

National Cancer Institute

What You Need
To Know About™

Cancer of the Larynx

**U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES**

National Institutes of Health

National Cancer Institute Services

This is only one of many free booklets for people with cancer.

You may want more information for yourself, your family, and your doctor.

NCI offers comprehensive research-based information for patients and their families, health professionals, cancer researchers, advocates, and the public.

- **Call** NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**
- **Visit** us at **<http://www.cancer.gov>** or **<http://www.cancer.gov/espanol>**
- **Chat** using **LiveHelp**, NCI's instant messaging service, at **<http://www.cancer.gov/livehelp>**
- **E-mail** us at **cancergovstaff@mail.nih.gov**
- **Order** publications at **<http://www.cancer.gov/publications>** or by calling **1-800-4-CANCER**
- **Get help** with quitting smoking at **1-877-44U-QUIT (1-877-448-7848)**

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About This Booklet

This National Cancer Institute (NCI) booklet is about *cancer** that starts in the *larynx*. Another name for this disease is *laryngeal cancer*.

Each year in the United States, more than 10,000 men and about 3,000 women learn they have cancer of the larynx. Most are over 65 years old.

Learning about medical care for cancer of the larynx can help you take an active part in making choices about your care. This booklet tells about:

- Diagnosis and staging
- Treatment and rehabilitation
- Taking part in research studies

This booklet has lists of questions that you may want to ask your doctor. Many people find it helpful to take a list of questions to a doctor visit. To help remember what your doctor says, you can take notes. You may also want to have a family member or friend go with you when you talk with the doctor—to take notes, ask questions, or just listen.

For the latest information about cancer of the larynx, visit NCI's Web site at <http://www.cancer.gov/cancertopics/types/throat>.

In addition, NCI's Cancer Information Service can answer your questions about cancer. We can also send you NCI booklets and fact sheets. Call **1-800-4-CANCER (1-800-422-6237)**. Or chat using **LiveHelp**, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>.

*Words in *italics* are in the Dictionary on page 32. The Dictionary explains these terms. It also shows how to pronounce them.

The Larynx

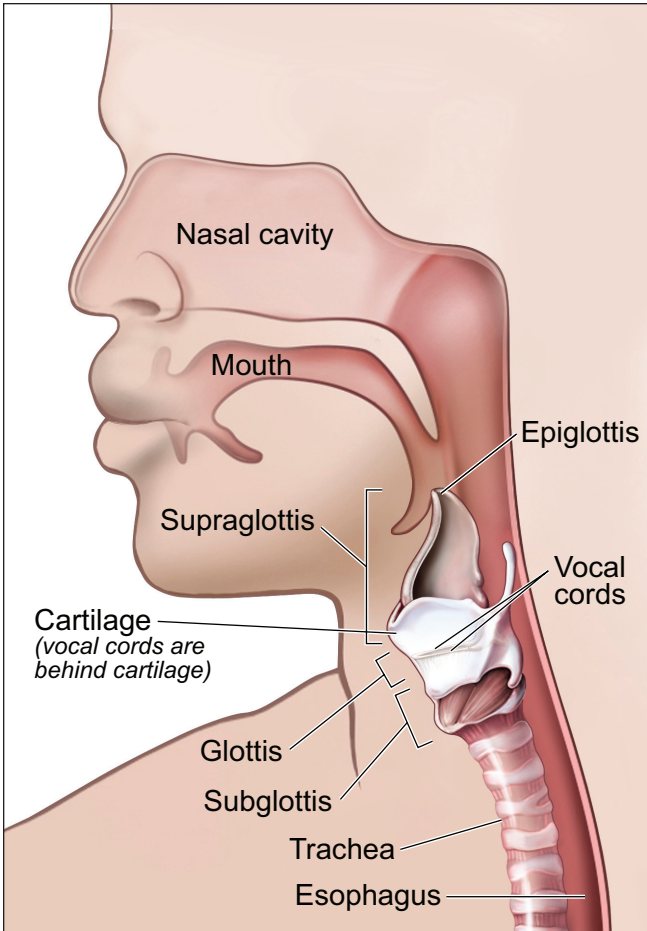
The larynx is an *organ* in your throat. It's at the front of your neck.

This organ is about 2 inches (5 centimeters) wide, which is about the size of a lime.

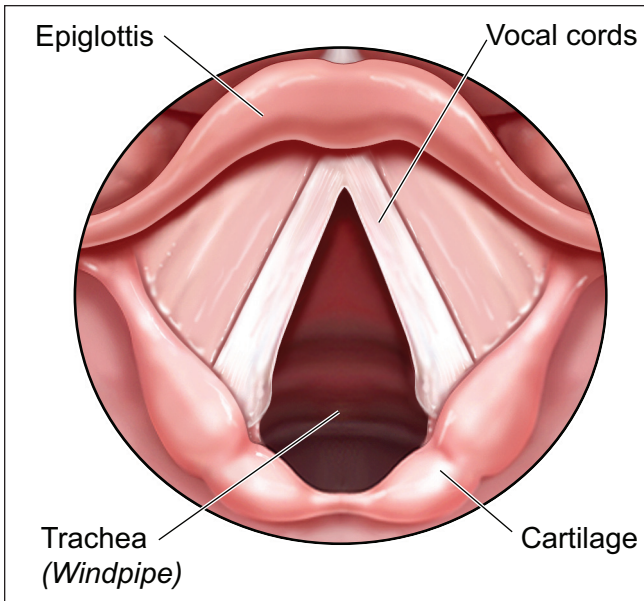
The larynx is also called the voice box. It has two bands of muscle that form the *vocal cords*. The *cartilage* at the front of the larynx is sometimes called the Adam's apple.

The larynx has three main parts:

- **Top:** The top part of the larynx is the *supraglottis*.
- **Middle:** The middle part is the *glottis*. Your vocal cords are in this part.
- **Bottom:** The bottom part is the *subglottis*. It connects to the windpipe (*trachea*).



