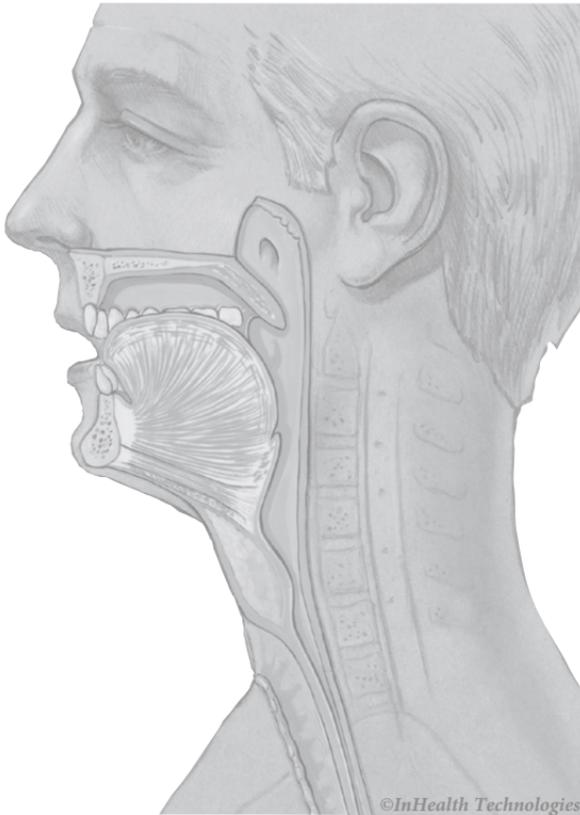


RESCUE BREATHING FOR LARYNGECTOMEES

And Other Neck Breathers



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Prepared by the Medical Affairs Committee
International Association of Laryngectomees.



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Acknowledgment

The principle guidelines for rescue breathing used in this booklet were found in the Emergency Cardiac Care Committee and Subcommittees, American Heart Association, "Guidelines for cardiopulmonary resuscitation and emergency cardiac care, II: Adult basic life support; III: Adult advanced cardiac life support." *JAMA*. 1992; 268:2184-2290.

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Introduction

Respiratory arrest can result from a number of causes, including drowning, stroke, foreign-body airway obstruction, smoke inhalation, drug overdose, electrocution, suffocation, injuries, heart attack, lightning strike, and coma. When respiratory arrest occurs, the heart and lungs can continue to provide oxygen to the blood for several minutes. In such cases, blood with oxygen will continue to circulate through the brain as well as other vital organs, and usually a pulse can be detected. When a pulse is present, cardiac arrest may be prevented and many lives can be saved if a good airway is established and rescue breathing is delivered whenever breathing has stopped or becomes inadequate.

When someone stops breathing, the first thing a rescuer thinks of is blowing air into the individual's mouth. Mouth-to-mouth rescue breathing is a quick and effective way to provide oxygen to the person. **But**, this technique will not work if the person is a total or partial neck breather. These individuals breathe through an opening in their neck, and not through their mouth or nose. The only way they will get oxygen is if it is given to them through the neck opening and **not through the mouth or nose. A neck breather may die if the rescuer is not knowledgeable about the difference in breathing mechanisms.**



Purpose

The emphasis of this booklet is on rescue breathing for laryngectomees (those who have had their voice box removed), and other neck breathers. The purpose is to help the reader identify a neck breather, and to describe the procedures used in rescue breathing for total and partial neck breathers.

This booklet is not meant to be all inclusive. It will not provide all of the information you need to know about rescue breathing. It does not include methods of resuscitation after the heart stops beating (cardiac arrest). Cardiopulmonary resuscitation (CPR) courses are available through many sources, including the American Red Cross and American Heart Association. The reader is encouraged not only to take CPR training, but to take along this booklet to ensure that the class learns the adaptations of rescue breathing for neck breathers.

See page 18 for definitions of terms used in this booklet.



