracheostomy**





# Table of Contents

<b>Foreword</b>	<b>2</b>
<b>What Is a Tracheostomy?</b>	<b>3</b>
Why Does My Child Have a Tracheostomy?	3
How Do We Breathe Normally?	3
How Does the Respiratory System Work?	3
What Makes Breathing with a Tracheostomy Different?	4
<b>Types of Tracheostomy Tubes</b>	<b>5</b>
Materials	5
Sizes	6
Cuffed and Uncuffed Tubes	7
<b>Tracheostomy Care for your Child</b>	<b>8</b>
Skin and Stoma Care	8
Humidification	11
Loosening and Suctioning of Secretions	11
Changing the Tracheostomy Tube	15
Emergency Care Procedure	17
<b>Special Instructions for All Portex® Bivona®</b>	
<b>Neonatal/Pediatric Tracheostomy Tubes</b>	<b>19</b>
Bivona® Fome-Cuf® Neonatal/Pediatric Tracheostomy Tubes	20
Bivona® TTS™ (tight-to-shaft) Cuffed Neonatal/Pediatric Tracheostomy Tubes	21
Bivona® Aire-Cuf® Neonatal/Pediatric Tracheostomy Tubes	22
Cleaning, Sanitizing, and Reusing Bivona® Neonatal/Pediatric Tracheostomy Tubes	22
<b>At Home with your Tracheostomy Tube:</b>	
<b>Living with a Tracheostomy</b>	<b>24</b>
Seeing a Tracheostomy Tube for the First Time	24
Getting Ready to Come Home	24
When the World Sees a Tracheostomy Tube	25
The First 24 Hours Home	26
One Final Thought	26
<b>Frequently Asked Questions</b>	<b>27</b>
<b>Telephone Numbers/Contacts</b>	<b>30</b>
<b>Glossary</b>	<b>31</b>
<b>Trademarks</b>	<b>37</b>

# Foreword

As the parent of a child with a tracheostomy, you most likely have many questions and concerns as you prepare to take your child home from the hospital. We at Smith Medical hope this booklet will answer many of these questions, help your concerns, and provide you with the information that you need to care for your child at home.

Many patients, both children and adults, care for their tracheostomies at home. They are able to resume many of their normal activities such as play, school, travel, and family interaction.

This handbook is intended to serve as a reference guide for the use and care of Portex<sup>®</sup> tracheostomy tubes. It is not intended for use with other manufacturers' tracheostomy products. In addition, this handbook is intended to help family and friends learn how to care for the patients.

**This handbook is provided as a supplemental resource only and is not intended as a complete text! You should always follow the specific policies, procedures, and recommendations of your doctor. Questions regarding your care should be directed to your doctor or home health care provider.**

**This booklet was developed in consultation with several clinicians. Special thanks to Joanna C. Maltese, BSN, RN, CORLN and Raeanne Kelly, BSN, RN, Division of Otolaryngology, Head-Neck Surgery Connecticut Children's Medical Center.**

## Disclaimer

For detailed instructions, specifications, warnings, and additional information on Smiths Medical's Portex tracheostomy tubes mentioned in this handbook please refer to the IFU's provided with that product.

# What Is a Tracheostomy?

A *tracheostomy* is a small opening through the skin and tissue into the windpipe (*trachea*) of your child. A small tube, called a *tracheostomy tube* or trach tube, is placed through this opening into the trachea to aid in the maintenance of the *airway*. Your child breathes directly through this tube, instead of through the mouth and nose.

## Why Does My Child Have a Tracheostomy?

A tracheostomy helps protect your child's airway and makes a route through which ventilation (breathing) can be provided by a machine (*ventilator*) if needed. It is sometimes needed because there is a blockage in their breathing passages or because your child's illness has caused the airway and lungs to produce secretions (*mucus*) which are too thick and can only be cleared with mechanical suction.

## How Do We Breathe Normally?

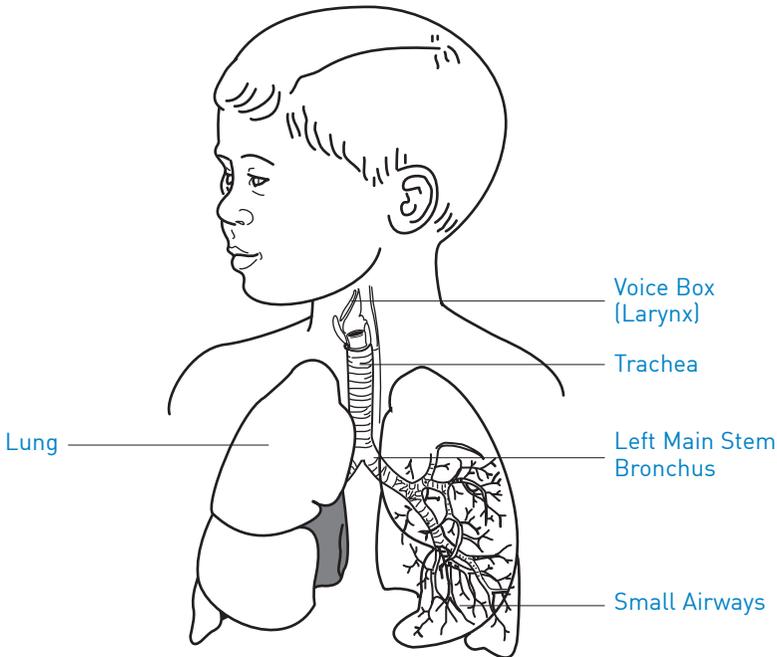
Breathing moves air in and out of our bodies. The most important gas in the air that we bring into our bodies is oxygen. The oxygen travels down our airway into the lungs where it goes into small air sacs (alveoli). The oxygen travels throughout our body and is used as an important fuel to produce energy. As oxygen is used, it makes a waste product, carbon dioxide (CO<sub>2</sub>). We get rid of CO<sub>2</sub> as we breathe out.

