

# A Handbook for the Home Care of an Adult with a Tracheostomy





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# Foreword

As a care-giver for a person with a tracheostomy or as a patient yourself, you most likely have many questions and concerns as you prepare to leave the hospital. We at Smiths Medical hope this booklet will answer many of these questions, lessen your concerns, and give you the information that you need to properly care for your tracheostomy at home. Many patients, both children and adults, care for their tracheostomies at home. They are able to do many of their normal activities such as work, play, school, travel and have family contact.

This handbook is meant as a guide for the use and care of Smiths Medical tracheostomy tubes. It is not meant for use with other brands of tracheostomy products. Also, this handbook is meant to help family and friends learn how to care for the patients.

This handbook is provided as an additional 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.

# What Is a Tracheostomy?

A tracheostomy is a small opening through the skin in your neck into the windpipe (trachea). A small plastic tube, called a tracheostomy tube or trach tube, is placed through this opening into the trachea to help keep the airway open. A person breathes directly through this tube, instead of through the mouth and nose.



## Why Does My Loved One Have a Tracheostomy?

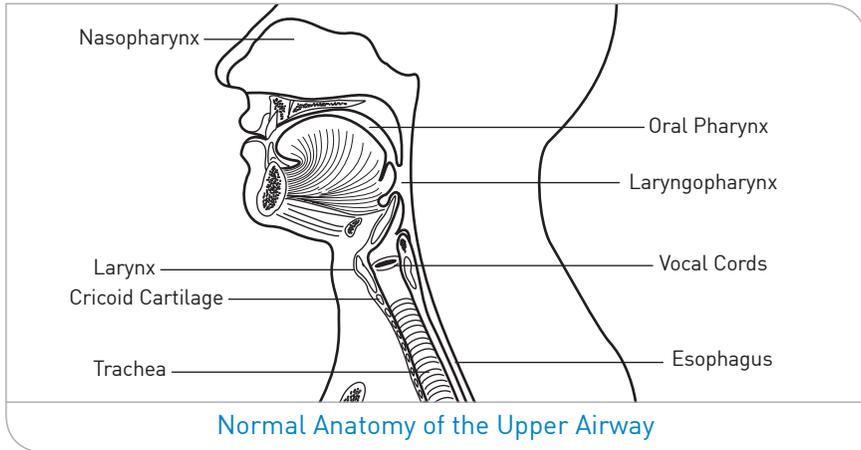
A tracheostomy helps protect the airway and makes a path through which breathing (ventilation) can be given by a machine (ventilator) if needed. It is sometimes needed because there is a block in their breathing passages or because illness has caused the airway and lungs to produce secretions (mucus) which are too thick and can only be cleared with suctioning.

## How Do We Breathe Normally?

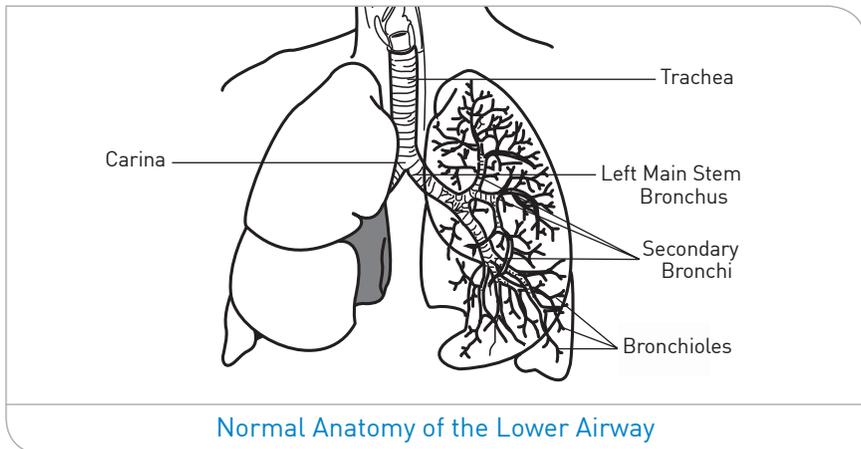
Breathing moves air in and out of our lungs. The most important gas in the air that we bring into our bodies is oxygen. The oxygen travels down our airway into the lungs where it goes into small air sacs (alveoli). Here oxygen travels through a very thin wall that separates the blood from the air. Once in the blood, the oxygen travels all the way through our body and is used as an important fuel to produce energy. As oxygen is used up, 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?

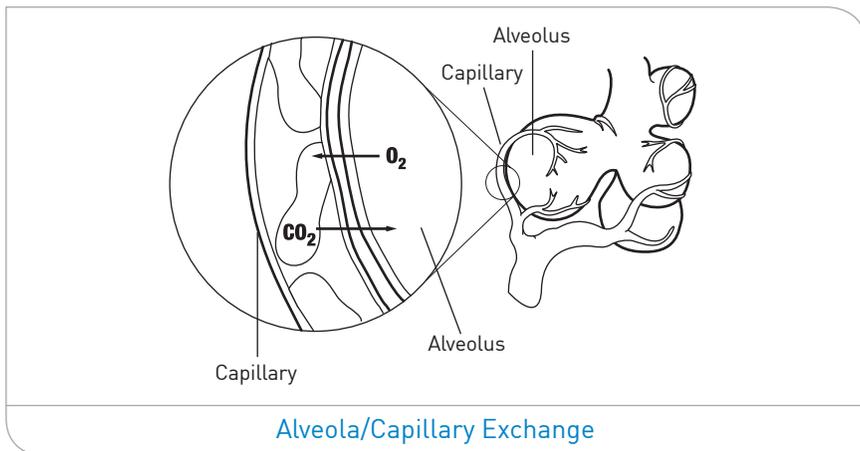
As we breathe in, the large muscle (diaphragm) that divides the chest from the stomach, drops down and the rib cage gets bigger, and then the air flows into the lungs. Air enters the nose, which warms, filters and humidifies this air, and enters our body. From here the air travels down the throat through the voice box (larynx).



