

# Pre-operative Laryngectomy

Information for patients



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## Introduction

You have recently learnt that you have cancer of the larynx (voice box) and that a surgical procedure, known as a Laryngectomy, is required as part of your treatment.

This booklet contains information regarding the procedures that come before and after your Laryngectomy operation at the hospital. It outlines the changes that can happen after the surgery and how you can successfully manage these.

We suggest that you, family members and friends read this information before the surgery and re-read it following the operation. After reading this booklet you may have additional questions for your doctor / treating team. They will be happy to discuss your concerns as it is important that you and your family understand what to expect.

There are a number of different health professionals that will be involved in your care during your stay at hospital and following your discharge. There is a page further in the document where you can record their names.

This booklet has been prepared for use by speech pathologists as part of pre-operative education. It is generic for Queensland Health facilities and specific details relating to the surgery at your hospital will be provided by your multidisciplinary team.

## What is a Laryngectomy?

A Laryngectomy is a procedure where the larynx is surgically removed, usually as part of the treatment for cancer. This impacts the way you voice, breathe and swallow.

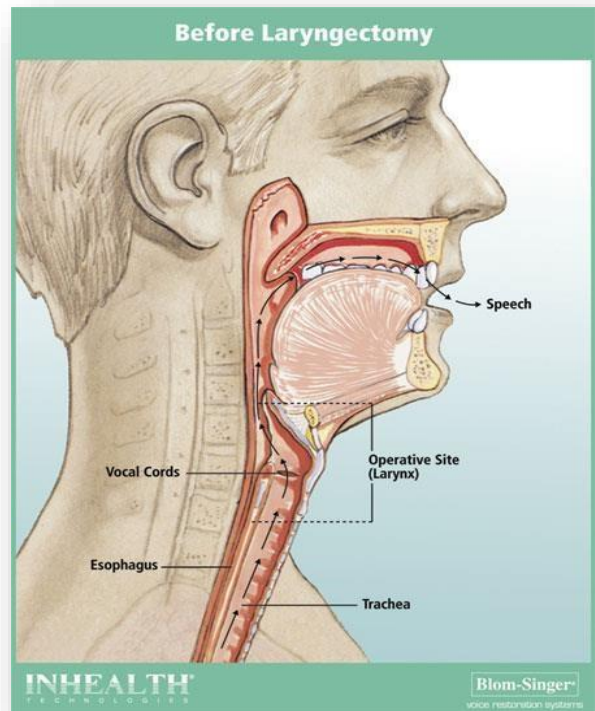
A Pharyngolaryngectomy is a procedure where both the larynx and pharynx (part of the wall of your throat) are surgically removed. This surgery is more complicated and the throat is reconstructed using tissues from elsewhere in your body.



## Anatomy prior to the operation

Before the surgery, the air you breathe enters through the nose or mouth and then passes behind the tongue at the back of the throat. At this point the throat is still a common pathway for both food and air.

After air passes through the throat, it enters the larynx and then passes down the trachea (wind pipe) into the lungs. As food passes through the throat your airway closes off and food enters your oesophagus (food pipe) passing into your stomach.



## Function prior to the operation

The larynx has two important functions:

- It prevents food and fluid from entering the airway and into the lungs (that is “going down the wrong way”).
- It produces voice. Air passing through the larynx causes the vocal cords to vibrate and this creates sound.

### Breathing

In the process of breathing, air enters your mouth or nose and is sucked downwards through your throat past your larynx and into your lungs. When breathing out, this process is reversed.

### Talking

When you want to talk, air is inhaled as for breathing. However when breathing out (exhaling) the air pushes up beneath the vocal cords and causes them to vibrate. As a result, voice is produced. Movement of our lips, tongue, soft palate and jaw shape these vocal sounds into words.

### Eating/Swallowing

When swallowing, drink and food is chewed in the mouth and then passed through the throat in a smooth coordinated movement called the “swallowing reflex”.

As part of the swallow reflex, the epiglottis (a flap of cartilage) in the throat moves downwards to cover the airway which simultaneously helps guide food and drink into the oesophagus. The movement of the epiglottis and your vocal cords closing together also prevents food and drink from going down the wrong way. When you have finished swallowing the epiglottis lifts back up, your vocal cords open and you are able to breathe once more. This process usually takes less than one second.

## Anatomy after the operation

After the larynx is removed there is no pathway for air between the throat and lungs. In order for you to continue breathing the trachea must have direct access to air.

For this reason, the surgeon must create a permanent hole called a tracheostoma (often shortened to “stoma”) at the base of your neck (about the level of your shirt collar).

## Function after the operation

### Breathing

Your body will now naturally breathe in and out through the stoma in your neck, bypassing your mouth and nose. Because air is no longer travelling through your mouth or nose your sense of smell and taste may be reduced and you will no longer be able to snore.

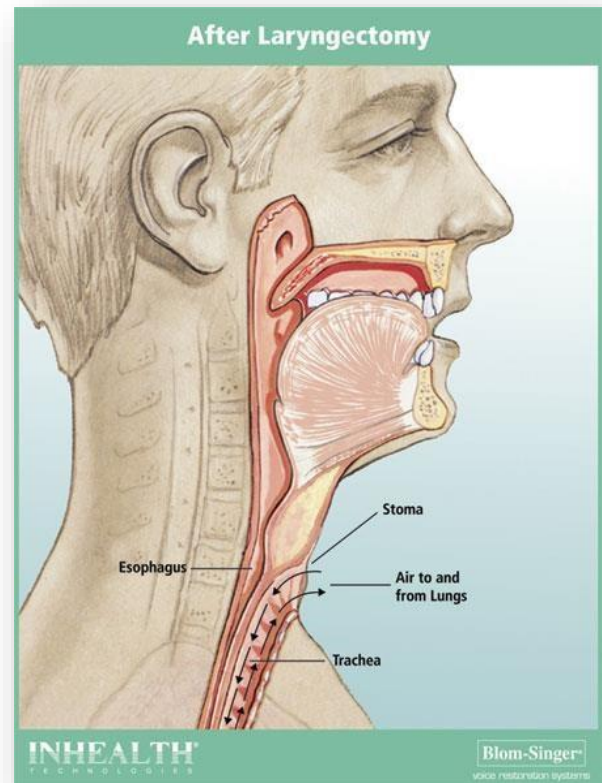
Additionally, you will need to learn to care for your stoma as this is now your permanent airway. Your nose and mouth usually provide humidification for your lungs (that is it makes the air warm and moist) when breathing in. This humidification is disrupted as your mouth and nose are no longer connected to your trachea. As a result, you will learn how to compensate and restore humidification to the air you breathe in through your stoma.