## How Does the Respiratory System Work?

Air enters the nose or mouth, which warms, filters, and humidifies the air. From here, air travels down the throat through the windpipe, ultimately entering the lungs.

Various parts of the airway produce mucus, helping clean the air we breathe. Hair-like structures in the airway move back and forth, moving mucus up and out of the lungs and into the back of the throat where they can be coughed out or swallowed. Mucus serves an important role in adding moisture to the air we breathe.

The liquid found in mucus comes from special glands in the trachea. For these glands to function, they need plenty of fluids.



Normal anatomy of airway (child)

### What Makes Breathing with a Tracheostomy Different?

Because your child has had a tracheostomy, the upper airway has been bypassed. When he/she breathes through the tracheostomy, the air going to the lungs does not get humidified, warmed, or filtered of the dust particles. The fact that the upper airway has been bypassed lowers the defenses that the airway depends upon. When caring for your child, certain safety measures must be followed. It is very important that everyone who will care for the child learns tracheostomy care and how to deal with any emergencies that may occur.

Your child will need to be loved and hugged more than ever. Your confidence in his/her care will be reflected in his/her sense of security. A major part of your care activities will be aimed at providing a safe environment for the child. You will need to make sure that the air is clean, moist, and warm. The doctors, nurses, and therapists will help you in making sure your home provides this type of environment.

It is very important to replace the lost functions of the upper airway and to keep secretions as loose and watery as possible. Bubbling humidifiers, mist producing nebulizers, and heat and moisture exchangers (HMEs) are often used for this purpose.

The Portex® Thermovent® T HME is a small, lightweight, and comfortable device that heats, moisturizes, and cleans the air inhaled by your child.



Some changes in both you and your child's way of life are needed to ensure safety. Water may be a threat to your child. Taking a bath/shower requires constant watching by a responsible adult. Because your child cannot filter the air he/she breathes, smoking, animal hair, pollen, and dust must be avoided around your child.

## Types of Tracheostomy Tubes

Tracheostomy tubes are available in a variety of materials, sizes and styles. Below is a general overview explaining each.

### Materials

Most tracheostomy tubes are made of either metal, plastic, or silicone.



### **Metal (stainless steel or silver-plated)**

- Uncuffed tube for patients that do not need ventilator assistance
- These tubes are usually cleaned and reused

### **Plastic (polyvinyl chloride-PVC)**

- Most common material used
- Disposable
- Can be used for almost any tracheostomy patient
- Replaced every two to four weeks
- Available in rigid (stiff) or flexible types
- Option with or without cuffs

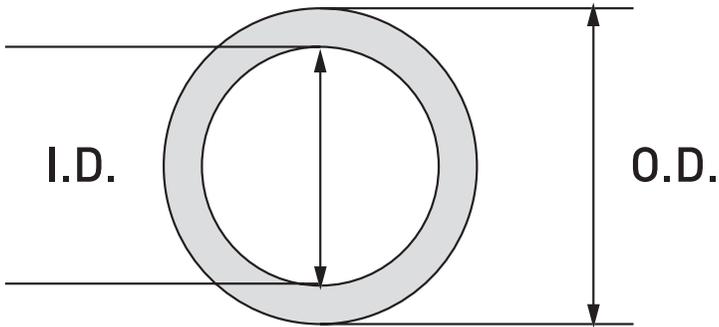
### **Silicone**

- Silicone tubes can be cleaned and reused multiple times making them cost effective
- Soft and tissue friendly
- Can be used for almost any tracheostomy patient
- Intended for single patient use
- Available with or without cuffs

### **Sizes**

The doctor orders a tracheostomy tube to fit the needs of each patient and their airway, usually based on two key sizes; the inside diameter (I.D.) of the tube and the length of the tube. The inside diameter sizes of pediatric tracheostomy tubes range from 2.5 mm (millimeters) to 5.5 mm.

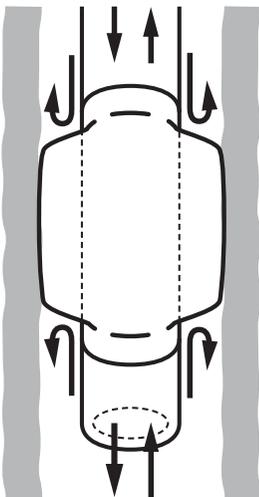
Outside diameter (O.D.) is another useful size to consider, especially when changing from one brand of tube to another. The O.D. plays a role in how easy or difficult it is to insert and remove the tube and how well the tube fits.



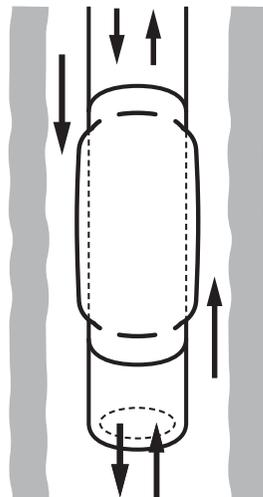
### Cuffed and Uncuffed Tubes

Tracheostomy tubes come in two basic styles: cuffed or uncuffed. A cuff is a balloon-like part that, when inflated, acts as a seal to reduce or prevent airflow through the mouth and nose. Breathing now takes place through the tracheostomy tube.

While there are differences in types of cuffs, all cuffs serve the same purpose — to prevent leakage of air out of the lungs and to prevent leakage of fluids into the lungs.



