Tracheostomy Journal

Rady Children's Specialists of San Diego
A Medical Foundation

Table of Contents

Rady
Children's Specialists
of San Diego
A Medical Foundation

Dear Parents and Caregivers,

This *Tracheostomy Journal* has been developed for parents and caregivers of children with special healthcare needs. It has been collaboratively produced by physicians and staff at Rady Children's Hospital-San Diego and Rady Children's Specialists of San Diego including Critical Care Unit South, Clinical Pulmonary Practice Council, Respiratory Medicine Division, and Pediatric Airway and Aerodigestive Team.

The purpose of this *Journal* is to provide you with a resource that will help you organize and keep track of your child's physicians, therapists, nursing care, and vendors of medical supplies and equipment. We have provided a list of recommended readings, as well as a glossary to aid in the learning process. We have included space for you to store and easily access provider and vendor business cards. You are encouraged to keep this *Journal* updated and personalize it by adding drawings, photographs or special articles.

You and your child are important to our team. We will work together with you to provide the best care for your child. As you come across resources you believe will be helpful to other families, please send me an email at MBothwell@RCHSD.org. We will work with you to make this *Tracheostomy Journal* a valuable resource.

Sincerely,

M Bothwell

Marcella Bothwell, MD, FAAP
Director, Pediatric Airway & Aerodigestive Team
Pediatric Otolaryngology

Paula Costanzo MSN, PNP

Paula Costanzo, PNP
Respiratory Medicine

Jeffery Osthimer R.N.

Jeffery Osthimer, RN
Tracheostomy & Ventilator Specialist

Tracheostomy Home Care Program

Introduction

Our Tracheostomy Home Care Program was developed to best meet you and your child's needs. Listed below are key points so you know what will be expected of you and the multidisciplinary team caring for your child during your hospital stay.

- A Primary Nurse Team (PNT) is a group of nurses that will coordinate your child's care.
- Your PNT leader will discuss your teaching plan and its expectations. You must complete all of the required areas in the teaching plan to be eligible for discharge. The staff will document and sign off when you show competence in the various skills discussed in the Tracheostomy Home Care Program.
- Two people must learn your child's care, such as, father, mother or other caretaker chosen by you, in order to go home.
- Regular teaching sessions will need to be scheduled where the majority of the time will be spent in the hospital. The program takes about two weeks, but sometimes varies depending on your child's medical status. If this will be difficult for you, let your PNT know so they can set up a teaching schedule that will work for you. There are times during the day that will be difficult for staff to teach you; for example, at the end of shift, change of shift and beginning of the shift.
- Video and reading materials are available on loan to review and study. All materials need to be returned to the hospital.
- You will learn tracheostomy Cardiopulmonary Resuscitation (CPR). You will need to attend an American Heart Association-approved CPR class for certification.
- Children may leave the unit for periods of time with family when all of the necessary learning and skills have been verified, and the child is medically stable. You and your child must remain within the hospital grounds during these breaks. This will allow you to feel more independent in your child's care but, if necessary, come back to the unit quickly for assistance .
- To be eligible to take your child off the unit you must:

    1. Complete all the care
    2. Change the tracheostomy one time
    3. Complete CPR training
    4. Take travel bag and suction

Tracheostomy Home Care Program

Introduction, Continued

- You will have a multidisciplinary team caring for your child. Your child's team may consist of a discharge planner, medical social worker, child life specialist, respiratory therapist, home care, pastoral care, interpreter, nutritionist, nursing team, physical therapist, occupational therapist, speech therapist and others as needed.

- We will periodically schedule Patient Care Conferences Please ask questions when you attend! The conference schedule includes:

    1. Initial Conference: Discuss the plan of care, teaching plan and answer parent questions.
    2. Discharge Conference: This meeting will take place a week or so before you go home. Other key people involved in your child's care at home such as vendors, school and nursing agencies will be invited depending on your child's needs.
    3. Conferences per Request: Caregivers may request meetings to answer outstanding questions or concerns regarding their child's care.

- The discharge planner will assist you in ordering all of your medical equipment, home nursing (if approved) and funding as needed.

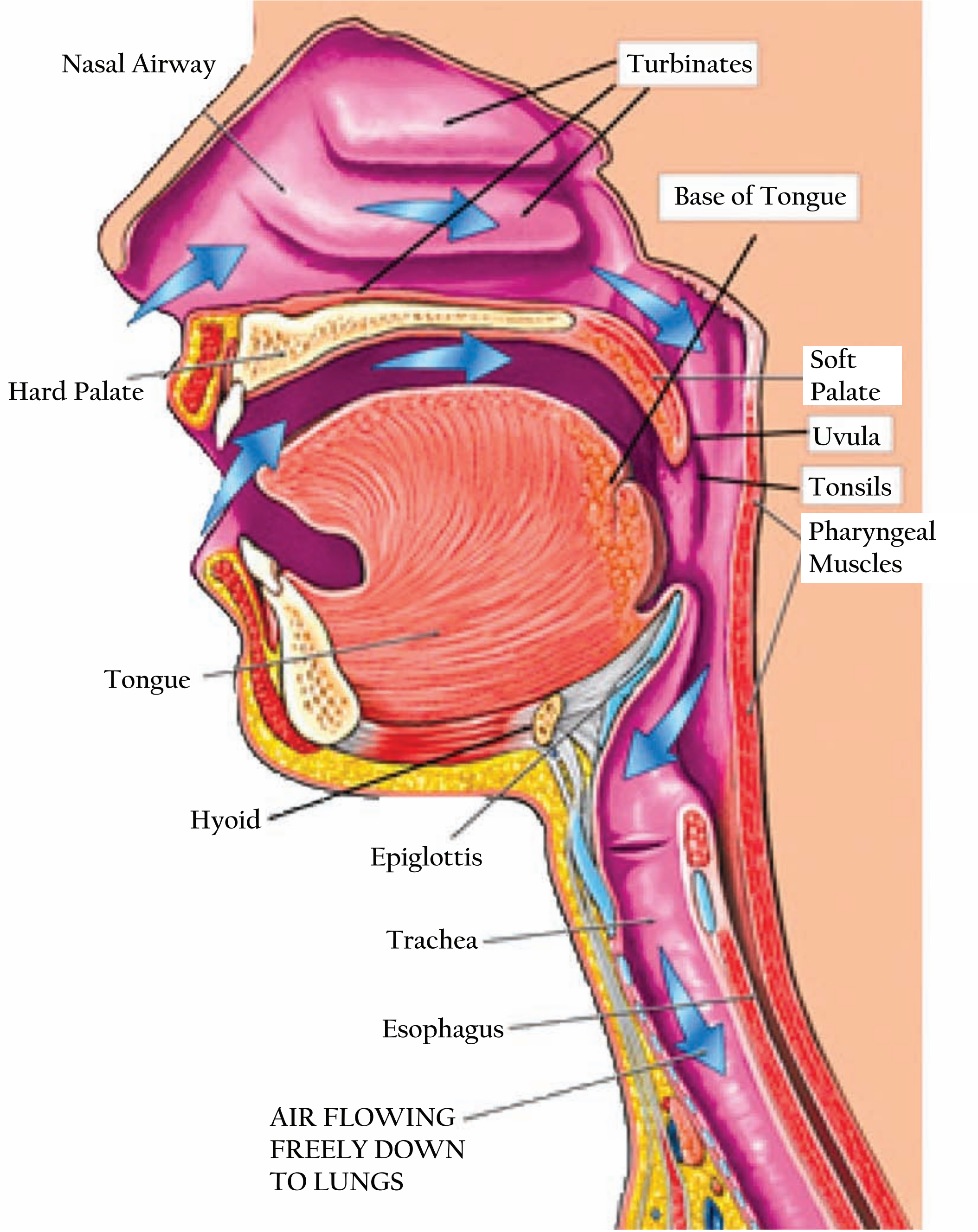
- The equipment vendor or durable medical equipment (DME) provider will teach you how to use and care for the medical equipment.

- Completion of an eight-hour in room skills assessment is mandatory for safe discharge. This means that you will care for your child for eight hours on your own, using your home equipment, and only calling the staff for emergencies that you cannot handle. This assessment verifies that you are able to care for your child independently and ready for discharge home.

Anatomy and Physiology of the Respiratory System

Upper respiratory tract includes the:

- Nose
- Nasal cavity
- Sinuses



(c) 2007, 2008, Medtronic, Inc.

Anatomy and Physiology of the Respiratory System

Continued

Lower respiratory tract includes the:

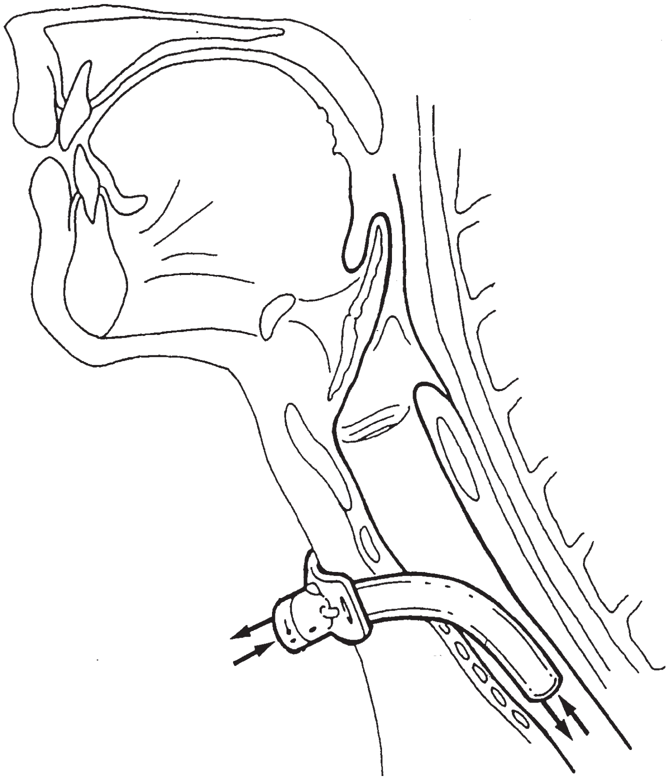
- Larynx
- Trachea
- Carina
- Bronchi: Right and Left
- Lungs: 3 lobes on the right and 2 lobes on the left which contain the alveoli. Lungs are a pair of cone shaped organs made of spongy, pinkish-gray tissue that take up most of the space in the chest and are protected by the ribs. The lungs take in oxygen, which is necessary for cells to live, carry out normal functions, and get rid of carbon dioxide, a waste product of the body's cells.
- Mediastinum: Separates the lungs in an area that contains the heart and its vessels, the trachea and esophagus.

Respiration is the act of breathing:

- Inhaling (inspiration) taking in oxygen.
- Exhaling (expiration) blowing off CO2 or carbon dioxide.
- Air enters the body through the nose or the mouth.
- Travels down the throat through the larynx and trachea. The larynx contains the vocal cords, which act like valves to control the flow of air from the mouth and nose to the trachea. The vocal cords in the larynx also enable speech with airflow.
- Air enters the lungs through tubes that are called main stem bronchi, which divide into smaller bronchi and bronchioles which end in the alveoli.

Functional changes that occur with a tracheostomy:

- Change in the normal flow rate of air into the lungs.
- Alteration in the process of humidification, filtering and warming of air into the lungs.
- Alteration in mucus in the lungs and its removal.
- Interference with speech.



Airflow with Cuffless Trach Tube
(c) February 2000 Passy-Muir, Inc.

Tracheostomy: What is The Surgical Procedure?

The procedure is completed under general anesthesia and usually is finished in less than one hour. A direct laryngoscopy and bronchoscopy are often completed at the same time to assess the larynx, trachea and bronchi. This may also assess proper placement of the tracheostomy tube. A hole made in the neck, also called a stoma, is made for the tracheostomy tube to be placed. "Stay" sutures are placed on the right and left side of the neck to assist in replacing the tracheostomy tube if, during the healing period, the tracheostomy tube accidently comes out while moving or adjusting the child. After the procedure, children return to the Critical Care Unit where they can be closely monitored.

Size of Tracheostomy Tubes

The size of the tube needed depends on the age and size of the child. The tube will have two numbers noted on the plate: the I.D. (inner diameter) and the O.D. (outer diameter). The inner diameter is the actual diameter of breathing room and is also the uniform standard classification system in use today. Pediatric tubes range from 2.5 to 5.5 mm. The outer diameter is the actual size of the tube.

The length of the tube is also important. Standard lengths will be appropriate for most children. However, sometimes custom lengths, shorter or longer, will be needed.