### Talking

As your larynx has been removed, you will no longer be able to talk the way you used to. Your speech pathologist will discuss the different options for communication.

### Eating/Swallowing

Food and drinks will pass like they always have through your mouth, down your throat, through your oesophagus and into your stomach. After surgery there is no longer a risk of food going the wrong way into the lungs as your oesophagus and trachea are now separate.



## Further treatment options

### Neck dissection

A neck dissection may be included as part of the laryngectomy operation. It involves the removal of some or all of the lymph nodes (glands) from one or both sides of your neck. It may also involve other structures in the area, such as nerves, muscles or blood vessels.



If the cancer of the larynx spreads, it usually travels through the lymphatic system to the tissues in the neck first rather than to more distant parts of the body. Including a neck dissection as part of the laryngectomy surgery can improve the chances of a full recovery from cancer. After a neck dissection, you may experience shoulder and/or neck pain and reduced movement. These symptoms might be caused by swelling, muscle tightness, nerve injury or removal of muscles or nerves.

Once the swelling of the initial operation improves, your neck will be slightly thinner and you may find that your shoulder on the operated side sits slightly lower than your other shoulder. To assist your recovery after the neck dissection, your Physiotherapist will guide you through a safe programme of flexibility and strengthening exercises suitable for your needs. The operation may cause the skin on your neck to be numb and may make your shoulders tire more easily.

### Radiotherapy



In some cases, radiotherapy may be a necessary part of the overall treatment of the cancer.

Radiotherapy is usually administered approximately six weeks after the surgery to make sure all the cancer cells are killed. Some people may have undergone radiotherapy before surgery as part of their prior treatment for cancer.

### Chemotherapy

Chemotherapy may also be used as part of the treatment process, but not in every case. Your medical team will determine if chemotherapy will be useful in treating your cancer. Chemotherapy alone is not effective in treating laryngeal cancer.

Chemotherapy drugs work by disrupting the growth of cancer cells and increase the effectiveness of the radiation treatment. Chemotherapy can be administered before, during or after radiotherapy. Chemotherapy is generally given weekly and given intravenously (injection into a vein).



If your doctors recommend radiation and/or chemotherapy they will discuss these treatment options with you in further detail.



## People involved in your care

### Doctor

Your surgeon will explain the surgical procedure and answer any questions you or your family may have. They will take your general medical history, thoroughly examine you and seek your consent for the surgery to take place. Your doctor will also review your progress following the operation and manage any medical issues that arise.



### Nursing staff



The nurse will show the ward layout to you. They will regularly observe your condition following your surgery and measure your blood pressure, pulse rate, temperature, respiratory rate and weight.

The nursing team will also support you to regain your independence in taking care of yourself after your surgery.

### Speech Pathologist

Your speech pathologist will meet with you before the operation and visit frequently while you are in hospital. They will discuss with you:

- Different ways you can communicate after the operation
- Eating and drinking changes that you may experience following the surgery.



Your speech pathologist will also provide the option for you and your family to watch a DVD titled "Life After Laryngectomy" and you may have the opportunity to meet someone who has had the same operation. These people volunteer their time and are called 'Laryngectomy Support Visitors'.

Most people find it very helpful to talk to someone who has had the operation and has settled back into a normal lifestyle. This person can also answer practical questions about possible changes to your life after the operation. It is important to remember that this person is not medically trained or employed by the hospital and cannot answer specific medical questions or provide medical advice.

### Physiotherapist



Your physiotherapist will visit you after the surgery. They will:

- Assess your chest and respiratory system and teach you techniques to help you maintain a clear chest.
- Ask about your current exercise / fitness level.

The post-operative physiotherapy may involve:

- Deep breathing, coughing or "huffing" exercises to clear any mucous (phlegm) you may have.

- Early mobilisation: your physiotherapist will help you out of bed and into a chair early after your operation. It is important to get moving as soon as possible to help clear your lungs, reduce the risk of blood clots and prevent tightness or stiffness.
- Neck and shoulder exercises

Nursing staff, your doctor and your physiotherapist will monitor you regularly and ensure that you receive an adequate supply of oxygen if you need it.

### Dietitian



When you come back from your surgery you will be fed a specialised liquid nutrition formula through a tube that feeds directly into your stomach. As you recover the dietitian and speech pathologist will gradually introduce drinks and food by mouth that suit you best.

Before you leave hospital, the dietitian will talk to you about:

- The types of food and drink to have after you leave the hospital.
- Preparing your meals
- Keeping a healthy weight
- How to choose foods and drinks that will help you recover after your operation.

### Social Worker

Your social worker will talk with you and your family about the impact of your illness. You may have concerns about matters such as income support, support services at home or about the emotional impact of your illness.



Your social worker can provide confidential counselling and practical assistance to you and your family.

### Psychologist



A psychologist may be available to speak with if you are having difficulty adjusting to the diagnosis of cancer and treatment. The psychologist may be able to assist you and your family build on your ability to cope.

If your hospital does not have access to a psychologist one may be available through your GP. The Cancer Council Queensland provides free confidential telephone information and support service. Anyone can call Cancer Council Queensland on 13 11 20 where specially trained staff are available to answer your questions about cancer and offer emotional or practical support.

### Occupational Therapist

An occupational therapist is available if you require assessment and support in regaining function and returning home safely and independently.

Further along in your recovery they may be able to assist with managing any fatigue, scarring, lymphoedema (fluid collection or swelling) around your neck and face if required.





### Your team members

Position	Name	Phone/Pager
Surgeon(s)		
Doctor(s)		
Nurse/s		
Speech Pathologist		
Physiotherapist		
Dietitian		
Social Worker		
Psychologist		
Occupational Therapist		

### Pre-admission clinic



Patients usually attend a pre-admission clinic prior to surgery. Patients are reviewed by their doctor and have some tests conducted for surgery.

The purpose of these tests is to make sure that your body is healthy and ready to cope with the anaesthetic and operation.

## Admission for Laryngectomy



Depending on your hospital you will be admitted to hospital usually one day before or on the morning of your surgery. During this time you will be able to talk to the hospital staff that will care for you during your stay.

You may like to bring a hand mirror with you into hospital to help you after your operation to clean your stoma. You may also like to bring a writing pad and pen or whiteboard to use directly after your operation so you are able to communicate.

## Following the operation

### Back in your hospital room

Following surgery you will probably be aware of tubes (an intravenous tube, a pain button, a catheter into your bladder, a nasogastric feeding tube and drainage tubes) attached to your body. While it can seem alarming to you and your family at first, please be assured that it is routine procedure designed to help you recover quickly from surgery.



Following your surgery you will be admitted to either the ward or the intensive care unit (ICU). This decision may be made prior to your surgery or at the time of your surgery by your surgeon or anaesthetist if they feel that close nursing and medical monitoring will be of benefit in your recovery.

### Intravenous fluids

Immediately after the operation an intravenous fluid line (or “drip”) will be used to provide you with enough fluids until feeding can begin. Initially after surgery you will not be given anything to eat or drink. This allows the throat tissues to be rested while they heal. Your digestive system also requires a few days to resume functioning normally after your surgery.

### Feeding tube

After the surgery you will be fed via a feeding tube. A nasogastric tube (NGT) is a tube passed through the nose into the stomach. Sometimes a percutaneous endoscopic gastrostomy tube (PEG) may be surgically inserted directly into your stomach instead.

Both these tubes are used to deliver a specialised liquid nutrition formula when you are unable to eat or drink. This form of feeding allows your throat to heal. When your doctor considers that your neck has healed adequately you may have an x-ray of your swallow. If there are no concerns your treating team will give you fluids orally and soon after an oral diet is usually started. The feeding tube will be removed when your dietary intake is adequate.

Following a laryngectomy some people find that they need more time to eat their meals and taste sensitivity can be reduced.

## Drainage tubes

You will find that your neck and face are swollen after the operation for a few days. The drainage tubes are small plastic tubes that drain excess blood from your neck. The tube is attached to a small container which will be emptied by your nurse. By removing accumulated blood under the incision, the healing process is faster and healthier.

It is usually 3-5 days after surgery that the amount of blood has decreased enough and the drainage apparatus can be removed. Any ongoing swelling generally resolves on its own without having to use drains longer term.

## Airway tubes

You may wake up with a tube in your newly created stoma. This tube is known as a tracheostomy tube and is sometimes used following surgery if you have swelling around your stoma. It may also be used to provide ventilation (breathing support) if you have an existing lung condition (e.g. chronic obstructive airways disease or emphysema). The tube is generally removed within 1-3 days after your surgery. Once this is removed your surgeon may recommend a laryngectomy tube (a softer, smaller tube) to assist with stabilising the shape and size of your stoma while you are healing.

## Suctioning

For the first few days after your operation your lungs and windpipe will likely produce a larger amount of mucus. You will be encouraged to cough frequently however if you are unable to cough and clear all of the mucous the nurse or physiotherapist may place a suction tube into your stoma and apply gentle suction to remove any remaining secretions.

## Humidification

In normal breathing the incoming air is warmed, moistened and filtered by the nose and mouth as it travels to the lungs; this is a process called humidification. After your surgery you will be breathing via your stoma bypassing the nose and mouth. It is important to maintain humidification after your surgery to ensure your lungs are comfortable and do not begin to produce a lot of mucous. There are two main ways to achieve this; one method is to use humidified air/oxygen via an oxygen mask and the other is to use a heat and moisture exchange filter device. The surgeon, speech pathologist and nursing team will determine the best option for you initially after your surgery.

If you require humidified air/oxygen an oxygen mask connected to a humidifier machine may be regularly placed over your stoma after surgery to help moisten the air passing into your lungs. Overtime certain changes will take place in the lining of the trachea that will mean you can breathe comfortably with less need for constantly humidified air.

At the end of your operation the surgeon may put on a heat and moisture exchange filter. These filters contain specialised foam that captures moisture and warms the breath during breathing. These filters are attached to the stoma using either a laryngectomy tube or an adhesive patch. The filters are easily removed and are replaced when soiled with mucous.

## Tiredness after the operation

Tiredness can be a short-term problem because of interrupted sleep (due to the frequency of nursing monitoring and care). The nurse can restrict visiting hours and organise rest periods during the day so you can get as much rest as possible.

## Communication immediately after the operation

Immediately after your laryngectomy you will not be able to communicate verbally and hence your speech pathologist will assist you to use alternative communication options such as writing, electronic devices, gesture and pointing.

For many people writing is often the easiest and simplest method however, if you are familiar and comfortable with technology you may prefer to use commonly available devices such as a smart-phone (e.g. iPhone) or a tablet (e.g. iPad).

If writing is your preferred method the following tips should help your ability to communicate well. When you are writing it is easier if you keep it brief, use abbreviations where able and include only the most important key words to get the message across. You may like to bring a white board or note pad to write on although these may be provided for you during your stay in hospital.

If you are interested in using electronic devices it is advised to explore these options prior to your surgery with the support of the speech pathologist. There are some freely available “text-to-speech” applications for iOS (iPhone) and android devices which allow you to type your message and then the device will speak it aloud for you. Some examples of these apps include:

- Locabulary (free and purchased versions available)
- iSpeakIt (purchased app)
- iSpeech (free app)
- iSpeechTTS (free and purchased versions available)
- I've Lost My Voice (purchased app)

Many of these applications allow pre-saved sentences and the speech pathologist can support you in setting up the application to suit your specific needs.

If a voice prosthesis has been placed at time of surgery it is important that you do not attempt to use it (i.e. try to talk) until the speech pathologist has told you that you can. This is usually after you have undergone an x-ray swallowing test (around day 7-10) which indicates sufficient surgical healing. In the first few days after surgery the nurse and speech pathologist will closely monitor the fit of the voice prosthesis and start teaching you how to clean it.

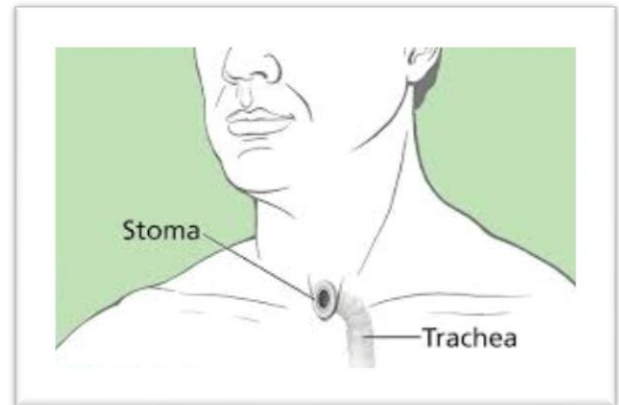
## Smell and taste

Because the air no longer passes through your nose your sense of smell and taste may be affected or diminished. This may affect your appetite and the dietitian can help you and provide suggestions on how to overcome this.

## Stoma care and hygiene

Good stoma care is essential as it maintains an open, clear airway, prevents infection and promotes healing. While you are in hospital the nurse and speech pathologist will show you how to clean your stoma.

It is important to continue caring for your stoma following discharge from the hospital. You will be provided with training and written instruction following your surgery on how to care for your stoma.

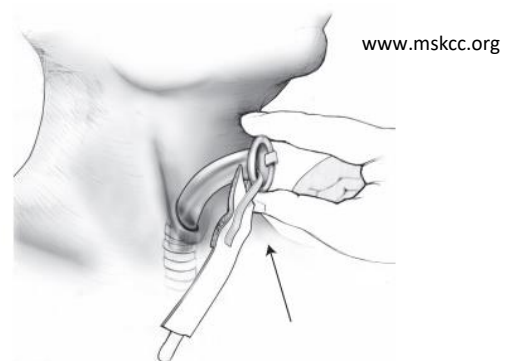


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The speech pathologist will advise you on appropriate stoma care products that you will need to purchase prior to discharge and ongoing following discharge.

## Laryngectomy tubes and stoma buttons

If the stoma shrinks in size during the healing process you may need to wear a laryngectomy tube or stoma button to prevent the airway from narrowing to the point where your breathing is effortful.



Your doctor and speech pathologist will discuss with you how often you should wear the tube/button. The nursing staff or speech pathologist will show you how to change it and clean it.

## Breathing while asleep

The stoma is large enough to get all the air you need to breathe easily and you should be able to breathe through the bed clothes. Some people are initially afraid they may suffocate if they place blankets or sheets over the stoma. If the bed clothes obstruct your breathing you will do exactly what you did before your laryngectomy, you will automatically push the bed clothes away or just turn over in your sleep.

## Showering

You will be able to shower after your surgery but it will be necessary to take a few minor precautions. You will need to adjust the showerhead so the stream of water hits your body below the level of the stoma or stand with your back facing the showerhead. When you need to rinse your head or neck area cup your hand over your stoma or wring out a face cloth and place it over the stoma.

Shower shield devices that protect your stoma when showering are also available. Your speech pathologist and/or nurse can give you more information regarding purchasing these.

## Communicating after the operation

Before the surgery you were able to produce sound by vibrating the vocal cords in your larynx and these sounds were shaped using your tongue, palate, lips and jaw. After your laryngectomy you no longer have vocal cords to produce voice however, your ability to move your mouth and tongue is generally not affected. The goal of speech pathology is to help you produce a substitute sound. There are several ways of making a new sound for voice.

### The Best Communication Method

Your speech pathologist will teach you one or more of the following communication / speaking methods:

- *Tracheoesophageal speech*
- *Electrolarynx*
- *Oesophageal Speech*

After you have had time to learn about and consider the different ways to communicate you can then choose the one that suits you best. Everyone is different and the best method for each person will also be different. The training time also differs for each person and technique but with patience, persistence and regular practice you will make steady progress in regaining functional speech.



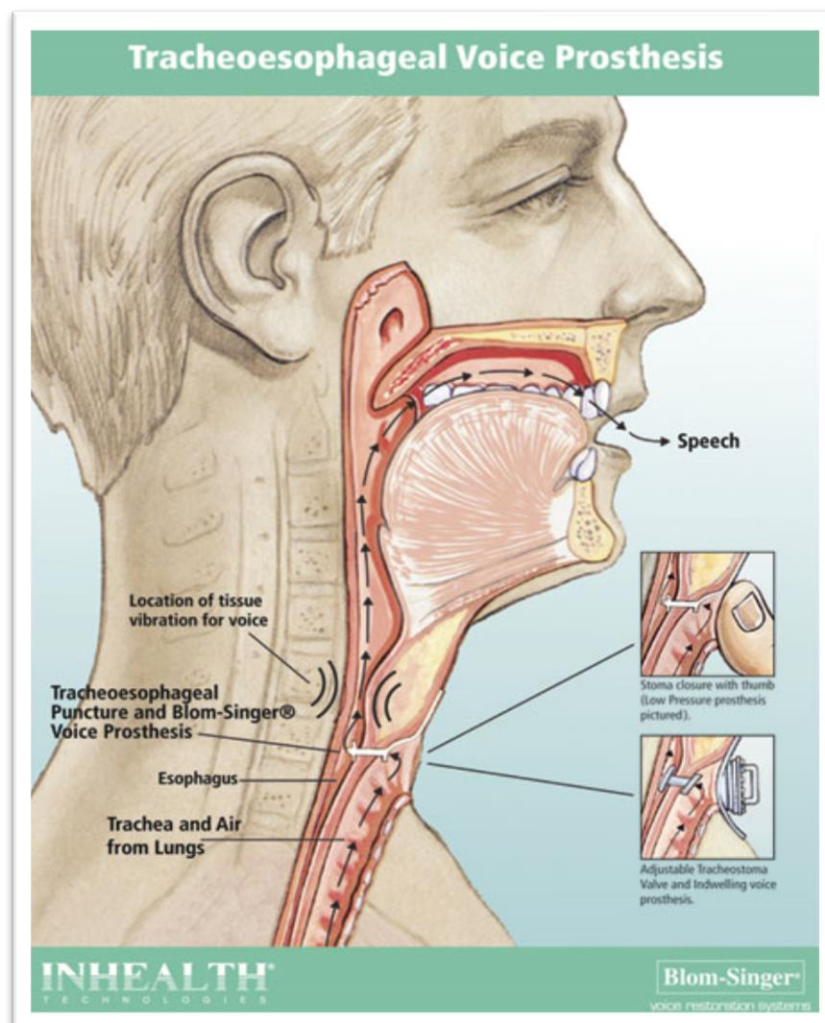


## Tracheoesophageal Speech

To enable this method of voicing a small hole is created by the surgeon between the trachea and the oesophagus. This hole is called a *tracheoesophageal puncture* (TEP). The TEP can be created during the initial surgery or as a second operation. A small silicone voice prosthesis (see description below) is inserted into the TEP. If the voice prosthesis is not inserted at the time of surgery you will wake up with a small tube inserted in the TEP to keep it open while it heals. Once the healing is adequate your speech pathologist will remove the catheter, then size (measure) and fit a voice prosthesis.

A voice prosthesis is a small silicone device that functions as a one way valve (see picture below). By covering the stoma while breathing out the air is forced through the voice prosthesis to the back of your pharynx and out of your mouth. This causes a vibration of the tissue at the back of your throat creating sound (trache-oesophageal voice) that can be articulated into speech.

You will need to learn to care for the voice prosthesis and how to use it to speak. Your speech pathologist will provide training and support in this.



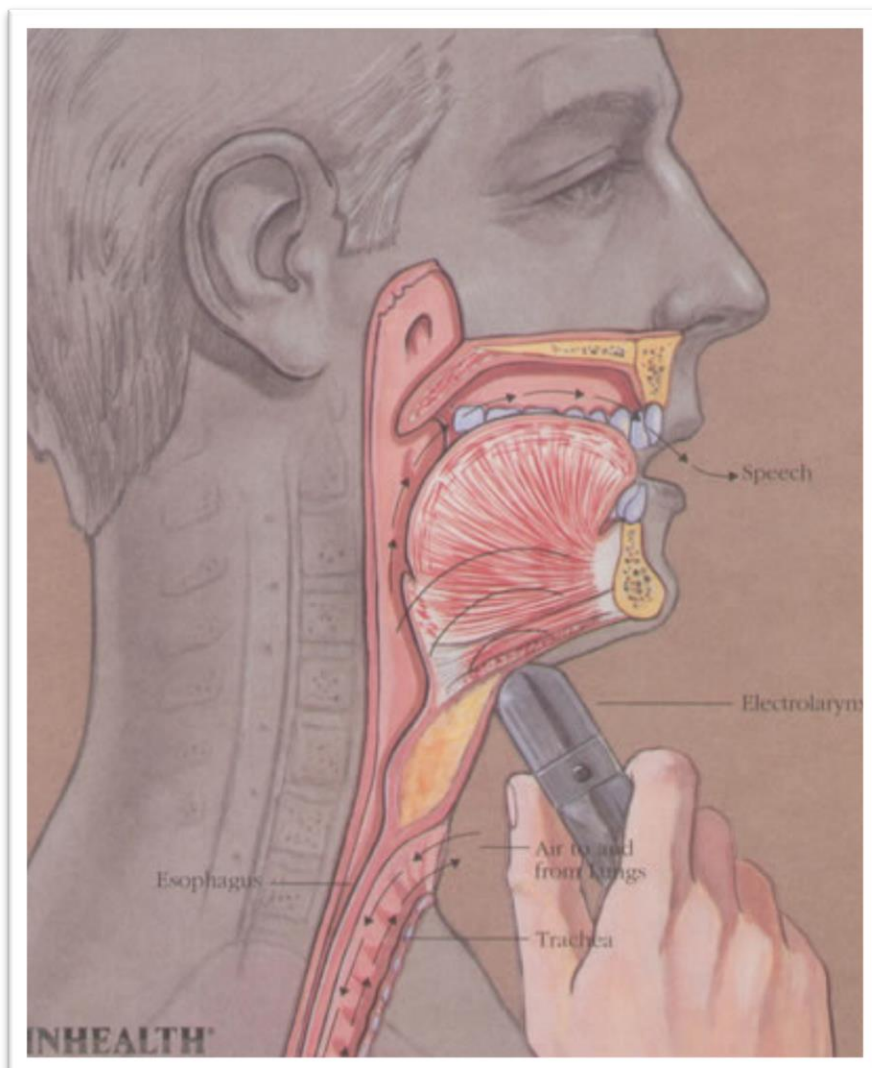
## Electrolaryngeal Speech

An electrolarynx is a battery operated device held against the neck or cheek and used as a speaking device. With an electrolarynx the sound vibrations pass from the device, through the neck into the mouth. This sound is then shaped by the tongue and lips into sounds and words (see picture below).

A loan device can be arranged from the speech pathology department to trial initially. If this will be your method of communication it can be useful to practice with the device prior to the surgery. The speech pathologist can facilitate this.

Once you have confirmed that an electrolarynx is the most appropriate means of communication for you, your speech pathologist can apply for one on your behalf through the Medical Aids Subsidy Scheme (MASS). They will also help you to select the best device for you.

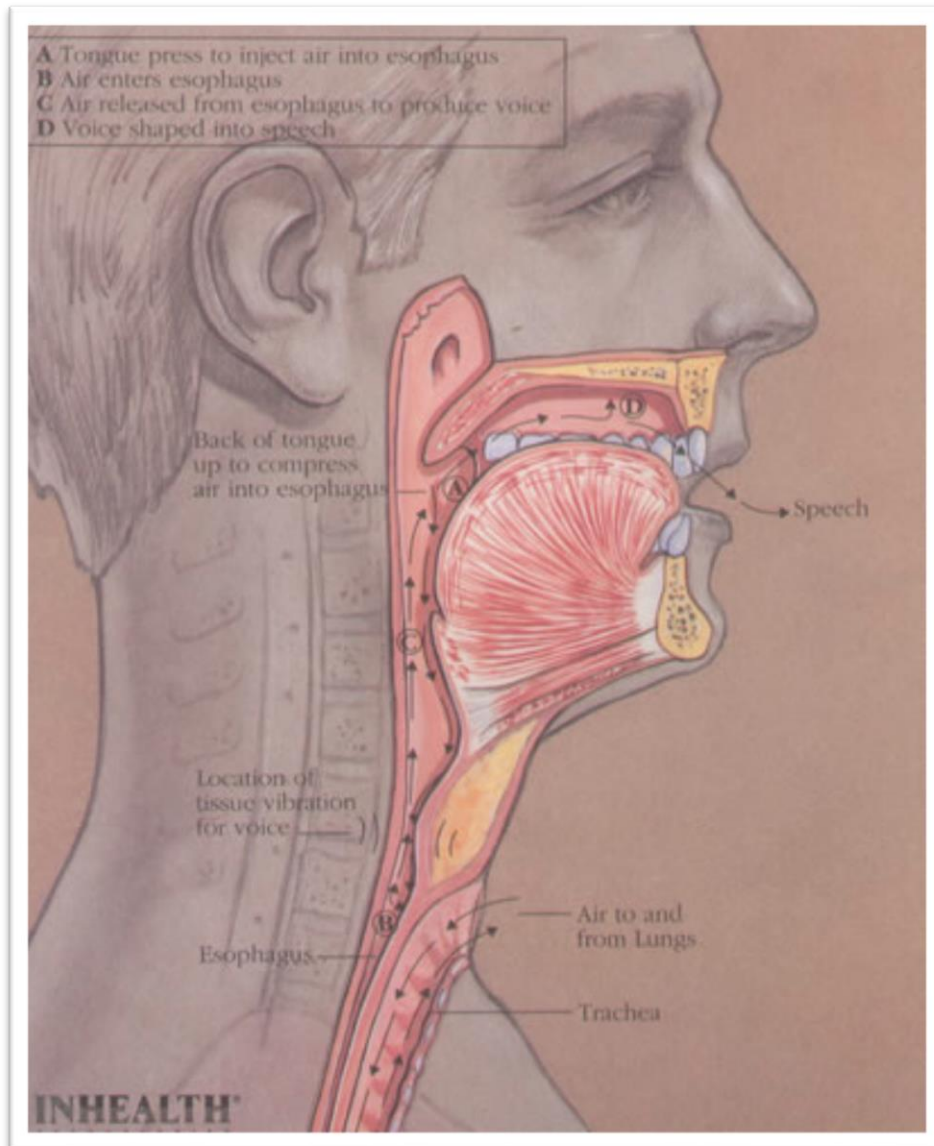
If you are not eligible for funding by MASS then you will need to purchase your own electrolarynx.



## Oesophageal Speech

Oesophageal speech is produced by directing air down the oesophagus and then using the abdominal muscles to release it in a controlled way. When the air is released back up it causes the walls of the oesophagus to vibrate producing sound. Your lips, tongue and teeth then shape the sound into words.

Your speech pathologist can provide training for the types of methods used to produce oesophageal speech.



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## Following discharge home

### Doctor's appointments

It is important that you see your doctor regularly for routine check-ups. Following discharge from hospital continual follow-ups as an outpatient will be required at regular intervals. Check-ups are also a chance to get your doctor's advice on issues that can arise in your daily life. It might be a good idea to write down a list of questions as they occur to you and take them to your next doctor's appointment.

### Speech Pathology appointments

When you are discharged from hospital you will need to attend speech pathology appointments as an outpatient. How often you see a speech pathologist depends on your needs. If you have your surgery away from home you will be referred to the speech pathology department closest to you.

Your local hospital may run a laryngectomy support group. Your speech pathologist can give you more information about this group.

### Other health professionals appointments

You may also have appointments with other health professionals (e.g. physiotherapy, occupational therapy) as part of your ongoing post-operative recovery and rehabilitation.

## Returning to normal life

### Coping with change

You may find that you and your family have a lot to cope with before and after your operation and when you get home.

You may have concerns about the operation itself, the loss of your voice, the permanent changes in your appearance or the uncertainty about the future. The impact of having a serious illness coupled with lifestyle changes resulting from surgery can be challenging and sometimes difficult. People may experience a range of feelings: a sense of unreality, worry and frustration are common. Sometimes people can feel down or depressed and have some trouble doing things they used to. You may also feel a strong sense of loss at this time.

People have different ways of coping with their feelings. Talking things over with an understanding listener (a family member, a good friend or a sympathetic member of the hospital staff) is often a good starting point. Some people feel it is important to return to the commitments they had before the operation like work, hobbies or social situations.

Other people find that by concentrating their efforts on regaining their voice their overall confidence returns once they start to make progress in this area.

If you have trouble coping with emotional adjustments in the weeks after surgery ask your doctor and/or speech pathologist how you can get additional help.





Determination and self-belief are two important components of living a quality life without your larynx. You may have to explain to your friends and acquaintances that you had your larynx removed and that your new voice and way of breathing are slightly different. Once they understand what has happened most people are normally keen to help in any way.

### **Your relationship**

Short-term speech limitations can make it difficult to discuss problems with your partner and this can lead to a build-up of emotional stress. It is often very difficult to write down intimate things that worry you. This can trigger an emotional reaction in you and your partner and misunderstanding can sometimes follow.

It is important to be patient with yourself and your partner while you are recovering. If you and your partner are finding communication difficult or frustrating it may be helpful to remind yourself that this is normal under the circumstances.

Remember that many of the important things you convey to your partner are not said with words. Writing and mouthing words are not always practical (e.g. in the dark) but taking someone's hand can sometimes say much more than words.

If after several weeks you and your partner or family are still having difficulty adjusting please ask your doctor or social worker to recommend a counsellor to you.

### **Back to work**

Some people are afraid that they will not be able to return to work after their laryngectomy. Generally this is untrue. Most people who have undergone this procedure return to work as soon as their recovery period is over. However, if your occupation requires heavy lifting you may find that you need to do your work differently. Before the operation you used the valve-like mechanism in your larynx to close off a column of air in your chest and your back muscles used this air column to stabilise against. After having a laryngectomy you will not be able to do this. Your doctor may be able to suggest other ways you can accomplish the same work as you did before your operation.

If you work in an environment that is extremely hot or cold or contains gases, fumes or dust you may find you will need to modify aspects of your job. Gas, fumes or dust can have an irritating effect on your lungs. Discuss your work environment with your doctor and speech pathologist they may be able to suggest effective ways of dealing with these situations.

### **Identification**

It is important to carry identification at all times which should include a few simple instructions in case you are involved in an accident. Your speech pathologist can give you an example of an emergency pocket card that includes information explaining that you breathe from your stoma and would require mouth to stoma resuscitation in the event of an emergency, and never to cover your stoma completely.



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## Outdoor activities

Generally there is no barrier to returning to outdoor activities. The only exceptions are water sports such as swimming, water skiing or scuba diving because there is a risk of getting water into the stoma and lungs.

## Travel

Having a laryngectomy does not prevent domestic and international travel. You will need to consider and be well prepared prior to your travel with regards to looking after your stoma and communication needs. Your speech pathologist can assist with preparing you for your travel.

## Driving

Driving a car will not be affected after the operation however speaking whilst driving may be difficult depending on your method of communication.

As you now breathe through the stoma in your neck you will be unable to blow into a breathaliser for a random breath test. A medical certificate can clarify this information however, you may be asked to do a saliva drug test and/or attend the police station to do a blood test instead.





## Summary of lifestyle changes following a laryngectomy

Feature	Pre-laryngectomy	Following laryngectomy	Effect on lifestyle
<b>Structural</b>			
Stoma	<ul style="list-style-type: none"> <li>Air is inhaled/exhaled through nose/mouth</li> </ul>	<ul style="list-style-type: none"> <li>Breathe air directly through stoma to lungs</li> </ul>	<ul style="list-style-type: none"> <li>Need to wear cover over stoma</li> <li>Possible change in occupation if smoky/dusty environment</li> </ul>
Resuscitation	<ul style="list-style-type: none"> <li>Mouth to mouth</li> <li>Oxygen mask to mouth/nose</li> </ul>	<ul style="list-style-type: none"> <li>Mouth to stoma</li> <li>Oxygen mask over stoma</li> </ul>	<ul style="list-style-type: none"> <li>Resuscitation cards available for wallets and emergency sticker for windscreen of car</li> </ul>
<b>Physiological</b>			
Respiration (breathing)	<ul style="list-style-type: none"> <li>Air is inhaled/exhaled through nose/mouth</li> </ul>	<ul style="list-style-type: none"> <li>Breathe air directly through stoma to lungs</li> </ul>	<ul style="list-style-type: none"> <li>Change in body image</li> <li>Need to learn stoma care</li> </ul>
Filtering, warming and humidification of air	<ul style="list-style-type: none"> <li>Achieved by the air passing through the nose</li> </ul>	<ul style="list-style-type: none"> <li>Air is breathed in the stoma into the lungs</li> <li>Air is not filtered or warmed</li> </ul>	<ul style="list-style-type: none"> <li>Increased mucous production</li> <li>Need to wear filter/cover over stoma</li> <li>Need extra humidification</li> </ul>
Coughing	<ul style="list-style-type: none"> <li>Build-up of pressure below vocal cords</li> <li>Air pressure 'explosion' expels mucous through mouth</li> </ul>	<ul style="list-style-type: none"> <li>Can no longer cough due, to inability to build pressure</li> <li>Lean to "huff" mucous out through stoma</li> </ul>	<ul style="list-style-type: none"> <li>Increased mucous production resulting from surgery</li> <li>Clearing of mucous may be embarrassing and unpleasant at times</li> <li>When clearing mucous need to cover stoma</li> </ul>
Blowing nose	<ul style="list-style-type: none"> <li>Forced air clears secretions from nasal passage</li> </ul>	<ul style="list-style-type: none"> <li>Impaired ability to shunt (direct) air up into nasal cavity to clear nose secretions</li> </ul>	<ul style="list-style-type: none"> <li>Learn to shunt air through nasal cavity – not all are successful in regaining this skill</li> </ul>
Swallowing	<ul style="list-style-type: none"> <li>Automatic process</li> <li>Aspiration (food entering the airway) is possible and can be cleared with a cough</li> </ul>	<ul style="list-style-type: none"> <li>Aspiration not a risk</li> <li>Adaptations to rate of eating or co-ordination of swallow</li> <li>Reduction of saliva production and fibrosis (as a result of scar tissue) may affect the process.</li> </ul>	<ul style="list-style-type: none"> <li>May need a texture modified diet (softer foods)</li> <li>May need to 'flush' foods down with fluids</li> </ul>
Taste	<ul style="list-style-type: none"> <li>Occurs through sensory fibres on the tongue and inhaled air bypassing the olfactory nerve</li> </ul>	<ul style="list-style-type: none"> <li>Air no longer passing through nose may affect taste</li> <li>Radiation also decreases sensitivity.</li> </ul>	<ul style="list-style-type: none"> <li>May use additives in food to increase taste (e.g. salt)</li> <li>May learn to shunt (direct) air from stomach to nasal cavity</li> </ul>