**Inflated Cuff in Trachea**  
Airflow directed through the tube for a full tracheal seal



**Deflated Cuff in Trachea**  
Airflow can move around and/or through the tube

# Tracheostomy Care for Your Child

There are five major steps to learn in giving safer and more effective tracheostomy care for your child or infant. These are skin and *stoma* care, humidification, loosening and *suctioning* of secretions, changing the *tracheostomy tube*, and emergency care procedures.

## Skin and Stoma Care

The opening at the tracheostomy site needs to be cleaned often as it heals. At first, you may have to clean the site four to five times a day until it is fully healed. After that, the skin must be kept dry and clean. Regular skin care should be done at least twice a day.

With infants and young children, all tracheostomy care should be done with two people, one to hold the child and the other to provide the care.

## Skin Care

The following is suggested for the care for your child. Your doctor will help you to choose the exact items.

### Supplies:

1. Cotton swabs
2. *Normal saline*
3. A rolled baby blanket, bath towel, or small pillow to place under the child's shoulders
4. Tracheostomy dressing

It is best to make a chosen spot in your home for regular tracheostomy care of your child. This spot should be comfortable for you and your child, be well lit, and provide an appropriate environment. Baby powders should never be used in this area, since they can increase the dust in the environment.

### Procedure:

1. Set up supplies.
2. Wash your hands with soap and water.
3. Lay the child in a comfortable position on his/her back with a small pillow under the shoulders.
4. Examine the skin around the tracheostomy opening for signs of skin breakdown, infection, or irritation.
5. Wet the swabs in normal saline.

6. With a rolling motion, clean the skin area around the opening and under the neck flange.
7. Pat dry with a dry cotton swab or gauze pad.
8. A tracheostomy dressing or two gauze pads may be placed under the wings of the tube to protect the skin. NEVER cut a gauze pad to place around the tracheostomy tube, as fibers may become loose and be inhaled into the airway.

## Stoma Care

The opening in the patient's neck that the tracheostomy tube fits into is called the stoma. The tube may rub the stoma and cause irritation. Mucus can also get trapped on the skin around the opening and under the neck flange. Left alone, it could develop irritation and risk of infection. Proper stoma care should become part of the everyday schedule.

### Stoma Care Supplies:

1. Sterile water
2. Sterile container (bowl or jar)
3. Cotton swabs
4. Gauze pads

### Procedure:

1. Set up supplies
2. Wash your hands with soap and water.
3. Position the patient in a comfortable way so that the tracheostomy tube and stoma area are easily reached.
4. Pour the solution(s) into the sterile container and then wet the swabs.
5. Clean the area around the stoma by wiping away from the opening of the edge of the stoma. You may need to be firm to loosen and remove any dried secretions or blood.
6. Clean the neck flanges of the tube.
7. Dry the area with gauze.

## Changing the Tracheostomy Ties

Your child's tracheostomy is held in place with either *tracheostomy ties* or a tracheostomy tube holder with VELCRO® brand fastener. These ties should be regularly changed whenever they become wet or soiled. With infants and active young children, this must be a two-person procedure, as it is important that the tube remain stable and not be pulled out.

When retying the ties, do not pull them too tight, as you may decrease the blood flow to the child's head and cause too much pressure to the skin of the neck.

### Supplies:

1. Clean tracheostomy tie or tracheostomy tube holder with VELCRO® brand fastener
2. Scissors
3. Washcloth and towel
4. Soap and water

### Procedure:

1. Set up supplies.
2. Remember, this is a two-person procedure.  
Decide who will do what. (To make it easy, we will call these two people **Person A** and **Person B**.)
3. Wash your hands with soap and water.
4. Lay the child in a comfortable position on his/her back with a small pillow under the shoulders.
5. **Person A:** Hold the tracheostomy in place with tips of fingers.  
**Person B:** Cut or untie the old ties. Wash your hands with soap and water and allow them to dry.
6. **Person A:** Continue to support the tube to help prevent it from falling out.  
**Person B:** Replace the tracheostomy ties:
  - a. Insert one end of the trach tie through the wing (flange) eyelet and pull about 1/3 of the tie through the opening.
  - b. Bring the other end of the trach tie around the neck and insert the end through the second eyelet on the opposite side.
  - c. Pull both ends of the trach tie (carefully) so they are snug and flat.
  - d. Take the longer end of the tie and bring it around the back of your child's neck, making sure it is flat.
  - e. Tie the ends of the trach tie together in a double square knot, close to the neck flange.
  - f. The trach tie should be loose enough to barely allow one finger beneath the tie.
  - g. Trim any excess trach tie.

**NOTE:** Do not tie the tracheostomy tube by tying a bow; this technique is dangerous because a bow may easily become untied.

A pediatric tracheostomy tube holder with VELCRO® brand fastener may be used in place of a tracheostomy tie. Be sure to follow the maker's instructions or ask your doctor, nurse, or therapist.

## Humidification

Humidity, or the amount of moisture in the air, will have a great effect on your child's secretions. Remember, when your child breathes through his/her tracheostomy, the air is not filtered, warmed, or humidified. Without added moisture, your child's secretions may become thick and difficult to cough out. The type of weather both inside your home and outside will affect his or her secretions. Heating your home in the winter and air conditioning in the summer months tend to dry out the air. So, an additional source of humidity is often needed.

## Fluid (Liquid) Intake

Check that your child drinks plenty of fluids each day even if he/she is sick. This will allow the mucus to be loose.

## Saline Instillation (Salt Water Squirts)

Squirting saline straight into your child's tracheostomy tube is one of the most important parts of his/her tracheostomy care. This helps clear the mucus. The amount of saline you use will be different with the age and size of your child. Your doctor, nurse, or therapist will suggest how much and how often you should do this. Saline should be squirted into the tracheostomy tube slowly as your child breathes in to provide the greatest amount of saline to the airway and to avoid too much coughing. Normal saline is available through your drugstore or through your home care company.

## Loosening and Suctioning of Secretions

To loosen and remove secretions two techniques are commonly used; chest physical therapy (CPT) and suctioning (manual clapping).

### Chest Physical Therapy (CPT)

CPT is a way to loosen the secretions or mucus in the lungs. It combines manual cupping or clapping and shaking to move the secretions away from the walls of the small breathing tubes and into the larger breathing tubes where they can be either coughed out or suctioned. If this procedure is ordered for your child, the hospital staff will teach you how to do this.

## Suctioning

Suctioning is needed when mucus in the airway becomes too thick or there is too much present to be coughed out or whenever your child is not able to get rid of these secretions by him/herself. Suctioning is needed in most children two to three times a day. There are a few signs that your child needs to be suctioned. These are:

1. A blue color is seen around the lips and mouth.
2. The airflow in and out of the airway is reduced.
3. The child appears fussy and fidgety.
4. The child is using the muscles of the chest and neck to help his/her breathing.
5. The nostrils flare out when the child breathes in.
6. You can hear bubbling or noisy breathing.

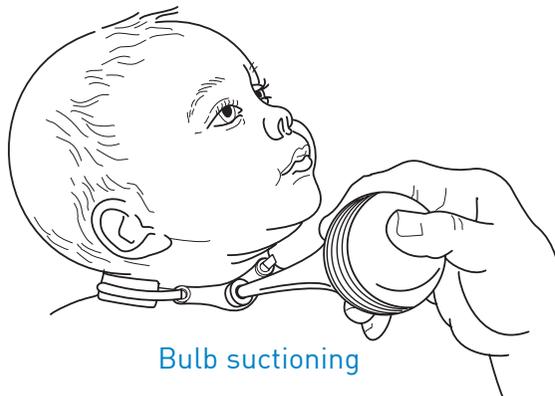
The proper way to suction should be taught to everyone who will care for your child. This can be done by anyone, and older children should be taught to suction themselves. There are two ways of suctioning commonly used in the care of infants and children. These are bulb suctioning and *catheter* suctioning. Both of these are used in the everyday care of your child and will be taught to you by the hospital staff.

This booklet covers the main points of both methods and is intended only as a guide. Your doctor, nurse, or therapist will explain all the facts about suctioning before you leave the hospital.

## Bulb Suctioning

Bulb suctioning is for the removal of secretions and mucus that collects in and around the flange end of the tracheostomy tube.

Bulb suctioning may be performed as often as needed. This will not remove secretions from deep in the airway and it's not a substitute for catheter suctioning.



Bulb suctioning

## Supplies:

1. Bulb syringe
2. Facial tissues

## Procedure:

1. Set up supplies.
2. Wash your hands with soap and water.
3. Squeeze the back of the bulb.
4. Place the tip of the syringe at the tube opening.
5. Slowly release your thumb. This will suck the secretions.
6. Remove the bulb syringe and squeeze it to push out any secretions into a facial tissue.
7. Repeat the process to remove all secretions.

## Cleaning of the Bulb Syringe:

1. Wash the bulb syringe in hot soapy water after each use.
2. Wash the inside and outside with clean water.
3. Place in a clean area and let it air dry.
4. Clean the syringe daily with a cleaning agent.

## Catheter Suctioning

Suctioning involves placing a small plastic tube or a suction catheter down into the airway through the tracheostomy tube and using a gentle vacuum to remove secretions. Infants and small children may need tracheal suctioning often. Suctioning should be done whenever the large airways need to be cleared, or whenever your child appears to be having a hard time breathing.

There are a few things that should be known before you suction your child's airway:

1. Your clinician will tell you the correct size of suction catheter to use and will train you on the proper suction technique before your child goes home.
2. The airways are lined with delicate tissue, and care should be taken whenever you push in or pull out the catheter. Suction should be used only as you pull out the catheter. This suction should be off and on, and gentle.
3. Suctioning must **NEVER** be done for more than 5-10 seconds at a time. When you are suctioning out secretions, you are also removing air from the lungs. This could lead to oxygen being taken out from the body.

4. At first this will be frightening to both you and your child; he/she will need your confidence, support, kindness and love.
5. You will receive training for all suction techniques at the hospital before your child goes home.



### Catheter suctioning

#### Supplies:

1. Portable suction machine
2. Suction connecting tubing
3. Disposable suction catheters
4. Sterile normal saline
5. Normal saline or water
6. A small rolled baby blanket, towel, or pillow.

#### Procedure:

1. Set up supplies.
2. Wash your hands with soap and water.
3. Connect the disposable suction catheter to the connecting tube leading to the suction machine.
4. Turn on the suction machine and set the prescribed suction pressure. Your clinician will tell you the pressure you need. Test the suction machine before each suctioning procedure.
5. Position your child on his/her back; for older children you may choose a sitting position. Small children may require a second person to hold them still. You may also place a rolled blanket, towel, or pillow under the shoulders of infants or small children.

6. If needed, squirt sterile normal saline into the opening.
7. Gently advance the suction catheter down the tracheostomy tube to the premeasured length.
8. Following the instructions provided by the maker of the suction catheter, start suctioning (usually by depressing a button or covering the port of the suction catheter with your thumb).
9. Pull the catheter back with one hand while rotating it with the thumb and forefinger of the other hand. It should take no longer than 10 seconds to complete the procedure.
10. Allow your child to rest and receive oxygen if necessary between each suctioning.
11. Repeat as many times as needed to clear the airway.
12. Rinse the catheter with normal saline or water when done.
13. Disposable catheters should be thrown away.

**NOTE:** Suctioning is a very clean procedure. You must take care not to touch anything with the catheter while suctioning. Do not reuse disposable equipment or catheters.

