



Patient Education

Going home with a Tracheostomy

While in the hospital you or a caregiver will learn how to care for your tracheostomy (trach care). When you go home your community nurse or respiratory therapist will support you.

Helpful tips at home

Contacts, keep close by:

- community nurse or respiratory therapist phone numbers
- emergency phone numbers
- oxygen supply phone number
- equipment supply phone number
- a list of questions, problems, notes in a book or diary
- a calendar for follow-up appointments

To set up your home, use:

- good lighting
- 3 pronged grounded outlet
- a place to put all your supplies; a room with shelves or an empty large drawer
- a room that is easy to keep clean and free of dust
- a comfortable spot in the room to sit or lie down
- a safe area away from children and pets
- a place free of drafts away from open windows, heating ducts and fans

To do tracheostomy care:

- set aside 30 minutes
- limit distractions; such as not answering your phone

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Preventing infection

The most important thing you can do to prevent infection is to clean your hands. Always clean your hands before and after doing anything to the tracheostomy area or tube.



Tips to prevent infections

- ✓ Never reuse clear plastic catheters.
- ✓ Always perform routine trach care.
- ✓ Keep the trach area clean and dry.
- ✓ Keep trach tubes and suction equipment clean and dry.
- ✓ No smoking in the house.
- ✓ Clean equipment regularly.
- ✓ Replace disposable equipment on a regular schedule.
- ✓ Avoid people, including friends and family, that have colds or the flu. If they must be near you they should wear a mask.

Infection


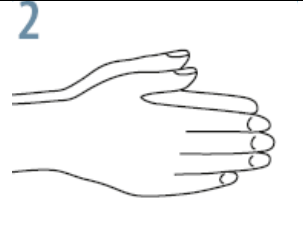
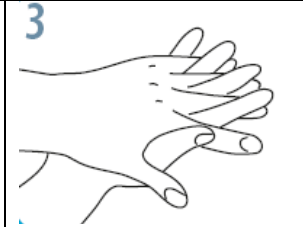

At the first sign of an infection call your doctor. Possible signs include:

- | | |
|--|---|
| <ul style="list-style-type: none">✓ trach area appears red and swollen✓ foul odour from the trach area or secretions✓ secretions change colour to yellow or green✓ increase in the amount of secretions produced✓ breathing becomes difficult✓ increased need for inhaled medications | <ul style="list-style-type: none">✓ increased chest tightness✓ increase in the amount of coughing✓ fever or chills✓ increased need for suctioning✓ unwell feeling✓ if you use an oxygen saturation machine the oxygen levels are lower than usual✓ ventilator pressures are higher than usual |
|--|---|


Cleaning your hands

Cleaning your hands well is important. The best way to stop the spread of germs and infection is to clean your hands. There are 2 ways to clean your hands. You can use soap and water or an alcohol based hand rub.



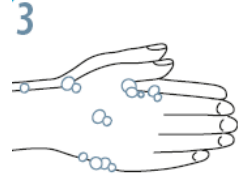

How to clean your hands with an alcohol based hand rub

			
Apply 1 to 2 pumps of product to palms of dry hands.	Rub hands together, palm to palm.	Rub in between and around fingers.	Rub back of each hand with palm of other hand.

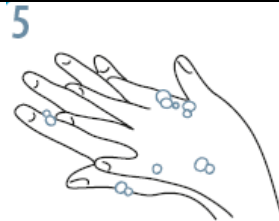

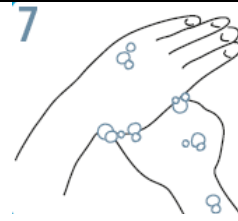

Rub hands for 15 seconds


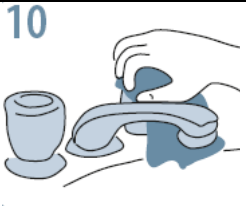

			
Rub fingertips of each hand in opposite palm.	Rub each thumb clasped in opposite hand.	Rub hands until product is dry. Do not use paper towels.	Once dry, your hands are safe.

How to clean your hands with soap and water

			
Wet hands with warm water.	Apply soap.	Lather soap and rub hands palm to palm.	Rub in between and around fingers.