Total Neck Breather

In the majority of cases, the total neck breather is a laryngectomee; that is, an individual whose larynx (voice box) has been removed because of cancer. It is estimated that there are about 50,000 laryngectomees living in the United States. A laryngectomee breathes **ONLY** through a permanent opening in the neck, called a stoma (Figure 1). A metal, plastic, or silicone laryngectomy tube may be worn in the stoma (Figure 2), although not usually. **No air passes through the nose or mouth.**

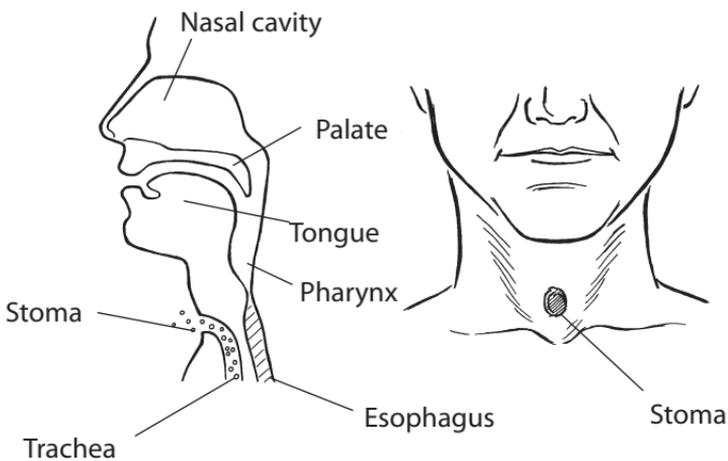


Figure 1

Total removal of the larynx results in loss of voice. The laryngectomee may have trouble speaking. Some laryngectomees speak by shunting air from the lungs through a surgically created tunnel between the trachea and esophagus (tracheoesophageal speech). A tube-like voice prosthesis keeps the tunnel open and prevents choking and aspiration (Figure 3). The front (tracheal)

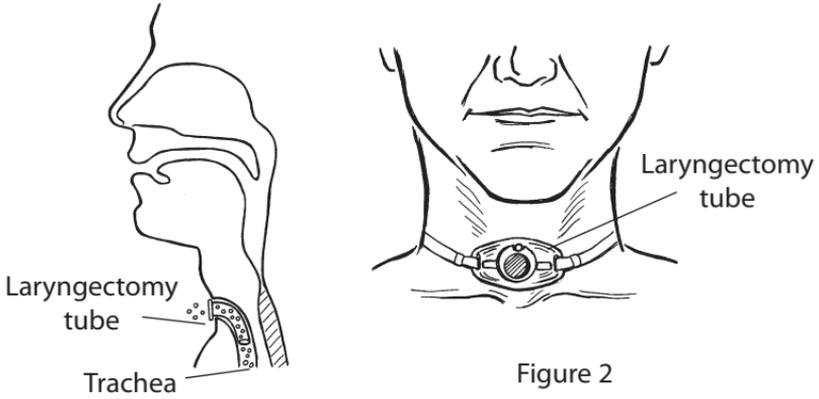


Figure 2

end of the voice prosthesis may or may not be attached to the neck by a strap. The front of the prosthesis will be visible inside the stoma (Figure 3).

In addition to the voice prosthesis, the tracheo-esophageal speaker may be wearing a valve over the

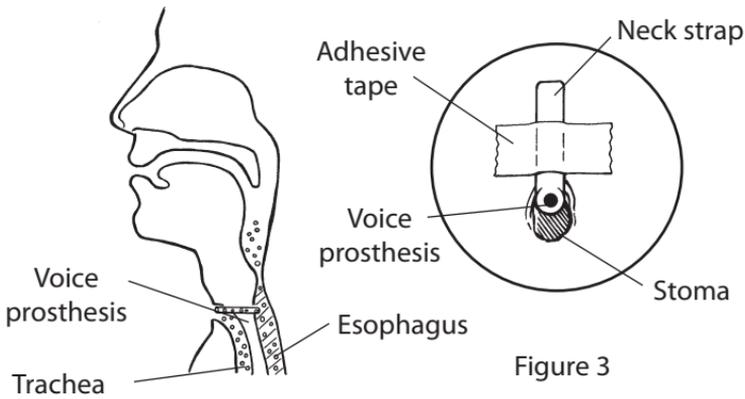


Figure 3

stoma (Figure 4). The tracheostoma valve sits in a housing that is attached with an adhesive to the skin around the stoma. This valve assists the laryngectomee in speaking.