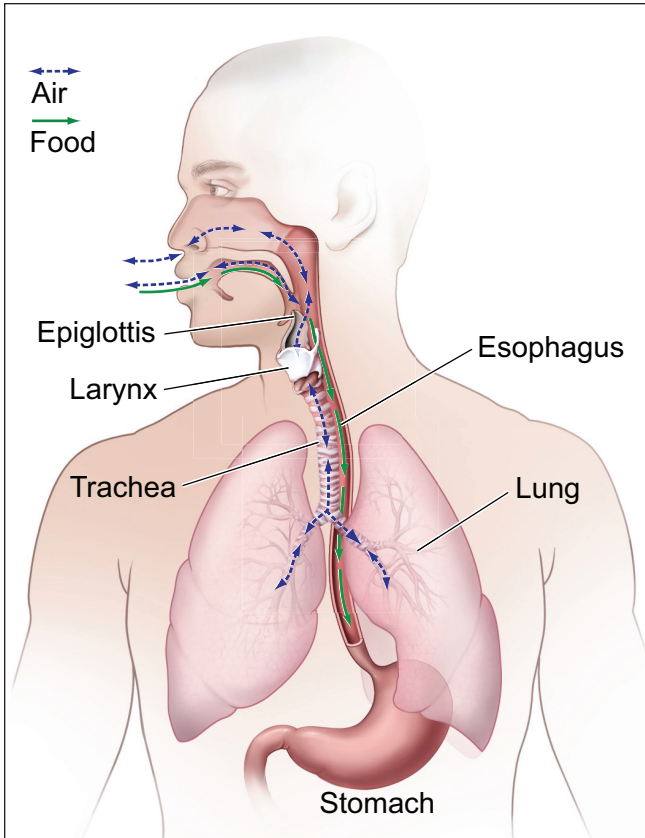
This picture shows the main parts of the larynx—the supraglottis, glottis, and subglottis.



This picture shows how the larynx looks from above. This is what the doctor can see with a mirror.

Your larynx opens or closes to allow you to breathe, talk, or swallow:

- **Breathing:** When you hold your breath, your vocal cords shut tightly. When you let out your breath or breathe in, your vocal cords relax and open.
- **Talking:** Your larynx makes the sound of your voice. When you talk, your vocal cords tighten and move closer together. Air from your lungs is forced between the cords and makes them vibrate. The vibration makes the sound. Your tongue, lips, and teeth form this sound into words.
- **Swallowing:** Your larynx protects your lungs from food and liquid. When you swallow, a flap called the *epiglottis* covers the opening of your larynx to keep food and liquid out of your lungs. The picture on page 5 shows how food or liquid passes through the *esophagus* on its way from the mouth to the stomach.



This picture shows the larynx and the normal paths for air and food.

Cancer Cells

Cancer begins in *cells*, the building blocks that make up *tissues*. Tissues make up the larynx and the other organs of the body.

Normal cells grow and divide to form new cells as the body needs them. When normal cells grow old or get damaged, they die, and new cells take their place.

Sometimes, this process goes wrong. New cells form when the body doesn't need them, and old or damaged cells don't die as they should. The buildup of extra cells often forms a mass of tissue called a growth or *tumor*.

Tumors in the larynx can be *benign* (not cancer) or *malignant* (cancer). Benign tumors are not as harmful as malignant tumors:

- **Benign tumors** (such as *polyps* or *nodules*):
 - are usually not a threat to life
 - can be treated or removed and usually don't grow back
 - don't invade the tissues around them
 - don't spread to other parts of the body
- **Malignant growths:**
 - may be a threat to life
 - usually can be treated or removed but can grow back
 - can invade and damage nearby tissues and organs
 - can spread to other parts of the body

Laryngeal cancer cells can spread by breaking away from the tumor in the larynx. They can travel through *lymph vessels* to nearby *lymph nodes*. They can also spread through *blood vessels* to the lungs, bones, or liver. After spreading, laryngeal cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues. See the Staging section on page 12 for information about laryngeal cancer that has spread.

Risk Factors

When you get a diagnosis of laryngeal cancer, it's natural to wonder what may have caused the disease. Doctors can't always explain why one person gets laryngeal cancer and another doesn't.

However, we do know that people with certain *risk factors* may be more likely than others to develop laryngeal cancer. A risk factor is something that may increase the chance of getting a disease.

Smoking tobacco causes most laryngeal cancers. Heavy smokers who have smoked tobacco for a long time are most at risk for laryngeal cancer.

Also, people who are heavy drinkers are more likely to develop laryngeal cancer than people who don't drink alcohol. The risk increases with the amount of alcohol that a person drinks. The risk of laryngeal cancer increases even more for people who are heavy drinkers and heavy smokers. However, not everyone who drinks or smokes heavily will develop the disease.

Many other possible risk factors are under study. For example, researchers are studying whether an *HPV* infection in the throat may increase the risk of laryngeal cancer. HPV is a group of *viruses* that can infect the body. Another area of research is whether reflux (the backward flow of liquid from the stomach to the throat) may increase the risk of laryngeal cancer.

How to Quit Tobacco

Quitting is important for anyone who uses tobacco. Quitting at any time is beneficial to your health.

For people who already have laryngeal cancer, quitting may reduce the chance of cancer returning after treatment. Quitting may also reduce the chance of getting another type of cancer (such as lung, esophagus, or oral cancer), lung disease, or heart disease caused by tobacco. In addition, quitting can help cancer treatments work better.

There are many ways to get help:

- Ask your doctor about medicine or nicotine replacement therapy. Your doctor can suggest a number of treatments that help people quit.
- Ask your doctor or dentist to help you find local programs or trained professionals who help people stop using tobacco.
- Call NCI's **Smoking Quitline at 1-877-44U-QUIT (1-877-448-7848)** or chat using **LiveHelp (<http://www.cancer.gov/livehelp>)**. We can tell you about:
 - Ways to quit smoking
 - Groups that help smokers who want to quit
 - NCI publications about quitting smoking
 - How to take part in a study of methods to help smokers quit
- Go online to **Smokefree.gov (<http://www.smokefree.gov>)**, a Federal Government Web site. It offers a guide to quitting smoking and a list of other resources.

Symptoms

The symptoms of laryngeal cancer depend mainly on the size and location of the tumor. Common symptoms of laryngeal cancer include:

- A hoarse voice or other voice changes for more than 3 weeks
- A sore throat or trouble swallowing for more than 6 weeks
- A lump in the neck

Other symptoms may include:

- Trouble breathing
- A cough that doesn't go away
- An earache that doesn't go away

These symptoms may be caused by laryngeal cancer or by other health problems. People with these symptoms should tell their doctor so that any problem can be diagnosed and treated as early as possible.

Diagnosis

If you have symptoms that suggest laryngeal cancer, your doctor may do a physical exam. Your doctor looks at your throat and feels your neck for lumps, swelling, or other problems.