Lather hands for 15 seconds

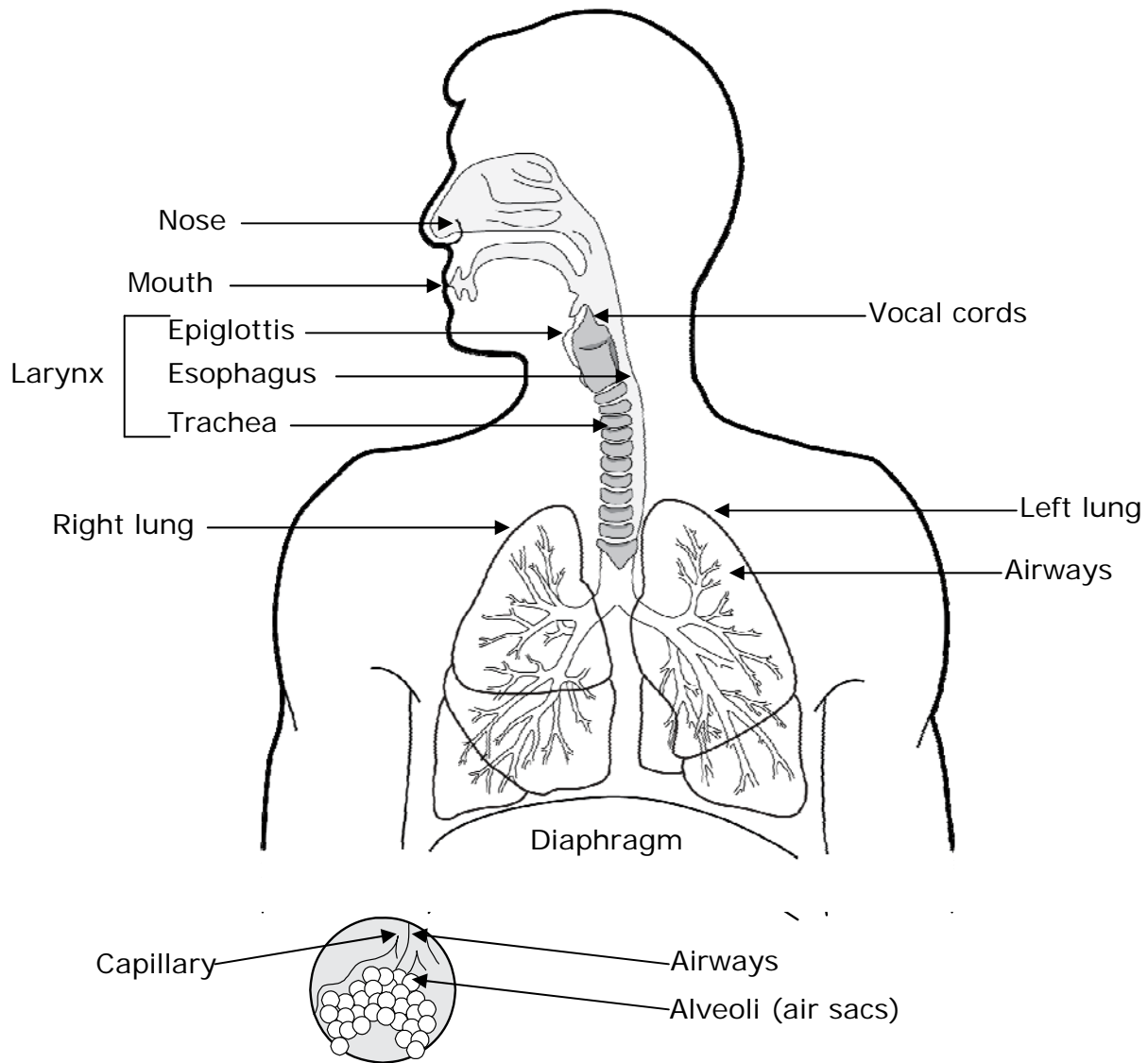
			
Rub back of each hand with palm of other hand.	Rub fingertips of each hand in opposite palm.	Rub each thumb clasped in opposite hand.	Rinse thoroughly under running water.

		
Pat hands dry with paper towel.	Turn off water using paper towel.	Your hands are now safe.

