

National Cancer Institute

What You Need
To Know About™

Oral Cancer

**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.

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

- **Call** the NCI 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 oral *cancer*.* Oral cancer can develop in any part of the oral cavity (the mouth and lips) or the *oropharynx* (the part of the throat at the back of the mouth).

Each year in the United States, more than 21,000 men and 9,000 women are diagnosed with oral cancer. Most are over 60 years old.

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

- Treatment
- Nutrition
- Reconstruction 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.

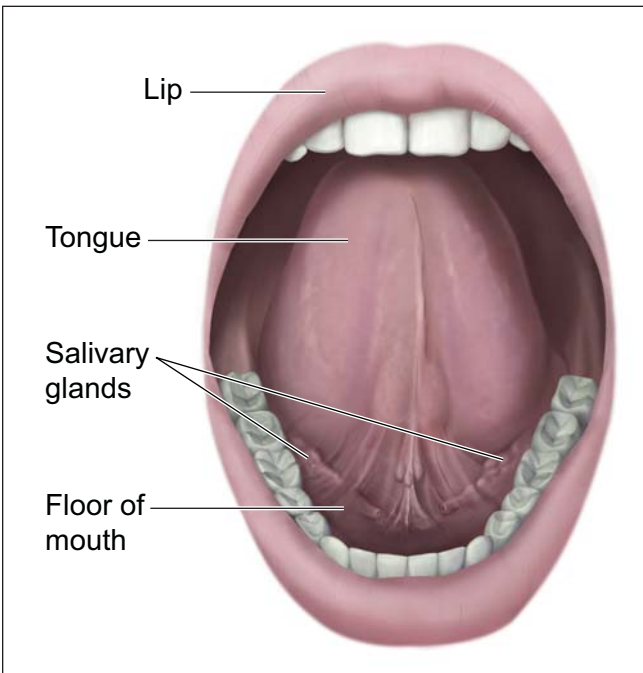
For the latest information about oral cancer, please visit the NCI Web site at <http://www.cancer.gov/cancertopics/types/oral>. Or, call the NCI Cancer Information Service. We can answer your questions about cancer. We can also send you NCI booklets and fact sheets. Call **1-800-4-CANCER (1-800-422-6237)** or instant message us through the **LiveHelp** service at <http://www.cancer.gov/help>.

*Words in *italics* are in the Dictionary on page 35. The Dictionary explains these terms. It also shows how to pronounce them.

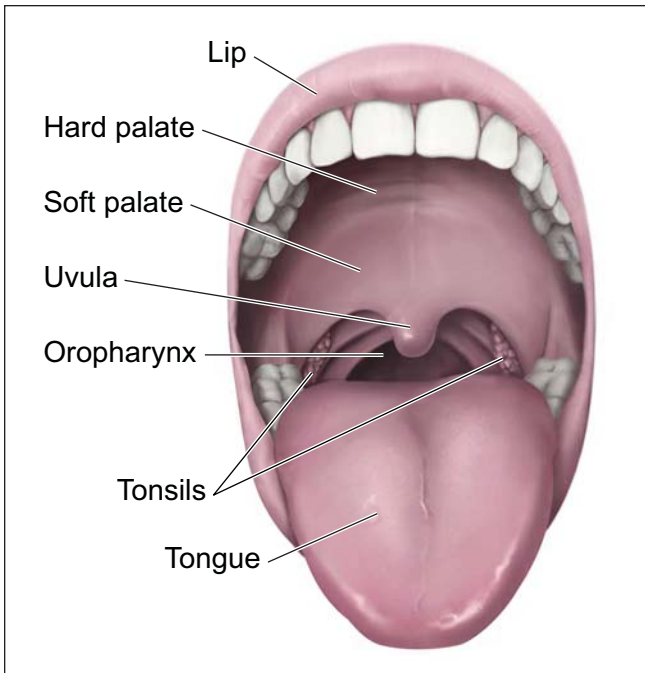
The Mouth and Throat

The pictures below show the many parts of your mouth and throat:

- Lips
- Gums and teeth
- Tongue
- Lining of your cheeks
- *Salivary glands* (*glands that make saliva*)
- Floor of your mouth (area under the tongue)



This picture shows the parts of your mouth, including the area under the tongue.



This picture shows the parts of your mouth and throat.