As we breathe, the vocal cords, located in the larynx, open and the air goes freely into the trachea. The trachea branches into two main tubes, sending the air into each lung.



As these tubes enter the lungs; they branch off into smaller and smaller airways until they reach the tiny balloon-like air sacs (alveoli).



The nose and upper airway are very important for normal breathing. The air we breathe may have things such as dirt, dust, and pollen, which can be harmful to our lungs if it reaches the small airways. The hairs that are in our nose filter out many of the larger dirt and dust particles. The different parts of the airway make mucus, helping to clean the air we breathe. The mucus coats the tubes of the airway and helps trap the smaller particles of dust and germs in the air. To help remove these particles, the airway is lined with thousands of tiny hairs (cilia). As these hairs move back and forth, they move the mucus up and out of the lungs and into the back of the throat, where they can be coughed out or swallowed.



Another very important role of the mucus that lines the nose, throat, and other airway parts, is that it adds moisture to the air we breathe. The liquid found in the mucus comes from special glands, which are in the walls of the airway. For these glands to work right, they need a good supply of water. This supply of water comes from the liquids we drink. So, it is very important to drink plenty of liquids to help to keep the secretions thin and watery, making them easier to get rid of.

### **What Makes Breathing with a Tracheostomy Different?**

With a tracheostomy tube going through the stoma (a hole in the neck), the upper airway is bypassed. When you breathe through a tracheostomy, the air going to the lungs does not get humidified, warmed, or filtered of dust or other particles. Bypassing the upper airway means that the protection the lower airways depend on is lowered. When caring for your loved one with a tracheostomy, safety precautions must be followed. It is

very important that everyone who will care for the person, learns tracheostomy care and how to deal with the emergencies that may happen.

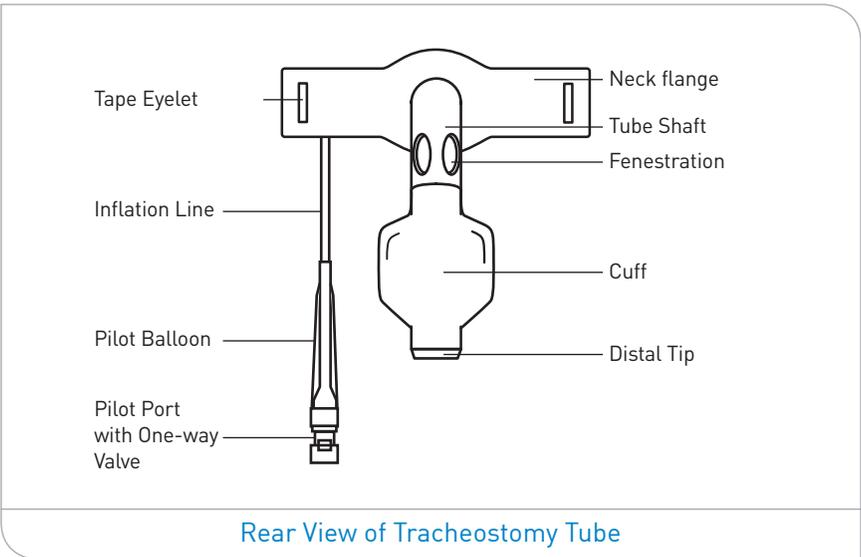
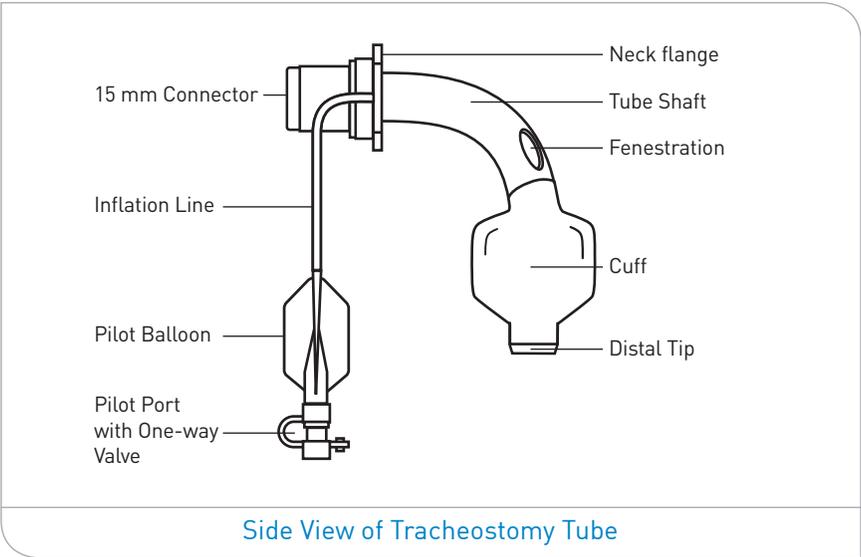
Your ability to confidently provide care will be reflected in your loved one's sense of security. A large part of your care activities will be providing an appropriate environment. You will need to make sure that the air is clean, moist and warm. The doctors, nurses, and therapists will help you in making 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 or "artificial noses") are often used for this purpose.



The Portex® Thermovent® T and T2 HMEs are small, lightweight and comfortable devices that heat, moisturize and clean the air inhaled by a tracheotomized person. Some changes in your way of life are needed to make sure their environment is safe. Water is the biggest threat to a person with a tracheostomy tube. Taking a bath in a tub needs constant watching. Because your loved one cannot filter the air he/she breathes, smoking, animal hair, pollen and dust must be avoided.

# Parts of a Tracheostomy Tube

There are many different parts of a tracheostomy tube. Below are the parts you may see on a tracheostomy tube.



# Types of Tracheostomy Tubes

Tracheostomy tubes are made from different materials, sizes and styles. Below gives an idea of each.

## Materials

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



### Metal (Stainless Steel or Silver-plated)

These are uncuffed tubes usually used for patients with a permanent tracheostomy that do not need the help of a breathing machine (ventilator). These tubes are usually cleaned and reused.