Parent Learning

____

____

____

____

____

____

____

____

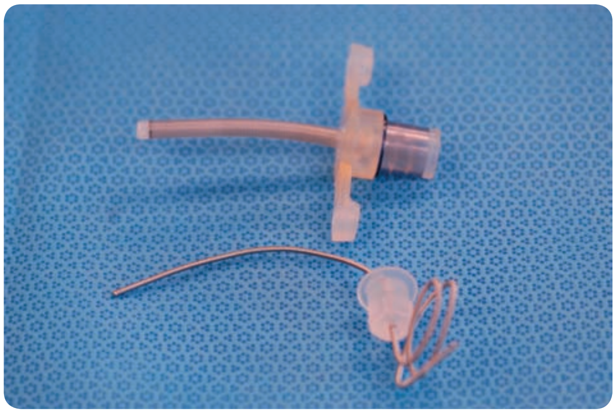
What are the Types of Tracheostomy Tubes?

There are a few manufacturers of pediatric tracheostomy tubes. Although hospitals may use different tubes, the most commonly used for children are Shiley and Bivona. The tubes are made with different materials and your physician may recommend one over the other based on the material or shapes available.

Bivona: The tube is made of silicone and contains a metal coil. It must be removed and replaced with a plastic or PVC-type tube before having an MRI. Bivona tubes come in custom sizes and shapes. Bivona TTS (tight to shaft) cuffs are filled with water so that they do not gradually deflate.

Shiley: The tube is made of plastic or PVC (polyvinyl chloride) and comes in standard sizes both cuffed and non-cuffed.


Shiley


Bivona Flextend Tracheostomy tube with obturator


Traceo

My Child's Tracheostomy Information

Tracheostomy Tube Type:

Bivona Shiley Other

Date of Beginning Use:________________________

Custom Size? Yes No

Size____

Length______________________________________

Cuff Yes No

Catheter Size________________________________

Parent Learning

____

____

____

____

____

____

____

____

____

Additional Parts of the Tracheostomy Tube

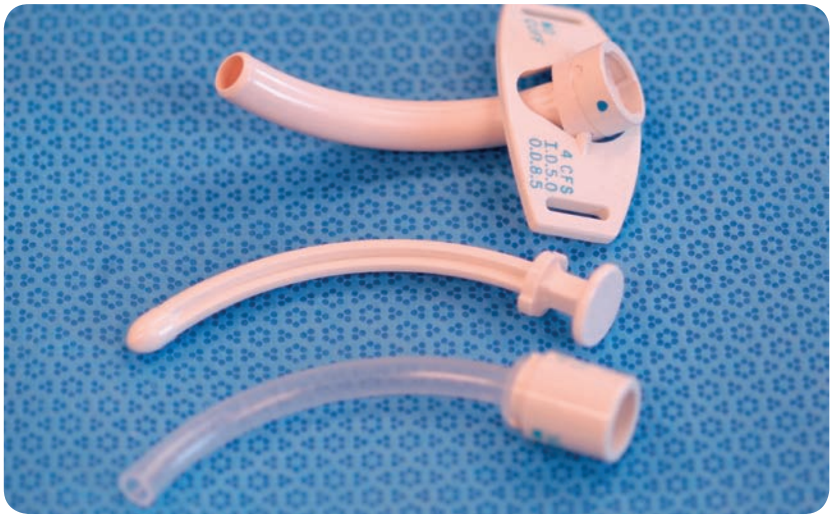
Obturator: Guide placed inside the tracheostomy tube which aides in placement. For the more flexible tubes it also provides shape to the tracheostomy tube.

Balloon and Cuff: If the tracheostomy tube comes with a cuff, it will have a balloon attached to it. A cuff is on the far end of the tube and is specifically used to block escaping of air from around the tube. The cuff allows pressure to build up so that a ventilator will be effective. An expanded balloon indicates that the cuff is filled or "up" when using an air- or water-filled balloon. Bivona's Fome Cuff is the only exception. Pressure can be indirectly palpated via the balloon pressure. Your child's pulmonologist will advise how much water or air to appropriately inflate the balloon for your child.

Flanges or Neck Plates: These are what the trach ties attach to on the sides.

Connector: The connector is the close end of the tracheostomy tube that the child breaths through or a ventilator is connected to.

Disconnect Wedge: May help tight connections of attachments such as ventilator tubing or oxygen be removed without pulling, pushing or twisting the tracheostomy tube.



Inner Cannula: Pediatric and Neonatal tracheostomy tubes for younger children do not come with inner cannulas. Inner cannulas consist of a tube within a tube and are used for cleaning a tube without removing the whole tube. However, the size of tracheostomy tubes are smaller for children. The actual breathing froom in the tube itself is too small to be effective because of the size of the inner cannula. However, adolescents or adults may have tubes with inner cannulas.

Changing the Tracheostomy Tube

Supplies Needed:

- Sterile package of appropriate size trach tube and one size smaller
- Tracheostomy ties
- Scissors
- Suction machine and catheters readily available
- Ambu or self-inflating resuscitation bag
- Sterile water or lubricant
- Rolled towel for extending neck

Steps to Follow:

1. Set up the new tube; thread the new ties on one side first. You may put a little sterile water on the tube to lubricate it before insertion. Place the obturator in the cannula. Be sure to keep the new tube sterile.
2. Suction if needed.
3. Have the child lie down with a small rolled towel under his or her shoulders to extend the neck. Try swaddling the child if the child is small and unable to cooperate.
4. While holding the tube in place with one hand, cut the old ties with your other hand.
5. Remove the tube toward you in a downward motion. Don't panic, you have a minute.
6. Insert the new tube by following the downward curve of the trach tube so as not to damage the trachea. Quickly remove the obturator so the child is able to breathe. *(See photos on the next page)*
7. Look at your child's skin color and breathing status.
8. Remember to hold the tube securely in place until the ties are secure.
9. Tie the trach ties per procedure.
10. Keep the obturator in an easily accessible place.

Helpful Hint

Do not panic if the trach tube accidentally comes out. Open your extra tracheostomy tube set and insert the tube as instructed above. If you do not have an extra trach set put the old one back in. You may insert the trach tube without the obturator if one is not available. (Keep at least 4 extra trach tubes available-one for home and one for trips away from home and a smaller size for both places.) When inserting a new tube, follow the angle of the tracheostomy tube.

Downward curve

Remove obturator. Hold Tracheostomy tube in place until ties are secured.

Changing the Tracheostomy Ties

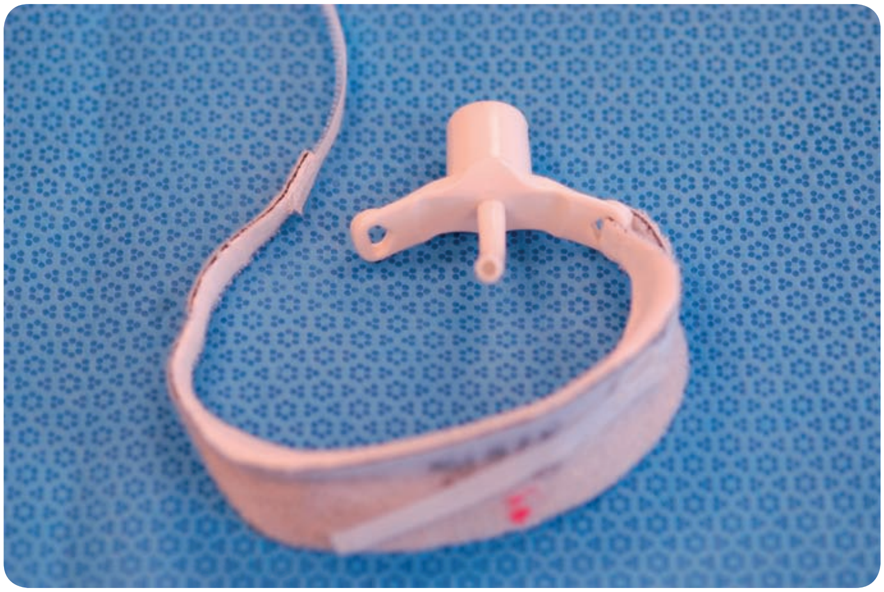
Tracheostomy ties should be changed twice daily and as necessary to keep the skin clean and dry, or as your child's physician recommends.

Supplies Needed:

- Double the length of twill tape, Velcro ties or shoe laces.
- Scissors

Steps to Follow:

1. Cut a new piece of twill. Length of twill tape should be double the width of the neck plus three inches to make a double knot.
2. If you child is young and unable to cooperate you may need to have someone hold or swaddle the child in a blanket.
3. Hold the trach in place.
4. Cut tie on one side. Thread a new tie trough the hole and even out the tie length.
5. Wrap behind child's neck. Remove old tie. Thread new tie through hole and make one knot. Allow one finger to fit between the ties and your child's neck.
6. Finish tying tie in a double knot. Cut remainder of twill tape leaving one inch.
7. Be sure to inspect and clean the skin under the ties each time you change them.



Helpful Hints: Insert new tie through the holes of the tube and tie securely in a square knot (you may use tweezers to do this). Allowing room for one finger to fit between ties and your child's neck, but if your child tends to play with them you may tie them in the back. Cut the old ties and remove them.

Trach holders with Velcro straps are available for older children, but not recommended for young children who may pull them off. Shoestrings also make good trach ties and can be washed and reused.

Cleaning Around the Tracheostomy Site

This should be done twice daily and as necessary to keep the skin clean and dry.

Supplies Needed:

- Mild soap and tap water
- Material: 2x2 inch gauze, wash cloths or cotton-tip applicators

Steps to Follow:

1. Using a mild soap and tap water, clean the skin around the tracheostomy site with the material and remove the mucus collected in this area.
2. Rinse off area with wet material to remove soap.
3. Dry the area off with dry material. You may use dressing under the tube if you wish, but it is not necessary once tracheostomy is well established.
4. Observe the tracheostomy site and notify your pediatrician if you notice:
    - Redness or swelling
    - Yellow or green drainage
    - Foul odor
    - Discomfort at site where care is given
5. Apply medications if ordered.

Important:

- The use of soap for cleaning the skin is preferred, as long-term use of half-strength hydrogen peroxide can cause significant skin irritation.
- Long-term use of gauze at tracheostomy site is not recommended due to increased moisture and bacteria growth.
- If using powdered medications, sprinkle medication on gauze before applying. Do not directly sprinkle powered medications over the child's neck opening.

Suctioning

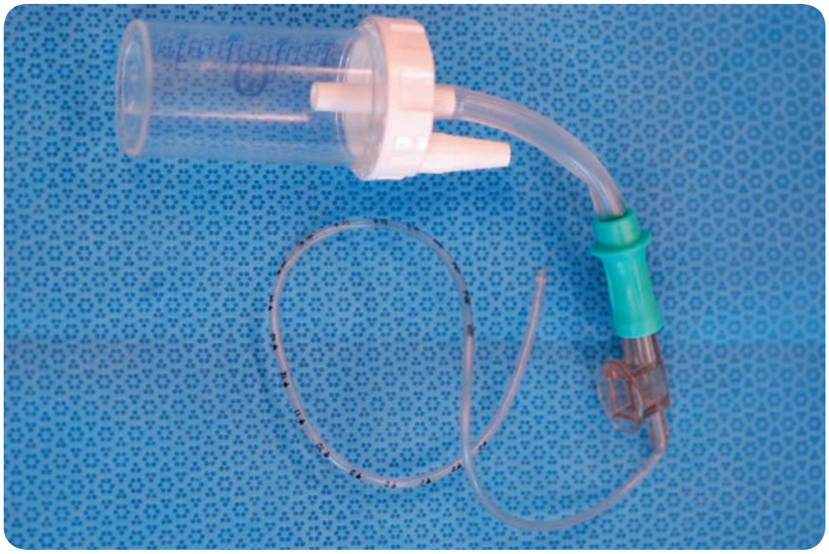
The purpose of suctioning is to remove mucus from the child's windpipe (trachea) so that the child's airway remains clear, allowing the child to breath more easily. We suggest that you suction your child's trach at least twice daily, even if your child does not need to be suctioned often. For example, you may suction once in the morning upon awakening to clean secretions that have accumulated overnight and then suction again before your child goes to bed in the evening to ensure that his or her airway is clear.

For the first few days after surgery your child will need suctioning around the clock. By the time your child is ready to go home he or she will need less suctioning. Each child is different. As you get to know your child's needs, you will know when he or she needs suctioning. You can see, feel and hear signs of when your child needs to be suctioned. The following are signs that indicate suctioning is necessary:

- Mucus can be heard or seen bubbling from the trach
- Breathing may be faster and/or harder
- Nostrils flare out
- Mucus may be felt "rattling" inside the chest
- The child may be irritable, restless, or look frightened
- The color around the mouth or lips may be pale, bluish or dusky
- Coughing

Mucus Trap

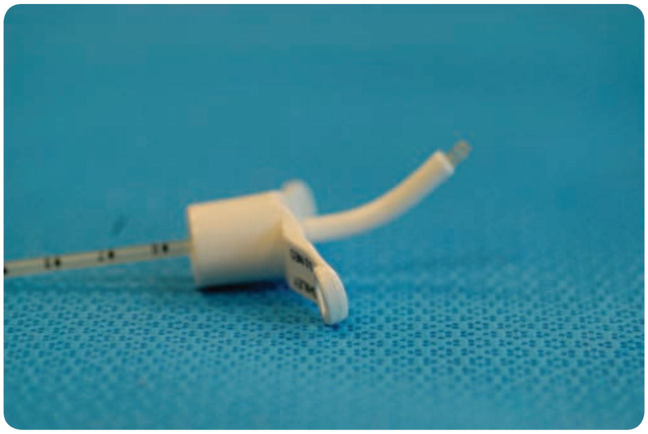
The mucus trap should be used when suction is not available. Carry this with you when away from home so you are able to suction in an emergency. While holding the mucus trap upright, place your mouth securely around the mouth piece to create suction. Suck or breathe in as you gently pull the catheter out. The mucus will drop into the bottle and not enter your mouth.