Respiratory system

Your respiratory system is how you breathe. Breathing is when you take fresh air into the lungs and blow out used air. The air you breathe in is high in oxygen and the air you breathe out is high in carbon dioxide.

While the air is in the lungs it comes into close contact with the blood which picks up the oxygen and carries it to the rest of the body. At the same time the blood drops off the waste product carbon dioxide to be exhaled or breathed out.

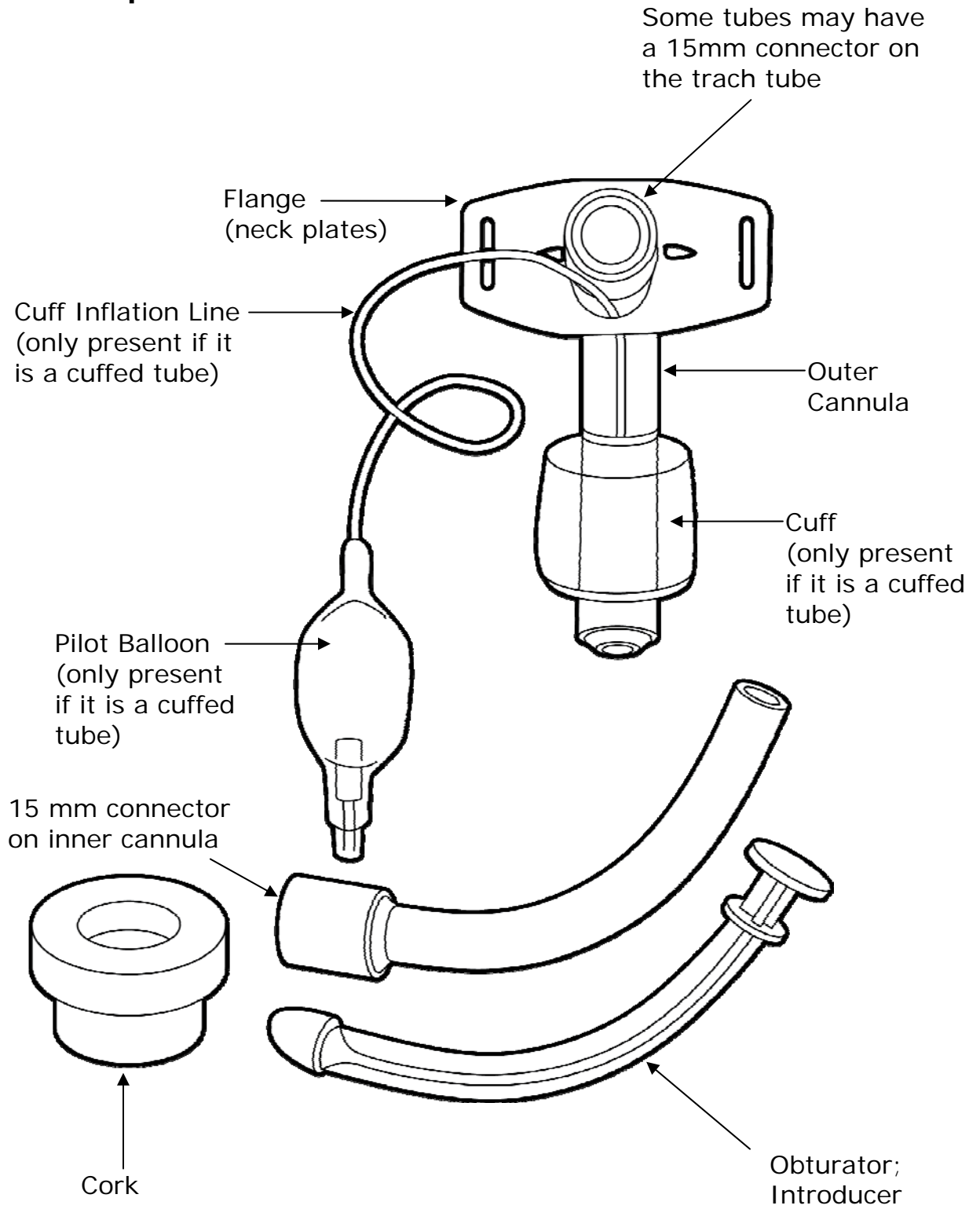


Your respiratory system is made up of many parts

1. **Nose or Nasal Cavity** – acts as a passageway to move air in and out of the lungs. It filters, warms and humidifies the inhaled air. It connects into the pharynx.
2. **Mouth or Oral Cavity** – also acts as a passageway to move air in and out of the lungs. It is another passageway in case the nose is blocked.
3. **Throat or Pharynx** – a tube like structure that extends from the base of the skull to the esophagus. It is about 13 cm or 5 inches long. It is in front of the cervical spine and it is a passageway for the respiratory and digestive tracts. It is made of muscle and lined with mucous membrane.
4. **Epiglottis** – is a flap of tissue that hangs over the larynx like a protective lid. It stops food from entering the larynx and trachea while swallowing food.
5. **Larynx or Voice Box** – is part of the air passage connecting the pharynx with the trachea. It holds the vocal cords. It produces a large bump in the neck called the Adam's Apple. Air must be able to pass through here in order to be able to speak.
6. **Esophagus or Food Pipe** – extends from the pharynx to the stomach. It is about 24 cm or 10 inches long. It carries food and liquid to the stomach.
7. **Trachea or Windpipe** – a tube that carries air from the pharynx into the lungs. It then divides into 2 main tubes called bronchi. It is about 11 cm or 4½ inches long and 2 cm or ¾ inches wide.
8. **Bronchi or Air Tubes** – are tubes which carry air in and out of the lungs. The trachea divides into the 2 main bronchi, one to each lung. It then further divides into smaller bronchi much like a tree branch.
9. **Bronchioles** – are the smallest subdivision of the bronchi. Alveoli can be found at the end of the bronchioles.

10. **Alveoli or Air Sacs** – are small sacs at the end of the bronchioles, where the air comes in contact with the blood vessels called capillaries. This close contact allows the blood to pick up oxygen from the air in the sacs and drop off carbon dioxide to be exhaled.
11. **Lobes or Sections of the Lungs** –the lungs are divided into lobes. The right lung has 3 lobes and the left lung as 2 lobes.
12. **Cilia** – are small hairs that line all the bronchial tubes. They continuously sweep secretions upwards to the throat where they will be swallowed or coughed up. The secretions trap inhaled dusts and germs and then the secretions get swept out. This is a protective mechanism of the lungs.
13. **Ribs** – there are 12 pairs of ribs which are bones supporting and protecting the chest cavity.
14. **Intercostal Muscles** –are muscles in between the ribs. These muscles help the diaphragm in normal breathing.
15. **Diaphragm** – a dome-shaped muscle that separates the chest and stomach. It is the main breathing muscle, it moves up and down. During inspiration or breathing in, it moves down and when exhaling or breathing out, it moves up.
16. **Ventilation** – is when air moves into and out of the lungs.
17. **Respiration** – is when oxygen and carbon dioxide exchange within the body's tissue.

Trach tube parts



Suctioning the tracheostomy

- ✓ Suctioning removes secretions from your airway.
- ✓ To loosen thick secretions 2 to 5 mls of normal saline may be squirted down the tracheostomy tube before suctioning.
- ✓ On any outings a portable suction machine, with battery power that is properly stocked, must be with the person with the tracheostomy tube.

Suction machine pressure _____

Suction catheter size and type _____

When to suction

- ✓ The individual:
 - asks to be suctioned
 - is short of breath
 - has harsh or decreased breath sounds
 - is wheezing
- ✓ You can see secretions in the tracheostomy tube or ventilator tubing.
- ✓ You can hear gurgling with your ear or through a stethoscope.
- ✓ You feel vibrations, which may be due to secretions, by placing your hands on the individual's chest.

- ✓ There are increased airway pressures or decreased tidal volumes (if being ventilated).
- ✓ There is an unexplained decrease in oxygen saturations (if an oxygen saturation machine is used).