- Roof of your mouth (*hard palate*)
- *Soft palate*
- *Uvula*
- Oropharynx
- *Tonsils*

Cancer Cells

Cancer begins in *cells*, the building blocks that make up tissues. Tissues make up the 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 mouth or throat can be *benign* (not cancer) or *malignant* (cancer). Benign tumors are not as harmful as malignant tumors:

- **Benign tumors:**
 - are rarely a threat to life
 - can be removed and usually don't grow back
 - don't invade the tissues around them
 - don't spread to other parts of the body
- **Malignant tumors:**
 - may be a threat to life
 - can grow back after they are removed
 - can invade and damage nearby tissues and organs
 - can spread to other parts of the body

Almost all oral cancers begin in the flat cells (*squamous cells*) that cover the surfaces of the mouth, tongue, and lips. These cancers are called *squamous cell carcinomas*.

Oral cancer cells can spread by breaking away from the original tumor. They enter blood vessels or *lymph vessels*, which branch into all the tissues of the body. The cancer cells often appear first in nearby *lymph nodes* in the neck. The cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues.

The spread of cancer is called *metastasis*. See the Staging section on page 11 for information about oral cancer that has spread.

Risk Factors

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

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

Studies have found the following risk factors for oral cancer:

- **Tobacco:** Tobacco use causes most oral cancers. Smoking cigarettes, cigars, or pipes, or using smokeless tobacco (such as snuff and chewing tobacco) causes oral cancer. The use of other tobacco products (such as *bidis* and *kreteks*) may also increase the risk of oral cancer.

Heavy smokers who have smoked tobacco for a long time are most at risk for oral cancer. The risk is even higher for tobacco users who are heavy drinkers of alcohol. In fact, three out of four people with oral cancer have used tobacco, alcohol, or both.

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 cancer, quitting may reduce the chance of getting another cancer, lung disease, or heart disease caused by tobacco. Quitting can also 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 staff at the **NCI Smoking Quitline** at **1-877-44U-QUIT (1-877-448-7848)** or instant message them through **LiveHelp** (<http://www.cancer.gov/help>). They 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.

- **Heavy alcohol use:** People who are heavy drinkers are more likely to develop oral cancer than people who don't drink alcohol. The risk increases with the amount of alcohol that a person drinks. The risk increases even more if the person both drinks alcohol and uses tobacco.
- **HPV infection:** Some members of the HPV family of *viruses* can infect the mouth and throat. These viruses are passed from person to person through sexual contact. Cancer at the base of the tongue, at the back of the throat, in the tonsils, or in the soft palate is linked with HPV infection. The NCI fact sheet *Human Papillomaviruses and Cancer* has more information.
- **Sun:** Cancer of the lip can be caused by exposure to the sun. Using a lotion or lip balm that has a *sunscreen* can reduce the risk. Wearing a hat with a brim can also block the sun's harmful rays. The risk of cancer of the lip increases if the person also smokes.
- **A personal history of oral cancer:** People who have had oral cancer are at increased risk of developing another oral cancer. Smoking increases this risk.
- **Diet:** Some studies suggest that not eating enough fruits and vegetables may increase the chance of getting oral cancer.
- **Betel nut use:** Betel nut use is most common in Asia, where millions chew the product. It's a type of palm seed wrapped with a betel leaf and sometimes mixed with spices, sweeteners, and tobacco. Chewing betel nut causes oral cancer. The risk increases even more if the person also drinks alcohol and uses tobacco.

The more risk factors that a person has, the greater the chance that oral cancer will develop. However, most people with known risk factors for oral cancer don't develop the disease.

Symptoms

Symptoms of oral cancer may include:

- Patches inside your mouth or on your lips:
 - White patches (*leukoplakia*) are the most common. White patches sometimes become malignant.
 - Mixed red and white patches (*erythroleukoplakia*) are more likely than white patches to become malignant.
 - Red patches (*erythroplakia*) are brightly colored, smooth areas that often become malignant.
- A sore on your lip or in your mouth that doesn't heal
- Bleeding in your mouth
- Loose teeth
- Difficulty or pain when swallowing
- Difficulty wearing dentures
- A lump in your neck
- An earache that doesn't go away
- Numbness of lower lip and chin

Most often, these symptoms are not from oral cancer. Another health problem can cause them. Anyone with these symptoms should tell their doctor or dentist so that problems can be diagnosed and treated as early as possible.

Diagnosis

If you have symptoms that suggest oral cancer, your doctor or dentist will check your mouth and throat for red or white patches, lumps, swelling, or other problems. A physical exam includes looking carefully at the roof of your mouth, back of your throat, and insides of your cheeks and lips. Your doctor or dentist also will gently pull out your tongue so it can be



checked on the sides and underneath. The floor of your mouth and lymph nodes in your neck will also be checked.

If your doctor or dentist does not find the cause of your symptoms, you may be referred to a specialist. An ear, nose, and throat specialist can see the back of your nose, tongue, and throat by using a small, long-handled mirror or a lighted tube. