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Mass Eye and Ear

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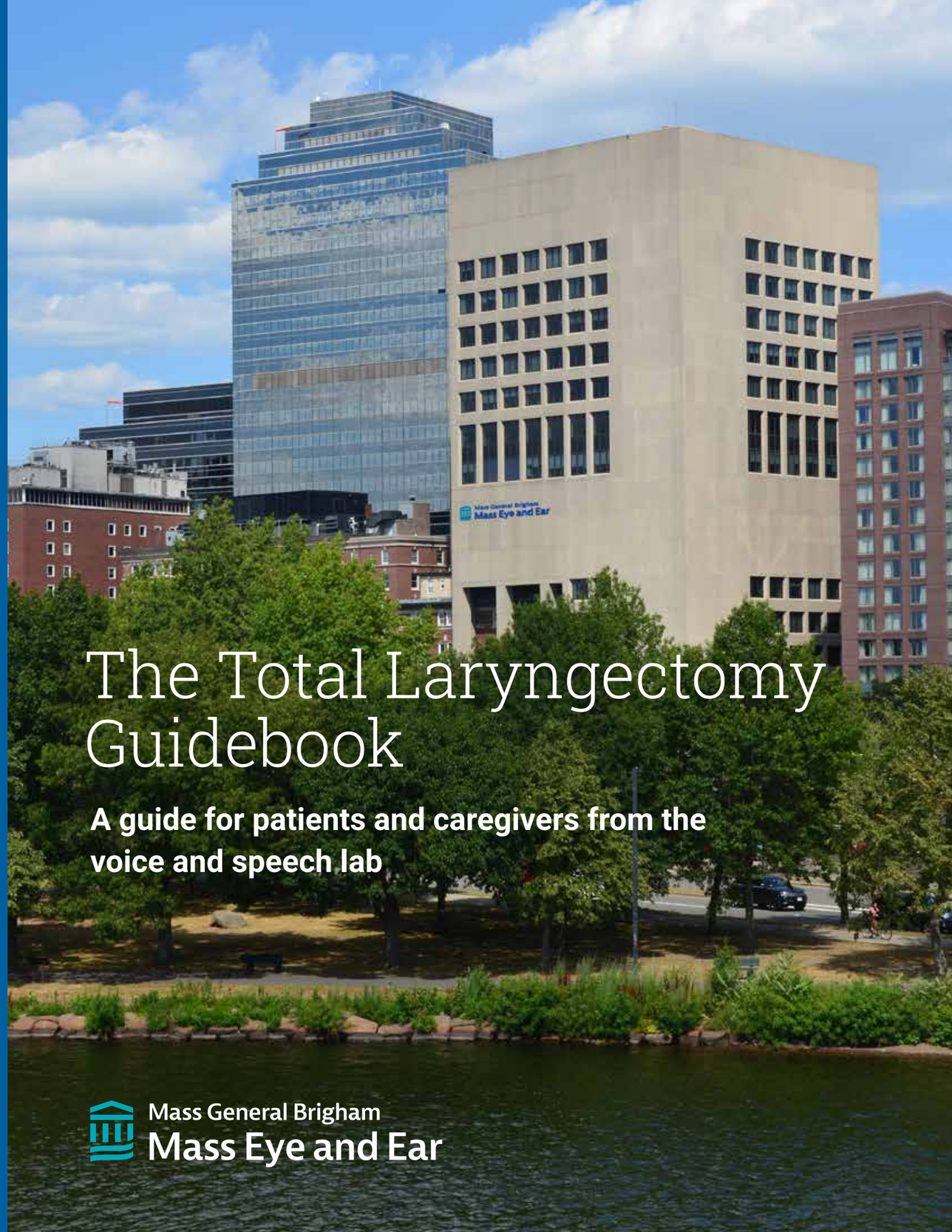

The Total Laryngectomy Guidebook

A guide for patients and caregivers from the voice and speech lab

Mass General Brigham
Mass Eye and Ear

Welcome letter

Every person's journey is uniquely their own. No two patients respond to the news of needing a total laryngectomy in the same way. Some want to understand every detail of what lies ahead, while others prefer to focus only on the essentials. All of these responses are valid, and all are deeply human.

The Mass Eye and Ear team is here to walk through this process with you, every step of the way. This team is committed not only to providing the highest level of care, but also to honoring the feelings, questions, and concerns that naturally arise during this time.

This guidebook was created for you, your family, and your caregivers. It is meant to be a trusted resource you can return to at any point in your journey, offering clear information, reassurance, and support whenever you need it.

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Important information and contacts

Patient information

Patient name: _____

Surgeon(s): _____

Primary care doctor: _____

Date of my surgery: _____

Surgery details: _____

_____

TEP placement (check one):

☐ Primary placement ☐ Secondary placement

Date TEP was placed: _____

My speech pathologist(s): _____

SLP contact information: _____

My home health team: _____

My primary contact/caregiver: _____

Supplies and equipment

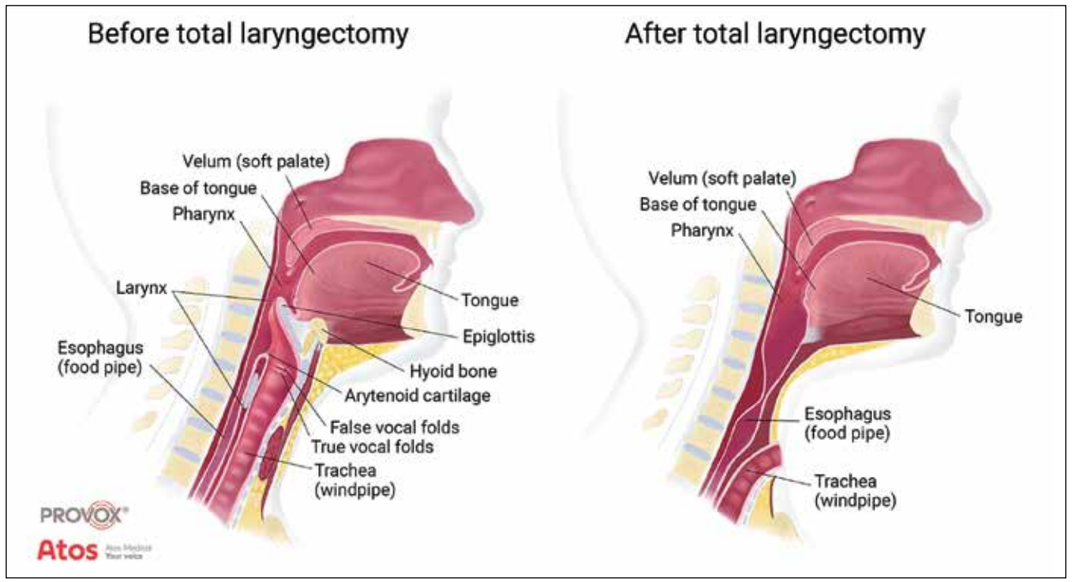
My laryngectomy tube size: _____

My suction and/or oxygen supply company:

_____

My prosthesis type and size: _____

Anatomy



Understanding the anatomy and physiology of speech, language, voice and swallowing

The *larynx,* also commonly known as the "voice box," is a highly specialized mechanism of the body that is located at the top of the trachea (airway) and houses many muscles and structures used for voicing, including the vocal folds. In addition to voicing, its primary function is airway protection against food, drink, saliva, or anything else that someone would swallow. Using air from the lungs, the vocal folds vibrate ~100-200 times per second to produce the sound source that is the voice. Those vibrations are then shaped into words using various structures within the mouth and throat (i.e., teeth, tongue, lips, palate). The vocal folds control things like pitch and assist with volume that make up the unique characteristics of the voice.

Prior to total laryngectomy (TL) surgery, the larynx is responsible for protecting the airway against anything that may try to enter the lungs given that the airway and the passageway to the stomach for food/drink (esophagus) are connected. However, following surgery, the larynx is removed and these passageways are permanently separated, with the airway now starting at the tracheostoma, or stoma for short. The passageway to the stomach does not change, still starting at the back of the throat/mouth. In other words,

Anatomy

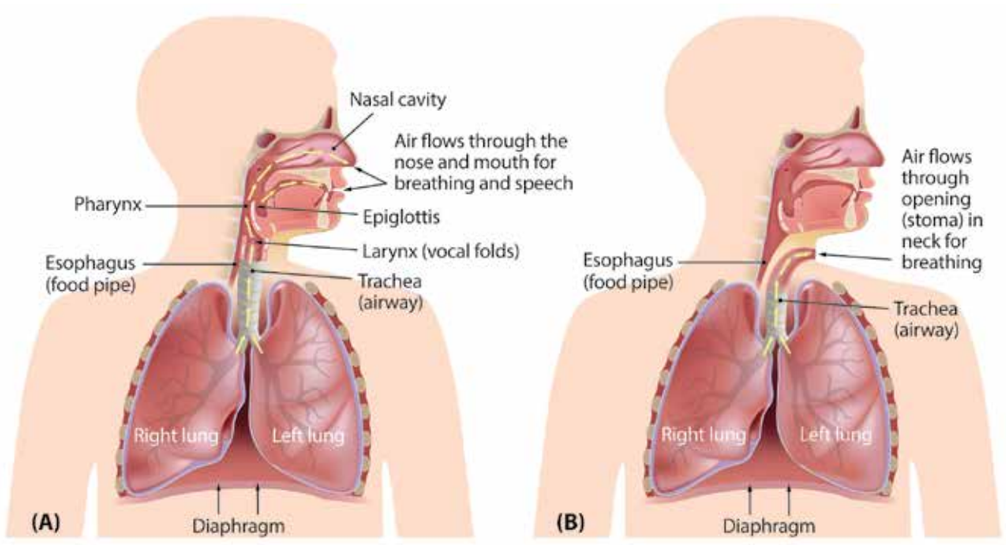
someone who undergoes a laryngectomy will never “choke” on food again because the breathing tube and the swallowing tube are completely separate and the food cannot enter the airway unless it does so at the level of the stoma, which is possible but uncommon.

Differences between speech, voice, and language

Voice: Voice is produced via vibration of the vocal folds. The vocal folds come together and air from the lungs assists in blowing the vocal folds apart, causing an aerodynamic phenomenon that results in the vocal folds vibrating in a wave-like formation. These vibrations are the sound source behind the voice. Breathing is the “power” behind the voice.

Speech: Speech are sounds made in order to communicate. It is the shaping of the vibratory sound source (the voice) into specific combinations of sounds that form words. This requires articulation (how speech sounds are made) in order to formulate the words to be communicated.

Language: Language is the direct relationship between the combination of speech sounds that formulate words and the meaning of those sound combinations to form a message. This process reflects how words are put together and the meaning or message behind the combination of words and sounds used. Following a TL, the patient’s voice will be affected, however speech and language should remain unchanged.



Total laryngectomy

What is a total laryngectomy?

The total laryngectomy (TL) is a surgery that requires the complete removal of all laryngeal structures, meaning the entirety of the voice box including the vocal folds and a portion of the upper airway. This results in a disconnection between the mouth/nose and the airway. As a result, people who undergo a TL surgery will no longer breathe through their mouth and nose and instead will breathe through a hole created surgically in the neck called a tracheostoma, or stoma.

The most common reason for TL surgery is cancer that either originated in or spread to the larynx. Other common reasons for TL surgery include laryngeal damage from trauma or prior head and neck cancer treatments—such as surgery, radiation therapy, or chemotherapy—which can lead to recurrent aspiration (liquid or food entering the lungs), resulting in chronic lung infections like aspiration pneumonia and other medical complications.

Surgical details

A TL involves removal of the larynx and reconstruction at the neck. In some cases, additional tissue or muscle, called a skin flap, is needed for the reconstruction. This tissue is typically taken from the forearm, thigh, or pectoralis muscle. As a result, it is common for patients to have two surgical sites: one at the neck where the laryngectomy is performed, and another at the site where the tissue or muscle is harvested.

Admission

What to expect during an inpatient admission

Immediately after surgery: After a total laryngectomy (TL), the patient will breathe through an opening in their neck instead of through the nose or mouth. Because of this, air no longer passes through the nose or mouth, which normally helps warm, filter, and humidify inhaled air. The mask and collar placed around the neck provide humidified oxygen directly to the new airway. This added moisture helps prevent crusting and supports healing.

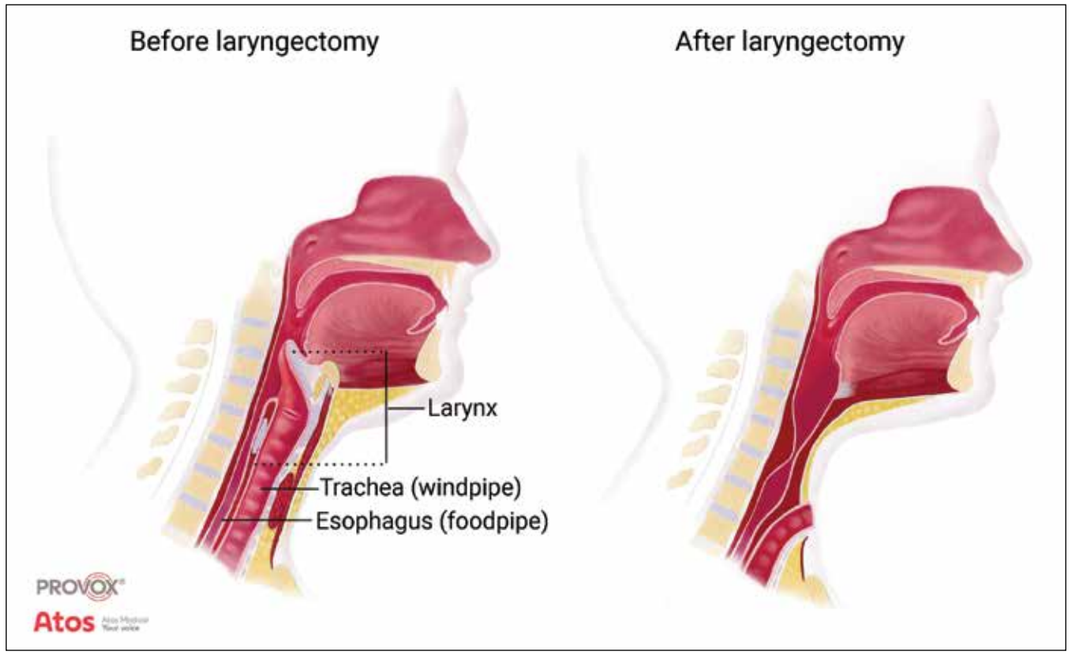
During your stay: During hospitalization, it is important that the patient, and anyone who will helping with their care after discharge, learn how to care for their airway and new airway opening, called the *tracheostoma* (or *stoma*). Although this can seem intimidating and overwhelming, the staff of trained doctors and nurses will help teach stoma hygiene, care and cleaning to the patient and caregivers early in the patient's recovery process.This will ensure that the patient and caregivers are comfortable with caring for the stoma once the patient is discharged from the hospital.

Communication: Immediately following the surgery, the patient will likely use a combination of writing, gestures, pictures, mouthing words, and text-to-speech applications to communicate. The patient, and ideally a family member or caregiver, will work with our team of speech language pathologists to discuss communication options. Within the first several days following surgery, a speech language pathologist will introduce other communication options, specifically introducing the *electrolarnyx* to begin training with.

Electrolarynx with oral adapter

Swallowing: The patient will have a feeding tube placed through the nose and throat into the stomach to provide nutrition, hydration, and medications, unless an alternative feeding tube is already in place. This tube will remain in place until the surgeon orders a swallow test, also known as a leak study, to determine if the patient is healed enough to begin accepting nutrition and hydration by mouth again. The timeline of this is dependent on the recovery process and is up to the surgeon's discretion.

Breathing



Changes following total laryngectomy surgery

Since the patient is now breathing from the stoma in their neck, they no longer use their nostrils to filter, moisten, and heat the air that they are breathing. As a result, a device called *Heat and Moisture Exchanger (HME)* can be used to do this for them. An HME is often used in combination with a *laryngectomy tube (larytube)* which is a soft tube used to maintain the size and integrity of the stoma following surgery. HMEs connect directly to the larytube. Eventually, a patient can transition from the use of a larytube to use of an adhesive baseplate which is a housing port for the HME to allow continued use even once the patient is no longer using a larytube. Over time, some patients adopt to lesser use of the HMEs.

In addition to using an HME, patients who have undergone a TL also benefit from additional humidification through a mist mask or in a home environment (i.e., a humidifier).

Patients who undergo a TL now have a direct connection between the stoma in their neck and their lungs. As a result of this change in breathing anatomy, the patient may experience reduced or complete loss of smell and taste.

Breathing

Patient wearing a heat and moisture exchanger with the adhesive baseplate

Patient wearing a shower guard with the adhesive baseplate

Shower guard and adhesive baseplate

When air no longer passes through the nasal passages that contain the nerves responsible for smell, the sense of smell decreases, and because taste relies heavily on smell, taste is impacted as well. Because of this change in breathing, if the patient requires supplemental oxygen, they will no longer use a nasal cannula for their nose or a typical oxygen mask for their mouth. Instead they will be using a mask directly over the stoma.

Due to the this change in anatomy, if the patient ever needs life saving measures, this would be done at the level of the stoma and not the mouth. The patient is no longer a mouth and nose breather.

Following a TL, the patient has a significant increase in infection risk. As a result, it is important the stoma is cleaned well, the air the patient is breathing is humidified and filtered through an HME or other form of stoma cover, and the patient is diligent about completing daily stoma hygiene.

Post TL, the patient should avoid swimming and activities involving being submerged in water. The patient no longer has any form of an airway protection mechanism to prevent water from entering their lungs. They now have a direct connection from the stoma to their lungs, and if a patient were to go underwater, it would be fatal.

For showering, the patient will now have to wear a *shower guard* to protect the open stoma and airway from water. This is a device that protects the stoma from water entering it but still allows the patient to breathe.

Besides breathing, another significant change following a TL is the absence of the vocal folds, requiring modifications to the patient's ability to talk and communicate. Alternative communication options will be discussed in the following sections.

Swallowing

Anatomy of swallowing and changes following surgery

Swallowing is the process that moves food or liquid from the mouth, through the back of the throat, into the esophagus, and down to the stomach for digestion. It begins in the mouth, where muscles and structures work together to break down the material and shape it into a form that can be swallowed safely. With assistance from your tongue and palate, the material is propelled into the throat where the larynx will move up and forward under the chin to close the airway and open the top of the esophagus. Swallowing is a fundamental function for nutritional intake for the body. If the process fails and the material that is swallowed enters the larynx and the trachea, then choking or pulmonary aspiration can occur.

Changes to swallow function following a total laryngectomy

Immediately following the total laryngectomy (TL), the patient will receive all nutrition and hydration through a feeding tube placed in their nostril (NGT) and fed into their stomach or through alternative feeding tube options that the patient may have already had prior to the surgery (G-tube or PEG). If the patient already has a long term feeding tube in place prior to the surgery, this will likely continue to be used to provide nutrition and hydration. During the days immediately following surgery, the patient will have nothing to eat or drink by mouth.

The patient will begin the recovery process with the feeding tube in place and will undergo a leak study in the weeks following surgery. The specific timeframe of this is at the surgeon's discretion and is subject to change. When the team determines the patient is ready and the leak study shows no leakage, meaning the swallowed dye flows into the esophagus and does not escape into other areas within the neck, the patient can typically begin transitioning back to trials of eating by mouth.

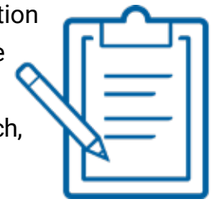
After TL, particularly when flap reconstruction is performed using tissue from another part of the body to rebuild the swallowing tube, the throat muscles no longer move food downward during swallowing in the same way they did before surgery. Therefore, it is normal and expected that the patient must take smaller bites, chew more thoroughly, and eat slower than before. Use of liquids will also help the food travel through the esophagus. It is also recommended to avoid bending over shortly after eating as this may result in sudden regurgitation.

After the TL, *aspiration* is no longer a major concern as it is physically impossible for food, drink, or saliva to enter the airway once swallowed because the airway and the digestive tract have been permanently separated. However, if the patient has a *tracheoesophageal prosthesis* (TEP) placed, the possible risk of aspiration is reintroduced. Please see section on TEPs for information on minimizing aspiration risk with proper care and maintenance of the prosthesis.

Communication options following a total laryngectomy

It is important that the patient meets with a speech language pathologist to discuss methods of communication ideally before the surgery, or at the very least, immediately following surgery. This is so the patient and loved ones can be educated and instructed on various communication options. Due to the removal of the larynx, including the vocal folds, the patient will no longer be able to voice in the same capacity they have previously.

In the days immediately following the surgery, the patient will likely use a combination of writing, gestures, and mouthing of words to communicate. Text-to-speech applications are available on most smartphones which are also beneficial in enhancing the ease of communication. Several text-to-speech applications are listed below. While patients can often manage with these communication modalities, writing and mouthing is often very cumbersome and increases risk of communication breakdown. As a result, it is highly recommended that patients learn alternative methods of communication. This is where the role of the speech language pathologist becomes especially important. They provide information on additional and longer-term communication approaches, including the use of an electrolarynx, tracheoesophageal speech, and esophageal speech.



Some helpful text-to-speech apps include:

- Text-to-Speech
- Text to Speech (TTS)
- Speechify Text-to-Speech

Turning your iPhone into a communication option

- iPhone must have IOS17 or newer
- Go to ***Settings > Accessibility > Live Speech*** (toward the bottom of the page). Enable “Live Speech” on top to turn it on.
- Triple-click the iPhone side button for text-to-speech.
- A keyboard will appear. Type whatever you want to say and hit send. Your iPhone will play what you entered over the speakers. It’ll highlight word-by-word as it speaks it out. Make sure your phone’s volume is turned up.

Patient using the electrolarynx with oral adapter

Patient using the electrolarynx

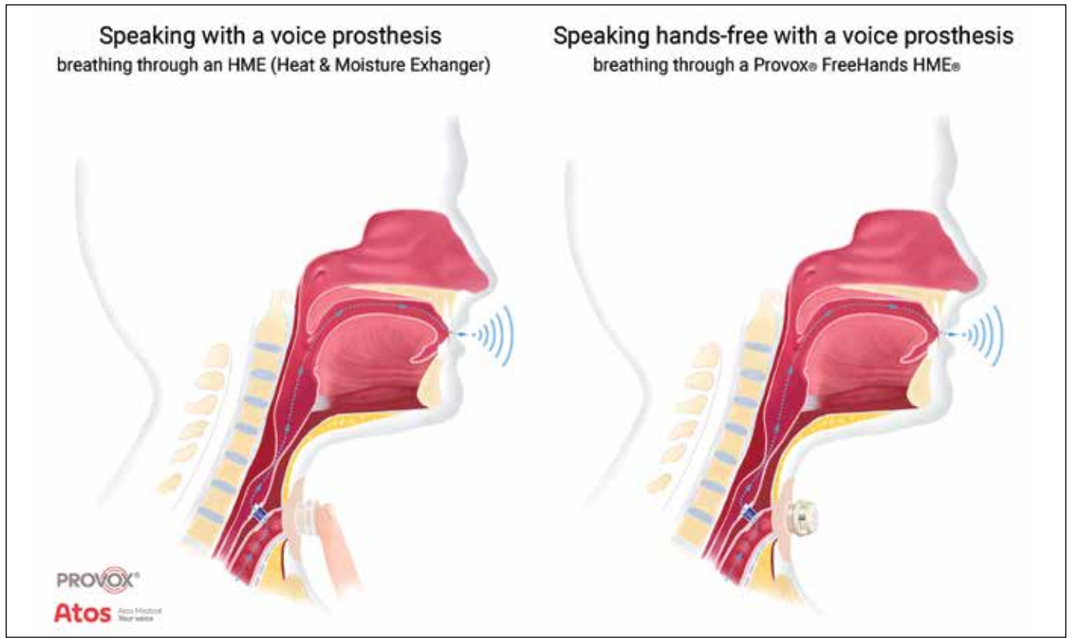
Electrolarynx with oral adapter assembled

AI voice banking apps for AAC

AI voice banking applications for Augmentative and Alternative Communication (AAC) provide a way to preserve and create synthetic voices that can be used in communication devices, such as a smart phone or tablet. These apps allow users to record their voice and create a digital copy that can be used for alternative methods of communication. After total laryngectomy, when a patient may choose to use a speech generating device, this device will produce sound that mimics the patient’s natural voice, rather than an alternative voice that is not their own. Here are some notable apps and services:

- Apple Personal Voice (and Live Speech built-in text to speech AAC)
- Voice Keeper: ***thevoicekeeper.com/***
- Acapela My Own Voice: ***capela-group.com/solutions/my-own-voice/***
- Model Talker: ***modeltalker.org/***
- Speak Unique: ***speakunique.co.uk/***

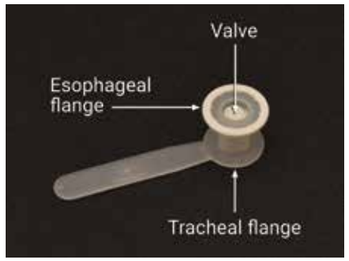
Electrolarynx: In addition to mouthing, writing, gesturing, and text-to-speech, another recommended modality of communication immediately following surgery is the electrolarnyx. The electrolarynx is a device that generates vibrations that are meant to mimic the sound source that is your voice. In the days and weeks following surgery, it is important that the patient works with the speech language pathologist who will train them on how to use the device for functional communication. Initially, an attachment will be provided that allows the vibrations to travel through an oral adaptor, similar to a straw, into the patient’s mouth. The patient then begins to learn to shape those vibrations into speech in order to communicate. Once the patient is fully healed and given approval by their surgeon, they can remove the adaptor and place the electrolarynx directly against their neck. The function is relatively the same, however instead of the vibration traveling through the oral adaptor into the back of their mouth to then be shaped, the vibrations transfer through the skin into the throat to be shaped into speech.



Esophageal speech: This is a technique for voicing that requires the patient to inject (swallow) air into the esophagus, causing the esophagus to slightly expand. The air is then released in a regulated manner through the mouth while the patient simultaneously mouths the words to communicate. It presents as belch-like speech.

Tracheoesophageal speech: Tracheoesophageal (TE) speech is the preferred and most human sounding method of communication following a total laryngectomy (TL). TE speech requires placement of a tracheoesophageal prosthesis (TEP) that is implanted either at the time of the patient's TL surgery or several months following the surgery. The specific timeline for placement of the TEP, which is also at the surgeon's discretion, is either during the TL surgery or at a separate procedure following the TL.

The steps toward TE speech involves a procedure by the surgeon which creates a pathway connecting the esophagus and trachea via a *puncture tract*. A prosthesis is then placed in the puncture tract to keep it from closing over. This allows for air to be diverted from the trachea into the esophagus through a one-way valve within the prosthesis. The opening of the valve is meant to allow the flow of air from the trachea through the TEP into the esophagus, resulting in vibration



Anatomy of the tracheoesophageal voice prosthesis (TEP)

Patient with a tracheoesophageal voice prosthesis (TEP)

of the esophageal tissue which serve to mimic vibration of the vocal folds. This one-way valve allows air to flow into the esophagus but closes when not in use to prevent the flow of food or drink out of the esophagus, through the prosthesis into the trachea.

While the prosthesis itself does not serve as the new vibrating source for the voice, it allows the diversion of the flow of air from the trachea into the esophagus. The diverted air is then used to vibrate the tissue of the esophagus to create the sound source. This sound source is powered by the lungs, just as the patient's vocal cords once were. This vibration/sound source travels up the esophagus into the mouth where it is shaped by the patient's tongue, teeth, lips, and palate, into the words that you hear. Although changes in the patient's voice may occur, speech and language abilities should remain unchanged. The voice produced with TEP speech is similar to that of someone with hoarseness. It may sound slightly low and wet, but it is the most functional and human-sounding of the available options.

There are several important factors to understand when making a decision about if a TEP is the correct choice for the patient. The first being the patient's overall health and cognitive status. The TEP now provides a direct connection between the esophagus and the airway, putting the patient at increased risk of aspiration and aspiration pneumonia if the TEP were to leak and go unattended or ignored. As a result, the TEP needs **daily maintenance** in order to maintain adequate function. The patient and/or caregiver will need to clean and brush the prosthesis daily to ensure optimal function.

The TEP also needs to be **changed routinely**. The prosthesis that is inserted in the puncture tract connecting the trachea and the esophagus will need to be changed. The length of time a prosthesis lasts before a complication or breakdown occurs varies widely, but a typical timeframe for routine prosthesis replacement

Communication

is between two to four months. The changing of the prosthesis will be completed by a trained speech language pathologist or the treating surgeon at Mass Eye and Ear. The most common reason a TEP needs to be changed is leaking of liquid or food. This can happen either around the prosthesis, between the prosthesis and the puncture tract walls, or through the center of the prosthesis if the one-way valve stops working. Other common reasons for changing a TEP include the buildup of biofilm on its internal mechanisms, which can cause the one-way valve to malfunction and lead to leakage through the center of the prosthesis. Biofilm is a thin layer of bacteria or yeast produced by the body that can collect inside the prosthesis and interfere with its function. This buildup can cause the one-way valve to malfunction and lead to leakage through the center of the prosthesis.

If the TEP were to fall out

If the TEP were to fall out, it requires immediate attention. The patient and/or caregiver is instructed to place a rubber catheter into the puncture tract to maintain its size and shape and to prevent food or liquid from entering the trachea through the puncture. Before placing the red rubber catheter, the patient should tie a small knot towards the larger end of the catheter to prevent leakage of stomach contents. The rubber catheter will remain in place, taped to the patient's neck (as pictured left) until the patient can be seen for a TEP change. In the event of TEP falling out, the patient or caregiver should contact the Voice and Speech Laboratory (VSL) at Mass Eye and Ear to schedule an appointment to have a new one placed. The main number for the VSL is **617-573-4050.** Another option is to go to the Mass Eye and Ear Emergency Room.

Daily care following surgery

Post-operative care and hygiene following total laryngectomy surgery

Daily stoma/skin assessment

It is important the patient and/or caregiver routinely assesses skin health around the stoma as well as inside walls of the stoma (yes, inside the trachea) for any signs of blood, dried or built-up mucus/phlegm, significant changes in tissue color, swelling, irritation, or skin breakdown. Use of humidification/nebulizer/mist is often necessary following surgery and assists in the healing process.

Steps for stoma care

1. Wash hands thoroughly or apply hand sanitizer.
2. If a laryngectomy tube is in place, remove it.
3. The patient should position themselves so they are able to see their stoma with adequate lighting and they should make sure their supplies are within reach.
4. Assess the stoma for any unusual irritation, redness, bleeding, drainage, or crusting.
5. Wet a piece of gauze with saline water.
6. Use gauze to wipe and clean any visible drainage or crusting outside the stoma or along the rim. Do not stick gauze directly into the stoma. Pat the area dry following.
7. Use suction to remove excess crusting/build up in the inner areas of the stoma.

Tips: If you are having a hard time cleaning off any crusting, try the following methods:

- **Wet a cotton swab with saline and wipe away crust.**
- **If it is very difficult to wipe away any crust, put a small amount of lubricant on the area and let the crust soften. Gently wipe away any crust, making sure it does not enter your airway.**

[See page 18 for equipment for cleaning your stoma]

Equipment for cleaning your stoma

Cotton swab/Q-Tip

Lubricant (medical grade)

Saline bullets

Gauze

Mirror

Distilled water

Steps for cleaning the laryngectomy tube

1. Wash hands thoroughly or apply hand sanitizer.
2. Remove laryngectomy tube from stoma.
3. If there is a neckstrap attached to the tube, remove these. If the neckstrap has become wet or dirty, replace with a fresh one following cleaning of the tube.
4. Using a laryngectomy tube cleaning brush or gauze, wash the laryngectomy tube using either saline or water.
5. Dry the tube before placing in stoma.
6. Use of surgical lubricant to decrease resistance as the tube slides back into the stoma can be helpful.

Steps for changing laryngectomy tube neckstrap

1. Wash hands thoroughly or apply hand sanitizer.
2. Undo the velcro at the back ends of the strap and remove them from the laryngectomy tube.
3. Thread the velcro ends of the new neckstrap through the slots on both sides of the laryngectomy tube. The velcro should be facing outwards.
4. Place laryngectomy tube back in stoma and connect around neck using the velcro ends of the strap.
5. There should be enough space for two fingers to fit between the neck and strap to ensure it is not too tight.

Neckstrap and laryngectomy tube

[See page 20 for equipment for cleaning or changing a laryngectomy tube]

Equipment for cleaning or changing a laryngectomy tube

Cotton swab/Q-Tip

Ringed laryngectomy tube and adhesive baseplate

Laryngectomy tube

Gauze

Neckstrap

Lubricant (medical grade)

Distilled water

Laryngectomy/trach tube brush

Steps for suctioning stoma

1. Wash hands thoroughly or apply hand sanitizer.
2. Set up suction machine as instructed.
3. With patient's dominant hand, hold the tip of the suction catheter about two inches from the tip of the catheter.
4. With the patient's non-dominant hand, hold the base of the suction catheter.
5. Insert the tip of the suction catheter into the stoma. The catheter should be about two inches into the stoma.
6. Place thumb over the opening at the base of the suction catheter (in the plastic connection piece) to create suction, while slowly pulling the catheter out of the stoma at the same time.

Additional tips to consider while suctioning stoma

- **When suctioning, only keep suction catheter in airway for a maximum of five seconds.**
- **As suctioning becomes more comfortable, the patient will learn to recognize whether deeper suctioning or suctioning less than two inches is needed.**
- **Remove the suction catheter as needed to prevent becoming short of breath.**
- **Cough while pulling out the catheter if possible.**
- **Take short 30 second+ breaks between rounds of suctioning.**
- **Do not suction while inserting suction catheter into stoma.**

[See page 22 for equipment for suctioning your stoma]

Equipment for suctioning your stoma

Suction catheter

Portable suction machine with suction head

Mirror

Saline bullets

Steps for using a nebulizer

1. Wash hands thoroughly or apply hand sanitizer.
2. Set up your portable humidification machine with tubing, nebulizer adaptor, and trach/stoma mask.
3. Place saline (or medication if instructed to do so by a physician) into the reservoir of the nebulizer adaptor.
4. Connect the nebulizer adapter to the mask.
5. Turn the machine on, setting the oxygen as high as needed so the mist being produced out of the trach mask is visible. This is typically 10 liters per minute.
6. Secure mask in place over the stoma while nebulizer is in use.

Steps for using a heat moisture exchanger (HME)

1. Wash hands thoroughly or apply hand sanitizer.
2. Make sure your laryngectomy tube is clean. If it is not, take it out and clean it.
3. Take the HME with your dominant hand and insert it into the hole of your laryngectomy tube with the laryngectomy tube in your stoma.

Tips for using a HME

- **Change the HME once every 24 hours or when saturated with secretions.**
- **Do not rinse or wash the HME cassette.**

[See page 24 for humidification equipment]

Humidification equipment

Heat and moisture exchangers (HME)

Laryngectomy tube

Nebulizer machine

Trach mask

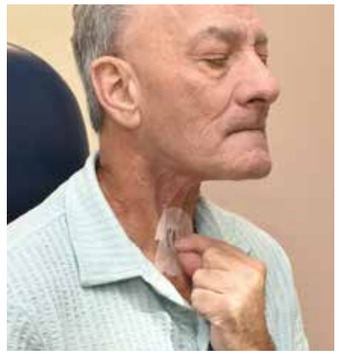
Nebulizer adapter

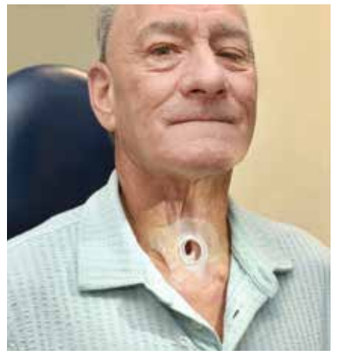
Use of adhesive baseplates

Once the patient's surgical site has fully healed and the patient's surgeon approves use of adhesive baseplates, there are some key pieces of information to remember. It is important that the patient monitors skin condition around the stoma where the baseplates will sit to ensure skin remains healthy and is not red, irritated, or tearing. It is important to follow the necessary skin preparation procedures to prevent irritation with use of baseplates.

Skin preparation for use of adhesive baseplate

1. Ensure skin is dry and free of sweat or other moisture.
2. Ensure skin has been disinfected with alcohol swab.
3. Apply "Skin Prep/barrier" by using the designated wipe and allow it to dry.
4. Apply "Skin-Tac" and allow it to dry.
5. Apply baseplate.





Ringed laryngectomy tube and adhesive baseplate

Various types of baseplates

HME and adhesive baseplate

Wipes to prepare for adhesive baseplate use

Life after a total laryngectomy

Life following a total laryngectomy

Following a total laryngectomy (TL), a patient may be referred to as a laryngectomee, a person who has undergone the procedure. It is important for the patient (and family) to begin returning to activities they enjoyed prior to surgery. Unless other factors limit specific behaviors or activities, they should start working toward a sense of normalcy. The laryngectomee community can be quite helpful is assisting with this goal.

A medical alert bracelet from a drug store pharmacy should be worn. Information can be etched on the back of the bracelet to inform others that the patient breathes through a stoma in the neck which will be read by first responders in the event of an emergency. A resource for obtaining a medical bracelet is provided below. In addition to the medical bracelet, it is also beneficial for the patient to carry a card in their wallet that informs medical staff of their status as a neck breather and any other pertinent information that may be useful.

An excellent resource for ordering a designated medical bracelet is:
americanmedical-ID.com

Returning to work

It is often not necessary to change occupations unless the patient's previous work involved environments that could be harmful to someone who has undergone TL surgery. Such environments include those that are dusty, expose the worker to extreme temperatures, involve water, require speaking over loud competing noise, or limit breathing.

Post-total-laryngectomy depression is a common occurrence for patients, and seeking professional help via a counselor or clinical psychologist is highly recommended and encouraged—especially if the patient plans to return to work.