Suction supplies

- | | |
|--|---|
| <ul style="list-style-type: none"><input type="checkbox"/> suction source-wall, electrical or portable (battery operated)<input type="checkbox"/> sterile disposable suction catheters of correct size and type<input type="checkbox"/> clean gloves | <ul style="list-style-type: none"><input type="checkbox"/> normal saline/water flushing solution<input type="checkbox"/> cup or container<input type="checkbox"/> manual ventilator, if needed<input type="checkbox"/> extra inner cannula just in case the inner cannula clogs (if applicable/used) |
|--|---|

Helpful tips about suctioning

- ✓ The catheter should not be in the airway for more than 10 to 15 seconds.
- ✓ **Do not apply suction when inserting the catheter.** Only apply suction when withdrawing the catheter.
- ✓ The same catheter may be used during each suction attempt during the same suction session as long as it has not touched anything, other than the tracheostomy tube.
- ✓ If the inside of the catheter becomes plugged, throw it out. Replace with another sterile catheter.
- ✓ Do not dip the catheter into any type of water to test the suction or to clear the catheter between suction attempts.
- ✓ When suctioning is complete throw out the catheter. **The same suction catheter should never be used for more than 1 suction session.**
- ✓ Some individuals may have to be manually ventilated (bagged) before and after suctioning. This may help move secretions higher in the airway. This may also help with breathing.
- ✓ Reconnect trach mask, trach swivel, cork/speaking valve, ventilator and/or the heat and moisture exchanger when needed.
- ✓ May use alcohol based hand rub for cleaning hands before and after suctioning if soap and water not available.

How to suction

1. Gather supplies.
2. Attach connective tubing to the suction unit. You may test the suction strength by turning the unit on and blocking the end of the connective tubing with your thumb. Check the gauge to see that your recommended pressure level is reached.
3. Attach suction catheter to connective tubing by pushing thumb control port through the paper backing on the package. Be careful not to touch the rest of the catheter.
- 4. Clean your hands.**
5. Put a clean glove on the hand that holds the catheter. This is your clean hand, only this hand touches the catheter and nothing else, even if you decide to wear gloves on both hands. If you are right handed use your right hand. If you are left handed use your left hand.
6. Remove the tracheostomy attachment: cork/speaking valve, track/swivel/mask, heat and moisture exchanger or remove from ventilator.
7. Turn on suction machine with the ungloved/dirty hand.
8. Place package with suction catheter under arm of clean hand. Pull out the catheter slowly with the ungloved (dirty) hand and with the gloved (clean) hand grasp the catheter, about 6 inches from the tip. Do not allow the catheter to touch anything.
9. Do not cover the thumb port while inserting the catheter. Insert the catheter into the tracheostomy opening quickly but gently, do not stop until you feel a resistance. When resistance is felt pull the catheter back slightly.
10. Then cover the thumb port to apply suction and pull out the catheter slowly. Keep the thumb port covered while you are pulling out the catheter.

TIP: You can pull it straight out or use a twisting motion. It all depends on what works best in removing the secretions. It does take practice to figure out the best way to remove secretions.

11. Repeat if needed. Be certain to give the individual a break in between suctionings, if needed connect to oxygen/ventilator or you may bag.
12. If the individual coughs secretions into the trach tube, you can help remove them by either:
 - a. Removing the inner cannula and cleaning/replacing it.
 - b. Suctioning the inner cannula out by placing the suction catheter into the trach tube and then applying suction to clear the inner cannula.
13. When done with suctioning, disconnect the suction catheter from the connective tubing. Wrap the catheter around the gloved (clean) hand and then pull the glove over the catheter.
14. Throw out the suction catheter and glove.
15. Rinse the connective tubing with flushing solution.
16. Turn off the suction unit.
17. **Clean your hands well.**

Suction step review

1. Advance suction catheter quickly – do not cover the thumb port.
2. Go until resistance is felt.
3. Pull back slightly.
4. Cover thumb port.
5. Pull suction catheter out slowly.
6. Repeat if needed after a break.

One suction attempt from entry to exit should NOT be longer than 15 seconds. If you cannot advance the catheter in the usual way, seek medical attention.

Suctioning has some risks which may include:

- a lack of oxygen
- heart rhythm problems
- an injury to the airway
- a collapse of the lung
- an infection
- decreased blood pressure
- a decreased heart rate
- coughing or bronchospasm
- bleeding
- stopping the heart or death

To decrease these risks, it is very important to:

- limit suction time to 10 to 15 seconds each time you suction
- use the proper catheter size and suction pressure

Doing stoma care

Keeping your stoma clean will help prevent an infection. It is important to do stoma care 2 times a day. It is best to do the stoma care in the morning and before going to bed.