Feature	Pre-laryngectomy	Following laryngectomy	Effect on lifestyle
Smell	<ul style="list-style-type: none"> <li>Occurs via sensory nerves and epithelium (cells) in the nose</li> </ul>	<ul style="list-style-type: none"> <li>Air not passing through nose.</li> <li>May still be able to smell strong odours</li> </ul>	<ul style="list-style-type: none"> <li>Appetite may be affected</li> <li>Warning signals impaired (e.g. smelling smoke from a fire)</li> <li>May learn technique to “sniff”</li> </ul>
Speech and communication	<ul style="list-style-type: none"> <li>Verbal communication is produced by air passing from lungs to mouth</li> <li>Able to change the loudness and pitch</li> <li>Usually little effort is required (automatic)</li> </ul>	<ul style="list-style-type: none"> <li>Air does not pass via mouth thus method of speech is altered</li> <li>Some form of voice restoration is possible in most cases e.g. tracheoesophageal speech, oesophageal speech, or electrolarynx</li> </ul>	<ul style="list-style-type: none"> <li>Need to discuss options of speech restoration with speech pathologist</li> <li>Will need to learn a new method of speaking</li> <li>Change in body image</li> <li>“Grief reaction” to loss of voice</li> <li>May affect employment and social situations</li> <li>May alter expression of feelings</li> </ul>
<b>Physical activity</b>			
Showering	<ul style="list-style-type: none"> <li>Airway is protected by laryngeal muscles</li> <li>Able to hold breath and close off airway</li> </ul>	<ul style="list-style-type: none"> <li>Not able to protect/close off airway.</li> </ul>	<ul style="list-style-type: none"> <li>Need to protect airway e.g. with a shower shield or by redirecting shower spray.</li> </ul>
Lifting	<ul style="list-style-type: none"> <li>Diaphragm is fixed and breath held by closed vocal cords to facilitate heavy lifting</li> </ul>	<ul style="list-style-type: none"> <li>Unable to achieve closure of airway to build up pressure in thorax.</li> </ul>	<ul style="list-style-type: none"> <li>Employment/ hobbies may need to be altered due to fatigue and strain</li> <li>Some compensation can be taught but may still tire more easily with strenuous exercise</li> </ul>
Relationships and sexual activity		<ul style="list-style-type: none"> <li>May or may not change</li> <li>Sexual abilities generally not impaired.</li> </ul>	<ul style="list-style-type: none"> <li>Change in self image</li> <li>Need to wear stoma cover</li> <li>Need to be aware of stoma odour</li> <li>Difficulties with whispering or talking during sexual activity</li> </ul>
Airline travel		<ul style="list-style-type: none"> <li>Need to consider respiratory changes and suitability of oxygen masks in emergency situations</li> </ul>	<ul style="list-style-type: none"> <li>Contact the airline prior to travel.</li> </ul>
<b>Emotions</b>			
Laughing/ crying/ shouting		<ul style="list-style-type: none"> <li>Inability to produce laryngeal sound and change of breathing method.</li> </ul>	<ul style="list-style-type: none"> <li>Altered ability to express emotion through crying/laughing and shouting</li> <li>Message can be misinterpreted by listener</li> </ul>
<b>Social-economical</b>			
Occupation		<ul style="list-style-type: none"> <li>Structural and communication changes may change employment status</li> </ul>	<ul style="list-style-type: none"> <li>Some continue to work in chosen occupation</li> <li>Potential role change within family/workplace</li> </ul>

## Glossary

Larynx	Also known as the 'voice box'. It contains the vocal cords (or folds), which vibrate when air passes through them to produce sound and connects the pharynx with the trachea
Pharynx:	A muscular tube that extends from the back of the nose to the top of the larynx and oesophagus. Also known as the 'throat'.
Trachea:	The airway that brings air inhaled from the nose and mouth into the lungs. Also known as the 'wind pipe'.
Oesophagus	The tube that carries food from the throat to the stomach. Also known as the 'food pipe'.
Epiglottis:	A small flap of cartilage in your pharynx that prevents food and/or fluid from going down the wrong way.
Tracheostoma:	A surgically created opening in the neck. Also known as a 'stoma'
Lymph node:	Lymph nodes form part of the system that removes excess fluids from tissues. Also known as 'lymph glands'.
Lymphoedema:	Persistent swelling in tissues as a result of obstruction or damage of lymphatic vessels from infection, cancer or cancer treatment. This condition may be treated by a physiotherapist and/or occupational therapist.



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## Important contacts

### Cancer Council Queensland (Support and Information)

Helpline: 13 11 20

Website: [www.cancerqld.org.au](http://www.cancerqld.org.au)

Email: [helpline@cancerqld.org.au](mailto:helpline@cancerqld.org.au)

Mail: Cancer Council Queensland, PO Box 201, Spring Hill Qld 4004

### Atos Medical

Level 12, Suite 4

100 Walker Street

North Sydney NSW 2060

Website: [www.atosmedical.com.au](http://www.atosmedical.com.au)

Customer Service: 1800 286 728

Fax: 02 8404 4155

### Main Medical (Blom-Singer products)

Phone: 1300 005 279

Fax: 02 4914 0133

Website: [www.mainmed.com.au](http://www.mainmed.com.au)

Email: [nsw.customer.service@ch2.net.au](mailto:nsw.customer.service@ch2.net.au)

Mail: Clifford Hallam Healthcare , 3 Balbu Close, Beresfield NSW 2322, AUSTRALIA

### The Medical Equipment Centre

Phone: 07 3886 2470

Fax: 07 3009 9904

Website: [www.mec.com.au](http://www.mec.com.au)

Email: [info@mec.com.au](mailto:info@mec.com.au)

Mail: The Medical Equipment Centre, PO Box 28, Aspley , Queensland, 4034

### Other contact details

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## Online information and support

- [www.beyondfive.org.au](http://www.beyondfive.org.au)
- [www.webwhispers.org](http://www.webwhispers.org)
- [www.stilltalking.org](http://www.stilltalking.org)
- [www.macmillan.org.uk](http://www.macmillan.org.uk)
- [www.laryngectomy.org.uk](http://www.laryngectomy.org.uk)



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