Traveling

When a patient who underwent a TL plans to travel, it is important to remember several items. The first is a form of emergency identification such as a medical bracelet. The next is a kit full of laryngectomy supplies including but not limited to: wipes, saline, tweezers, a mirror, enough baseplates and HMEs to last for the full trip, a laryngectomy tube, and anything else that is required for the patient's daily care.

It is also important to notify staff members if traveling by plane or train that the patient breathes through the stoma in their neck. This is important information in the event of a medical emergency.

Additional resources

Support groups

Boston Laryngectomy Group:
bostoncuredcancerclubforlaryngectomees.com

Head and Neck Cancer Alliance:
headandneck.org

HNC Living Foundation:
hncliving.org

WebWhisperers:
Webwhispers.org

International Association of Laryngectomees (IAL):
theialvoice.org
Email: ***office@theialvoice.org***

Atos Medical/Inhealth Technologies and ordering supplies monthly

Once the patient leaves the hospital, they will need to order medically necessary supplies specific to the care of someone who has undergone a total laryngectomy. Atos Medical and Inhealth Technologies are the two major companies who supply the products. Although these companies may seem to be competitive in the medical marketplace, they are actually quite cooperative and are a tremendous resource. Upon discharge, a relationship will be established with these companies once an account has been created in the patient's name and the physician's prescription has been sent.

After discharge from the hospital, have an authorized representative/caregiver call Atos Medical **(800-217-0025)** or Inhealth Technologies **(800-477-5969)** to finalize the patient's account. If the patient is receiving services at home through visiting nurses VNA) or homehealth, the patient must wait until the visiting nurse staff (nurses, speech pathologists, etc.) discharge them before ordering supplies. If the patient needs supplies before then, they will have to be ordered through the VNA.

[Additional resources continued on page 28]

Additional resources

Massachusetts equipment distribution program (MassEDP)

If you live with a disability, such as loss of voice following a total laryngectomy, the Massachusetts Equipment Distribution Program (MassEDP) may be able to provide you with a specialized communication option called an electrolarynx. Depending on your income level, this device may come for free or at reduced cost. However, you must be a resident of Massachusetts to qualify.

The voice and speech laboratory at Mass Eye and Ear

The Voice and Speech Laboratory consists of a team of skilled speech language pathologists who address voice and upper airway disorders, provide preoperative counseling and education for total laryngectomy patients, and offer post-operative training in alternative forms of communication, as detailed in this packet. The number for the Mass Eye and Ear Voice and Speech Laboratory is **617-573-4050.**

Common terminology

Alaryngeal: Without a larynx

Aphonia: Loss of voice

Articulation: Production of speech sounds (via articulators)

Articulators: The tongue, teeth, palate, lips, and other structures used to produce speech sounds (i.e., articulation).

Artificial larynx: A device that replaces the tone or patient's "voice" that serves as the sound source for the articulators to shape into speech. An electrolarynx is an example of this.

Aspiration: The inhalation of food, drink or foreign material into the trachea and lungs. When an episode of aspiration is severe enough or occurs frequently, a lung infection can develop called aspiration pneumonia.

Adhesive baseplates: Adhesive product that attaches to the patient's neck around their stoma to hold the HME in place. Can be used as a substitute for a laryngectomy tube once approved to decrease laryngectomy tube usage from 24 hours per day.

Candida/biofilm: A yeastlike fungus that is commonly found in the mouth. This can build up on the TEP.

Catheter (rubber): A rubber tube available in various sizes, used to keep the tracheoesophageal puncture tract open in case the TEP falls out or is coughed out.

Edema: Swelling.

Erythema: Redness.

Esophagus: The passageway that allows food to travel from the back of the mouth down into the stomach.

Humidification and moisture exchange (HME): A device that is connected to the laryngectomy tube or baseplate intended to help filter, warm, and humidify the air the patient is breathing.

Intelligible speech: Speech that can be understood.

Laryngectomee: A person whose larynx has been removed.

Laryngectomy tube: A silicone tube used to keep the stoma open and maintain the size of the stoma in the days/months following surgery.

Larynx: Commonly known as the "voice box." It is the structure that includes the vocal folds and part of the upper trachea (upper airway), located at the base of the tongue.

[Common terminology continued on page 30]

Common terminology

Lymphedema: Patients who undergo radiation or surgery for head and neck cancer are at risk of developing lymphedema, or swelling, in the face, head, neck or nearby areas. This condition is very common, with up to 75% of patients experiencing symptoms after treatment.

Skin flap: Skin harvested from an alternative location in the body used in the reconstruction process.

Suctioning: The process of removing material from the patient's stoma and airway via a suction device. This is important to maximize pulmonary function.

Total laryngectomy (TL): The name of the surgical procedure that removes the larynx.

Tracheostoma ("stoma"): The permanent opening in the front of the neck created during total laryngectomy surgery, which serves as the airway instead of the mouth.

Trachea: This is your "windpipe" or the passageway within the body that delivers air to the lungs. Prior to surgery this is located between the larynx and lungs.

Tracheoesophageal prosthesis (TEP): A silicone device implanted in a surgically created opening connecting the trachea and esophagus. It contains a one-way valve that allows air to flow into the esophagus when the stoma is occluded. This airflow vibrates esophageal tissue, producing sound for voicing.

Vocal folds: Commonly referred to as "vocal cords," these are the muscles and tissue that are located within the larynx that vibrate to produce a sound source (voice) that is then shaped into speech by the tongue, lips, teeth, palate, etc. The vocal folds also serve as a protection mechanism for the lungs to prevent food, drink or foreign objects from entering the lungs.

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