Supplies

- distilled sterile water or sterile normal saline
- cotton-tipped applicators
- sterile tracheostomy dressings
- mirror, angled for viewing stoma area
- disposable cups for water
- gauze

Stoma care

1. Remove old tracheostomy dressing and throw out.
2. Clean your hands.
3. Inspect edges of stoma for signs of infection or irritation. These signs include redness, drainage, crusting, odour, pain or irritation.
4. Dip cotton-tipped applicator into the distilled sterile water or normal saline and clean the area around the stoma. Gently loosen any crusted secretions. Always work from the tube outwards.
5. Remove any crusted secretions from the outside of tube or from the flange with moistened applicator. Throw out each applicator after use.
6. Dip a new cotton-tipped applicator in distilled sterile water or normal saline and rinse the area.
7. Apply sterile dressing under the trach flange being careful not to twist the tracheostomy tube, pull on the flange or loosen the trach ties.
8. Throw out water and containers.

Note: Used applicators, dressings and cups are a source of infection. They should be well wrapped in a plastic or paper bag and thrown out.

Cleaning the tracheostomy tube

- ✓ Clean your tracheostomy inner cannula tube 2 times a day. After you get up and before you go to bed.
- ✓ **If you have a metal or silver trach tube ask your Respiratory Therapist for special cleaning instructions. Do not use hydrogen peroxide with metal or silver tubes.**

Supplies

- | | |
|--|---|
| <input type="checkbox"/> sterile distilled water | <input type="checkbox"/> tweezers, if used |
| <input type="checkbox"/> hydrogen peroxide | <input type="checkbox"/> cotton-tipped applicators/pipe cleaner |
| <input type="checkbox"/> gauze | <input type="checkbox"/> trach ties |
| <input type="checkbox"/> bowls | |

Size and type of tracheostomy tube _____

Cleaning reusable plastic inner cannula

Always inspect the inner cannula for breakage or overuse. If damaged throw out and replace with a new one.

1. Clean your hands.
2. Gather supplies.
3. Pour equal parts of sterile distilled water and hydrogen peroxide into a bowl. In another bowl pour sterile distilled water only.
4. Remove the inner cannula from the trach tube. Replace it with a clean one, if available. If the trach is open only at night you can place the appropriate adapter on for daytime (such as the cork, speaking valve, trach-vent or ventilator connector).

5. Soak or pour the water and hydrogen peroxide mixture through and over the inner cannula until the secretions are loosened. Do not use brushes as they can scratch the surface. Scratched surfaces can be an area where bacteria can stick and grow.
6. Soak the inner cannula in the sterile distilled water to rinse it. Run some sterile distilled water through it to be sure it is rinsed well.
7. Dry the outside of the inner cannula with the gauze. Tap it against the gauze to remove any drops of water from inside the cannula. Never use whipping motion to remove drops from inside the cannula as this can spread drops into the air.
8. Store it in a clean place for the next use.

Helpful tips

- ✓ If you use disposable inner cannulas you only need to change the inner cannula once a day. Replace it with a new one and throw out the old one. The inner cannula should be checked with each stoma care session by removing it and if blocked replace it with a new inner cannula. This may be adjusted depending on how many inner cannulas you have.
- ✓ At night, clean your cork/speaking valve with warm soapy water, rinse well and air dry.

Weekly cleaning of containers

1. Wash all containers in soap and water, and rinse well.
2. Soak each container and lid in a solution of 1 part vinegar and 3 parts water for 30 minutes.
3. Rinse each container and let air dry.

Sterilizing distilled water

You can buy distilled water from your home care company, drug store or supermarket. A common type of bacteria that can grow in distilled water is Legionella. Distilled water and glass storage containers must be sterilized or boiled before using to kill any existing bacteria.

- ✓ Enough water may be prepared to be used over 3 days.

Follow these steps to sterilize distilled water:

1. Use the same pan each time.
2. Put glass container and distilled water into pan.
3. Cover pan and bring distilled water to a boil.
4. Allow distilled water and glass container to boil for 15 minutes.
5. After 15 minutes turn the heat off.
6. Leave the lid on the pan while the water is cooling.
7. When the water has cooled, pour into the boiled glass container and seal. It does not need to be refrigerated. Keep out of direct sunlight.