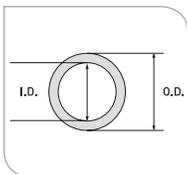
### Plastic (Polyvinyl Chloride-PVC)

This is the most common material used to make throw-away (disposable) tracheostomy tubes. Plastic tubes can be used for almost any tracheostomy patient. They are usually replaced every two to four weeks based on your doctor's recommendation. These tubes are available in stiff (rigid) or flexible versions and with or without cuffs (we will talk about cuffs later).



### Silicone

The softest of the materials, silicone tubes can also be used for almost any tracheostomy patient. Meant to be used by only one person, silicone tubes can be cleaned and reused many times, making them cheaper to use at home. These tracheostomy tubes are also available with or without cuffs.

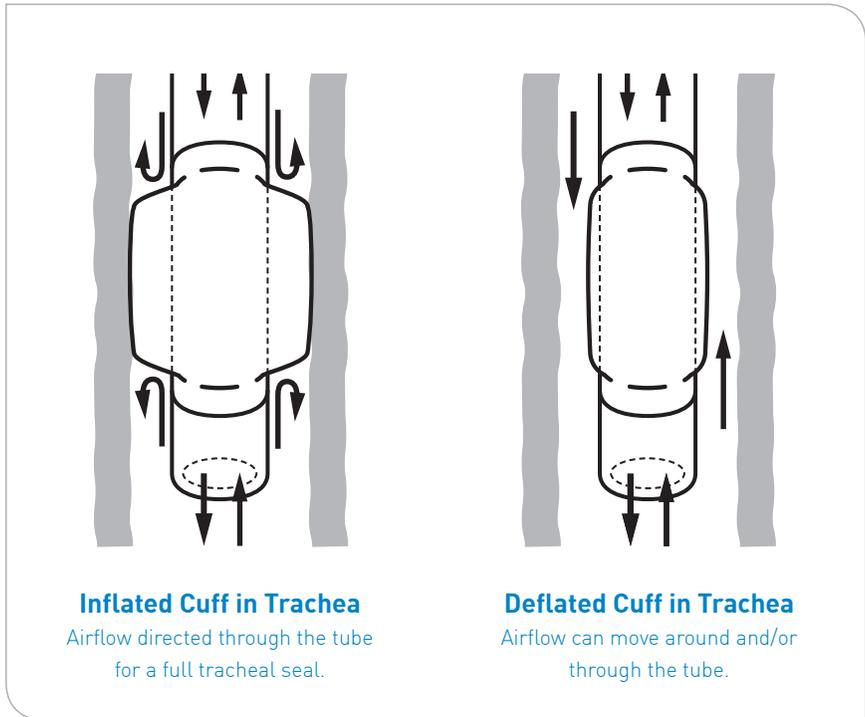


### Sizes

The doctor orders a tracheostomy tube to fit each patient and their airway, usually based on three measurements; the Inner Diameter (I.D.) and Outer Diameter (O.D.) of the tube and the length of the tube. All of these measurements are in millimeters (mm). The inside diameter sizes of most adult tracheostomy tubes range from 6.0 mm to 10.0 mm. Outside diameter (O.D.) is another useful size to think of, especially when changing from one brand of tube to another. The O.D. decides how easy or hard it is to insert and remove the tube and also how well the tube fits into the hole in the neck (stoma).

## Cuffed and Uncuffed Tubes

Tracheostomy tubes come in two basic styles: cuffed or uncuffed. A cuff is a balloon-like part near the end of the tube that, when blown up (inflated), reduces or prevents air flowing through the mouth and nose. Breathing now takes place through the tracheostomy tube.



While there are different types of cuffs and cuff materials, all cuffs do the same thing:

To prevent air from leaking around the cuff and out of the lungs as well as to prevent fluids from going into the lungs.

# Tracheostomy Care

There are five major steps to learn in providing effective tracheostomy care. These are:

1. Skin and stoma care
2. Humidification
3. Changing the tracheostomy ties
4. Loosening and suctioning of secretions
5. How to deal with emergencies

## Skin and Stoma Care

Taking care of the skin around the tracheostomy is one of the most important parts of the care you will have to provide at home. The stoma 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. Once it is healed, the skin must be kept clean and dry. Regular skin care should be done at least twice a day.

### Skin Care

The following is a suggested list of supplies and tools you will need to provide skin care for someone or yourself. Your doctor will help you to choose the exact items.

### Supplies

1. Cotton swabs.
2. Normal saline and hydrogen peroxide.  
**NOTE:** Your doctor or other care giver will teach you how to use either normal saline or a mixture of normal saline and hydrogen peroxide.
3. Fenestrated tracheostomy dressing (a gauze or cotton pad that is slit in the middle). It is best to make a designated spot in your home for regular tracheostomy care. This spot should be comfortable for both of you, be well lit, and provide an appropriate environment.

### Procedure

1. Collect and set up all the supplies and equipment.
2. Wash your hands with soap and water before doing any tracheostomy care.
3. Have the person lay or sit up in a comfortable position. This position should extend the neck, allow you to see the tracheostomy site easily, and to allow easier tracheostomy care.



4. Look closely at the skin around the stoma for signs of skin breakdown, infection or irritation.
5. Wet the swabs in either the normal saline or the peroxide mixture.
6. With a rolling motion between your fingers, clean the skin area around the stoma and under the neck flange of the tracheostomy tube.
7. Pat dry with a dry cotton swab or gauze pad.
8. A tracheostomy dressing or two gauze pads may be placed under the flange of the tube to protect the skin. **NEVER** cut a gauze pad to place around the tracheostomy tube, as threads may become loose and be inhaled into the airway.



### **Stoma Care**

The tracheostomy tube may rub the stoma and cause irritation, redness, soreness and sometimes even bleeding. Mucus can also get trapped on the skin around the stoma behind the neck flange of the tube. If this is left alone, not only could there be irritation, redness and soreness, but infection also becomes a risk. Proper stoma care should become part of the everyday schedule.