Suctioning

Continued

Supplies Needed:



- Suction machine
- Suction catheter
- Water (In the hospital sterile water, sterile catheters and sterile gloves are used during suctioning. At home you may use tap water and freshly washed hands.)
- Gloves
- Basin or bowl
- Normal saline drops (use only as needed)

Steps to Follow:

1. Wash hands with soap and water to reduce the possibility of infection.
2. Gather your child's equipment in one place and turn suction machine on.
3. Attach catheter to machine.
4. As needed, put 2 to 3 drops of saline down the tracheostomy tube to loosen mucus.
5. Gently insert catheter into tracheostomy tube until it reaches the end of the tube. During your child's stay in the hospital you will learn about tracheostomy tube length.
6. Cover the thumb hole on the catheter to help facilitate suction.
7. Gently remove the catheter as you roll it between your thumb and forefinger. Each suctioning should take about five to ten seconds.
8. If you need to suction again, rinse the catheter with water between insertions.
9. Observe your child before, during and after suctioning, and bag as needed. You may suction your child's mouth after suctioning his or her trach. Once you put the catheter in your child's mouth you cannot put it back into the trach. Discard or clean catheter as instructed.

Helpful Hints

Allow your child to rest between each pass of the suction catheter to enable your child to catch his or her breath. Remember that you are suctioning out air as well as secretions.

- Suction only as needed. As your child adapts to the tracheostomy, he or she will usually need suctioning first thing in the morning, before meals and the last thing at night before going to bed.
- Make sure your child breathes freely before you stop suctioning.
- Occasionally deep suctioning is appropriate to relieve mucus plugs (past the length of the catheter).

Humidification

Air normally enters through the nose and mouth where it is filtered, warmed and moistened, protecting the lining of the lungs and keeping mucus from drying. A tracheostomy bypasses the nose and mouth. Therefore we need to add moisture, even in damp climates, or mucus will dry and block the tracheostomy tube. Mist will keep your child's secretions loose. This is why humidifiers are often used with tracheostomy collars.

Supplies Needed:

- Air compressor
- Large flexible tubing
- Trach collar
- Drainage bag
- Sterile or distilled water for the air compressor
- Artificial nose-portable humidifier, also known as the Heat and Moisture Exchanger or HME (used when traveling during warm weather). The artificial nose device traps warmth and moisture when the child breathes out and then puts the moisture back in the air when he or she inhales.

Tracheostomy collar

Steps to Follow:

1. Set system as instructed by vendor
2. Place trach collar over trach tube opening
3. Turn mist on
4. Observe thickness or thinness of secretions
5. Empty water from tubing as needed
6. Use as per your doctor's recommendations

Artificial nose

Helpful Hints:

- Initially the humidifier is used 24 hours a day.
- Gradually, we will wean your child to use mist only during naps and at bedtime.
- You may find that your child needs the mist more during hot or dry weather.
- During illness your child may need increased humidification to keep secretions loose (use mist continuously until illness is resolved).
- Do not wash the artificial nose because the filter paper expands when it gets wet and your child will not be able to breathe through it.
- When artificial nose is full of secretions, discard and get new one.

Cleaning the Shiley Tracheostomy Tube

The Shiley tracheostomy tube is made of plastic.

When changing the tracheostomy tube we recommend replacing the tracheostomy tube with a new, sterile tube. If you do need to reuse your tracheostomy tube, clean per the instructions listed below.

Supplies Needed:

- Used tracheostomy tube and its obturator
- Mild soap and water
- White vinegar
- Distilled or bottled water
- Clean container for soaking tube
- Clean container or a new zip lock plastic bag
- Two paper towels
- Tape and pen

Steps to Follow:

1. Clean the tube and obturator with soap and water. Using the obturator, clean any mucus from inside the tube.
2. While cleaning, look for cracks or sharp edges and discard the tube if you find any.
3. Rinse the tube and obturator well in water. Soak in half-strength white vinegar and water for two to three hours in a clean container.
4. Rinse the vinegar solution off and place the tracheostomy tube on a clean, dry paper towel to air dry. Place a clean paper towel over the wet tube and obturator to protect from dust and let the tube dry overnight.
5. Once the tube is dry, handle it by the wings only. Inspect the tube again for any damage.
6. Store in a clean container or zip lock bag. Label with the size of the tracheostomy tube and the date cleaned on the outside of the container or bag.

Parent Learning

____

____

____

Cleaning Bivona Trach Tubes

Silicone and Custom Tubes

The reuse of Bivona is not recommended for standard tubes. However, you may need to reuse a custom or special order tube. Per Bivona manufacturer and the Bivona Product Manual, if you need to clean and reuse a Bivona Tracheostomy Tube, please follow this procedure:

Supplies Needed:

- Used tracheostomy tube and its obturator
- Mild soap and water
- Pot or container for boiling water
- Distilled or bottled water
- Clean container or new zip lock plastic bag
- Two paper towels
- Pen and tape

Steps to Follow:

1. Clean the tube and obturator with mild soap and water using the obturator to clean any mucus from inside the tube. While cleaning, look for cracks or sharp edges and discard if you find any.
2. Rinse well with water.
3. Boil water in a pot and remove from direct heat; or microwave water until boiling hot. For best results use only distilled or bottled water.
4. Never boil tracheostomy tubes over direct heat.
5. Place the trach tube and obturator into the hot water and cover the pot.
6. Leave the tube and obturator in hot water until the water is cool enough to pull the trach out using your bare hands. It takes about 20 minutes.
7. Remember to only touch the flanges when touching the tracheostomy tube and hold the obturator by its handle.
8. Place the tube on a clean, dry surface such as a paper towel. Place a clean paper towel over the wet tube to protect from dust and let dry overnight.
9. Store in a clean container or zip lock plastic bag. Label the container with the size of the tube and date cleaned.
10. You may continue to use tubes as long as they are functional.

Parent Learning

____

____

Cleaning Storage Containers

Containers are Used For:

- Sterile water
- Normal saline
- Suction catheters filled with soapy water
- Vinegar solution

Steps to Follow:

- Wash hands
- Wash all containers vigorously with mild dish soap
- Rinse with tap water

Cleaning Suction Catheters

Steps to Follow:

1. Rinse catheter in water to clear secretions in the tubing.
2. Place catheters in a container with mild dish soap mixed with water.
3. Rinse off soapy water with tap water.
4. Soak catheters in a vinegar solution for 30 minutes, making sure catheters are entirely covered with the solution.
5. Rinse with the sterile water.
6. Swing or gently shake off water and dry between two paper towels.
7. When dry, store in a dry plastic container.

Note: The catheters may become discolored and smell like vinegar. The catheters may be reused until they become damaged, or you are no longer able to clean them effectively.

Parent Learning

____

____

____

Cleaning of the Inner Cannula for Adult Tubes

Supplies Needed:

- Used soiled inner cannula tube and obturator
- Hydrogen peroxide
- Two paper towels
- Tape and pen
- Sterile water
- Clean container for soaking tube
- Two sterile specimen cups
- Sterile pipe cleaners or brush
- Gloves, sterile and non-sterile
- Sterile 2x2 inch gauze
- Sterile storage container or zip lock plastic bag
- Or inner cannula cleaning kit:
    1. Sterile brush
    2. Gloves, sterile
    3. Sterile 2x2 gauze
    4. Q-tips

Steps to Follow:

1. Fill one sterile specimen cup with about 120 ml (4 ounces) hydrogen peroxide.
2. Fill second sterile specimen cup with about 120 (4 ounces) cc sterile water. Combine both to make half-strength hydrogen peroxide.
3. Place extra inner cannula where it is accessible.
4. Open sterile packages.
5. Assist patient to position of comfort.
6. Put on non-sterile gloves.
7. Holding trach tube securely, unlock inner cannula.
8. Remove the inner cannula and place in the bowl containing equal parts of water and hydrogen peroxide.
9. Insert a clean extra inner cannula into trach tube and lock.
10. Remove non-sterile gloves and put on sterile gloves. For the remainder of procedure, your dominant hand will be considered sterile and the non-dominant hand will be considered clean.
11. Grasp the inner cannula by flange with clean hand. Cleanse inside of cannula by pulling pipe cleaners through cannula using sterile hand, pulling in one direction only.
12. Cleanse outside of inner cannula with 2x2 inch gauze using sterile hand, if necessary.
13. Rinse inner cannula in sterile water and gently shake dry.
14. Inspect inner cannula for cleanliness and repeat clean process if encrustations are present.
15. Place the cleaned inner cannula in a dry, sterile storage container and label container with date and time.

Tracheostomy Home Equipment

Many families worry about obtaining the proper equipment and getting it to work at home. Our staff will assist you with ordering the equipment and will work with the durable medical equipment (DME) provider to teach you how to use the equipment before you leave the hospital. The vendor or DME provider will instruct you on all the care and cleaning of equipment placed in your home. While all of this equipment may seem overwhelming in the beginning, most parents become experts in their child's care in a very short time. Your home equipment will be available before your child leaves the hospital to allow you to become familiar with it. The following equipment and supplies will be arranged for you to have at home.

Tracheostomy Supplies:

- Tracheostomy tubes
- Ambu or self-inflating resuscitation bag with trach adapter
- Trach tube ties
- Dressing supplies, gauze (if needed)
- Hydrogen peroxide, sterile water, normal saline (if needed)
- Water soluble lubricant such as Surgilube or K-Y jelly
- Blunt-end scissors
- Tweezers (if needed)
- Q-tips
- Mild soap

Suction Equipment:

- Stationary electric suction machine
- Portable suction machine
- Suction connecting tubing
- Suction catheters
- Normal saline solution
- Saline bullets (3 ml vials) or syringes/eye dropper
- Bulb syringe
- Suction mucus trap
- Oral suction

Humidification System:

- Air compressor
- Water bottles for humidification
- Tracheostomy mask
- Corrugated tubing
- Heat moisture exchanger or HME (thermal humidifying filters/trach filters/artificial nose)
- Sterile water

Tracheostomy Home Equipment

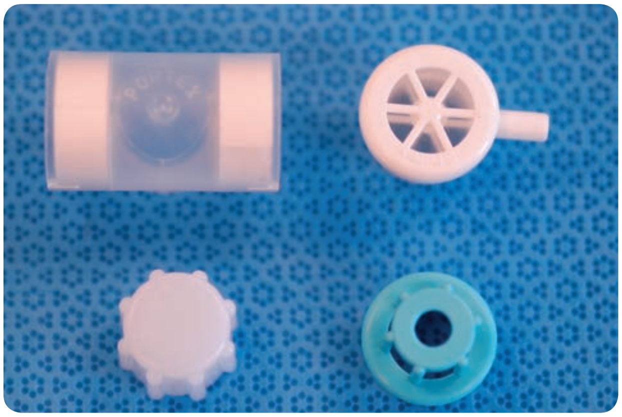
Continued

Miscellaneous Supplies:

- Disinfectant, vinegar
- Sterile or clean paper cups
- Thermometer
- Gloves
- Hemostats
- Trach scarf or bib
- Trach ring
- Speaking valve
- Tilson Tracheostomy Guard

Possible Equipment Needs:

- Apnea monitor
- Pulse oximeter
- Oxygen
- Ventilator
- Aerosol nebulizer equipment
- Extra smoke detectors and a fire extinguisher suitable for electric and regular fires
- Consider a generator if you have frequent power failures



Artificial nose (top left)
Passy Muir Valve (top right)
Tracheostomy Cap (bottom, left)
Tilson Tracheostomy Guard (bottom, right)

Parent Learning

____

____

____

____

Travel Bag & Equipment

Be sure to keep your child's portable suction machine plugged in whenever possible to preserve battery charge and keep a suction catheter attached to the machine for quick use if needed. The following supplies will be needed when you leave home for short trips or extended vacations. A travel bag with pockets is ideal for organizing these supplies. Pack your child's portable suction machine, connection tubing and suction catheters.