The Portable Suction Unit



Charging the battery

The portable suction machine should be plugged into AC power at all times, except during portable use.

Refer to the company's manual for charging instructions.

Adjusting the amount of suction

The unit has a vacuum regulator knob located on the side. The desired level of vacuum can be set by watching the gauge above the adjustment knob. The knob is used to set the level of suction pressure. To check or set the suction pressure block the end of the connective tubing with your thumb and adjust the knob until the recommended pressure level is reached.

Your respiratory therapist will recommend the suction pressure best for you. This level will be set by the respiratory therapist. To check the level, block the end of the connective tubing with your thumb and ensure the gauge reaches the set pressure.

My suction pressure is: _____

Using the portable suction unit

- ✓ When mobile and out with the suction unit make sure to never tip it over. If the suction machine tips on its side or upside down, liquid may get into the compressor and damage the unit.
- ✓ Before going out, check that the portable suction is stocked with supplies, the battery is fully charged and make sure you have the power cord.

Portable suction supplies

- suction catheters – correct size and type
- connective tubing
- normal saline
- gloves
- hand sterilizer
- flushing solution
- spare inner cannula, if applicable
- obturator (introducer)
- spare trach – correct size and type
- mouth suction (if needed)

Cleaning the portable suction unit

Change the filter

Change the filter when it:

- ✓ looks dirty
- ✓ wet
- ✓ blocked
- ✓ is needed, or every 2 months (depends on how often it is used)
- ✓ is recommended by the manufacturer

Empty the canister

The canister should be emptied every day and when it is full. Empty into a toilet. Wash it with soapy water and rinse well. Some water may be left in the canister to prevent secretions from sticking to the bottom.

Every week

- The suction machine should be wiped down with a damp cloth.
- The connective tubing should be changed or when soiled/plugged.
- After the suction canister is washed and rinsed it should be disinfected.

Disinfecting the suction unit

Gather supplies

- mild dishwashing soap and water
- vinegar
- clean towel

1. Detach the connection elbow tubing from the lid. Remove the canister with lid from suction unit.
2. Remove lid and empty contents into toilet.
3. Wash in warm soapy water.
4. Rinse with tap water to remove soap residue.
5. Submerge lid and canister pieces in a solution of 1 part vinegar to 3 parts water for 30 minutes. Rinse well and shake off the excess water.
6. Put lid back on canister.
7. Attach connecting elbow to vacuum port on canister lid. Check for cracks and tears. Throw out and replace broken, cracked or worn pieces.
8. Obtain parts from your home respiratory company.

Your company: _____

Problems and what to do

If your unit is not working properly please review this guide before you contact the dealer.

Problem	What to do
Unit does not turn on	<ol style="list-style-type: none"> 1. Check power sources and connections. 2. Check the wall outlet by testing with a lamp. 3. Check that the battery (if used) is fully charged.
Pump runs, but no vacuum (suction pressure)	<ol style="list-style-type: none"> 1. Check that all tubing is connected correctly. 2. Check tubing connections and canister for leaks, kinks or cracks. 3. Make sure the lid is on tight. 4. Make sure that the float shut-off is not stuck closed (usually found under the lid). 5. Check that the vacuum adjustment knob is set correctly. 6. Make sure none of the tubes are kinked. 7. Make sure the canister is not completely full.
Low vacuum	<ol style="list-style-type: none"> 1. Check system for leaks. 2. Use vacuum adjustment knob to check/increase vacuum level. 3. Push vacuum regulator knob and then release. 4. Make sure none of the tubes are kinked. 5. Make sure the canister is not completely full.

Problem	What to do
Battery will not hold a charge	<ol style="list-style-type: none">1. Check electrical connections during charging. Yellow light will be on as it is charging.2. Check wall outlet by testing with a lamp.3. Ensure that charging time is sufficient, 8 to 10 hours needed. Reiview the manufacturer's manual.4. Contact your supplier.

Use of a Manual Resuscitator

Manual resuscitators, also known as bags or manual ventilators, are devices that consist of a self-inflating bag and a non-rebreathing valve. The bag you use may be a different brand. Please read the company's instructions.