A laryngectomee can also have an air filter device over the tracheostoma valve, or the filter may be alone

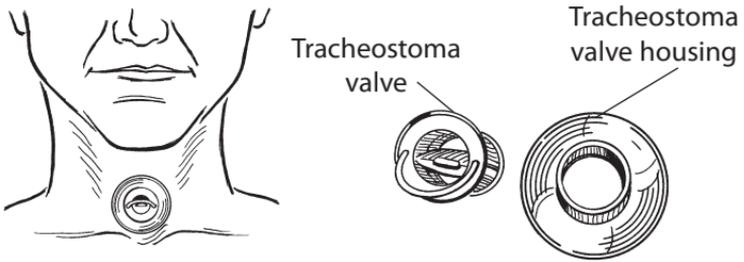


Figure 4

in the housing. The filter looks like a circle of foam rubber.

Partial Neck Breather

There are individuals who breathe through a stoma although a connection between the lungs, nose, and mouth still exists (Figure 5). The extent of breathing they can do through the mouth or nose ranges from none to a normal flow. **A metal, plastic, or silicone tracheostomy tube almost always is present in the stoma of a partial neck breather.**

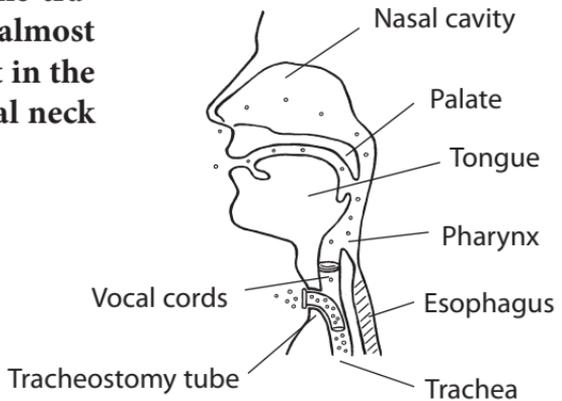


Figure 5



EMERGENCY
LARYNGECTOMEE

Total neck breather—no vocal cords
IF I HAVE STOPPED BREATHING

1. I breathe **ONLY** through an opening in my neck, **NOT** through my nose or mouth.
2. Remove anything that covers the opening in my neck. Expose my entire neck.
3. Keep the neck opening clear and protected from liquids.
4. **RESUSCITATE WITH AIR OR OXYGEN TO NECK OPENING OR USE MOUTH-TO-NECK BREATHING.**

CAUTION

I **may** speak using a tunnel between my airway (trachea) and food pipe (esophagus). A Silicone tube prosthesis keeps the tunnel open and prevents choking/aspitation. Do not remove it.

THE PROSTHESIS SHOULD BE LEFT IN PLACE.

I do _____ I do not use a prosthesis
(See other side)

Front

During pulmonary resuscitation, some of the air can pass through the prosthesis into my esophagus and stomach. It may be necessary to insert a naso-gastric tube into my stomach to release the accumulated air.

Medical Problems

____ Epilepsy ____ Glaucoma
____ Diabetes ____ Peptic Ulcer

Other _____

Medicines Taken Regularly

____ Anticoagulants ____ Cortisone or ACTH
____ Heart Drugs

Name and Dose _____
Other _____

Dangerous Allergies

____ Drugs (Name) _____
____ Penicillin Other _____

Other Information

____ Hard of Hearing ____ Contact Lenses
Primary Language _____
Other _____
My Name _____
Address _____

For further information, Contact:

Physician's Name _____ Phone _____
Speech Pathologist's Name _____ Phone _____
Relative's Name _____ Phone _____
Other _____

FOR HEALTH CARE PROFESSIONALS ONLY

If prosthesis is accidentally removed, replace immediately with a _____ FR* all purpose catheter to prevent choking/aspitation.
*Complete with number that is compatible with diameter of prosthesis.