You may have one or more of the following tests:

- **Indirect laryngoscopy:** Your doctor uses a small mirror with a long handle to see your throat and larynx. Your doctor will check whether your vocal cords move normally when you make certain sounds. The test does not hurt. To prevent you from gagging, your doctor may spray *local anesthesia* on your throat. The test is usually done in your doctor's office.

- **Direct laryngoscopy:** Your doctor uses a lighted tube (*laryngoscope*) to see your throat and larynx. The lighted tube can be flexible or rigid:
 - **Flexible:** Your doctor puts a flexible tube through your nose into your throat. This test is usually done in your doctor’s office with local anesthesia.
 - **Rigid:** Your doctor puts a rigid tube through your mouth into your throat. A tool on the rigid tube can be used to collect tissue samples. This test may be done in your doctor’s office, an outpatient clinic, or a hospital. Usually, *general anesthesia* is used.



- **Biopsy:** The removal of a small piece of tissue to look for cancer cells is called a biopsy. Usually, tissue is removed with a rigid laryngoscope under general anesthesia. A *pathologist* then looks at the tissue under a microscope to check for cancer cells. A biopsy is the only sure way to know if the abnormal area is cancer.

If you need a biopsy, you may want to ask your doctor some of the following questions:

- Why do I need a biopsy?
- How much tissue do you expect to remove?
- How long will it take? Will I need general anesthesia?
- Are there any risks? What are the chances of infection or bleeding after the biopsy? Will I lose my voice for a while?
- Will I be able to eat and drink normally after the biopsy?
- How long will it take for my throat to heal?
- How soon will I know the results?
- If I do have cancer, who will talk with me about treatment? When?

Staging

If laryngeal cancer is diagnosed, your doctor needs to learn the extent (stage) of the disease to help you choose the best treatment. When laryngeal cancer spreads, cancer cells may be found in the lymph nodes in the neck or in other tissues of the neck. Cancer cells can also spread to the lungs, liver, bones, and other parts of the body.

To learn whether laryngeal cancer has invaded nearby tissues or spread, your doctor may order one or more tests:

- **Chest x-ray:** An x-ray of your chest can show a lung tumor.
- **CT scan:** An x-ray machine linked to a computer takes a series of detailed pictures of your neck, chest, or abdomen. You may receive an injection of *contrast material* so your lymph nodes show up clearly in the pictures. CT scans of the chest and abdomen can show cancer in the lymph nodes, lungs, or elsewhere.
- **MRI:** A large machine with a strong magnet linked to a computer is used to make detailed pictures of your neck, chest, or abdomen. MRI can show cancer in the blood vessels, lymph nodes, or other tissues in the abdomen.

When cancer spreads from its original place to another part of the body, the new tumor has the same kind of abnormal cells and the same name as the primary (original) tumor. For example, if laryngeal cancer spreads to a lung, the cancer cells in the lung are actually laryngeal cancer cells. The disease is *metastatic* laryngeal cancer, not lung cancer. It's treated as laryngeal cancer, not as lung cancer. Doctors sometimes call the new tumor "distant" disease.

Doctors describe the stage of laryngeal cancer based on the size of the tumor, whether the vocal cords move normally, whether the cancer has invaded nearby tissues, and whether the cancer has spread to other parts of the body:

- **Early cancer:** Stage 0, I, or II laryngeal cancer is usually a small tumor, and cancer cells are rarely found in lymph nodes.
- **Advanced cancer:** Stage III or IV laryngeal cancer is a tumor that has invaded nearby tissues or spread to lymph nodes or other parts of the body. Or the cancer is only in the larynx, but the tumor prevents the vocal cords from moving normally.

Treatment

People with early laryngeal cancer may be treated with *surgery* or *radiation therapy*. People with advanced laryngeal cancer may have a combination of treatments. For example, radiation therapy and *chemotherapy* are often given at the same time. *Targeted therapy* is another option for some people with advanced laryngeal cancer.

The choice of treatment depends mainly on your general health, where in your larynx the cancer began, and whether the cancer has spread.

You may have a team of specialists to help plan your treatment. Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat laryngeal cancer include:

- Ear, nose, and throat doctors (*otolaryngologists*)
- General head and neck *surgeons*
- *Medical oncologists*
- *Radiation oncologists*

Other health care professionals who work with the specialists as a team may include a *dentist, plastic surgeon, reconstructive surgeon, speech-language pathologist, oncology nurse, registered dietitian, and mental health counselor.*

Your health care team can describe your treatment choices, the expected results of each, and the possible *side effects*. You'll want to consider how treatment may affect eating, swallowing, and talking, and whether treatment will change the way you look during and after treatment. You and your health care team can work together to develop a treatment plan that meets your needs.

Before, during, and after cancer treatment, you can have *supportive care* to control pain and other symptoms, to relieve the side effects of treatment, and to ease emotional concerns. Information about supportive care is available on NCI's Web site at **<http://www.cancer.gov/cancertopics/coping>**.

Also, NCI's Cancer Information Service can answer your questions about supportive care. Call **1-800-4-CANCER (1-800-422-6237)**. Or chat using **LiveHelp**, NCI's instant messaging service, at **<http://www.cancer.gov/livehelp>**.

You may want to talk with your doctor about taking part in a *clinical trial*. Clinical trials are research studies testing new treatments. They are an important option for people with all stages of laryngeal cancer. See the Taking Part in Cancer Research section on page 31.

You may want to ask your doctor these questions before you begin treatment:

- How large is the tumor? What is the stage of the disease? Has the tumor grown outside the larynx or spread to other organs?
- What are my treatment choices? Do you suggest surgery, radiation therapy, or a combination of treatments? Why?
- What are the expected benefits of each kind of treatment?
- What is my chance of keeping my voice with surgery, radiation therapy, or a combination of treatments?
- What can I do to prepare for treatment?
- Will I need to stay in the hospital? If so, for how long?
- What are the risks and possible side effects of each treatment? How can side effects be managed?
- What is the treatment likely to cost? Will my insurance cover it?
- How will treatment affect my normal activities?
- Is a research study (clinical trial) a good choice for me?
- Can you recommend a doctor who could give me a second opinion about my treatment options?
- How often should I have checkups?

Surgery

Surgery is a common treatment for people with cancer of the larynx. The surgeon may use a *scalpel* or *laser*. Laser surgery may be performed with a laryngoscope.