### **Care and Cleaning of Equipment Suction Machine:**

1. Empty and wash the collection jar with soap and hot water daily.
2. Place a small amount of germicide or disinfectant in the bottom of the jar after each cleaning.

### **Suction Catheters:**

Single-use disposable suction catheters are recommended.

### **Changing the Tracheostomy Tube**

After being taught the procedure and practicing it with the nurses and therapists in the hospital, you should feel confident about doing this at home. You should practice changing the tube several times before your child is sent home from the hospital. If your child is older, he/she should also be taught how to change the tracheostomy by himself/herself.

You will be sent home from the hospital with extra tracheostomy tubes for when changing is needed. It is very important to always have an extra sterile tube ready to change if it is needed in an emergency. The time interval between changes depends upon the special needs of your child, and your doctor will talk to you about that.

With younger children and infants, this again is a two-person operation. Good communication between the two is especially important so that each person knows the role of the other and support may be given. Talk about what each of you did well, and about what you may improve the next time.

These frequent changes also allow you to practice emergency procedures if the tube should become blocked. The tracheostomy tube should always be changed to a new one if the tube has become blocked and suctioning will not quickly clear it.



Restraining technique

### Supplies:

1. Suction equipment
2. The Portex® pediatric tracheostomy tube of the appropriate size
3. Tracheostomy ties attached to the tube
4. Soapy washcloth and a dry towel
5. Small sheet or baby blanket
6. Scissors
7. *Manual resuscitation bag*

### Procedure:

1. Set up supplies.
2. Wash your hands with soap and water.
3. Have one person hold and restrain the child.

4. Suction the child well.
5. Hold the tracheostomy tube in place and then cut off or remove the old tracheostomy ties. Wash the child's neck with soap and water and then dry. Check the skin of the neck for any signs of irritation or skin breakdown.
6. Grasp the tube and pull it out with a downward rotating motion.
7. Stretch the skin around the opening (stoma) upward toward the chin and downward toward the belly. This will help to see the tracheostomy opening and make changing the tube easier with the *obturator* inserted.
8. Using the other hand, place the new tube into the opening. This should be done gently, with an inward, downward rotating motion. Remove the obturator.
9. Continue to hold the clean tube in place and secure the ties.

**NOTE:** Suctioning after a tracheostomy tube change is usually needed. Changing the tracheostomy tube can often make your child produce more secretions over the next several hours. It is also common for the change to cause slight irritation to the airway, and pinkish secretions are commonly suctioned after a change. These pinkish secretions should disappear over the next few hours.

## Emergency Care Procedure

Emergencies are the most frightening situations that a parent may face. Not all emergencies will turn out to be life threatening, however as a parent you must act for your child's safety. Start emergency care procedures, and if the emergency is not quickly resolved, call 911.

## Manual Resuscitation Bag

It is important to have a manual resuscitation bag on hand for temporary ventilatory support. A bag ventilation device is used whenever your child is not able to breathe with ease or has stopped breathing. Using the bag allows you to assist his/her breathing or to completely take over breathing for him/her. This is to be used with CPR if the child is not breathing and you cannot find a pulse.

## Supplies:

1. Manual resuscitation bag/mask device
2. Oxygen tank and tubing.



## Procedure:

1. Attach the bag to the tracheostomy tube adapter.
2. Connect the bag to the oxygen tank with the tubing.
3. Turn on the oxygen and set the flow at 6-10 liters per minute.
4. Collect the supplies. Manual resuscitation bags should be kept ready at all times.

**NOTE:** In an emergency, if a tracheostomy tube adapter is not available, the mask may be left on the bag and ventilation obtained by placing the mask right over the tube opening or stoma and squeezing the bag. A seal must be obtained over the skin of the neck. If the tube is closed by a mucus plug and another tracheostomy tube is not readily available, you may remove the old tube and ventilate with the bag/mask through the stoma.

5. Give your child breaths by squeezing the bag until his/her chest rises and you feel resistance.

**NOTE:** If you are trying to assist your child's breathing, start to squeeze the bag just as your child's chest begins to rise.

6. Repeat as needed.

# Components Provided with All Portex® Bivona® Neonatal/Pediatric Tracheostomy Tubes

## Instructions for Use (IFU)

Every tracheostomy tube is supplied with an IFU. Do not throw the IFU away. It contains important information from the manufacturer regarding the proper use and care of the product. Always store the IFU in a safe and convenient place so you can quickly refer to it.

## Obturator

The obturator provides strength and direction when putting in a tracheostomy tube. After use, always store the obturator by the bedside in case emergency insertion is necessary.



## Disconnect Wedge

All the pediatric Bivona® tracheostomy tubes come with a disconnect wedge. The wedge is designed to make it easier to disconnect attachments without pulling, pushing. Use the disconnect wedge to remove attachments.



## Bivona® Fome-Cuf® Neonatal/Pediatric Tracheostomy Tubes

The Fome-Cuf® neonatal/pediatric tracheostomy tube is made of silicone and is generally used when you want a full tracheal seal during mechanical ventilation.

### Inserting the Bivona® Fome-Cuf® Tracheostomy Tube

1. Attach a 60 cc syringe to the red winged pilot port and completely deflate the cuff until you create a dimple.
2. Pinch the collapsed pilot port with your fingers and hold, remove syringe and plug port.
3. Insert Fome-Cuf® tracheostomy tube
4. Open port to allow Fome-Cuf® tracheostomy tube to expand and create a seal.



Pilot port dimple

Removal:

1. Suction patient orally and down their throat
2. Attach a 60 cc syringe to port.
3. Completely deflate cuff until a dimple is seen.
4. Pinch pilot port and remove syringe.
5. Plug port.
6. Loosen and remove tracheostomy ties and remove tube from stoma.