### **Stoma Care Supplies**

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

### **Procedure**

1. After your supplies are collected, wash your hands with soap and water and then dry.
2. Position the patient in a comfortable way so that the tracheostomy tube and stoma area are easily reached.
3. Pour the solution(s) into the sterile container and then wet the swabs.
4. Clean the area around the stoma by cleaning away from the stoma. You may need to be firm to loosen and get rid of any dried secretions or blood. Be sure to clean completely around the whole area.
5. Clean the neck flange of the tracheostomy tube, especially the sides that lie against the patient's skin.
6. Dry the area with gauze.

## Changing the Tracheostomy Ties

A tracheostomy tube is held in place with either cotton tracheostomy ties or a Velcro® tracheostomy tube holder. These ties should be regularly changed whenever they become wet or dirty.

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

### Supplies

1. Clean tracheostomy tie or Velcro® tracheostomy tube holder
2. Scissors
3. Washcloth and towel
4. Soap and water

### Procedure

1. Collect and prepare all supplies and equipment.
2. Wash your hands with soap and water and then dry.
3. Remember, this is ALWAYS a two-person procedure. Decide who will do what. (To make it easy, we will call these two people **Person A** and **Person B**.)
4. Position the patient in a comfortable way so that the tracheostomy tube and stoma area are easily reached.
5. **Person A**: Hold the tracheostomy in place with tips of fingers.  
**Person B**: Cut or untie the old ties. Check the skin and wash it with soap and water. Dry the skin completely.
6. **Person A**: Continue to support the tube to prevent it from falling out.
7. **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 against the skin.
  - d. Take the longer end of the tie and bring it around the back of the neck, making sure it is flat and doesn't twist or roll.
  - e. Tie the ends of the trach tie together in a double square knot, close to the tracheostomy tube flange.
  - f. The trach tie should be loose enough to barely allow one finger beneath the tie.
  - g. Trim any excess trach tie.

**NOTE:** The tracheostomy tie should be tight enough so that the tube will not pull out, but loose enough so that you can slide your little finger under the tie. Do not tie the tracheostomy tube by tying a bow; this technique is dangerous because a bow may easily become untied.

An adult Velcro® tracheostomy tube holder may be used in place of a cotton twill 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 big effect on secretions. Remember, when your loved one breathes through his/her tracheostomy, the air is not filtered, warmed or humidified. Without added moisture, secretions may become thick and difficult to cough out. The type of environment both inside and outside your home will affect secretions. Heating your home in the winter and air conditioning in the summer months can dry out the air, so, more humidity is often needed.



### Fluid (Liquid) Intake

It is very important to check the amount of fluid that your loved one drinks each day, as plenty of fluid is needed to keep the mucus loose. Sometimes it may be difficult to ensure enough fluid intake. This is especially true when he/she is sick. Sickness with fever, diarrhea, sweating, or vomiting is of special concern. If you have any doubt that your loved one is drinking enough fluid, check with your doctor.



### Saline Instillation (Salt Water Squirts)

Squirting saline straight into a tracheostomy tube is one of the most important parts of tracheostomy care. This helps clear the mucus. The amount of saline you use will be different with the age and size of each person.

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 they breathe in to give the most amount of saline to the airway and to avoid too much coughing. Normal saline is available through your drug store or through your home care distributor company.

## Loosening and Suctioning of Secretions

Two ways can be used to help loosen and move mucus up and out of the airway. These are chest physical therapy (CPT) and suctioning.

### 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 loved one, the hospital staff will teach you how to do this. Alternative therapy to chest physical therapy could be Vibratory PEP. Vibratory PEP produces expiratory pressure and vibratory oscillations that help loosen and mobilize secretions.



### Suctioning

Suctioning is needed when mucus in the airway becomes too thick or too much to be coughed out or whenever they are not able to get rid of these secretions by themselves.

Suctioning is needed in most people two to three times a day. There are a few signs that suctioning needs to be done. These are:

1. A blue color is seen around the lips and mouth. This may be a sign that he/she is not receiving enough oxygen and the airway needs to be cleared.
2. The airflow in and out of the airway is reduced.
3. The patient appears fussy and fidgety.
4. He/she is using the muscles of the chest and neck to help facilitate breathing.
5. The nostrils on their nose flare out when they breathe in.
6. You can hear bubbling or noisy breathing.

The proper way to suction should be taught to everyone who will care for the tracheostomy patient. This can be the hardest part of tracheostomy care, but can be done by anyone. Suctioning will become a habit, and it is one of the most important life-saving skills you will learn.

There are two ways of suctioning commonly used. These are bulb suctioning and deep or catheter suctioning. Both of these are used in everyday care and will be taught to you by the hospital staff. Although bulb

suctioning is more frequent in children with tracheostomy tubes, this booklet covers the main points of both ways and is intended only as a guide. Your doctor, nurse or therapist will explain all 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 should never be used when deep catheter suctioning is needed.

### **Supplies**

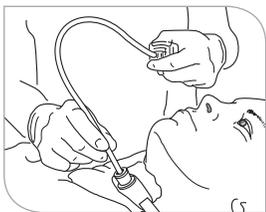
1. Bulb syringe
2. Facial tissues

### **Procedure**

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

### **Cleaning of the Bulb Syringe**

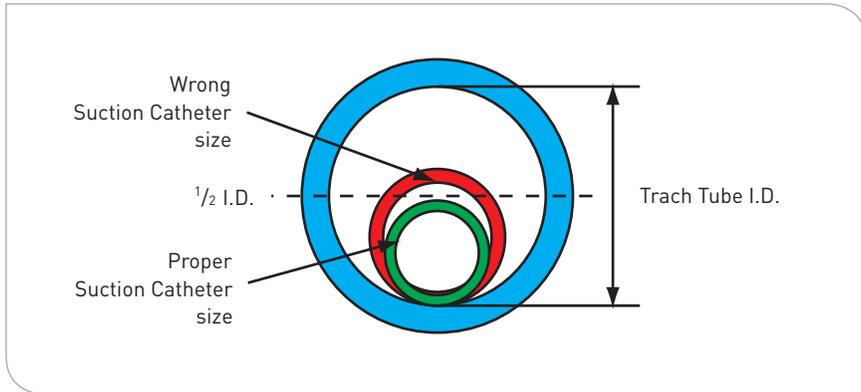
1. Wash the bulb syringe in hot soapy water after each use.
2. Rinse it well in clear water. Remember to wash and rinse both the inside and outside.
3. Place in a clean area and let it air dry.