You and your surgeon can talk about the types of surgery and which may be right for you:

- **Removing part of the larynx:** The surgeon removes only the part of the larynx that contains the tumor.
- **Removing all of the larynx:** The surgeon removes the entire larynx and some nearby tissue. Some lymph nodes in the area may also be removed.

It takes time to heal after surgery, and the time needed to recover is different for each person. It's common to feel weak or tired for a while, and your neck may be swollen.

Also, you may have pain or discomfort for the first few days. Medicine can help control your pain. Before surgery, you should discuss the plan for pain relief with your doctor or nurse. After surgery, your doctor can adjust the plan if you need more pain control.

Surgery may change your ability to swallow, eat, or talk. You may need to have reconstructive or plastic surgery to rebuild the tissue. The surgeon may use tissue from another part of your body to repair the throat. You can have reconstructive or plastic surgery at the same time as you have the cancer removed, or you can have it later on. Talk with your doctor about which approach is right for you.

If you lose the ability to talk for a short time after surgery, you may find it helpful to use a notepad, writing toy (such as a magic slate), cell phone, or computer to write messages. Before surgery, you may

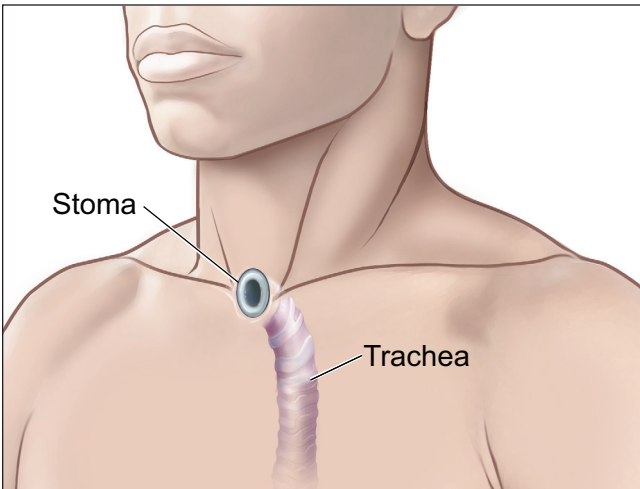
want to make a recording for your answering machine or voicemail that tells callers that you have lost your voice. See the Rehabilitation section on page 27.

Some people may need a temporary feeding tube. See the Nutrition section on page 26.

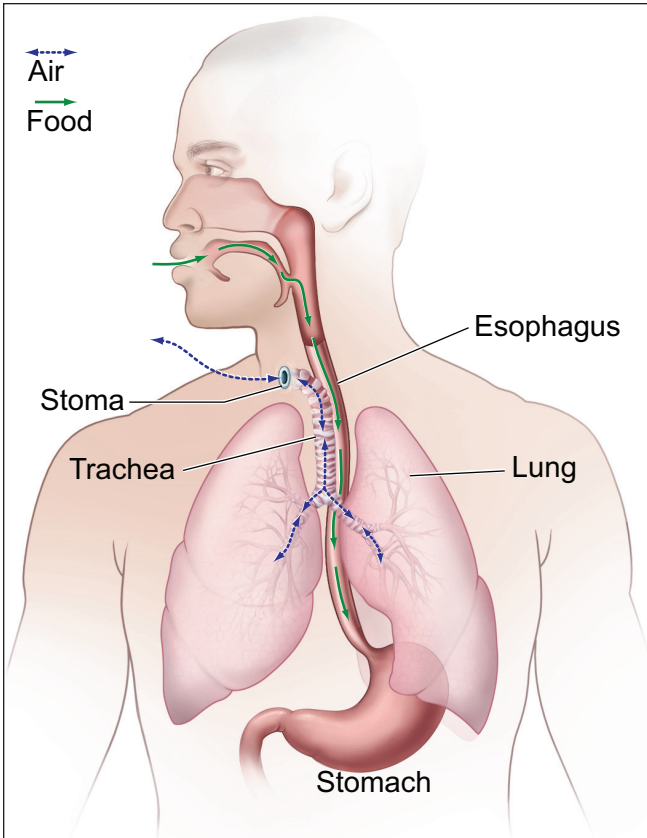
Stoma

The surgeon may need to make a stoma. The stoma is a new airway through an opening in the front of your neck.

Air enters and leaves the trachea and lungs through this opening. A metal or plastic tube (a *trach tube*) keeps the new airway open.



The stoma is a new opening into the trachea. Air enters and leaves the lungs through this opening.



This picture shows the new path for air after the entire larynx is removed.

Before you leave the hospital, your health care team will teach you how to care for the stoma. You will learn to remove and clean the trach tube, clean out your airway, and care for the skin around the stoma.

You may want to follow these tips:

- Keep the skin around the stoma clean.
- If the air is dry, use a humidifier.
- If the air is dusty or smoky, cover your stoma with a scarf, tie, or specially made cover.
- Protect your stoma from water. Cover your stoma before you take a shower.
- Cover your stoma when you cough or sneeze.

For many people, the stoma is needed only until recovery from surgery. Several days after surgery, the tube will be removed, and the stoma will close up. If your entire larynx is removed, the stoma will be permanent.

People with stomas work in almost every type of business and can do nearly all of the things they did before surgery. However, they can't hold their breath, so heavy lifting may be hard. Also, swimming and water skiing are not possible without a special device and training to keep water out of the lungs.

Some people may feel self-conscious about the way they look and speak with a stoma. They may be concerned about how other people feel about them. They may also be concerned about how their sex life may be affected. Many people find that talking about these concerns is helpful. See Sources of Support on page 29.

You may want to ask your doctor these questions before having surgery:

- Do you recommend surgery to remove the tumor? Why? Do I need any lymph nodes removed? Will other tissues in my neck need to be removed?
- After surgery to remove the cancer, will my throat area need to be repaired with tissue from another part of my body?
- What is the goal of surgery?
- How will I feel after surgery? How long will I be in the hospital?
- What are the risks of surgery?
- Will I have trouble swallowing, eating, or speaking? Will I need to see a speech-language pathologist for help?
- What will my neck look like after surgery? Will I have a scar?
- If I need a stoma, do you recommend that I get a medical bracelet that says “neck breather”?
- Will I need reconstructive or plastic surgery? When can that be done?

Radiation Therapy

Radiation therapy uses high-energy rays to kill cancer cells. It’s an option for people with any stage of laryngeal cancer. People with small tumors may choose radiation therapy instead of surgery. It may also be used after surgery to destroy cancer cells that may remain in the area.

The radiation comes from a large machine outside the body. You may go to the hospital or clinic once or twice a day, generally 5 days a week for several weeks. Each treatment takes only a few minutes.

Radiation therapy aimed at the neck may cause side effects:

- **Sore throat and difficulty swallowing:** Your throat may become sore, or you may feel like there's a lump in your throat. It may be hard for you to swallow.
- **Changes in your voice:** Your voice may become hoarse or weak during radiation therapy. Your larynx may swell, causing voice changes. Your doctor may suggest medicine to reduce the swelling.
- **Skin changes in the neck area:** The skin on your neck may become red or dry. Good skin care is important. It's helpful to expose your neck to air while also protecting it from the sun. Also, avoid wearing clothes that rub your neck, and don't shave the area. You should not use lotions or creams on your neck without your doctor's advice. These skin changes usually go away when treatment ends.
- **Changes in the thyroid:** Radiation therapy can harm your thyroid (an organ in your neck beneath the voice box). If your thyroid doesn't make enough *thyroid hormone*, you may feel tired, gain weight, feel cold, and have dry skin and hair. Your doctor can check the level of thyroid hormone with a blood test. If the level is low, you may need to take thyroid hormone pills.
- **Fatigue:** You may become very tired, especially in the later weeks of radiation therapy. Resting is important, but doctors usually advise people to stay as active as they can.

- **Weight loss:** You may lose weight if you have eating problems from a sore throat and trouble swallowing. Some people may need a temporary feeding tube. See the Nutrition section on page 26.

Some side effects go away after radiation therapy ends, but others last a long time. Although the side effects of radiation therapy can be upsetting, your doctor can usually treat or control them. It helps to report any problems that you are having so that your doctor can work with you to relieve them.

You may find it helpful to read the NCI booklet *Radiation Therapy and You*.

You may want to ask your doctor these questions before having radiation therapy:

- What is the goal of this treatment?
- When will the treatments begin? When will they end?
- What are the risks and side effects of this treatment? What can I do about them?
- How will I feel during therapy? What can I do to take care of myself?
- Are there any long-term effects?
- If the tumor grows back after radiation therapy, will surgery be an option?

Chemotherapy

Chemotherapy uses drugs to kill cancer cells. The drugs that treat laryngeal cancer are usually given through a vein (*intravenous*). The drugs enter the bloodstream and travel throughout your body.

Chemotherapy and radiation therapy are often given at the same time. You may receive chemotherapy in an outpatient part of the hospital, at the doctor's office, or at home. Some people need to stay in the hospital during treatment.

The side effects depend mainly on which drugs are given and how much. Chemotherapy kills fast-growing cancer cells, but the drugs can also harm normal cells that divide rapidly:

- **Blood cells:** When drugs lower the levels of healthy blood cells, you're more likely to get infections, bruise or bleed easily, and feel weak and tired. Your health care team will check for low levels of blood cells. If your levels are low, your health care team may stop the chemotherapy for a while or reduce the dose of the drug.
- **Cells in hair roots:** Chemotherapy may cause hair loss. If you lose your hair, it will grow back, but it may change in color and texture.
- **Cells that line the *digestive tract*:** Chemotherapy can cause a poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores. Your health care team can give you medicines and suggest other ways to help with these problems.

Also, chemotherapy can cause painful mouth and gums, dry mouth, infection, and changes in taste. Some drugs used for laryngeal cancer can cause tingling or numbness in the hands or feet. You may have these problems only during treatment or for a short time after treatment ends.

You may wish to read the NCI booklet *Chemotherapy and You*.

Targeted Therapy

Some people with laryngeal cancer receive a type of treatment known as targeted therapy. It may be given along with radiation therapy.

Cetuximab (Erbix) was the first targeted therapy approved for laryngeal cancer. Cetuximab binds to cancer cells and interferes with cancer cell growth and the spread of cancer. You may receive cetuximab through a vein once a week for several weeks at the doctor's office, hospital, or clinic.

During treatment, your health care team will watch for signs of problems. Some people get medicine to prevent a possible allergic reaction. Side effects may include rash, fever, headache, vomiting, and diarrhea. These effects usually become milder after the first treatment.

You may find it helpful to read the NCI fact sheet *Targeted Cancer Therapies*.

You may want to ask your doctor these questions about chemotherapy or targeted therapy:

- Why do I need this treatment?
- Which drug or drugs will I have?
- How does the drug work?
- When will treatment start? When will it end?
- How will I feel during treatment? What are the side effects? Are there any lasting side effects? What can I do about them?

Second Opinion

Before starting treatment, you may want a second opinion about your diagnosis, stage of cancer, and treatment plan. Some people worry that the doctor will be offended if they ask for a second opinion. Usually the opposite is true. Most doctors welcome a second opinion. And many health insurance companies will pay for a second opinion if you or your doctor requests it. Some companies require a second opinion.

If you get a second opinion, the second doctor may agree with your first doctor's diagnosis and treatment plan. Or, the second doctor may suggest another approach. Either way, you'll have more information and perhaps a greater sense of control. You can feel more confident about the decisions you make, knowing that you've looked at all of your options.

It may take some time and effort to gather your medical records and see another doctor. The delay in starting treatment usually will not make treatment less effective. To make sure, you should discuss this delay with your doctor.

There are many ways to find a doctor for a second opinion. You can ask your doctor, a local or state medical society, a nearby hospital, or a medical school for names of specialists.

Also, you can get information about treatment centers near you from NCI's Cancer Information Service. Call **1-800-4-CANCER (1-800-422-6237)**. Or chat using **LiveHelp**, NCI's instant messaging service, at **<http://www.cancer.gov/livehelp>**.

Other sources can be found in the NCI fact sheet *How To Find a Doctor or Treatment Facility If You Have Cancer*.

Nutrition

Your diet is an important part of your medical care for laryngeal cancer. You need the right amount of calories, protein, vitamins, and minerals to maintain your strength and to heal.

However, when you have laryngeal cancer, it may be difficult to eat. You may be uncomfortable or tired, and you may have trouble swallowing or not feel like eating. You also may have nausea, vomiting, dry mouth, constipation, or diarrhea from cancer treatment or pain medicine.

Tell your health care team if you're having any problems eating or drinking. Also tell your health care team if you have diarrhea, constipation, heartburn, gas, belly pain, nausea, or vomiting after eating. If you're losing weight, a dietitian can help you choose the foods and nutrition products that will meet your needs.

You may want to read the NCI booklet *Eating Hints*. It contains many useful ideas and recipes.

Trouble Swallowing

If there's a chance that swallowing will become too difficult for you, your dietitian and doctor may recommend another way for you to receive nutrition. For example, after surgery or during radiation therapy for laryngeal cancer, some people need a temporary feeding tube. A feeding tube is a flexible tube that is usually passed into the stomach through an incision in the abdomen. A liquid meal replacement product (such as Boost or Ensure) can be poured through the tube. These liquid products provide all of the calories, protein, and other nutrients you need until you are able to swallow again.

Rehabilitation

Laryngeal cancer and its treatment can make it hard to swallow, talk, and breathe. Your health care team will help you return to normal activities as soon as possible. The goals of rehabilitation depend on the extent of the disease and type of treatment.

After surgery or radiation therapy, your neck and shoulders may become stiff or weak. Your health care team can teach you exercises that help loosen your neck and shoulder muscles.

Learning to Speak Again

Laryngeal cancer and its treatment can cause problems with talking. A speech-language pathologist can assess your needs and plan therapy, which may include speech exercises.

If you need your entire larynx removed, you must learn to speak in a new way. Talking is part of nearly everything you do, so it's natural to be scared if your larynx must be removed. Losing the ability to talk is hard. It takes practice and patience to learn new ways to speak.

Before surgery or soon after, the speech-language pathologist can describe your choices for speech:

- **Electric larynx:** An electric larynx is a small device that can help you talk after your larynx has been removed. It's powered by a battery. The electric larynx makes a humming sound like the vocal cords. Some models are used in the mouth whereas other models are placed on the neck.

- ***Esophageal speech:*** There is no device to carry around for esophageal speech because the sound is made with air. A speech-language pathologist can teach you how to release air like a burp from the walls of your throat. It takes practice, but you can learn how to form words from the released air with the lips, tongue, and teeth.
- ***Tracheoesophageal puncture:*** The surgeon makes a small opening between your trachea and esophagus, and a small device is placed in the opening. With practice, you can learn to speak by covering the stoma and forcing air through the device. The air makes sound by vibrating the walls of your throat.

Speech therapy will generally begin as early as possible. If you have surgery, speech therapy may continue after you leave the hospital.

You may want to ask your speech-language pathologist these questions:

- What kind of swallowing and speech problems should I tell my health care team about? What can a speech-language pathologist do for me?
- If I have surgery to remove the larynx, how will I communicate with my health care team while I'm in the hospital? What can I do to prepare myself and my family?
- If my larynx is removed, which methods of speech do you suggest for me?
- If an electric larynx is right for me, how would I choose the best model?
- Can you recommend a support group for people with swallowing or speech problems?

Follow-up Care

You'll need regular checkups (such as every two months for the first year) after treatment for laryngeal cancer. Checkups help ensure that any changes in your health are noted and treated if needed.

Laryngeal cancer may come back after treatment. Your doctor will check for return of cancer. Checkups may include a physical exam, blood tests, a chest x-ray, a CT scan, or an MRI.

People who have had laryngeal cancer have a chance of developing a new cancer. A new cancer is especially likely for those who use tobacco or who drink alcohol heavily. Doctors strongly urge people who have had laryngeal cancer to stop using tobacco and stop drinking alcohol to cut down the risk of a new cancer and other health problems.

NCI has publications to help answer questions about follow-up care and other concerns. You may find it helpful to read the NCI booklet *Facing Forward: Life After Cancer Treatment*. You may also want to read the NCI fact sheet *Follow-up Care After Cancer Treatment*.

Sources of Support

Learning that you have laryngeal cancer can change your life and the lives of those close to you. These changes can be hard to handle. It's normal for you, your family, and your friends to need help coping with the feelings that a diagnosis of cancer can bring.

Concerns about treatments and managing side effects, hospital stays, and medical bills are common. You may also worry about caring for your family, keeping your job, or continuing daily activities.

Here's where you can go for support:

- Doctors, nurses, and other members of your health care team can answer questions about treatment, working, or other activities.
- Social workers, counselors, or members of the clergy can be helpful if you want to talk about your feelings or concerns. Often, social workers can suggest resources for financial aid, transportation, home care, or emotional support.
- Support groups also can help. In these groups, patients or their family members meet with other patients or their families to share what they have learned about coping with cancer and the effects of treatment. Groups may offer support in person, over the telephone, or on the Internet. You may want to talk with a member of your health care team about finding a support group.
- NCI's Cancer Information Service can help you locate programs and services for people with cancer. Call **1-800-4-CANCER (1-800-422-6237)**. Or chat using **LiveHelp**, NCI's instant messaging service, at **<http://www.cancer.gov/livehelp>**.

For tips on coping, you may want to read the NCI booklet *Taking Time: Support for People With Cancer*.

Taking Part in Cancer Research

Doctors all over the world are conducting many types of clinical trials (research studies in which people volunteer to take part). Clinical trials are designed to find out whether new treatments are safe and effective.

Even if the people in a trial do not benefit directly from a treatment, they may still make an important contribution by helping doctors learn more about laryngeal cancer and how to control it. Although clinical trials may pose some risks, doctors do all they can to protect their patients.

Doctors are studying new treatments and combinations of treatments for laryngeal cancer:

- Surgery and targeted therapy
- Surgery, radiation therapy, and targeted therapy
- Surgery, radiation therapy, chemotherapy, and targeted therapy
- Radiation therapy and chemotherapy
- Chemotherapy and targeted therapy

If you're interested in being part of a clinical trial, talk with your doctor. You may want to read the NCI booklet *Taking Part in Cancer Treatment Research Studies*. It describes how treatment studies are carried out and explains their possible benefits and risks.

NCI's Web site includes a section on clinical trials at <http://www.cancer.gov/clinicaltrials>. It has general information about clinical trials as well as detailed information about specific ongoing studies for people with laryngeal cancer.

Also, NCI's Cancer Information Service can provide information about clinical trials. Call **1-800-4-CANCER (1-800-422-6237)**. Or chat using **LiveHelp**, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>.

Dictionary

Definitions of thousands of terms are on NCI Web's site in NCI's Dictionary of Cancer Terms. You can access it at <http://www.cancer.gov/dictionary>.

Benign (beh-NINE): Not cancerous. Benign tumors may grow larger but do not spread to other parts of the body. Also called nonmalignant.