- Back up suction; mucus trap
- Same size trach tube and one smaller size tube
- Saline bullets
- Normal saline in a screw-on-bottle
- Scissors and hemostats
- Ambu bag
- Extra trach filters
- Tissues
- Shoulder roll
- Dressing supplies if needed
- List of emergency phone numbers
- Note listing brief medical history and medications
- Q-tips
- Hand sanitizer

For extended trips, pack all of the above supplies as well as a solution for cleaning equipment.

In addition to the travel bag, for overnight trips include:

- Trach care supplies
- Battery charger for suction machine
- Extra set of tubing for mist machine
- Additional water or saline for mist

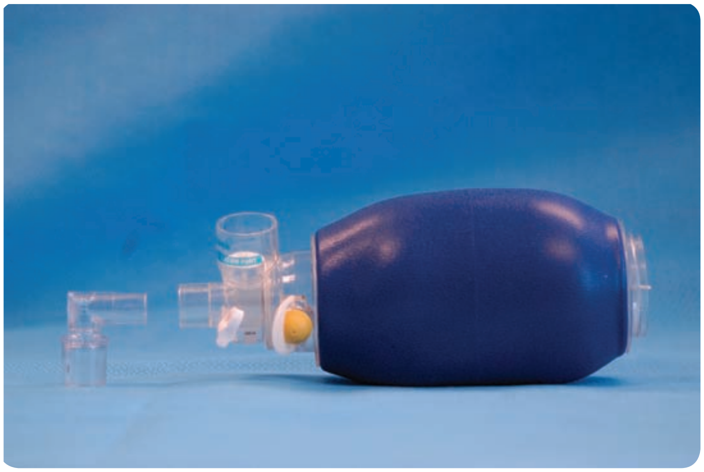
Important: Whenever you leave your community for extended trips, have your medical supplies vendor recommend another vendor in the community where you will be staying so you will know whom to call if you need help.

You may also want to ask your doctor for a physician referral in that area.

Self-Inflating Resuscitation Bag (Ambu)

Use the self-inflating bag when your child has trouble breathing. Place the bag on the trach tube and squeeze in "breaths" when your child is distressed, such as after you have changed the tracheostomy tube or if you need to suction repeatedly for mucus plugs.

You will be instructed on how to use the self-inflating bag by your child's respiratory therapist or nurse and will have the opportunity to practice on your child in the hospital before discharge. You will take this bag home with you from the hospital. The bag must be part of the emergency equipment that you take with you whenever you take your child out of your home.



The self-inflating bag is composed of a plastic cylinder with two end pieces. One end has a port for oxygen and the other end has an adapter that fits onto your child's tracheostomy tube. If you do not have oxygen available, you can still use the bag to give your child "breaths" of room air effectively.

Parent Learning

____

____

____

____

Using the Self-Inflating Resuscitation Bag (Ambu)

The indications for using the self-inflating bag are when your child is showing signs of difficulty breathing, including blue or pale color around lips and face, struggling for breath or he or she has stopped breathing.

1. If you have oxygen available, turn on the oxygen tank and attach the tubing to the self-inflating bag. You may use the bag with the oxygen (O2) tank.
2. Place the adapter end of the bag on your child's tracheostomy tube, making sure it fits securely on the trach tube.
3. Squeeze in the sides of the bag with one hand until you can't squeeze any further. As you squeeze the bag the air in the bag flows into your child's lungs. Then, release the bag and it will re-inflate with more air. You will be taught how fast to give these "breaths."
4. As you squeeze the bag, look at your child's chest to make sure that it rises with each breath. If you do not see the chest rise, check to see that the bag is secure to the tracheostomy tube. If you still do not see the chest rise, then the tracheostomy tube may be obstructed. You need to change the tracheostomy tube right away. After you have replaced the tracheostomy tube, put the bag back on the tracheostomy tube and start squeezing the bag as before.
5. Continue to squeeze breaths into your child's lungs until you can tell that your child is better, with pinker color and less labored breathing. You may need to continue suctioning the trach tube as needed as you continue to give breaths.
6. If you are using the self-inflating bag because your child stopped breathing, follow instructions for CPR and check for a pulse after one minute of using the bag. Begin compressions if needed and notify 911 for assistance. You will need to give breaths as part of CPR until your child has started breathing again or until the paramedics arrive.
7. It will be helpful if you keep the instructions for CPR with your other emergency equipment so you can quickly refer to it if needed.

Parent Learning

____

____

____

____

Oxygen (O2)

Some children will need extra oxygen at home. Some children will need extra oxygen all the time or just when sleeping; other times might include sickness or times of increased activity.

Sources available from DME providers:

- Tanks
- Liquid
- Concentrators

Your pulmonologists will recommend or advise you on how much oxygen your child will need and how it should be given.

Oxygen Delivery Methods

Resuscitation Bag (Ambu)

The Ambu is used during an emergency to assist giving breaths, when instilling normal saline for plug removal, to give extra breaths when changing the trach tube or when your child is having difficulty breathing.

Trach Ring

The trach ring goes over the trach to deliver continuous oxygen as necessary and needs to be attached to the oxygen tubing.

Trach Mask (also known as a Trach Collar)

The trach mask is a plastic mask that covers your child's tracheostomy and connects to the mist source with tubing to deliver oxygen. It can go over the trach ring to deliver mist while you deliver oxygen via the trach ring.

Oxygen Safety

Oxygen will not catch fire by itself but can make fire spread easily and faster.

Smoking

- Never smoke in the home when oxygen is in use
- Place a no smoking sign on the doors of your house

Cooking

- Do not cook while holding your child

Bathing

- Do not use baby oil or Vaseline on your child
- Do not use a hair dryer, electric blanket, space heater, or other heat-producing electronics around your child because they may spark and start a fire

Miscellaneous

- Do not use grease or oil on the equipment for your child
- Keep your child away from fireplaces and wood-burning stoves
- Have a working smoke detector and fire extinguisher in the home

When leaving your home, always anticipate that you will need more oxygen in case you are delayed getting home. However, remember to never store oxygen tanks in the trunk of the car or leave them in a hot vehicle. If you are going out of town, call ahead to your supply company to see if they can deliver oxygen to your destination. If flying, call the airline to make special arrangements for passengers using oxygen.

Parent Learning

____

____

____

____

Preparing Normal Saline and Sterile Water

Supplies Needed:

- Saucepan
- Metal tongs
- Glass jar with lids
- Table salt
- Tap water

Steps to Follow First:

1. Place glass jars, metal tongs and lids in large saucepan.
2. Fill pan with enough water to cover the jars and boil for 20 minutes.
3. Let cool.

Sterile Water:

1. Place 2 cups boiled water in glass jar.
2. Place lid on jar.
3. Discard after 3 days.

Normal Saline: Complete “Steps to Follow First”, then proceed:

1. Fill glass jar with 2 cups boiled water and add 1 teaspoon table salt.
2. Place lid on jar and shake solution to mix thoroughly.
3. Store normal saline in the refrigerator.
4. You may use small syringes or eyedroppers to instill the saline in the trach.
5. Discard after 3 days.

Vinegar Solution: Complete “Steps to Follow First”, then proceed:

1. Add 1/2 cup white vinegar to 1 1/2 cups boiled sterile water.
2. Cover with lids and shake gently to mix.
3. Discard daily.

Parent Learning

____

____

Monitoring Your Child at Home

Your child will need to be closely monitored. Always check on your child frequently. Many parents choose some type of monitoring device to alert them if their child is having difficulty breathing. Listed below are some ways of monitoring your child's activity and breathing.

Apnea-Cardiac Monitor: This type of monitor counts your child's respiration and heartbeats. Placing leads or a soft belt around your child's chest does this. This belt, which is connected to the machine, has sensitive electrodes that measure chest movement and the heartbeat. Apnea-cardiac monitors are used when your child is sleeping and you are nearby to hear the alarm. Your child's doctor must order these.

Oxygen Saturation Monitor or Pulse Oximeter: The oximeter helps evaluate how well the lungs are working in providing oxygen to the body from circulating blood. The oxygen monitor uses a light sensor to determine the oxygen saturation level in the blood. The monitor may be attached to your child's finger, toe, foot or earlobe. The placement location will vary depending on the size of your child. Your child's physician will determine the saturation measurement levels that are most appropriate for your child. You may find that there differences in the saturation level during sleep, activity or exercise. Your child's heart rate is also measured. Movement can make it difficult to get an accurate reading.

Mechanical Ventilation

A ventilator helps a child to breathe when they are unable to breathe sufficiently on their own. A ventilator is a machine that assists with breathing and may be used on a full- or part-time basis. A ventilator improves oxygen and carbon dioxide exchange and allows oxygen to be delivered to the lungs and body while helping rid the body of carbon dioxide. A variety of conditions and diagnoses may contribute to ventilation needs.

Reasons for ventilation may include:

- Muscle weakness or fatigue.
- Inability to take adequate breaths for normal gas exchange.
- Inability to breathe without support.
- Prior to hospital discharge, ventilator teaching will be scheduled with your home care company. They will provide information on the specific ventilator that you will have at home. Your child's discharge ventilator settings will have been chosen specifically for your child. These settings should not be changed unless advised by your doctor. Ventilator settings are re-evaluated as your child grows. Your child may require re-admission to the hospital every 1 to 2 years depending on the situation to be sure the settings remain optimal. You should become familiar with your child's ventilator settings.

Mechanical Ventilation

Continued

Basic ventilator settings may include:

- Oxygen (if needed). Room air is 21%.
- Rate is the number of ventilator breaths delivered per minute.
- Tidal Volume is the volume of gas the ventilator will deliver with each breath.
- Peak Inspiratory Pressure is the total pressure needed to push a volume of gas into the lungs. It is routinely displayed by mechanical ventilators.
- PEEP (positive end-expiratory pressure) is a small positive pressure that is set at the end of expiration and keeps airways from collapsing.
- Pressure Support helps the child's own inspiration effort and decreases the work of breathing.

Ventilator Problems

If problems occur with your child's ventilator, be sure to call your DME or ventilator equipment agency. However if your alarms are sounding, it may be a simple solution you can fix at home:

Low Pressure Alarm – Check:

- Is the tubing secure on the tracheostomy tube and the ventilator?
- Is there water in the tubing?
- Is the tracheostomy tube cuff up with air or water (if applicable)?

High Pressure Alarm – Check:

- Is the tracheostomy tube blocked?
- Does child need suctioning?
- Is there water in tubing or is it pinched or kinked?
- Is your child crying or coughing?

Low Power Alarm – Check: To see that the ventilator is plugged into electrical outlet. If you are using battery, change to a new battery or plug into electrical outlet.

If the electricity goes off in your home and your battery does not work:

- Remove ventilator tubing from tracheostomy tube.
- Give breaths with the self-inflating resuscitation bag or Ambu bag until the power comes back on or help arrives.
- Call 911 if power does not come on quickly.

DME & Nursing Providers

Preparing Your Home Environment

As you will learn with your trach training, you will need to think about the placement of the numerous pieces of equipment that will be needed to care for your child's trach. Your discharge planner will discuss the equipment that your child will require and can describe the space needs of each. Take a moment to plan out the location of your child's bed and where all of the equipment/supplies will be placed for easy access.

If you are able to have nursing care in your home, the nursing agency may require that your child have their own room. If a bedroom is not available, you may need to choose another room such as the dining room or living room. The requirements of a home care agency include a separate room for your child and a bathroom for hand washing and the rinsing or cleaning of supplies.

It is also mandatory that you have telephone service in place before you are able to bring your child home. A telephone will connect you to 911 should you have an emergency, as well as to your physician(s) and equipment vendors.

Caring for a child at home with a tracheostomy can present many challenges. You need to discuss with your discharge planner how you are going to provide care for your child 24-hours a day.

Home Nursing Care

If your child is covered by a private insurance plan, please call your insurance plan's toll-free Customer Service phone number to determine if your child is covered for this benefit. Your discharge planner may already be working with a case manager from your insurance plan and can work with you on determining your benefits. If home nursing is available, your discharge planner will contact the agency chosen by your insurance company to make arrangements.

If your child is covered by Medi-Cal, your child may be eligible for shift nursing. There are many home care agencies that will work in your home for 8 to 16 hours per day. Your discharge planner will discuss the available agencies with you and help you make a selection. The home care agency will be contacted and will then contact you to set up a time for the supervisor of the agency to visit your home. The supervisor will also come to the hospital to see your child and write a plan of care. This information is sent to the Medi-Cal office in Sacramento. The approval process can take up to two months for approval.

The usual shifts for in-home nursing care are 7 a.m. to 3 p.m., 3 p.m. to 11 p.m., or 11 p.m. to 7 a.m. When you meet with the agency supervisor, you can discuss these options and decide which shifts are best for you. Most families will choose to have the nurse cover the 11 PM to 7 AM shift, allowing family members to rest at night. The other shift can be scheduled based on your family's needs or your child's medical needs.