DO NOT DESTROY ANYTHING REMOVED

Back

EMERGENCY

THIS CAR MAY CONTAIN ONE OR MORE LARYNGECTOMEES

Total neck breather—no vocal cords

IF I HAVE STOPPED BREATHING

1. I breathe **ONLY** through an opening in my neck, **NOT** through my nose or mouth.
2. Remove anything that covers the opening in my neck. Expose my entire neck.
3. Keep the neck opening clear and protected from liquids.
4. **RESUSCITATE WITH AIR OR OXYGEN TO NECK OPENING OR USE MOUTH-TO-NECK BREATHING.**

CAUTION

I **may** speak using a tunnel between my airway (trachea) and food pipe (esophagus). A Silicone tube prosthesis keeps the tunnel open and prevents choking/aspitation.

THE PROSTHESIS SHOULD BE KEPT IN PLACE.

During pulmonary resuscitation, some of the air can pass through the prosthesis into my esophagus and stomach. It may be necessary to insert a naso-gastric tube into my stomach to release the accumulated air.

Figure 6a



Figure 6b

Emergency Identification Cards And Jewelry

Laryngectomees may have a brightly colored emergency card on their person and on the car window (Figure 6a), and they may wear a special bracelet or necklace (Figure 6b). All of these items identify the person as a total neck breather and provide vital medical information which is helpful in an emergency. It is important to note, however, that in many areas, emergency medical personnel are not authorized to go through purses and wallets, so unless the card, bracelet, or necklace is clearly visible, this valuable information will be missed.



Determining the Person's Condition and Preparing for Rescue Breathing

1. Determine unresponsiveness:

Determine whether the person is unconscious by tapping or gently shaking him/her and shouting, "Are you OK?"

2. Activate emergency medical services:

As soon as it has been determined that the person is unresponsive, call 911 or a local emergency telephone number.

3. Position the person:

Place the individual on his or her back on a firm, flat surface with the arms against the sides of the body. The rescuer should be at the individual's side. If there is no head or neck trauma, the rescuer should tilt the head back and lift the chin (Figure 9).

4. Expose the neck:

Bare the entire neck down to the sternum (breast bone). **Remove anything covering the stoma that prevents access to the airway.** Typical stoma coverings include a shirt and tie, cloth or foam stoma cover, necklace, scarf, or metal screen. If the person has a tracheostoma valve or filter, remove it from the housing, but leave the housing attached to the skin around the stoma unless it interferes with the rescue breathing procedures. If the housing has to be removed, it must be done carefully because the neck strap to the voice prosthesis also may be attached to the skin under the housing, and excessive pulling on the neck strap could dislodge the prosthesis. Once the housing is removed, the neck strap to the voice prosthesis can be left loose



while rescue breathing proceeds.

Do not remove any tube or voice prosthesis from inside the stoma except the inner tube shown in Figure 8.

If the prosthesis becomes dislodged, it should be replaced as soon as possible with an all-purpose catheter of a compatible diameter to prevent aspiration of esophageal contents, and to maintain the opening between the trachea and the esophagus so that a voice prosthesis can be inserted at a later time. The catheter size can range from 14 Fr. to 20 Fr.

5. Determine breathlessness:

The rescuer should place his or her ear over the person's stoma, then 1) look for the chest to rise and fall, 2) listen for air escaping during exhalation, and 3) feel the flow of air. If the chest does not move and no air is exhaled, the person is breathless. This evaluation procedure should take only 3 to 5 seconds.

6. Examine the stoma and the laryngectomy tube or tracheostomy tube which may be in the stoma:

If there are secretions, a blockage, or obstruction in the opening, wipe it away. If a suction apparatus with soft tubing is handy, insert the tube 3 to 5 inches into the neck opening and suction for a few seconds.



Figure 7

Mouth-to-Stoma Rescue Breathing

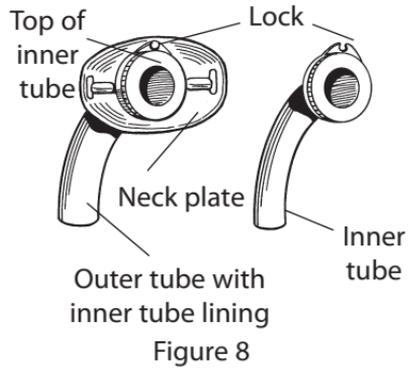
Rescue breathing requires that the rescuer inflate the person's lungs adequately with each breath. **It is useless to try mouth-to-mouth breathing in any individual who breathes through an opening in the neck.** Direct your attention to getting air/oxygen through the opening or tube in the neck, and not the individual's mouth.