**NOTE:** your doctor or tracheostomy specialist should instruct you on the proper technique for suctioning before you leave the hospital.

### Fome-Cuf® Tracheostomy Tube Maintenance (perform once a day):

1. Suction any secretions above the cuff by passing a suction catheter through the mouth and throat to the trachea above the cuff.
2. Attach a 60 cc syringe to the port and completely deflate cuff until a dimple is seen. Hold for 10 seconds.
3. Disconnect the syringe and allow the cuff to inflate.

Two goals are accomplished by this maintenance procedure:

1. The cuff is checked for leaks.
2. Excess moisture in the cuff is removed.

## Bivona® TTS™ (tight-to-shaft) Cuffed Neonatal/Pediatric Tracheostomy Tubes

When the cuff is completely deflated, the cuff collapses tight to the shaft of the tube. This feature gives this tube a lot of flexibility. It can be used with the cuff deflated, taking on the shape of an uncuffed tube or inflated to provide a full seal around the tube.



Deflated TTS™ tracheostomy cuff



Inflated TTS™ tracheostomy cuff

### Insertion:

1. Wash hands with soap and water.
2. Attach a 10 cc syringe to the pilot port of the tube and completely deflate the TTS™ tracheostomy cuff.
3. Remove the syringe from pilot port. The pilot balloon should be completely flat.
4. Insert the tube.

### Cuff Inflation:

**NOTE:** If inflating the TTS™ tracheostomy cuff for longer than 2 hours, the TTS™ tracheostomy cuff should be inflated with sterile water.

1. Be sure the TTS™ tracheostomy cuff is completely deflated.
2. Using a 10 cc syringe, draw up 10 cc of sterile water and eliminate residual air from syringe.



Draw up 10 cc water and eliminate dead space air



Attach water-filled syringe to pilot port



Inflate TTS™ tracheostomy cuff with water

3. Securely attach water-filled syringe to pilot port.
4. Slowly inflate TTS™ tracheostomy cuff with sterile water, using the volume prescribed by your clinician.

## Bivona® Aire-Cuf® Neonatal/Pediatric Tracheostomy Tubes

The Aire-Cuf® neonatal/pediatric tracheostomy tube cuff is more like the cuffs that are found on most tracheostomy tubes, only it is made of silicone.

### **Inflation:**

1. Wash hands with soap and water.
2. Attach 10 cc syringe to pilot port and completely deflate the cuff. Then remove the syringe.
3. Set the syringe plunger to 10 cc and attach syringe to the pilot port.
4. Slowly inflate the cuff while listening with a stethoscope at your child's neck and stop inflating when the leak is no longer heard. This is the method that you should use for all air cuffs.
5. Remove a small amount of air to create a slight leak.

## Cleaning, Sanitizing, and Reusing Bivona® Neonatal/Pediatric Tracheostomy Tubes

One of the benefits of Bivona® silicone tracheostomy tubes is that they can be cleaned at home and reused. Carefully following these instructions will allow you to use your child's tracheostomy tube many times. In addition to these instructions, please read the instructions listed on the IFU provided with your child's tracheostomy tube.

Some Bivona® neonatal/pediatric tubes have a removable swivel. Before cleaning, remove the swivel by inserting the disconnect wedge between the plastic swivel and base of the silicone neck flange. This allows you to clean in and around the swivel. Before storing the tube in a clean plastic bag, re-attach the swivel by positioning the flange on the swivel toward the patient.

### **Supplies for use after removing the tracheostomy tube from your child:**

1. Mild, fragrance-free clear detergent solution
2. Soft bristled brush
3. Clean plastic bag

## **Supplies for use immediately before inserting the tracheostomy tube into your child:**

1. Storage bag with used tube
2. Pan with lid of rapidly boiling distilled water

### **Procedure:**

1. Wash hands with soap and water.
2. Set up supplies.
3. Gently wash the inside and outside of the tube in a mild, detergent solution using a soft bristled brush. Be careful! Too much scrubbing, scraping, or stretching may damage the tube.
4. Rinse the tube with water and set aside to air dry.
5. Gently wash the obturator with clean water and detergent as described in step 3.
6. Rinse the obturator and set aside to dry.
7. When the tube and obturator are completely dry, store the tube with the obturator in place in a clean plastic bag.
8. Immediately before the next use of the tube, remove the tube and obturator from the plastic bag and place them side by side in a pan of rapidly boiling distilled water. Cover the pan, turn off the heat and let cool. Once cool, remove the tube and obturator from the water, holding the tube by the neck flange and the obturator by its handle.
9. Inspect the tube prior to use. Do not use a tube that is cut or damaged.

## **Special Instructions for Cleaning, Sanitizing, and Reusing Neonatal/Pediatric Fome-Cuf® Tracheostomy Tubes**

1. Wash hands with soap and water.
2. Before cleaning, make sure that the cuff is fully expanded and then plug the red wing pilot port to stop fluids from getting the foam wet.
3. Wash the tube as instructed above, allowing the tube to air dry completely with the port open.
4. Store in a clean plastic bag as instructed in number 7 in the above procedure.
5. Complete sanitization process as described in step 8 and 9 in the above procedure.

# At Home With Your Tracheostomy Tube: Living with a Tracheostomy

The most important things that anyone can have when leaving the hospital with a tracheostomy tube are hope and determination. Life can return to normal! People with tracheostomy tubes can still go through everyday situations and, if their family gives them space and support, they can grow in ways that will amaze everyone.