### **Catheter or Deep Suctioning**

Catheter or deep suctioning means placing a small plastic tube (a suction catheter) down into the airway through the tracheostomy tube and using a gentle vacuum to remove secretions that are deep in the large airways.

Some people may need tracheal suctioning often, and the number of times it is needed is different for each person. Suctioning should be done whenever the large airways need to be cleared, or whenever the patient appears to be having a hard time breathing or having problems with his/her airway.



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

1. The thickness of the suction catheter should never be any larger than half the internal diameter I.D. (inside opening) of the tracheostomy tube. Your doctor or care giver will tell you the correct size of suction catheter to use.

Suction Catheter Sizing to Tracheostomy Tube Size		
Suction Catheter Size		Trach Tube Size (I.D.)
10 Fr	for use with	5.0 mm
10 Fr	for use with	6.0 mm
12 Fr	for use with	7.0 mm
14 Fr	for use with	8.0 mm
16 Fr	for use with	9.0 mm
16 Fr	for use with	10.0 mm

2. The airways are fragile and delicate 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 loved one; he/she will need your confidence, support, kindness and love.
5. You will receive training for all suction techniques at the hospital before your loved one goes home.

### Supplies

1. Portable suction machine
2. Suction connecting tubing
3. Disposable (throw away) suction catheters
4. Sterile normal saline for instillation
5. Saline or water for rinsing the catheter



### Procedure

1. Gather your supplies and equipment.
2. Wash your hands with soap and water.
3. Connect the disposable suction catheter to the connecting tube leading to the suction machine. (Use as clean a technique as possible.)
4. Turn on the suction machine and set the prescribed suction pressure. Your doctor, nurse or respiratory therapist will tell you the pressure you need. Test the suction machine before each suctioning procedure.
5. Position the patient in a comfortable way so that the tracheostomy tube and stoma area are easily reached.
6. If needed, squirt sterile normal saline into the tracheal opening.
7. Gently move forward the suction catheter down into the tracheostomy tube to the prescribed length, or until they begin to cough. At this point, pull the suction catheter back slightly.
8. Following the instructions 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 from the time suction is started.
10. Allow the patient to rest and receive oxygen if necessary between suctioning.
11. Repeat as many times as needed to clear the airway.
12. Rinse the catheter with saline or water when done.
13. Disposable catheters should be thrown away, following the maker's instructions.

**NOTE:** Suctioning requires the use of aseptic technique. You must take care not to touch anything with the catheter while suctioning. Do not re-use 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 suggested.

### Changing the Tracheostomy Tube

Many people change their tracheostomy tube at home. 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 being sent home from the hospital.

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

### Supplies

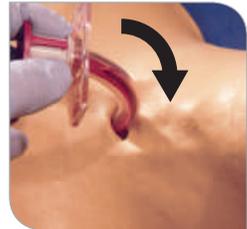
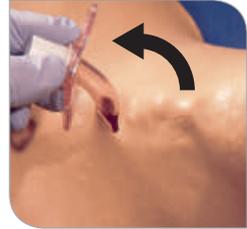
1. The suction equipment, set up and ready
2. A Smiths Medical® tracheostomy tube of appropriate size
3. Tracheostomy ties attached to the tube
4. A soapy washcloth and a dry towel
5. Scissors
6. Manual resuscitation bag

### Procedure

1. Gather all the supplies and equipment.
2. Wash your hands.
3. Suction the person well.
4. Hold the tracheostomy tube in place and then cut off or remove the old tracheostomy ties. Wash the neck with soap and water and then dry it well. Check the skin of the neck for any signs of irritation or skin breakdown.



5. Grasp the tube and pull it out with a downward rotating motion.
  6. Stretch the skin around the tracheostomy stoma site 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.
  7. Using the other hand, place the new tube into the trachea. This should be done gently, with an inward, downward rotating motion. Remove the obturator.
- NOTE:** The need for suctioning after a tracheostomy change is usually needed. The patient will need to rest after the change. Allow the time needed to rest and recover.
8. Continue to hold the clean tracheostomy tube in place and secure the ties.
  9. Changing the tracheostomy tube can often make the patient produce more secretions over the next several hours. It is also common for the change to cause a little irritation to the airway, and pinkish secretions are usually suctioned after the change. These pinkish secretions should disappear over the next few hours.



## Emergency Care Procedure

Emergencies are the most frightening situations that anyone must face. Not all emergencies will turn out to be life threatening, nor will they be seen by everyone as real emergencies. Remember, whatever you think as an emergency, is an emergency. **WHEN IN DOUBT, SHOUT!**

Start emergency care procedures, and if the emergency is not quickly resolved, call 911, the local EMS (Emergency Medical Systems), ambulance or your doctor.

### Steps in an Emergency

1. Stay calm.
2. If anyone else is around, ask them for help.
3. Review the emergency. What is the problem?
4. Start emergency care procedures.
5. Call for help! 911, ambulance, rescue squad, police or doctor.



## Self-Inflating Bag Ventilation

A bag ventilation device (shown below) is used whenever your loved one 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 patient is not breathing and you cannot find a pulse. It may also be used to help the patient breathe whenever there is difficulty or shortness of breath.