Mouth-to-stoma ventilation is performed by the rescuer taking a deep breath and making an airtight seal with his or her lips around the person's stoma or laryngectomy/tracheostomy tube (Figure 7). The rescuer initially gives two slow, full breaths, about 2 seconds per breath. This is followed by a pulse check, preferably at one of the two carotid arteries located slightly to either side of the midline of the neck. Surgery and radiation treatments may have hardened the tissues, making it difficult to detect a pulse in the neck area of a laryngectomee. If this is the case, try an alternate location such as the wrist. If a pulse is present, but the person is still not breathing, give one breath every 5 seconds. Adequate ventilation is indicated by observing the chest rise and fall, and hearing and feeling air



escape from the person during exhalation.

If the chest fails to rise, the person may have a blocked laryngectomy/tracheostomy tube. If air is not passing through the laryngectomy/tracheostomy tube, remove the inner tube (Figure 8), and resume rescue breathing. The inner tube is the lining of the laryngectomy/tracheostomy tube and it is a common location for blockage. The inner tube can be separated and removed from the outer tube by releasing it from a lock on the neck plate of the tube (Figure 8), or rotating the inner tube counterclockwise. Each style of laryngectomy/tracheostomy tube has its own locking mechanism.



If you hear or feel air escaping from the mouth and nose, the person is a partial neck breather. To ventilate a partial neck breather, the individual's mouth and nose usually must be sealed by the rescuer's hand or by a tightly fitting face mask to prevent leakage of air when the rescuer blows into the tracheostomy tube (Figure 9). If the tracheostomy tube has a cuff and it has been or can be inflated, it is not necessary to cover the mouth and nose as the cuff will prevent the leakage of air to the mouth and nose (Figure 10).



Figure 9

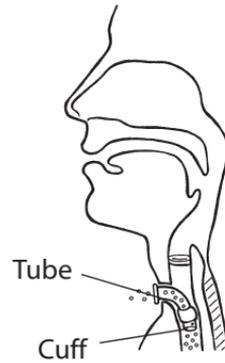


Figure 10

Alternatives to Mouth-to-Stoma Rescue Breathing

Many rescuers prefer to use a barrier device during mouth-to-stoma breathing. An infant or toddler mask is the size most likely to seal around a neck stoma or laryngectomy/tracheostomy tube neck plate. For mouth-to-mask ventilation, there are one-way valve mouth pieces which can be coupled to the mask, thereby allowing a rescuer to ventilate the person while avoiding direct contact with exhaled air or discharge from the stoma. One such device is pictured in Figure 11. The rescuer must use one hand to hold down the mask while breathing into the one-way valve.

Another alternative is to use a bag-valve-mask unit, which consists of a self-inflating bag and a one-way breathing valve attached to an infant or toddler mask (Figure 12). The mask is held firmly over the stoma as the rescuer squeezes the bag to ventilate the person. It should be noted, however, that in adults, bag-valve units may provide less ventilatory volume than

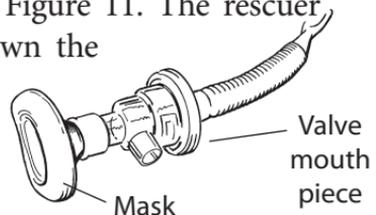


Figure 11



mouth-to-stoma or mouth-to-mask ventilation. Also, a single rescuer may have difficulty providing a leakproof seal to the stoma and squeezing the bag adequately.

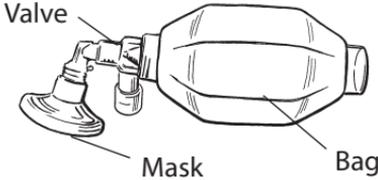


Figure 12

Effective ventilation is more likely when two rescuers use these devices; one to hold the mask and one to squeeze the bag. Training is needed to become proficient in

the use of the bag-valve-mask unit and an untrained rescuer should use the mouth-to-stoma or mouth-to-mask method of ventilation.