## Seeing a Tracheostomy Tube for the First Time

When a child comes home, it may be the first time that some friends and family members will see the tracheostomy tube. It is important to prepare them for what it will look like. In the case of young children, you may want to ask if your child's hospital has a "Tracheostomy Teaching Doll" that you can borrow. This doll can be used to show children what the tracheostomy tube looks like and will help you explain how your child will need to be treated. Otherwise, you may want to make your own doll with a tracheostomy tube. For older children and adults, it may be a good idea to show them pictures of your child with the tracheostomy tube. This will give them a chance to look as long as they want so that they can get comfortable with what your child looks like with a tracheostomy tube.

Everyone will have questions regarding your child. It is important to reflect a positive attitude because people will be taking your cues as to how to act around your child. Reassure them that your child is still the same person but must now breathe differently. Remind them that it is very important to show your child how much you love them!

## Getting Ready to Come Home

When you bring your child home, you take on a huge responsibility. A positive attitude will bring on a positive experience. There will be ups and downs, but remember that it will all be worth it!

Additionally, you will have to prepare the home environment for your child. One of the most important things you must have is a phone for emergencies. The closer the phone is to where your child will be most of the time, the better prepared you'll be for an emergency.

With tracheostomy patients, it is very important to limit smoking in your house, because they do not have the ability to filter out smoke particles. Although devices like a Heat Moisture Exchanger (HME) filter help to filter

out particles, smoking is still not a good idea around your child. If you must smoke, please go outside, away from the child.

Another important thought to keep in mind is the location of electrical plugs. If your child needs to use a lot of monitors and machines during the night, the bed will need to be located near an outlet. It is also a good idea to contact your local power company and tell them that you have a child who is dependent on electricity for their medical equipment. Many utility companies will keep your name on a list and do everything that they can to help your child in the event of a power outage.

**One last important note:** Do not leave the hospital if you have not learned how to perform CPR and an emergency tracheostomy change on your child! Bringing your child home will be more successful if you have been prepared to care for their needs, both expected and unexpected. Looking ahead, it may be a good idea to ask a responsible and willing family member or friend to also learn with you. This will provide you with someone else who can care for your child. You will have more peace of mind if you know that a trained individual is staying with your child if you need to leave them at home.

### **When the World Sees a Tracheostomy Tube**

Unfortunately, when you go out in public, people are going to stare when they see your child's tracheostomy tube. The important thing to learn is to be comfortable with this. Remember that for most people this is going to be the first time that they have ever seen a tracheostomy tube.

The most curious, of course, will be children. If you feel comfortable, it's okay to explain to them what has happened to your child. Much like you told your friends and family, explain to them that your child is just like them except they can't breathe through their mouth so they have a tube in their neck that helps them breathe.

If your child doesn't want to deal with the stares and questions, it's understandable. This is a normal feeling. One way to avoid the stares is to cover the tracheostomy tube. This is fine as long as you do not block the flow of air in and out of the tube. Some people use scarves or bandanas to cover the sight of the tube.

## The First 24 Hours Home

The first day home will be challenging, much like bringing home a new baby. This will be a happy, yet stressful time. Slowly, you will find your family falls into a routine and will you totally forget how fearful the first day was!

A tracheostomy tube is not a sentence of house arrest. Getting out of the house is a good idea, but always be prepared for the unexpected. It is a good idea to have a bag with all the supplies that you will need if an emergency arises.

These supplies include:

1. An extra same size tube with the ties already in place
2. A tracheostomy tube that is a size smaller than the one that your child uses with the ties already in place in case the stoma shrinks during an emergency
3. Suction machine (we recommend a handheld suction machine in case you are without power)
4. Resuscitation bag (with face mask and trach adapter)
5. Forceps
6. Medical scissors
7. Gauze pads
8. Bulb syringe
9. Antiseptic wipes
10. Watersoluble lubricant such as K-Y® Jelly (**NEVER** use an oil-based lubricant such as Vaseline® petroleum jelly)
11. Cotton-tipped applicators
12. Adhesive bandages
13. Vials of saline
14. Sterile gloves
15. Plastic clean-up bag
16. Flashlight

## One Final Thought

Your child has overcome a traumatic event in their life, but now, it's time to live! Let your child develop as many activities, hobbies, and interests as possible that are within the limits of safety.

# Frequently Asked Questions

**Q: What should I do if my child gets sick?**

A: You should treat your child as if they did not have a tracheostomy, with the following points in mind.

Call your doctor if:

- your child is under two years of age and has a temperature greater than 100° F.
- your child is over two years of age and has a temperature greater than 101.4° F.
- the secretions coming from the stoma turn yellow or green and smell foul.
- the illness has any respiratory concern.
- your child stops breathing. Call 911
- at any time you are concerned or worried about the wellness of your child.

**Q: What do I do if my child vomits?**

A: If your child vomits, turn his/her head sideways to prevent vomit from going down the opening. The use of the bulb syringe or suction catheter is recommended if you question whether or not any vomit went down the tracheostomy opening.

**Q: Does my child need to eat special foods?**

A: A child with a tracheostomy does not require a special diet.

**Q: Can my child eat normally?**

A: With younger children, some safety precautions should be taken while feeding. Feed them in an upright position. Infants who are being bottle-fed should be burped frequently. **NEVER** prop up feeding bottles. Breast-feeding is fine and holds no contraindications.

**Q: Can I allow my child to play normally?**

A: Play is one of the most important aspects of your child's recovery and should be encouraged. However, some safety measures should be observed. Take special care when your child plays around water. Remember, your child cannot protect his/her lungs from choking from water if an accidental fall into the water should occur. Avoid toys that shed fur or fuzz. Avoid toys that have small removable pieces. Children need to know their own physical limits on the playground. Consult with your child's doctor about any contact sports.

**Q: How do I bathe or shower my child?**

A: Infants should be sponge bathed with caution to avoid water entering the tube or stoma. Older children may take tub baths if watched closely by an adult. **NEVER** leave your child unattended in the tub! If water should accidentally be splashed into the tube or stoma, suction the tube immediately. Small children should not be allowed to shower. Older children may shower with precautions taken. These precautions are meant to shield the tracheostomy area from water. If you have an adjustable showerhead, adjust it to hit your child's body well below the neck area. Protective shower shields are available from your home care company.

**Q: How will I communicate with my child?**

A: Remember, your child cannot speak or cry, but he/she still hears, just as before the tracheostomy. Communications via facial expressions, body movement, speech, and touch will help you and your child communicate with each other.

**Q: How will I know if my child needs me?**

A: Since your child can't call out or cry, other noise communication devices will have to be exchanged for their voice. For small babies, a string of bells may be tied around an ankle. For older children, a bell at the bedside at night may be used to signal a parent. Older children can communicate by writing. There are machines and devices available that allow older children to speak aloud.

**Q: Can my child travel and take trips with the family?**

A: When you travel, always carry with you the supplies you may need to keep your child's airway open and clear. These will include suction supplies, supplies to change the tube, everyday care supplies, and emergency care supplies. Whenever you travel, you must consider the type of weather. Some areas are dry and others are quite humid. This will affect your child's secretions and the amount of extra humidity that you will need to supply. Drier areas require more humidity to be added. Always discuss long trips with your doctor.

## Telephone Numbers/Contacts

1. Local Rescue Squad or Ambulance: \_\_\_\_\_
2. Doctor: \_\_\_\_\_
3. Hospital Emergency Room: \_\_\_\_\_
4. Home Care Service: \_\_\_\_\_
5. Nurse Specialist: \_\_\_\_\_
6. Respiratory Care Specialist: \_\_\_\_\_

## Important Facts

1. Reason for my child's tracheostomy: \_\_\_\_\_  
\_\_\_\_\_
2. The size of my child's tracheostomy tube: \_\_\_\_\_
3. My child's tracheostomy tube is (description, type, reference code): \_\_\_\_\_  
\_\_\_\_\_
4. My child needs CPT (chest physical therapy) \_\_\_\_\_ times per day.
5. The maximum size of the suction catheter my child needs: \_\_\_\_\_
6. My child needs to be suctioned at least \_\_\_\_\_ times per day.
7. The pressure on the suction machine should be set at: \_\_\_\_\_
8. My child's tracheostomy tube needs to be changed every \_\_\_\_\_ days.
9. I should clean the stoma site with: \_\_\_\_\_
10. The technique for cleaning and disinfecting my child's tracheostomy tube: \_\_\_\_\_  
\_\_\_\_\_

# Glossary

## **Airway**

The term used to describe the air passages.

## **Catheter**

A long, thin plastic or rubber tube that is passed down the airway to suction out or remove secretions and mucus.

## **Larynx**

The voice box, located at the top of the trachea. It serves two functions: production of sound and protection of the airway.

## **Manual Resuscitation Bag**

A self-inflating breathing bag for mechanical breathing. It connects to a tracheostomy tube or can be used with a mask attachment.

## **Mucus**

The thick fluid that collects in the airways and trachea. Mucus is also referred to as secretions.

## **Normal Saline**

A solution made from water and salt. This solution is sterile for medical use. It can be used to help break up thick mucus.

## **Obturator**

The obturator provides strength and direction when putting in a tracheostomy tube. After use, always store the obturator by the bedside in case emergency insertion is necessary.

## **Stoma**

The opening through the skin created by a surgeon.

## **Suctioning**

The procedure in which a small catheter is passed down the tracheostomy tube and secretions are removed via a suction pump or machine.

## **Trachea**

The windpipe; the passage between the larynx and the lungs.

## **Tracheostomy**

A small surgical opening through the skin and into the windpipe.

**Tracheotomy**

A surgical procedure that creates a tracheostomy.

**Tracheostomy Tube**

A molded plastic tube that is passed through the stoma into the airway to keep the stoma open and to support the airway. Commonly referred to as a trach tube.

**Tracheostomy Ties**

Ties made of twill tape or soft cotton tracheostomy tube holder with VELCRO® brand fastener. The ties secure the tracheostomy tube to the patient.

**Ventilator**

A mechanical device for moving air and oxygen in and out of the lungs. This device is designed to breathe for the patient.











PLEASE READ THE INSTRUCTIONS FOR USE SUPPLIED WITH THE PRODUCT FOR DETAILED INSTRUCTIONS, WARNINGS AND CAUTIONS.

**Smiths Medical ASD, Inc.**

Norwell, MA 02061, USA  
Phone: 1-214-618-0218  
Toll-Free USA: 1-800-258-5361

**Smiths Medical Canada Ltd.**

Markham, Ontario, Canada, L3R 4Y8  
Phone: 905-477-2000  
Toll-Free: 1-800-387-4346

**Customer and Clinical Services**

U.S 1-800-258-5361  
Canada 1-800-387-4346  
[www.smiths-medical.com](http://www.smiths-medical.com)

[www.smiths-medical.com](http://www.smiths-medical.com)

**Smiths Medical is part of the global technology business Smiths Group plc.**

Product(s) described may not be licensed or available for sale in Canada or other countries outside of the United States.

Portex Aire-Cuf, Bivona, Fome-Cuf, Thermovent, TTS and the Smiths Medical design mark are trademarks of Smiths Medical. The symbol © indicates the trademark is registered in the U.S. Patent and Trademark Office and certain other countries. All other names and marks mentioned are the trade names, trademarks or service marks of their respective owners. K-Y is a registered trademark of Johnson & Johnson. Vaseline is a registered trademark of Unilever. VELCRO® brand is a registered trademark of Velcro Industries B.V.  
© 2010 Smiths Medical. All rights reserved. TRI94404EN 09.2010

**smiths medical**