### Supplies

1. Self-inflating manual resuscitation bag/mask device
2. Oxygen tank and tubing

### Procedure

1. Collect the supplies (manual resuscitation bags should be kept ready at all times).
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. Connect the bag to the tracheostomy tube adapter.  
**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 tracheostomy tube opening or tracheostomy stoma and squeezing the bag. A seal must be made over the skin of the neck. If the tube is closed by a mucus plug and another tracheostomy tube is not available quickly, you may remove the old tube and ventilate with the bag/mask through the stoma.
5. Give the patient breaths by squeezing the bag until his/her chest rises and you feel a little resistance.  
**NOTE:** If you are trying to assist the patient's breathing, start to squeeze the bag just as the chest begins to rise.
6. Repeat as needed.

# Special Instructions for All Bivona® Tracheostomy Tubes

## Instructions for Use (IFU)

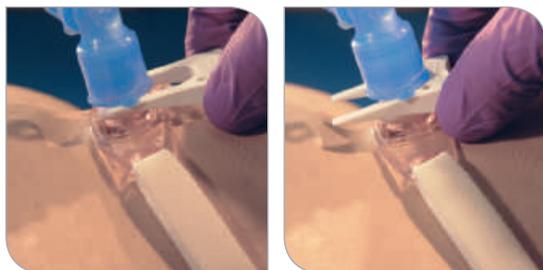
Every tracheostomy tube comes with an IFU. Do not throw the IFU away. It contains important information from its manufacturer about the proper use and care of the tracheostomy tube. Always store the IFU in a safe and handy place so you can quickly find it.

## Obturator

The obturator gives strength and direction when putting in a tracheostomy tube. After using it, always store the obturator by the bedside in case you need it again to insert the tube in an emergency.

## Disconnect Wedge

Every Bivona® tracheostomy tube with a 15 mm ISO swivel connector comes with a disconnect wedge. The wedge makes it easier to disconnect attachments from the 15 mm connector and swivel without pulling, pushing, tugging or twisting the tube and causing too much pain. Always use the disconnect wedge to remove attachments.

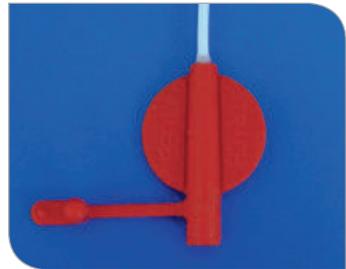
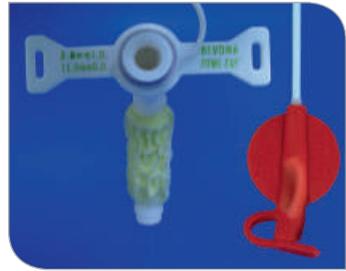
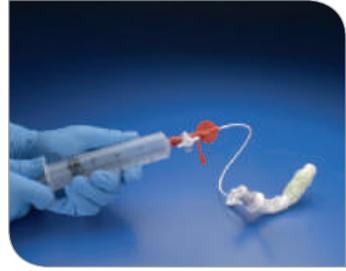


## Bivona® Fome-Cuf® Tracheostomy Tubes

The Fome-Cuf® tracheostomy tube is made of silicone and is usually used when you want a full seal when you're on a breathing machine (ventilator).

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

1. Attach the CMD (Cuff Maintenance Device) syringe to the red winged pilot port and completely deflate the cuff until you create a dimple on the red winged pilot port.
2. Pinch the collapsed pilot port with your fingers and keep holding, while you remove the CMD; then plug the pilot port.
3. Insert the Fome-Cuf® tracheostomy tube using the IFU directions.
4. Open the red winged pilot port to allow the Fome-Cuf® to inflate and create a seal.



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

1. Suction the patient's mouth and down his/her throat (your doctor or tracheostomy specialist should instruct you on the how to suction before you leave the hospital).
2. Attach the CMD to the red winged pilot port.
3. Completely deflate the cuff until a dimple is seen on the red winged pilot port.
4. Pinch the pilot port and remove the CMD.
5. Plug the red winged pilot port.
6. Undo and remove the trach strap and remove the tracheostomy tube from the stoma.

## Fome-Cuf® Maintenance (Perform Periodically as Per Instructions)

1. Suction any secretions by passing a suction catheter through the mouth and throat to the trachea above the cuff.
2. Attach the CMD to the red winged pilot port and completely deflate cuff until red pilot port dimples.
3. Hold for 10 seconds.
4. Disconnect the syringe and allow the cuff to inflate.

### Three goals are achieved when you do this

1. The cuff is checked for leaks.
2. Extra moisture in the cuff is removed.
3. The amount of air needed to fill the cuff is determined and any changes are reported to the doctor.

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

Like all Bivona® tracheostomy tubes, the TTS™ tracheostomy tube is made of silicone. When the cuff is completely deflated, the cuff collapses tightly to the shaft of the tube. This feature gives this tracheostomy 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.

### Insertion

1. Attach a 20 cc syringe to the pilot port of the tracheostomy tube and fully deflate the TTS™ cuff.
2. Remove the syringe from the pilot port. The pilot balloon should be completely flat.
3. Insert the tube following the IFU directions provided with the tracheostomy tube.



### Cuff Inflation

**NOTE:** Inflate the TTS™ cuff with sterile water only.

1. Be sure the TTS™ cuff is completely deflated.
2. Using a 10 cc syringe, draw up 10 cc of sterile water and take out any extra air from the syringe.
3. Firmly attach the water filled syringe to the pilot port.



4. Slowly inflate the TTS™ cuff with water, using a volume prescribed by the doctor and the tracheostomy specialist or use minimal leak technique (MLT) or Minimal Occlusive Volume (MOV) if the patient is on a ventilator to make a seal in the trachea.
  - a. Minimal Leak Technique is described as listening to the neck with a stethoscope and then inflating the cuff just enough to allow a leak at the highest breathing pressure.
  - b. Minimal Occlusive Volume is described as listening to the neck with a stethoscope and inflating the cuff just enough not to allow air to leak at the highest breathing pressure.

### **Bivona® Aire-Cuf® Tracheostomy Tubes**

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

#### **Inflation**

1. Attach a 10 cc syringe to the pilot port and completely deflate the cuff (the pilot balloon should be completely flat), then remove the syringe.
2. Set the syringe plunger to 10 cc and then attach the syringe to the pilot port.
3. Slowly inflate the cuff while listening for a leak with a stethoscope at the neck. Stop inflating when the leak is no longer heard. This is the method you should use for all air cuffs.
4. Remove a slight amount of air to create a slight leak.

### **Cleaning and Reusing Bivona® 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 the tracheostomy tube many times. In addition to these instructions, please read the instructions listed on the IFU provided with the tracheostomy tube.

Only the 15 mm ISO swivel connector on the neonatal and pediatric Bivona® tubes can be taken off before cleaning. Remove the swivel by putting the disconnect wedge between the plastic swivel and base of the neck flange. This allows you to clean in and around the swivel. Before storing the tube in a clean plastic bag, re-connect the swivel by pointing the flange on the swivel towards the back of the tracheostomy tube. For the new single piece tracheostomy tubes with a fixed 15 mm ISO swivel connector above cleaning instructions do not apply due to a fixed connector.

## **Supplies for Use after Removing the Tracheostomy Tube**

1. Mild soap or detergent
2. Soft bristled brush
3. Clean plastic bag

## **Supplies for Use Immediately Before Inserting the Tracheostomy Tube**

1. Bag with used tracheostomy tube and obturator
2. Pan of rapidly boiling distilled water with a lid

## **Procedure**

1. Gather all supplies needed.
2. Gently wash the inside and outside of the tube in a mild, soap or detergent using a soft bristled brush. Be careful! Too much scrubbing, scraping or stretching may damage the tube.
3. Rinse the tube with water and put it aside to air dry completely.
4. Gently wash the obturator with new water and detergent in the same way as the tracheostomy tube.
5. Rinse the obturator and set aside to dry completely.
6. When the tube and obturator are completely dry, store the tube with the obturator in place in a clean plastic bag.
7. Right 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 to sanitize them. Cover the pan and then **REMOVE THE PAN FROM HEAT** and let cool. Once the pan is cool, remove the tube and obturator from the water, handling only the neck flange of the tube and the obturator handle. Be careful not to touch the tube and other parts of the obturator as touching them will get them dirty.
8. Closely look over the trach tube before using it. Do not use a tube that is cut or damaged.

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

1. Before cleaning, make sure that the cuff is fully expanded by opening the red winged pilot port and then plugging it to stop liquids from getting the foam wet.
2. Wash the tube as instructed above, make sure to allow the tube to air dry completely with the red wing pilot port open.
3. Store in a clean plastic bag as instructed above.
4. Before placing the tube in boiling distilled water, plug the red wing pilot port.
5. Complete sanitization process as listed above in step 7.

# Living with a Tracheostomy

When your loved one comes home with a tracheostomy tube, it is often very discouraging for family and friends to think that life could ever return to normal, but this is possible. The most important things that anyone can have when leaving the hospital with a tracheostomy tube are hope and willpower. Life can return to normal! People with tracheostomy tubes can still go through everyday happenings; and if the family provides space and support, the patient can grow in ways that will amaze everyone.

## Seeing a Tracheostomy Tube for the First Time

When a person with a tracheostomy tube 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. For older children and adults, it may be a good idea to show them pictures of people with tracheostomy tubes in place. This will give them a chance to look as long as they want so that they can get comfortable with what the patient will look like with a tracheostomy tube. Everyone will have questions regarding your loved one. It is important to reflect a positive attitude because people will be following you as to how to act around your loved one. Tell them about how you felt the first time you saw the tracheostomy tube. Reassure friends and family that the patient is still the same person but must now breathe differently. Remind them that it is very important to show how much you love them!

## Getting Ready to Come Home

When you come home, you take on a huge job. You may or may not have a nurse to help you at home, but even with this you will need to be ready to care for special needs. This includes preparing yourself mentally! Your feelings when you bring your loved one home will help decide what life is going to be like. A positive attitude will bring on a positive experience. There will be ups and downs, but remember that it will all be worth it!

Besides preparing yourself mentally, you will have to prepare the home environment for the patient. One of the most important things you must have is a phone in case of emergencies. The closer the phone is to where your loved one 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. Patients with tracheostomy tubes do not have the ability to filter out particles like smoke. Although devices like an HME filter help to filter out particles, smoking is still not a good idea around your loved one. If you must smoke, please get in the habit of smoking outside.

You will want to set aside a room in your house for your loved one. This room will serve as a bedroom, treatment room, and supply room for all equipment. When setting up the room, keep in mind what you are going to be doing in the room. Arrange furniture so that care is easy to give. In an emergency, you will appreciate that it is easy to get around the room. Also, make sure that the room is free from litter. This can be difficult due to all the equipment and supplies that you are going to need.

Another important thought to keep in mind is the location of electrical plugs. If a lot of monitors and machines are needed 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 person 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 you in the event of a power outage.

One final consideration that you need to make is the storage of all the supplies. The more organized you are with your supplies, the easier it will be to find them when needed. You will also have an easier time knowing what supplies need to be ordered before they run out.

**One last important note:** Do not leave the hospital if you have not learned how to perform CPR (CardioPulmonary Resuscitation) and other emergency actions on your loved one! It is very important that you have the proper training on how to provide care for them, especially in the event of an emergency. Bringing the patient home will be more successful if you have been prepared to care for special 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 give you someone else who can care for your loved one. You will have more peace of mind if you know that a trained person is staying with your loved one if you need to leave him/her at home.

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

Sadly, when you go out in public, people are going to stare when they see your loved one's tracheostomy tube. The important thing to learn is to be calm with this attention. Remember that for most people, this is going to be the first time that they have ever seen a tracheostomy tube. Think about how you felt the first time you saw the tracheostomy tube. Weren't you curious about it? Did you look at it for a long time? People do not mean any harm by this, they are just curious by nature.