Rescue Breathing Performed by a Neck Breather

The bag-valve-mask method of rescue breathing can be used by a laryngectomee or other neck breather because the rescuer does not have to use his or her own breath supply. The neck breather can perform rescue breathing through the stoma of another neck breather by using the method just described, or on a normal breathing child or adult by placing the appropriate size mask over the mouth and nose of the individual and ventilating by using the bag-valve attached to the mask.

Rescue breathing methods for infants and children are not the same as for adults. Information on these methods should be obtained by attending a first aid or CPR course.



Emergency Medical Services

Laryngectomees and other neck breathers should notify their local police and fire departments of their medical condition, especially of the fact that they are neck breathers. In addition, laryngectomees should inform emergency medical services personnel that in the event of an emergency, they may not be able to speak.

The use of the 911 telephone system has simplified and expedited emergency assistance. A more recent development is the implementation of “enhanced 911” in many communities. This option automatically provides dispatchers with the caller’s address, telephone number, and pertinent medical information such as the fact that an occupant is a neck breather or may be unable to speak. Obtaining 911 service should be a top priority for all communities, and enhanced 911 is preferable.



Definitions of Terms as Used in This Booklet

Bag-Valve-Mask: Self-inflating bag and a one-way breathing valve attached to a mask that is placed over the mouth or stoma for rescue breathing.

Catheter: Long, flexible tube, available in a variety of sizes.

Esophagus: “Food tube” extending from the pharynx to the stomach.

Laryngectomee: Person whose larynx (“voice box”) has been removed.

Laryngectomy: Surgical procedure for removing the larynx.

Laryngectomy tube: A tube worn in the trachea of a laryngectomee to keep open the airway.

Larynx: The upper part of the trachea; also known as the “voice box” because it contains the vocal cords.

Neck plate: Wide band of metal or plastic that surrounds the outside opening in a laryngectomy tube or tracheostomy tube. It fits against the neck to hold the tube in place.

Sternum: Breast bone.

Stoma: In a laryngectomee, it is an opening in the neck to which the trachea is attached. In a partial neck breather, it is an opening in the neck leading to the trachea.



Trachea: “Breathing tube” extending from the pharynx to the lungs in a person who is not a laryngectomee; and from the stoma to the lungs in a laryngectomee.

Tracheoesophageal speech: Produced by shunting exhaled air from the lungs through a voice prosthesis and into the esophagus where sound for speech is generated.

Tracheostoma valve: A valve worn over the stoma of a tracheoesophageal speaker. The valve allows normal breathing, but closes for speech to redirect exhaled air into the esophagus.

Tracheostoma valve housing: A silicone disc that is affixed to the skin around the stoma. The tracheostoma valve fits into the center of the disc, thereby holding it in place over the stoma.

Tracheostomy tube: A tube worn in an opening that goes through the neck and into the trachea of a person who has not had their voice box removed, but who needs to breathe through this opening to assure an adequate airway.

Ventilation: Moving air into and out of the lungs.

Voice prosthesis: Silicone tube worn in the surgically created tunnel between the trachea and esophagus. It acts as a one-way valve, shunting air from the lungs into the esophagus where sound is generated for tracheoesophageal speech.



International Association of Laryngectomees

The International Association of Laryngectomees (IAL) is a voluntary, nonprofit organization dedicated to the total rehabilitation of laryngectomees. The purposes of the IAL are to promote and support the total rehabilitation of laryngectomees by the exchange and dissemination of ideas and information to laryngectomee clubs and to the public; to facilitate the formation of new laryngectomee clubs; to foster improvement in hospital laryngectomee programs; and to upgrade the minimum standards for teachers of postlaryngectomy speech. The IAL publishes educational materials and a tri-annual newsletter, maintains a registry of postlaryngectomy speech instructors, and sponsors an annual voice rehabilitation institute and annual general meeting for laryngectomees.

The IAL was formed in 1952 by representatives of a number of laryngectomee clubs to answer the need for coordinating the joint activities of the clubs. Today, the IAL comprises nearly 300 member clubs located throughout the United States and in several foreign countries. These clubs usually meet once or twice a month for informational programs and support. Most clubs also maintain a patient visitation program coordinated with medical professionals in local hospitals and clinics.



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