Biopsy (BY-op-see): The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue.

Blood vessel: A tube through which the blood circulates in the body. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins.

Cancer (KAN-ser): A term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems.

Cartilage (KAR-tih-lij): A tough, flexible tissue that lines joints and gives structure to the nose, ears, larynx, and other parts of the body.

Cell (sel): The individual unit that makes up the tissues of the body. All living things are made up of one or more cells.

Cetuximab (seh-TUK-sih-mab): A monoclonal antibody used to treat certain types of head and neck cancer, and colorectal cancer that has spread to other parts of the body. It is also being studied in the treatment of other types of cancer. Monoclonal antibodies are made in the laboratory and can locate and bind to cancer cells. Also called Erbitux.

Chemotherapy (KEE-moh-THAYR-uh-pee): Treatment with drugs that kill cancer cells.

Clinical trial (KLIH-nih-kul TRY-ul): A type of research study that tests how well new medical approaches work in people. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease. Also called clinical study.

Contrast material: A dye or other substance that helps show abnormal areas inside the body. It is given by injection into a vein, by enema, or by mouth. Contrast material may be used with x-rays, CT scans, MRI, or other imaging tests.

CT scan: A series of detailed pictures of areas inside the body taken from different angles. The pictures are created by a computer linked to an x-ray machine. Also called CAT scan, computed tomography scan, computerized axial tomography scan, and computerized tomography.

Dentist: A health professional who specializes in caring for teeth, gums, and other tissues in the mouth.

Digestive tract (dy-JES-tiv): The organs through which food and liquids pass when they are swallowed, digested, and eliminated. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum and anus.

Epiglottis (ep-ih-GLAH-tis): The flap that covers the trachea during swallowing so that food does not enter the lungs.

Esophageal speech (ee-SAH-fuh-JEE-ul): Speech produced by trapping air in the esophagus and forcing it out again. It is used after removal of a person's larynx.

Esophagus (ee-SAH-fuh-gus): The muscular tube through which food passes from the throat to the stomach.

General anesthesia (JEN-rul A-nes-THÉE-zhuh): A temporary loss of feeling and a complete loss of awareness that feels like a very deep sleep. It is caused by special drugs or other substances called anesthetics. General anesthesia keeps patients from feeling pain during surgery or other procedures.

Glottis (GLAH-tis): The middle part of the larynx; the area where the vocal cords are located.

HPV: A type of virus that can cause abnormal tissue growth (for example, warts) and other changes to cells. Infection for a long time with certain types of HPV can cause cervical cancer. HPV may also play a role in some other types of cancer, such as anal, vaginal, vulvar, penile, oropharyngeal, and squamous cell skin cancers. Also called human papillomavirus (PA-pih-LOH-muh-VY-rus).

Intravenous (IN-truh-VEE-nus): Into or within a vein. Intravenous usually refers to a way of giving a drug or other substance through a needle or tube inserted into a vein. Also called IV.

Laryngeal cancer (luh-RIN-jee-ul KAN-ser): Cancer that forms in tissues of the larynx (area of the throat that contains the vocal cords and is used for breathing, swallowing, and talking). Most laryngeal cancers are squamous cell carcinomas (cancer that begins in flat cells lining the larynx).

Laryngoscope (luh-RIN-goh-SKOPE): A thin, tube-like instrument used to examine the larynx (voice box). A laryngoscope has a light and a lens for viewing and may have a tool to remove tissue.

Laryngoscopy (LA-rin-GOS-koh-pee): Examination of the larynx (voice box) with a mirror (indirect laryngoscopy) or with a laryngoscope (direct laryngoscopy).

Larynx (LAYR-inks): The area of the throat containing the vocal cords and used for breathing, swallowing, and talking. Also called voice box.

Laser (LAY-zer): A device that forms light into intense, narrow beams that may be used to cut or destroy tissue, such as cancer tissue. Lasers are used in microsurgery, photodynamic therapy, and many other procedures to diagnose and treat disease.

Local anesthesia (LOH-kul A-nes-THEE-zhuh): A temporary loss of feeling in one small area of the body caused by special drugs or other substances called anesthetics. The patient stays awake but has no feeling in the area of the body treated with the anesthetic.

Lymph node (limf node): A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called lymph gland.

Lymph vessel (limf): A thin tube that carries lymph (lymphatic fluid) and white blood cells through the lymphatic system. Also called lymphatic vessel.

Malignant (muh-LIG-nunt): Cancerous. Malignant tumors can invade and destroy nearby tissue and spread to other parts of the body.

Medical oncologist (MEH-dih-kul on-KAH-loh-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, biological therapy, and targeted therapy. A medical oncologist often is the main health care provider for someone who has cancer. A medical oncologist also gives supportive care and may coordinate treatment given by other specialists.

Mental health counselor: A specialist who can talk with patients and their families about emotional and personal matters, and can help them make decisions.

Metastatic (meh-tuh-STA-tik): Having to do with metastasis, which is the spread of cancer from the place where it started to other places in the body.

MRI: A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue. MRI makes better images of organs and soft tissue than other scanning techniques, such as CT scan or x-ray. MRI is especially useful for imaging the brain, the spine, the soft tissue of joints, and the inside of bones. Also called magnetic resonance imaging.

Nodule (NOD-yool): A growth or lump that may be malignant (cancer) or benign (not cancer).

Oncology nurse (on-KAH-loh-jee): A nurse who specializes in treating and caring for people who have cancer.

Organ: A part of the body that performs a specific function. For example, the heart is an organ.

Otolaryngologist (OH-toh-LA-rin-GAH-loh-jist): A doctor who specializes in treating diseases of the ear, nose, and throat. Also called ENT doctor.

Pathologist (puh-THAH-loh-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Plastic surgeon (PLAS-tik SER-jun): A surgeon who specializes in reducing scarring or disfigurement that may occur as a result of accidents, birth defects, or treatment for diseases.

Polyp (PAH-lip): A growth that protrudes from a mucous membrane.

Radiation oncologist (RAY-dee-AY-shun on-KAH-loh-jist): A doctor who specializes in using radiation to treat cancer.

Radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumors.

Reconstructive surgeon (REE-kun-STRUK-tiv SER-jun): A doctor who can surgically reshape or rebuild (reconstruct) a part of the body, such as a woman's breast after surgery for breast cancer.

Registered dietitian (dy-eh-TIH-shun): A health professional with special training in the use of diet and nutrition to keep the body healthy. A registered dietitian may help the medical team improve the nutritional health of a patient.