The responsibilities of the home care nurse include total care of your child, cleaning of your home care equipment as needed, ordering needed supplies and any other activities associated with your child's care. The nurse can also accompany you and your child to medical appointments. If your child is not eligible for home nursing care, discuss other options with your discharge planner. You may need to create a home care team of family and friends to help you care for your child.

DME & Nursing Providers

Continued

Tracheostomy Home Care Vendors

A vendor will provide your tracheostomy home care supplies. The particular vendor that is chosen will be determined by your insurance plan and your location in the county. Your discharge planner will contact the vendor and will place the order for the required equipment. While the function of the equipment that will be used in your home is the same as the hospital equipment, the appearance or features of your home equipment may vary.

Home equipment is usually delivered a week or so before discharge so that you can have an opportunity to practice with it in the hospital before your child goes home. The vendor will contact you to set up a time for you to meet with them at your child's bedside, so that you can learn how to work with the new equipment. In general, the equipment such as the suction machine or home monitor will be delivered to the bedside while the remainder of the supplies to care for the tracheostomy will be delivered to your home.

It is also possible that you will have more than one vendor providing your home equipment and supplies. If there are products that you need after you take your child home that are not provided by your vendor(s), you may try other vendors for these supplies. If you have private insurance you may have a list of providers that contract with your insurance plan. If you have Medi-Cal insurance, you can check with other vendors as to the availability for a particular product. Other vendors can be found in the phone book yellow pages, under "Medical Equipment and Supplies."

Cleaning Your Home Care Equipment

Your vendor will give you instructions on how to clean all home care equipment that is used, as well as how frequently you will need to clean each product. It is very important to follow all of these directions. The health of your child is dependent on the prevention of bacterial growth in your home care equipment. An antibacterial solution such as Control III Disinfectant is used to clean the equipment that does not enter the body, such as connection tubing. Your vendor will advise you on what type of soap or other solution you can use to clean equipment that has contact with your child's body. Writing your cleaning schedule on a calendar will help remind you when you need to clean your equipment.

Disposable Equipment

Your vendor will provide you with disposable equipment such as suction catheters, tubing and feeding supplies. The amount of supplies you receive each month will be determined by your insurance provider and the vendor will have this information. You can call your insurance provider to discuss the amount of supplies that are covered by your specific insurance plan. Tracheostomy tubes are used only once, then discarded. Speaking valves can be cleaned by following the manufacturer's instructions, and are usually changed once a month. Tracheostomy filters are usually used for one to two days, then replaced.

The vendor will explain how long or how many times you may use a piece of disposable equipment before discarding it. It may be helpful to set up a schedule to remind you to replace or reorder your disposable equipment, such as the first of every month. You should always discard any piece of disposable equipment when it is no longer functional.

Problem Solving with Your DME Vendor

Before you take your child home, make sure you have a thorough understanding of the use of each piece of equipment. The process of taking your child home can be overwhelming and ensuring yourself comfortable with all of the equipment and supplies is one way to ease the transition home. After you get home, if you discover that you have a problem you can call your equipment vendor. If you encounter problems with the function of a machine, you can call the vendor 24 hours a day. There will be a respiratory therapist who can help you problem solve over the phone or come to your home with a replacement piece of equipment. Any other kinds of questions can be saved for business hours Monday through Friday.

Parent Learning

____

____

____

____

____

____

____

____

____

____

____

____

____

____

Activities of Daily Living

Play

Provide normal, age appropriate play activities for your child. There is no reason your child cannot be on their tummy. In fact, tummy time is necessary for developing strength in the neck, back and shoulder girdle, and helps your child achieve age appropriate developmental milestones.

Keep small or thin objects away from the play area as the child or playmates may place these objects into the trach. Avoid outside play on smoggy or windy days; protect the trach with filters and speaking valve with a loose fitting scarf. Your child must not go swimming because of the possibility of water entering the trach.

Clothing

Clothing should be comfortable and loose fitting around the neck and trach. Clothes with front opening are preferred. Bibs can be used to collect oral and tracheal secretions.

Avoid blankets or linens that make or hold lint, clothing that blocks the trach (crew necks, turtlenecks, and shirts that button from the back), plastic bibs and necklaces.

Bathing and Hygiene

Your child should be bathed daily. The trach must be protected from water during bathing. A speaking valve, trach mask, mist collar, moisture exchanger or artificial nose can be used for this purpose. Children should be supervised at all times in the bathtub.

While washing your child's hair, lay your child back while supporting their head and neck. Using a cup to control water flow, pour water towards the back of the head, keeping the trach area dry. Keep a dry towel nearby for drips.

Brushing your child's teeth and tongue is a very important activity and should be a part of your child's morning and evening routine. Include brushing of the tongue for better oral hygiene.

Before applying salves or ointments near trach, check with your physician.

House Cleaning

Hard surfaces should be cleaned with household disinfectants such as Lysol or ammonia. Dust and vacuum furniture and carpet at least two times per week to keep dust particles down.

Safety tips

Protect your child from substances that may irritate the nose and eyes by avoiding aerosol sprays, perfume, cleaning agents (ammonia, bleach), smoke (avoid anyone who smokes), lint, dust and fine animal hair.

Activities of Daily Living
Continued

Weather Changes

Protect the tracheostomy opening in cold, windy weather by covering the trach with a disposable mask or a scarf tied loosely around the neck. In hot, dry weather additional drops of normal saline may be needed to keep airway moist or you may need to increase the use of mist.

Prevention of Infection

A child with a tracheostomy is more susceptible to infections. A list of some helpful hints to keep your child infection-free are listed below:

- The single most important way to stop the spread of infections is to always wash your hands. Always wash your hands before and after caring for your child.
- Keep child away from those individuals exhibiting cold symptoms. Avoid crowds as much as possible and use masks for family members.
- Open windows to ventilate the house.
- Cold viruses can survive several hours on objects such as doorknobs and telephones. Disinfect these items properly.
- Parental smoking (second-hand smoke) should be avoided as it leads to respiratory infections. No exposure is best.
- Humidify air with cool mist; remember to clean humidifier each day with soap and water.

Infection Control

- Keep a mild antibacterial soap at every sink in the house and encourage everyone in your home to wash their hands. This is an extremely important preventive measure.
- Keep your home at a comfortable 70°F setting. Extreme hot or cold environment can spark cold symptoms.
- Follow cleaning instructions for all equipment. Do not cut corners. Dirty equipment harbors many harmful bacteria. Always remember to:

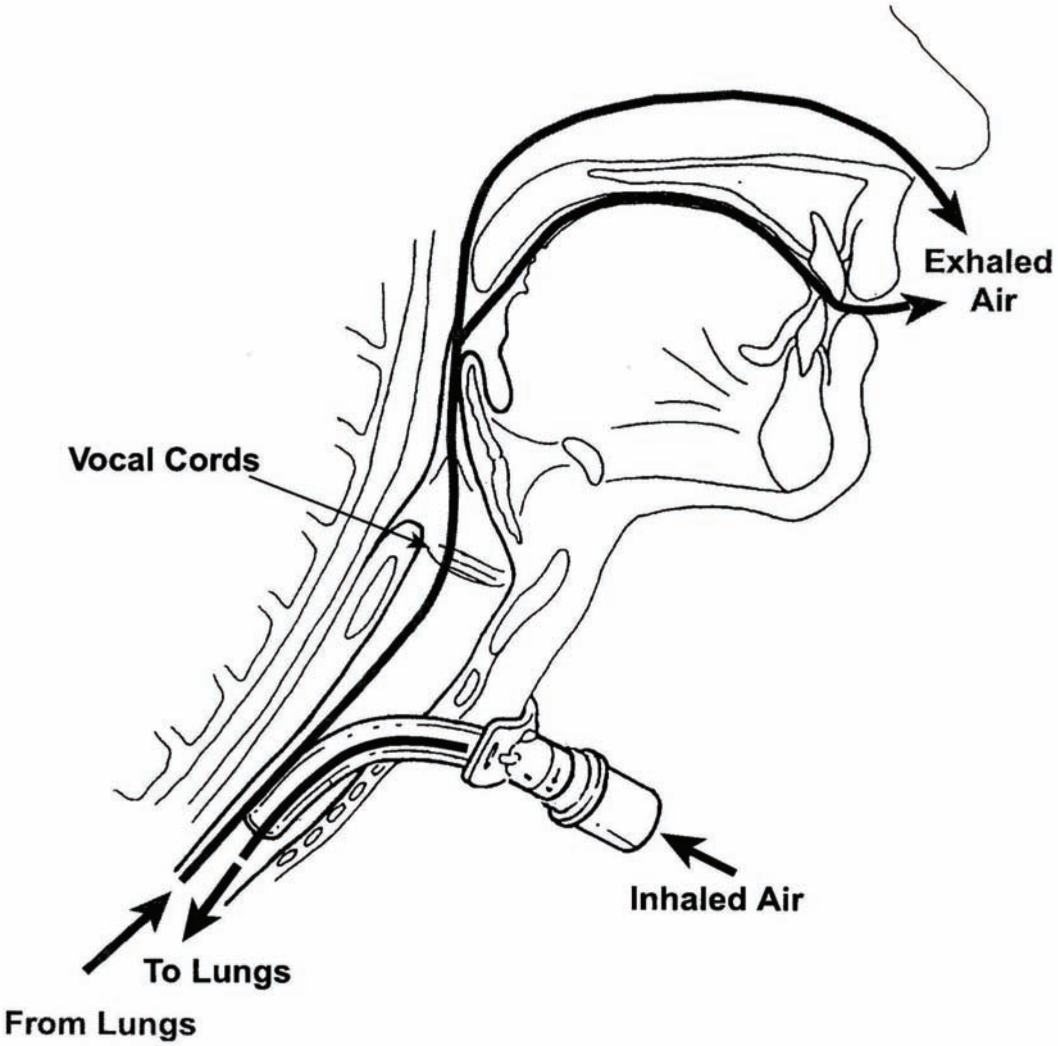
    1. Rinse connecting tube daily
    2. Empty and clean suction bottles daily
    3. Empty, clean and replace solution containers as needed
    4. Discard and replace suction connecting tubing weekly
    5. Check supply stock weekly

Speech and Language with Tracheostomy

Haven Qualman, MA, CCC-SLP, BRS-S

Language: The ability to understand what people say and to think of what you want to say in words is language. Typically, language skills are not affected by the placement of a tracheostomy unless there is an underlying diagnosis that prohibits speech. If a person is unable to speak for long periods of time, his or her language development or ability to communicate may suffer. This is especially true for children who need to use their speaking muscles, hear themselves speak and engage in spoken communication with others. They need to practice because they are still learning to use language!

Speech: Speech includes your voice and the way you pronounce sounds. The vocal folds are located in the throat. The vocal folds are muscles that vibrate when air flows over them. This vibration is your voice. The placement of the tracheostomy interrupts the flow of air from the lungs through the throat and out the mouth. The tracheostomy is below the vocal folds so air is diverted out of the tracheostomy tube before it can get to the vocal cords (see figure below).



(c) February 2000 Passy-Muir

Speech and Language with Tracheostomy

Continued

Speaking valves: Usually, in order for a patient with a tracheostomy to speak, a one-way valve must be used. The valve fits on the tracheostomy tube opening and allows air to flow in, but lets the air go out through the mouth and throat. When the air flows through the throat it makes the vocal cords vibrate and creates a voice.

Who can use a speaking valve? Patients who are awake, alert and want to communicate. Patients also must tolerate tracheostomy cuff deflation or not have a foam cuff, have an open airway and working vocal folds. Speaking valves can be used in-line with a ventilator as well. This requires close coordination with the respiratory therapist and/or nurse.

Who cannot use a speaking valve? Patients who are unconscious or in a coma, who are not medically stable, who are at risk for aspiration, with an obstruction of the airway, who have unmanageable secretions and who are asleep.

How do you get a speaking valve? Medical clearance is needed prior to speaking valve use. Your child's medical team should be involved in the decision to try a speaking valve. Each patient is different and will be ready to try a speaking valve at a different point. Once the decision is made to try a speaking valve, the doctor will write an order and the valve will be obtained the same way your other tracheostomy supplies are obtained.

What are the benefits of a speaking valve? The most obvious benefit is the ability to speak. Some patients also report increased sensory awareness, increased sense of smell or taste, decreased secretions and improved ability to swallow. The tracheostomy may make it harder to swallow and a one-way (speaking) valve may help with this.

How do patients learn to use a speaking valve? With the help of your medical team a speaking valve is easy to try out. It is placed directly on the tracheostomy tube in an awake, alert patient who is medically stable. The patient may not notice a difference in their airflow, especially if their tracheostomy is new. They may speak right away if their vocal folds are working well. With patients who have had a tracheostomy for a while, it may take more time to get used to the different sensations in their mouth and throat. Children may become upset and try to remove the speaking valve. If this occurs, the child will need to be watched carefully for signs of respiratory distress. The valve should be removed if the patient is having difficulty breathing. If the patient is medically stable they may need to be distracted with toys or games to help them develop a tolerance for the speaking valve.