The most curious, of course, will be children. If you feel comfortable, it's okay to explain to them what has happened to your loved one. Much like you told your friends and family, explain to the children that your loved one 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 loved one doesn't want to deal with the stares and questions, it's okay. Haven't they been put through a lot already? 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 tracheostomy tube. Some people use scarves or bandannas to cover the sight of the tracheostomy tube. Just remember to be patient with the rest of the world! They don't know any better.

### **The First 24 Hours Home**

The first day home will be the hardest! There is no good way to prepare for all the feelings that you will have. Much like bringing home a new baby, bringing home your loved one will be a happy, yet stressful time. Will you be able to care for him/her properly? What did the nurses and doctors

forget to tell you? What did you forget to ask? Don't worry! As long as you have tried to learn all that you can to take care of your loved one, you will do fine. Much like a new baby, you will find that your instincts will tell you what you need to do. Every journey begins with that first step and your new life will begin with this first day. Slowly, you will find your family falls into a schedule and you will totally forget how fearful that first day was!

Many families and children resume a fairly normal way of life after bringing a loved one home with a tracheostomy. You should allow them to work together with other people as normally as possible. Let them continue with as many activities, hobbies and interests as possible that are within the limits of safety. A tracheostomy tube should not prevent you from doing things outside of your home.

Getting out of the house is a good idea, but always be prepared for anything surprising. It is a good idea to have a bag with all the supplies that you will need in case of an emergency.

### **These supplies should include**

1. An extra tracheostomy tube the same size that your loved one uses.
2. A tracheostomy tube that is a size smaller than the one currently in use in case the stoma shrinks during an emergency.
3. Suction machine (a handheld suction machine is recommended in case you are without power during an emergency).
4. Resuscitation bag (with face mask and trach adapter).
5. Scissors.
6. Pair of hemostats/forceps.
7. Gauze pads.
8. Bulb syringe.
9. Antiseptic wipes.
10. Water-soluble 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. Latex or non-latex gloves.
15. Plastic clean-up bag.
16. Flashlight.

### **One Final Thought**

Your loved one has overcome a traumatic event in life, but now, it's time to live!

# Frequently Asked Questions

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

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

- Call your doctor if at any time you are worried about the wellness of your loved one.
- In case of emergency call 911, the ambulance, or rescue squad, start CPR, then call the doctor after the ambulance has arrived and taken over the care of your loved one.

**Q: *What do I do if my loved one vomits?***

A: If the patient vomits, turn his/her head away from the tracheostomy stoma so that the vomit will not go down the opening. Using the bulb syringe or suction catheter is recommended if you wonder whether or not any vomit went down the tracheostomy opening.

**Q: *Does he/she need to eat special foods?***

A: A person with a tracheostomy does not need special food. If there is another reason why a special diet may be required, your doctor or the dietitian at the hospital will contact you.

**Q: *Can my loved one eat normally?***

A: Some safety measures should be taken while eating. Meals should be eaten in an upright position.

**Q: *What should be considered when taking a bath or shower?***

A: There are a few concerns to keep in mind when bathing. These precautions are meant to shield the tracheostomy area from water. If water should accidentally be splashed into the tracheostomy tube or the trachea, suction the tracheostomy tube right away. If you have an adjustable showerhead, adjust it to hit their body well below the neck area. Protective shower shields are available from your home care company.

**Q: *How will my loved one communicate?***

A: With the tracheostomy tube in place, your loved one cannot speak. But remember that speaking is only one way of communicating. Facial expressions, gestures, writing, touching as well as body language can also be helpful. There are attachments to the tracheostomy tube that you can buy that can help someone speak. These are referred to as speaking valves. Also, if the patient is dependent on a breathing machine (ventilator), there are special tracheostomy tubes that can help them speak.

**Q: *How will I know if he/she needs me?***

A: If your loved one cannot use any of the speaking choices listed above, other ways of making noise will have to be replaced for their voice. A bell at the bedside at night may be used to signal others.

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

A: When you travel, you must always carry with you the supplies your loved one may need to keep the airway open and clear. These will include suction, suction supplies, supplies to change the tracheostomy, everyday care supplies and emergency care supplies. Extra supplies should be kept in a travel kit so they are ready to go. Whenever you travel to another part of the country, the type of weather must be considered. Some parts of the country are dry and others are quite humid. This will affect the level of secretions and the amount of extra humidity that will need to be supplied. Drier areas of the country require more humidity to be added. Check on the availability of health care services at your destination. Always discuss long trips with your doctor.

# Telephone Numbers/Contacts

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

## Important Facts

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

# Glossary

## ***Airway***

The term used to describe the air passages.

## ***Apnea***

Not breathing.

## ***Aspirate***

To suck in or suck out.

## ***Catheter***

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

## ***Cyanosis***

A bluish color present in the skin when the oxygen level of a patient is low.

## ***Dyspnea***

Air hunger or shortness of breath, difficulty breathing.

## ***Hypoxia***

Low oxygen in the body. When the oxygen available to the cells is not enough to meet the cellular needs.

## ***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.

## ***Nosocomial Infection***

An infection acquired in the hospital.

**Respiratory Tract**

The system of air passages including the nose, larynx, trachea, and lungs.

**Stoma**

The opening through the skin into the trachea.

**Suctioning**

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

**Stenosis**

A narrowing caused by scar tissue in the trachea.

**Tachycardia**

A fast or rapid heartbeat.

**Trachea**

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

**Tracheostomy**

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

**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 Tube Ties**

Ties made of twill tape or soft cotton Velcro® straps. The ties secure the tracheostomy tube to the patient.

**Tracheotomy**

The surgical procedure of making an opening into skin and tissues and into the windpipe.

**Ventilator**

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

**Viscid**

Sticky, thick.







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