Risk factor: Something that increases the chance of developing a disease. Some examples of risk factors for cancer are age, a family history of certain cancers, use of tobacco products, being exposed to radiation or certain chemicals, infection with certain viruses or bacteria, and certain genetic changes.

Scalpel (SKAL-pul): A small, thin knife used for surgery.

Side effect: A problem that occurs when treatment affects healthy tissues or organs. Some common side effects of cancer treatment are fatigue, pain, nausea, vomiting, decreased blood cell counts, hair loss, and mouth sores.

Speech-language pathologist (puh-THAH-loh-jist): A specialist who evaluates and treats people with communication and swallowing problems. Also called speech therapist.

Subglottis (SUB-glot-is): The lowest part of the larynx; the area from just below the vocal cords down to the top of the trachea.

Supportive care: Care given to improve the quality of life of patients who have a serious or life-threatening disease. The goal of supportive care is to prevent or treat as early as possible the symptoms of a disease, side effects caused by treatment of a disease, and psychological, social, and spiritual problems related to a disease or its treatment. Also called comfort care, palliative care, and symptom management.

Supraglottis (SOO-pra-GLOT-is): The upper part of the larynx (voice box), including the epiglottis; the area above the vocal cords.

Surgeon (SER-jun): A doctor who removes or repairs a part of the body by operating on the patient.

Surgery (SER-juh-ree): A procedure to remove or repair a part of the body or to find out whether disease is present. An operation.

Targeted therapy (TAR-geh-ted THAYR-uh-pee): A type of treatment that uses drugs or other substances, such as monoclonal antibodies, to identify and attack specific cancer cells. Targeted therapy may have fewer side effects than other types of cancer treatments.

Thyroid hormone (THY-royd HOR-mone): A hormone that affects heart rate, blood pressure, body temperature, and weight. Thyroid hormone is made by the thyroid gland and can also be made in the laboratory.

Tissue (TISH-oo): A group or layer of cells that work together to perform a specific function.

Trach tube (trake): A 2-inch- to 3-inch-long curved metal or plastic tube placed in a surgically created opening (tracheostomy) in the windpipe to keep it open. Also called tracheostomy tube.

Trachea (TRAY-kee-uh): The airway that leads from the larynx (voice box) to the bronchi (large airways that lead to the lungs). Also called windpipe.

Tracheoesophageal puncture (TRAY-kee-oh-ee-SAH-fuh-JEE-ul PUNK-cher): A small opening made by a surgeon between the esophagus and the trachea. A valve keeps food out of the trachea but lets air into the esophagus for esophageal speech.

Tumor (TOO-mer): An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancer), or malignant (cancer). Also called neoplasm.

Virus (VY-rus): In medicine, a very simple microorganism that infects cells and may cause disease. Because viruses can multiply only inside infected cells, they are not considered to be alive.

Vocal cord (VOH-kul kord): One of two small bands of muscle within the larynx that vibrates to produce the voice.

X-ray: A type of high-energy radiation. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.

National Cancer Institute Publications

NCI provides publications about cancer, including the booklets and fact sheets mentioned in this booklet. Many are available in both English and Spanish.

You may read these publications online and print your own copy. Also, people in the United States and its territories may order NCI publications:

- **By telephone:** People in the United States and its territories may order these and other NCI publications by calling NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**.
- **On the Internet:** Many NCI publications may be viewed, downloaded, and ordered from **<http://www.cancer.gov/publications>**. This Web site also explains how people outside the United States can mail or fax their requests for NCI booklets.

Cancer Treatment and Supportive Care

- *How To Find a Doctor or Treatment Facility If You Have Cancer* (also in Spanish)
- *Radiation Therapy and You*
- *Chemotherapy and You*
- *Targeted Cancer Therapies*
- *Pain Control* (also in Spanish)
- *Eating Hints* (also in Spanish)

Coping with Cancer

- *Taking Time: Support for People with Cancer*

Life After Cancer Treatment

- *Facing Forward: Life After Cancer Treatment* (also in Spanish)
- *Follow-up Care After Cancer Treatment*
- *Facing Forward: Ways You Can Make a Difference in Cancer*

Advanced or Recurrent Cancer

- *Coping With Advanced Cancer*
- *When Cancer Returns*

Complementary Medicine

- *Thinking about Complementary & Alternative Medicine*

Caregivers

- *When Someone You Love Is Being Treated for Cancer: Support for Caregivers*
- *When Someone You Love Has Advanced Cancer: Support for Caregivers*
- *Facing Forward: When Someone You Love Has Completed Cancer Treatment*
- *Caring for the Caregiver: Support for Cancer Caregivers*

Quitting Smoking

- *Clearing the Air: Quit Smoking Today*

Research Studies

- *Taking Part in Cancer Treatment Research Studies*
- *Providing Your Tissue for Research: What You Need To Know*
- *Donating Tissue for Cancer Research: Biospecimens and Biorepositories*

National Institute on Deafness and Other Communication Disorders

The National Institute on Deafness and Other Communication Disorders (NIDCD) supports and conducts research and research training on the normal and disordered processes of hearing, balance, smell, taste, voice, speech, and language.

The Institute provides health information to the public, health professionals, patients, and industry representatives on the Internet and through the NIDCD Information Clearinghouse. Information specialists at the Clearinghouse are available by phone (toll-free), e-mail, and mail to help you find resources related to NIDCD's seven areas of research.

People who are undergoing treatment for laryngeal cancer may be interested in the following NIDCD fact sheets, available in both English and Spanish:

- Dysphagia
- Taking Care of Your Voice
- Taste Disorders
- Vocal Cord Paralysis

Materials are available online at **<http://www.nidcd.nih.gov>**, or by contacting the NIDCD Clearinghouse:

National Institute on Deafness and Other
Communication Disorders Clearinghouse
1 Communication Avenue
Bethesda, MD 20892-3456
Tel: 800-241-1044
TTY: 800-241-1055
E-mail: nidcdinfo@nidcd.nih.gov

The National Cancer Institute

The National Cancer Institute (NCI), part of the National Institutes of Health, is the Federal Government's principal agency for cancer research and training. NCI conducts and supports basic and clinical research to find better ways to prevent, diagnose, and treat cancer. The Institute also supports education and training for cancer research and treatment programs. In addition, NCI is responsible for communicating its research findings to the medical community and the public.

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