Other Information: Some patients with tracheostomies can use the air leak around their tracheostomy tube to speak without placement of a speaking valve. However, patients who tolerate a speaking valve can usually speak louder than those without a valve. Other benefits of speaking valves are listed above. If you would like to talk to a speech therapist about speech with a speaking valve, your doctor can refer you to a speech therapist with expertise in tracheostomy and speaking valve use.

Feeding & Eating

Cindy Gittings, OTR/L, SWC
Ann Marie Mazzeo, OTR/L, SWC

Your child's mouth is the most sensitive part of his or her body, receiving touch, taste and pleasurable sensations that complement feeding, eating and feelings of contentment. Your child's feeding abilities should not change after a tracheostomy. If you are experiencing changes in the way your child is eating, discuss these changes with your child's physician. An adult should always be present during mealtimes to ensure that food or formula does not enter the trach and to supervise chewing and swallowing. You may use a cloth "bib" or towel over the trach when feeding to avoid food entering the trach. It is recommended that the tracheostomy tube be suctioned before eating to prevent the need for suctioning during or after meals, which can stimulate vomiting and excessive coughing.

Encouraging fluids is very helpful for a child with a trach because the liquid assists with the thinning and loosening of secretions. Infants may need an increased number of "burp breaks" if they are on a ventilator as air is increased. Lay your child on their side following a feeding to decrease the risk of reflux or aspiration.

What to avoid:

- Propping bottles for feeding
- Overfeeding
- Force feeding
- Feeding when your child is tired, drowsy

Indications your child may need a Swallow (Dysphagia) Study:

- Choking or coughing while drinking or eating
- Large amounts of watery secretions from trach
- Congested lung sounds
- Frequent respiratory infections
- Fevers of unknown origin
- Excessive drooling
- Evidence of food in tracheostomy secretions

Parent Learning

____

____

Complications Associated with Tracheostomies

Accidental Decannulation (Tube Removal)

Sometimes the trach tube may come out accidentally. Remember that being prepared for the unexpected is the number one safety precaution for a child with a tracheostomy tube. Being prepared includes keeping the following supplies with you at all times:

- One extra tracheostomy tube (same size). You may use the same tracheostomy tube if you find that your extra tracheostomy tube is not available.
- One extra tracheostomy tube (one size smaller)
- Scissors-blunt nose
- Trach ties
- Lubricant or water-for tube insertion

Remember that an open airway is your first priority if your child's trach tube comes out. Replace the tube as soon as possible. Your child may need oxygen after you replace the trach tube since your child may have become distressed during the process.

Decannulation will always cause the child some distress. Sometimes you will see blueness or increased pallor to the skin. Use the self- inflating resuscitation (Ambu) bag to give your child a few breaths. Speak softly and reassure your child that everything will be fine.

If the tracheostomy tube will not go in or is hard to place:

- Reposition the child. Make sure the child is flat with the head tilted back so that you can see the opening easily. A support under the neck may be helpful.
- Gently pull up on the chin.
- Put lubrication on the tube either K-Y jelly, saline, or if none available, non-sterile water in an emergency.
- Try the smaller tube.
- **If the tube will still not go in, place a suction catheter to keep the hole open.** If your child *not* is able to breath, call 911 and give oxygen if it is available. If your child still is not able to breath, call 911; remove the suction catheter from the opening and give breaths through the tracheostomy site or cover the site and give mouth-to-mouth.

Mucus Plugs

A plug is a term used to describe a thickened mass of mucus or thickened secretions in the trach tube. It is very important to suction your child at least twice per day even if the trach sounds clear. Placing a few drops of saline down the trach tube and inserting the suction catheter every four hours is an important step in preventing plugs from forming within the trach tube. Always suction when your child wakes up from sleep or from a nap. Children may not breathe as deeply when they are asleep. This is when secretions can collect and form into mucus plugs.

If you hear a whistling sound in the trach, it is most likely a plug. Saline drops and suction should dislodge the plug. You may need to use the mist collar; more often if your child is producing frequent mucus plugs. If you still can not get a suction tube through the tracheostomy tube, you will need to change the trach tube as soon as possible. Remember to stay calm.

Bleeding

Small amounts of blood-tinged secretions can occur. Pink or red streaked mucus is considered to be minor bleeding, but should not be ignored. Minor bleeding can be managed with proper care and observation.

Possible causes of bleeding:

- Frequent suctioning
- Suction machine is set too high:
  - For infants/children it should be set to: 50-100 mm HG
  - For older children/adults it should be set to: 100-200 mm HG
- Infection
- Trauma
- Lack of humidity (airway is dry!)
- Tracheotomy tube change
- Vigorous coughing

Interventions for bleeding:

- Put mist collar on.
- Lower suction setting if too high.
- Gentle suctioning. Use normal saline drops with each suction pass.
- Keep mist collar on for longer periods of time.
- If related to infection, refer to the section on infection (later in this chapter).
- Suction only length of trach tube.
- If bleeding continues for 24 hours, call your doctor.
- If uncontrolled bleeding occurs, call 911.

Granuloma

This is a growth of abnormal tissue (scar tissue), which is caused by the irritation of the trach tube in the airway. This can be a common occurrence. Granuloma looks like a protruding scar-like mass usually seen around the outside of the stoma site. Its look can range from a white scar-like to red and beefy. It also may bleed easily. It is common for this scar tissue to also collect on the inside of the stoma. Gentle tracheostomy care should be considered if granulomas are present. Your physician should be notified about granulomas since they are an abnormal growth of tissue. Sometimes these granulomas need to be removed. If they're on the outside they can be removed in the doctor's office with silver nitrate. If they're located inside the tracheostomy stoma they need to be removed in the operating room. It is important to note that even with removal they may return due to the continued irritation of the "foreign body" (i.e. tracheostomy tube).

Infection

Respiratory illness is common for a child with a tracheostomy. Natural defense mucous membranes and tiny hairs found in the nose are not being utilized. The airway from trach to lungs is short and wide open to infection. Children have less immunity to illness. The caregiver must be the child's first line of defense, utilizing proper judgment in terms of safety and cleanliness in daily life. Infection is not only an issue of the airway and lung fields. It can also occur locally at the stoma site.

Symptoms of infection: If any signs or symptoms of infection occur consult with your doctor immediately. An examination of the child and/or medication may be necessary.

- Discolored mucus (green, yellow or pink-tinged).
- Mucus is thicker and tracheal sounds will be different. The child will sound congested and will have more secretions than usual. A coarse rumbling will also be felt with a palm resting gently on the child's chest.
- Increased irritability may be associated with fever, difficulty breathing and thicker secretions.
- Foul odor from trach or skin around the trach.
- Fever or elevated temperature from the child's normal baseline temperature.
- Increased effort to breathe. Pay close attention to this assessment. Rise in respiratory rate, difficulty breathing, poor skin color, listlessness, whistling noise coming from the trach, flared nostrils or restlessness, inability to suck or eat (tires easily), a frightened look, sweaty skin and wheezing are all signs of possible infection.

Intervention if suspected infection: Notify your child's physician promptly.

- Suction as frequently as needed using normal saline drops to loosen and thin secretions. Suction as gently as possible since vigorous suction and increased coughing can cause bleeding.
- Oxygen if necessary or available. If child is pale or blue in color around the lips, nail beds or eyes, or if patient is listless or restless.
- Mist collar to keep secretions loose.
- Acetaminophen (Tylenol) as directed.

When to Call Your Child's Physician

Parents need to be aware of the signs of illness, infection and breathing difficulties in their child with a tracheostomy, and when it is appropriate to notify their physician or solicit emergency medical assistance.

Signs of illness or infection:

- Fever (temperature greater than 100°)
- Coughing up yellow or green secretions
- Thicker secretions
- Secretions change to a foul odor
- Coughing up blood in secretions
- Discomfort at site when care is given
- Redness and or drainage at trach site

Signs of breathing problems:

- Breathing is more difficult than normal (increased respiratory rate)
- Child struggles for a breath even when quiet
- Child's skin is pale and sweaty
- Skin pulls between the ribs (retractions)
- Skin pulls in below the sternum
- Skin pulls in around the trach tube
- Lips and fingernails turn a darker color (bluish)
- Restlessness
- Anxiety, frightened look
- Low oxygen saturation on home pulse oximeter
- Flared nostrils
- Infants having difficulty with sucking
- Difficulty or refusing to eat
- Inability to wake child
- Reduced airflow through trach tube
- Increased discomfort when sitting up
- Grunting
- Increased frequency of respiratory treatments
- No improvement after respiratory treatments

Indications of swallowing problems:

- Difficulty or refusing to eat
- Choking and coughing when eating or drinking
- Vomiting
- Formula and/or food particles found in tracheal secretions
- Excessive drooling

Tracheostomy Cardiopulmonary Resuscitation (CPR)

The steps of CPR include assessment, rescue breathing and chest compressions. If you ever find your child unresponsive, phone 911 or send someone else to phone 911. The most important part of CPR is keeping your child breathing with an open tracheostomy tub. A child will stop breathing before their heart stops beating. If you note difficulty breathing (very fast or hard breathing, very pale or blue skin, sweating, squeaky sound or a whistling noise from the tracheostomy tube):

1. **Make sure nothing is covering the tracheostomy tube opening.**
2. **Suction the tracheostomy tube at once.**
3. **Replace the tracheostomy tube if:**
   - The tube comes out.
   - The tube is blocked with mucus.
   - You are unable to suction or bag through the tracheostomy tube.
   - Your child's breathing does not improve with suctioning and bagging.
4. **Recheck your child. Is your child breathing? If yes, keep watching and giving one breath every 3 seconds until help arrives.**
5. **Is your child's heart beating? Signs of circulation include some response to the two rescue breaths that you delivered (for example, normal breathing, coughing, or movement).**
   - If yes, keep watching and giving breaths until help arrives. One breath every 3 seconds.
   - If no, call 911 and start the steps of CPR.

Chest Compressions

For Infants (less than 1 year of age):

1. Place 2 fingers just below the nipple line at the center of the chest.
2. Push down at least half the depth of the chest.

For Children (1 – 8 years of age):

1. Place the heel of one hand on the center of the chest between the nipples.
2. Push down at least half the depth of the chest.

For Older Children/Adults (more than age 8):

1. Place one hand on the center of the chest between the nipples and the heel of the second hand on top of the first hand.
2. Push down at least 2 inches.

Important

The guidelines for CPR are constantly being updated based on clinical outcome data. To find additional information on CPR classes and updated guidelines, please visit the American Heart Association website at AmericanHeart.org.

Pattern of CPR

In 2010, the recommended pattern of CPR are as follows:

For Infants: 2 breaths to 30 chest compressions at a rate of 100 compressions per minute.

For Children: 2 breaths to 30 chest compressions at a rate of 100 compressions per minute.

For Adults: 2 breaths to 30 chest compressions at a rate of 100 compressions per minute.

Examples of Methods When Breathing for Your Child

Breathing bag to tracheostomy tube

Mouth to tracheostomy tube

Breathing bag and mask to face with tracheostomy stoma plugged (with finger)

Breathing bag and mask to tracheostomy stoma

Other methods not pictured include:

- Mouth to tracheostomy stoma
- Mouth-to-mouth with stoma plugged (with finger)

Financial Resources

Insurance

Private Insurance

The Member Services number on the back of your insurance card will be helpful for you in determining your benefits for outpatient care, home equipment, supplies and home health (visits from a nurse or shift nursing in which a nurse cares for your child in your home for eight hours or more per day). The amount of benefit coverage will vary from plan-to-plan. Your discharge planner can help you with this information since she has already been discussing your child with a representative from the insurance company. The financial counselors at Rady Children's can also help you with any questions you may have about insurance and your child's stay. The medical unit secretary can help you contact your financial counselor.

Medi-Cal

If your family's income is within certain guidelines you may be eligible for Medi-Cal, which provides families with financial assistance for regular check-ups and special medical care. If you are applying for Medi-Cal, contact a financial counselor at Rady Children's. The medical unit secretary can help you contact your financial counselor. If your child currently has Medi-Cal, contact your Medi-Cal representative about current eligibility. Your discharge planner will discuss what the Medi-Cal plan will cover for outpatient care, home equipment, supplies and home health (visits in which a nurse cares for your child in your home for eight hours or more per day).

California Children's Services (CCS)

CCS is a statewide, tax-supported program for specialized medical care and rehabilitation. Children who have a medically eligible diagnosis may receive financial assistance for medical expenses through CCS. A family may be eligible for both Medi-Cal and CCS. A child who is covered by private insurance may also be eligible for CCS for both the inpatient stay and for outpatient care, equipment and supplies. CCS can be helpful when there is need for services that are not covered by your insurance plan. There are financial criteria for the family that your financial counselor can assist you with. Your discharge planner will discuss your child's eligibility and will make the referral to CCS during the inpatient stay if your child qualifies.

Supplemental Security Income (SSI)

If your child has a disability that will last more that one year, you may receive a monthly income. Both the amount received and eligibility are dependent on family income. Families with a wage earner and private insurance may still be eligible. For more information about SSI, call (800) 772-1213.

Financial Assistance

In Home Support Services (IHSS): Children who require special help for their care at home and who are also receiving SSI may also be eligible for IHSS. You may use the money to help care for your child. For more information, you can call IHSS at (866) 351-7722.

W.I.C. (Women, Infants, Children): This is program that provides food supplements to pregnant and/or breast feeding women and children at nutritional risk under the age of 5. There is an income guideline that must be met. WIC will also cover many specialty formulas that your child may require. To learn more about WIC services, call (800) 500-6411.

Anderson Dental Center Endowment: The endowment is dedicated to enhancing dental care for children with disabilities, special needs and early childhood carries by providing limited funding for children up to age 18. Eligible families are typically uninsured or underinsured and are otherwise unable to obtain dental treatment. Treatment funding is provided at reduced rates. Call Rady Children's Healthcare Referral at (800) 788-9029 to apply.

SDG&E: Your family may qualify for a discounted energy bill based on your income. See your discharge planner for an application.

Additional Family Resources

San Diego Regional Center: A state-funded program for diagnosing and serving individuals who have developmental disabilities or young children at high risk for developmental disabilities. The Regional Center will provides multiple services including diagnosis, treatment programs, transportation and respite services. For more information, call (858) 576-2996.

Exceptional Family Resource Center (EFRC): EFRC provides families with emotional support, factual information and encouragement in order to help children reach their full potential. Agency services include education and lending library, local, regional and national resources, referral to community-based programs, support groups and disability-specific support groups. For information call (800) 281-8252.

Outreach and Early Intervention Program: This is a family-focused program that provides services to promote optimal development and minimize developmental delays in infancy. One of the services offered is respite care. Ask your discharge planner about a referral for this service.

San Diego Network of Care: A comprehensive resource for services provided in San Diego County. You can access their website at http://sandiego.networkofcare.org.

HowKidsDevelop.com: A collaborative website with information on the Developmental Screening and Enhancement Program (DSEP), Children's Care Connection (C3), First Five Healthy Development Services Initiative (HDSI) and Rady Children's Hospital Developmental Services.

Challenges

Caring for a child who has a tracheostomy or other long-term medical issues presents a variety of challenges that can sometimes seem overwhelming. It is important to be aware that these challenges are normal and that you are not alone. The following is a list of some of the challenges which you may face and suggested ways to help cope with these challenges.

Challenges you may experience caring for a child with a tracheostomy or long-term medical issues:

- Relationship or marital problems
- Anger, jealousy or resentment from siblings
- Feeling socially isolated
- Discrimination toward those with disabilities
- Increased feelings of stress and lack of time
- Financial burdens
- Difficulty in learning how to care for your child
- Feelings of inadequacy
- Challenges dealing with community organizations, insurance companies or nursing agencies.
- An overwhelming number of doctor's appointments, therapies or surgeries.
- Feelings of loss, grief and sadness in having a child who has special needs

Parent Learning

____

____

____

____

____

____

____

____

Coping with Challenges

Suggestions to help cope with these challenges:

- Take time to care for yourself and be easy on yourself. Caring for a child is challenging enough, but caring for a child with a special need is even more challenging.
- Talk to other parents and caregivers who are in a similar situation. Remember that you are not alone and it is helpful to speak to someone else who can relate to what you are going through.
- Consider attending a parent or caregiver support group. Consider a support group for siblings.
- Bring someone with you to take notes at Individualized Education Program (IEP) meetings at your child's school.
- Allow and encourage siblings to express their feelings.
- Remember you have the right to be informed about your child's condition and care needs. Do not hesitate to ask questions to keep yourself well informed. There are many support groups and information online that can assist you in keeping informed. Do not assume that your medical professionals always know what is best for your child or that they have all the answers. You are the most important person in your child's life and an equal part of your child's medical team.
- Advocate for your child's needs. Ask for a second opinion, if needed.
- You have the right to approve or not of a nurse or nursing agency. Having in-home nursing is a difficult adjustment; try to have reasonable expectations. There are large discrepancies in the amount of skilled nursing care that a child with a tracheostomy should receive. The most important issue is safety and that your child is well cared for.
- Keep well organized with your child's medical information and records. Keep things in one place, and organize yourself with a "Things to Do" list.
- Seek outside professional help (such as a counselor) to assist you, if needed.
- Contact government agencies, local charitable organizations, and charitable groups which can assist you and your child.

Acupuncture Therapy

Acupuncture therapy may be helpful for patients undergoing a tracheotomy procedure and for long term tracheostomy care. Acupuncture originates from traditional Chinese medicine and has been practiced for thousands of years. It is currently being integrated into modern medicine and healthcare systems. Acupuncture treatment involves the placement of very fine needles at specific points on the body to achieve a therapeutic effect. This is a comfortable procedure that is well tolerated by both children and adults. Acupuncture is a safe procedure with very low incidence of side effects. It is effective in treating pain, controlling nausea and vomiting, relieving anxiety and benefiting sleep. Acupuncture may be used prior to surgical or medical procedures to reduce anxiety and stress, and to control post-surgical pain, nausea or vomiting patients may experience following the procedure. Acupuncture can also be used during the recovery process to aid healing, maintain patient comfort, control pain and anxiety, and benefit sleep.

My Journal

My Journal

My Journal

My Journal

Important Contact Information

Rady Children's Hospital-San Diego
3020 Children's Way
San Diego, CA 92123

Emergency Department Number: (858) 966-8005
Rady Children's Pediatric Airway and Aerodigestive Team: (858) 309-7701 x. 2024
Rady Children's Main Number: (858) 576-1700
Rady Children's Referral Service: (800) 788-9029
Rady Children's Outpatient Pharmacy: (858) 966-4060
Rady Children's Hospital Website: http://www.RCHSD.org

Notes

Child's Medical Record Number: ___________________________

Child's Primary Care Physician: ____________________________

Home pharmacy:____

Contact person: ____

Address:____

Phone: ____

Fax: ____

Email:____

Website:____

Rady Children's Multidisciplinary Team

While in the hospital you will be cared for by a group of dedicated professional staff. All will be working together to provide you, your child, and your family the best care.

Below is a list of possible team members that may see you or your child according to your child's medical and clinical needs. Please write them down for your reference.

Caregiver # 1: ______________________________ Caregiver # 2 ______________________________

Attending Physician: ____

ENT Surgeon: ____

Pulmonary Physician Specialist: ________________________________

Pulmonary Nurse Practitioner: ________________________________

Respiratory Therapist: ______________________________________

Primary Nurses: ____

Case Manager: ____

Discharge Coordinators: ____________________________________

DME (Equipment) Provider: _________________________________

Nursing Agency: ____

Child Life Specialist: ______________________________________

Social Worker: ____

Pastoral Care: ____

Physical Therapist: ______________________________________

Occupational Therapist: ____________________________________

Speech Therapist: ______________________________________

Others:____

Notes

Family Details

Child's Name:________________________________ Nickname:_____________
Date of Birth:____
Diagnosis:____
Blood Type:____

Legal Guardian:____
Address:____
Work Phone:_________________ Home Phone:____________________________
Cell Phone:_________________ Email:__________________________________

Family Members

Mother's Name: ____
Address:____
Work Phone:_________________ Home Phone:____________________________
Cell Phone:_________________ Email:__________________________________

Father's Name: ____
Address:____
Work Phone:_________________ Home Phone:____________________________
Cell Phone:_________________ Email:__________________________________

Sibling's Name:_____________________________________ Age _____________
Sibling's Name:_____________________________________ Age _____________
Sibling's Name:_____________________________________ Age _____________
Other Household Members:____

Important Family Information:____
Languages Spoken at Home:____
Interpreter Needed? Yes_______ No_______
Interpreter:___________________________________ Phone:_________________

Other Emergency Contact

Name:____
Address:____
Work Phone:_________________ Home Phone:____________________________
Cell Phone:_________________ Email:__________________________________

Notes

Therapists

Occupational Therapist: ______________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Physical Therapist: __________________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Speech – Language Pathologist: _______________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Hearing Clinic: ______________________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Hearing Aide/Cochlear Implant Coordinator:____________
____
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Notes

Healthcare Providers

Medical Record Number______________________________________

ENT Clinic:____
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Pulmonary Clinic:____
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Pediatric Surgery Clinic:_____________________________________
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Gastroenterology Clinic:_____________________________________
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Cardiothoracic Clinic:_______________________________________
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Other Clinic:____
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Other Clinic:____
Physician:____
Phone:________________________________ Fax:___________________
Email:____

Notes

Hospital and Community Social Work Providers

Hospital Social Worker:__________________________________
Address:____
Phone:_________________________ Fax:____________________
Email:____

Community Social Worker:_______________________________
Address:____
Phone:_________________________ Fax:____________________
Email:____

School:____
Principal:____
Nurse:____
Address:____
Phone:_________________________ Fax:____________________
Email:____

Other:____
Contact:____
Address:____
Phone:_________________________ Fax:____________________
Email:____

Other:____
Contact:____
Address:____
Phone:_________________________ Fax:____________________
Email:____

Other:____
Contact:____
Address:____
Phone:_________________________ Fax:____________________
Email:____

Other:____
Contact:____
Address:____
Phone:_________________________ Fax:____________________
Email:____

Notes

Home Nursing Agency and Vendors

Contact Person: ______________________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Contact Person: ______________________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Contact Person: ______________________________________
Agency:____
Address:____
Phone:________________________ Fax:___________________
Email:____

Parent Learning

____

____

____

____

____

____

____

DME Equipment and Supplies

Name of Equipment:____

Description (brand, name, size, etc):____________________________________

Supplier:____

Date Obtained: ________________________Expiration Date:__________________

Contact Person:_______________________ Phone:_________________________

Name of Equipment:____

Description (brand, name, size, etc):____________________________________

Supplier:____

Date Obtained: ________________________Expiration Date:__________________

Contact Person:_______________________ Phone:_________________________

Name of Equipment:____

Description (brand, name, size, etc):____________________________________

Supplier:____

Date Obtained: ________________________Expiration Date:__________________

Contact Person:_______________________ Phone:_________________________

Name of Equipment:____

Description (brand, name, size, etc):____________________________________

Supplier:____

Date Obtained: ________________________Expiration Date:__________________

Contact Person:_______________________ Phone:_________________________

Medical Glossary

Aerosol - Misted medication that is blown into your child's tracheostomy.

Apnea - A temporary stop in breathing.

Ambu Bag - Also called the self-inflating resusitation bag, is a piece of equipment used to give "breaths" to your child.

Apnea Monitor - A machine used at home to alert you if your child stops breathing.

Artificial Nose - Also known as a Heat and Moisture Exchanges, is a small device that is attached to the tracheostomy to warm and moisten the air your child breathes.

Bacteria - Germs that cause infection.

Bi-level Positive Airway Pressure (BIPAP) - A machine that is attached to your child's face with a mask that helps your child breathe more comfortably.

Bronchopulmonary Dysplasia (BPD) - Also called Chronic Lung Disease (CLD), is an illness that causes your child to have breathing difficulty at times.

Bronchus - Tubes that lead from the trachea to the lungs.

Bronchoscopy - A procedure in which the doctor passes a lighted tube down your child's airway to look for problems. It is sometimes done in your child's room and sometimes done in the Operating Room while your child is asleep.

Cannula - The tube part of the tracheostomy tube.

Catheter - A hollow tube used to remove mucus from your child's tracheostomy.

Continuous Positive Airway Pressure (CPAP) - A method of assisted ventilation that supports your child's breathing.

Cardiopulmonary Resuscitation (CPR) - A procedure you will use to help your child when they are having difficulty breathing or when their heart rate slows.

Cuff - The inflatable balloon on some tracheostomy tubes.

Decannulation - The removal of the tracheostomy tube.

Medical Glossary

Continued

Diaphragm - The muscle that separates the lung from the abdomen and assists with breathing.

Esophagus - The tube from below the throat to the stomach.

Exhale - To breathe out.

Humidifier - A machine that provides moistened air to your child’s tracheostomy.

Hydrogen Peroxide - A mild antiseptic and cleansing agent.

Inhale - To breathe in.

Instill - To quirt saline into the trachostomy tube.

Larynx - The voice box.

Mucus - Slippery fluid that is made in the lungs and windpipe.

Mucus Trap - A portable device used to suction mucus from your child’s tracheostomy.

Nebulizer - A machine that blows medication into your child’s tracheostomy.

Obturator - The small stick that is placed in a new tracheostomy tube to help guide it into the stoma.

Pulmonologist - A lung doctor.

Retractions - Pulling in of the skin surrounding your child’s ribs and neck.

Secretions - Another word for mucus.

Self-Inflating Resusitation Bag - Also called an Ambu bag, is s a piece of equipment used to give “breaths” to your child.

Speaking Valve - A valve that lets air come in through the tracheostomy tube to the vocal cords and mouth to make talking possible.

Sterile - Free from germs.

Stoma - A hole made in the neck for the tracheostomy tube to be placed.

Medical Glossary

Continued

Suction - To use a catheter to remove mucus from your child's tracheostomy and mouth.

Swaddle - To wrap an infant securely with a blanket to prevent movement.

Trach - An abbreviation for tracheostomy.

Trach Collar - A mask that fits over the trachea to deliver moisture.

Trachea - The windpipe; a tube leading from the throat to the lungs.

Tracheostomy - An opening in the neck to make breathing easier.

Tracheostomy Tube - A tube inserted into the opening in the neck.

Ventilator - A machine to help your child breathe.

Vocal Cords - Two strips of tissue in the throat that make sounds when we talk.

Parent Learning

Tracheostomy Quiz

Directions: In the space provided, write answers to the following questions in your own words. You may use additional space if necessary. It is important that you write down an answer for each question prior to checking your answers. If you have any doubts about the testing material or if the question raises additional questions, please note them. Your doctor or nurse practitioner will help you evaluate your answers.

1. List the reasons why your child needs a trach (as described by your doctor).
____
____

2. What size trach tube does your child have?
____

3. List 4 things, which would help to keep your child's secretions loose.
____
____
____

4. What normally plugs the trach tube? ____

5. Why do you suction? ____

6. What size catheter do you use for your child? ____

7. What can you use to suction your child while traveling? ______________________________________
____

8. What does instilling or irrigating mean? Describe how it is done. ____________________________
____

9. What is the solution you will use for instilling? ____
____
____

Tracheostomy Quiz

Continued

10. What should you do prior to inserting the suction catheter so that it does not adhere to the mucus membranes? ____

11. What should you do if traces of blood appear during suctioning? ______________________

____

12. Explain how the clean technique of suctioning may differ from the sterile technique.

____

13. What is a mucus trap? ____

14. How much saline would you use for instilling at one time? ______________________

15. What is the stoma? ____

16. What should you apply to the area around the stoma if it becomes red and irritated?

____

17. Describe the function of an obturator. How soon after insertion should it be removed?

____

____

18. Describe how trach tapes must be tied. ______________________________

____

19. List the steps you would take if you experience difficulty inserting the new trach tube after the old one has been removed.

____

____

20. What should you use to extend the child's neck while changing the trach tube? ______________

____
_

Tracheostomy Quiz

Continued

21. Describe what you would do if the child goes into spasm while changing the trach tube.

____

22. How many people should be present while changing the trach tube?

____

23. What can you use as a temporary airway if the trach tube cannot be reinserted?

____

24. Under what circumstances can you change a trach tube alone?

____

25. What is lubricant?

____

26. How many people should work together to change trach tapes?

____

27. How tight should trach tapes be?

____

28. What type of tape should you use to secure the trach?

____

29. What are subjective indicators that the child is being well ventilated?

____

30. What does thick, green mucus indicate?

____

Tracheostomy Quiz

Continued

31. How often should you wash and decontaminate respiratory care equipment if your child is sick?

____

32. What should you do if your child becomes very pale or begins to turn blue around the mouth and extremities?

____

33. What should you do if your child's chest retracts?

____

34. List the steps you would take if your child's trach tube came out?

____

35. When is CPR used? What is the ratio of chest compression to puffing into the lungs?

____

36. Where do you check for the infant's pulse during CPR? (Brachial pulse) Show or tell instructor.

____

37. Where do you check for the child's pulse during CPR? (Carotid pulse).

____

38. How many fingers should you use for chest compression during CPR on an infant?

____

39. With how much force do you blow into an infant's lungs during CPR? Into a child's lungs?

____

40. How is CPR different for a child with a trach than for a child without a trach?

____

Tracheostomy Quiz

Continued

41. How often should you change and wash respiratory care equipment?

____

42. Describe the procedure used to decontaminate respiratory care equipment.

____

____

43. List the items, which you should keep in a bag to take with you while traveling.

____

44. What should your child wear outdoors to keep dirt and dust out of his or her trach tube?

____ ______________________________

45. Describe three ways, in which you can keep your child's secretions loose in extremely hot, dry weather.

____

____

46. Where can you purchase trach supplies? ____

47. List the agencies that can assist you in paying for trach supplies and respiratory care equipment.

____

48. Can your child go swimming? ____

49. Describe how you will give your child a bath and ensure that water does not go into his/her trach tube.

____

____

50. Is your child eligible for special education?

____

Tracheostomy Quiz Answers

1. List the reasons why your child needs a trach (as described by your doctor).
This must be answered specifically with regard to your child, as this differs in each case.

2. What size trach tube does your child have?
Again, a specific answer, pertaining only to your child.

3. List 4 things, which would help to keep your child's secretions loose.
Humidification, instilling with normal saline, drinking lots of clear liquids, and extremely damp weather.

4. What normally plugs the trach tube?
Thick or dried mucus.

5. Why do you suction?
To remove excess secretions from the airway and enable the child to breath easier.

6. What size catheter do you use for your child?
A common size for pediatric trach tubes is usually 6,8, or 10 French.

7. What can you use to suction your child while traveling?
A mucus trap or portable suction machine.

8. What does instilling mean? (or irrigating?) Describe how it is done.
Instilling means squirting 1/2 to 1 cc of normal saline into the trach tube to loosen secretions.

9. What is the solution you will use for instilling?
Sterile normal saline (0.9 % Sodium Chloride).

10. What should you do prior to inserting the suction catheter so that it doesn't adhere to the mucus membranes?
Place the tip of the catheter in sterile saline or clean tap water to moisten the catheter. Also, you may instill the child.

11. What should you do if traces of blood appear during suctioning?
Instill during suctioning and use more frequent humidification. Also, check the setting on your suction machine. You should also call your doctor.

12. Explain how the clean technique of suctioning may differ from the sterile technique.
Gloves are not used. Thorough hand washing is sufficient; and clean tap water is used instead to clear the catheters.

Tracheostomy Quiz Answers

Continued

13. What is a mucus trap?
A mucus is a portable type of suction apparatus used while traveling or if there is an electrical outage.

14. How much saline would you use for instilling at one time?
Use 1/2 to 1 cc of normal saline for instilling at one time.

15. What is the stoma?
The stoma is the opening in the neck where the trach tube is placed.

16. What should you apply to the area around the stoma if it becomes red and irritated?
Apply antibiotic ointment lightly in the direction away from the stoma.

17. Describe the function of an obturator. How soon after insertion should it be removed?
An obturator is a guide, which is used while inserting the trach tube. It should be removed immediately after insertion.

18. Describe how trach tapes must be tied.
Trach tapes must be tied with three square knots. You must be able to insert one finger (pinky) under the tapes, yet they must not be so loose that the tube may come out accidentally.

19. List the steps you would take if you experience difficulty inserting the new trach tube after the old one has been removed.
If you experience difficulty, you can remove the obturator for a short time after you have the tube partially into the stoma to let the child relax. Now you can reinsert the obturator, put the tube all the way in, and remove the obturator. If this fails, you can insert a smaller size trach temporarily. After this, you should get immediate medical attention for the child.

20. What should you use to extend the child's neck while changing the trach tube?
You can roll a few towels into a cylinder and place it under the child's neck and upper shoulders to facilitate insertion of the tube.

21. Describe what you would do if the child goes into spasm while changing the trach tube.
If the child goes into spasm while changing the trach tube, wait a few seconds before putting the trach tube into place. You could also proceed as mentioned in question #20.

22. How many people should be present while changing the trach tube?
As many as you need, usually two or more.

23. What can you use as a temporary airway if the trach tube cannot be reinserted?
A suction catheter may be used.

Tracheostomy Quiz Answers

Continued

28. What type of tape should you use to secure the trach?
Cotton twill tape which is 1/4 to 1/2 inch thick should be used. Shoelaces are ok to use.

29. What are subjective indicators that the child is being well ventilated?
Direct observation-note his or her color, quality of respirations, chest expansion, chest symmetry and his/her behavior.

30. What does thick, green mucus indicate?
Respiratory infection.

31. How often should you wash and decontaminate respiratory care equipment if your child is sick?
Every day.

32. What should you do if your child becomes very pale or begins to turn blue around the mouth and extremities?
1. Suction 2. Instill and suction 3. Change the trach tube 4. Oxygenate with resuscitation (Ambu) bag and oxygen 5. Seek immediate emergency medical assistance if no relief is noted.

33. What should you do if your child's chest retracts?
Same as answer # 32

34. List the steps you would take if your child's trach tube came out?
Cut tapes, put in obturator, dip in lubricant (Surgilube or KY Jelly), reinsert trach tube and tie tapes.

35. When is CPR used? What is the ratio chest compression to puffing into the lungs?
CPR is used when the child's heart and respiration have stopped. The ratio is 30 to 2.

36. Where do you check for the infant's pulse during CPR? (Brachial pulse) Show or tell instructor.
Place your fingers on the inside of the upper arm just above the elbow.

37. Where do you check for the child's pulse during CPR? (Carotid pulse).
The carotid pulse may be found by locating the Adam's apple and then by sliding your fingers into the groove at the side of the neck.

38. How many fingers should you use for chest compression during CPR on an infant?
Two fingers should be used.

39. With how much force do you blow into an infant's lungs during CPR? Into a child's lungs?
A puff of air into the infant's lungs during CPR: a little more force into a child's lungs.

Tracheostomy Quiz Answers

Continued

40. How is CPR different for a child with a trach than for a child without a trach?
You must slowly blow directly into the trach tube or stoma. You must be sure not to hyperextend the child's neck.

41. How often should you change and wash respiratory care equipment?
Every other day, unless directed otherwise.

42. Describe the procedure used to decontaminate respiratory care equipment.
Wash equipment in soap and warm water. Soak all parts in 1 oz. of bleach (Clorox) and 2 gallons of cold water for 20 minutes. Rinse well. Or, you may use one part vinegar to two parts water, soak 30 minutes and rinse well.

43. List the items, which you should keep in a bag to take with you while traveling.
A new trach tube, gauze sponges, syringes with needle, catheters, sterile gloves, lubricant, small sterilized jar of saline, extra trach bib, jar of saline, an artificial nose.

44. What should your child wear outdoors to keep dirt and dust out of his or her trach tube?
A small crocheted bib or loose, airy scarf or "artificial nose" should be used.

45. Describe three ways you can keep your child's secretions loose in extremely hot, dry weather.
You can use more frequent humidification periods and instill with small amounts of saline (1/2 to 1 cc.). See that the child drinks frequent fluids.

46. Where can you purchase trach supplies?
Through your Home Care department or local medical surgical distributor.

47. List the agencies that can assist you in paying for trach supplies and respiratory care equipment.
Insurance plans, Major Medical, State Aid, Blue Cross

48. Can your child go swimming?
No

49. Describe how to give your child a bath and ensure water doesn't go into his or her trach tube.
This differs for each child, depending upon age and physical condition of each child. Please check with your nurse or doctor.

50. Is your child eligible for special education?
Probably yes, either under the classification of speech and language impaired or medically handicapped.

Tracheostomy Quiz

Important Questions and Answers

Question: ____

Answer: ____

____

Question: ____

Answer: ____

____

Question: ____

Answer: ____

____

Question: ____

Answer: ____

____

Question: ____

Answer: ____

____

Question: ____

Answer: ____

____

Recommended Reading

Books, Guides, and Journals:

Bissell, Cynthia M. *Pediatric Trcheostomy Home Care Guide.* Twin Enterprises: Grafton, MA. 2000.

A Parents Guide to Tracheostomy Home Care for Your Child. Shiley Tracheostomy Products: Mallinckrodt Medical, 1996.

Family and Friends CPR. American Heart Association: Dallas, Texas. 2006; www.americanheart.org/cpr.

A Handbook for the Home Care of Your Child with a Tracheostomy. Portex, Inc: Keene, NH. 2003.

Websites:

Rady Children's Specialists of San Diego: http://www.RCSSD.org

Rady Children's Hospital-San Diego: http://www.RCHSD.org

Aaron's Tracheostomy Page: http://www.tracheostomy.com/

> *"This site is dedicated to my son Aaron who had a tracheostomy for the first 4 years of his life. I hope that Aaron's Page will be helpful to others caring for a child with a tracheostomy, or to anyone seeking to learn more about tracheostomies."*

Rady Children's Specialists
of San Diego
A Medical Foundation

3030 Children's Way | Suite 402
San Diego, CA 92123
(858) 309.7701
www.RCSSD.org

10/2010