Manual resuscitators provide air to fill the lungs. Squeezing it with your hands provides the air. When it is released the bag refills itself. Oxygen can be added if needed.

Bag outlet
(connects to trach
tube/15mm adapter)



Example of a Manual Resuscitator

When to use a manual resuscitator or bag

- ✓ If the individual is having difficulty breathing
- ✓ before and after suctioning (if needed)
- ✓ to try and help move secretions
- ✓ if there is a problem with the ventilator
- ✓ for breath stacking assisted cough, if applicable

Must do's:

- ✓ A manual resuscitator (bag) should always be with the individual if using a ventilator, just in case of ventilator failure.
- ✓ Individuals with a tracheostomy tube may need a bag.
- ✓ The bag must be tested on a regular basis for proper functioning.
- ✓ If you manually ventilate an individual, you must always make sure that you are ventilating effectively by watching the individual. Is the chest moving up and down?
- ✓ Never use a bag in a smoke filled room.
- ✓ Extra oxygen only needs to be added if the individual needs more than is in the room air. The amount of oxygen needed is determined by the doctor.
- ✓ Make sure that an inner cannula with a 15 mm adapter is stored with the bag for individuals who do not have a 15 mm inner cannula in place. For example, certain trach tubes that are corked during the day, need a 15 mm adapter in order to be able to connect the manual resuscitator to the trach tube.
- ✓ Individuals with a cuffed trach should always have a 10 cc syringe available to inflate the cuff.
- ✓ Individuals needing oxygen should always have the reservoir bag, oxygen tubing and an oxygen source available.

Each day do a leak/pressure test

A leak in the bag will prevent the air from filling the lungs. In order for it to work well it must be leak free. Every day you must do a simple pressure test to make sure there are no leaks.

Pressure test for manual resuscitator

1. Cover the outlet of the bag with the palm of your hand and with your other hand squeeze the bag. This applies pressure to the bag.
2. If the bag is leak free it should not empty under pressure. If it leaks slowly or quickly it must be fixed or replaced.
3. Fix leaks by tightening all the connections.
4. Retest the bag by repeating steps 1 and 2.
5. If it cannot be fixed call your Homecare Respiratory Company.

NOTE: If the bag leaks and is disposable, it will need to be replaced.

How to manually ventilate

1. If needed, disconnect the individual from the ventilator, cork/speaking valve, trach vent or trach mask/swivel.
2. Connect the bag's outlet to the trach tube/15 mm adapter.
3. Squeeze the bag gently until your fingers meet, this is inspiration (breathing in).
4. As soon as you finish squeezing the bag completely, release the bag and allow the bag to refill, this is exhalation (breathing out).
5. A good guide for how many breaths to give is to give as many breaths a minute as the ventilator is set for. A minimum 12 per minute. The individual may tell you to go faster or slower. Remember, the volume of air you give by squeezing the bag may not be the same as the ventilators. If still in doubt squeeze the bag at your own breathing rate.

**Do not squeeze the bag too hard as this
can damage the lungs.**

Making sure you are ventilating well

Most individuals should be able to tell you if you are ventilating enough or too much. The following are points you should always observe:

- ✓ Make sure the chest is rising when squeezing the bag and falling when releasing it.
- ✓ Make sure the individual is alert and comfortable.

**There is never a bad time to assist breathing.
When in doubt, bag!**

Cleaning of the manual resuscitator

A reusable manual resuscitator should be cleaned and disinfected once a month.

This cannot be done with a disposable bag. If the disposable bag gets soiled on the inside it needs to be replaced.

To clean:

1. Take apart all the pieces of the resuscitator.
2. Fill sink/pail with warm soapy water.
3. Put all the pieces in the soapy water making sure all pieces are covered for 20 minutes.
4. Rinse the pieces well.

After you clean the manual resuscitator you need to disinfect it:

1. Fill a sink/pail with 1 part vinegar to 3 parts water.
2. Put the pieces of the resuscitator into the sink/pail.
3. Soak for 30 minutes.
4. Rinse well.
5. Place on clean towel to dry.
6. Reassemble pieces of resuscitator and leak/pressure test for leaks.
(see page 25).

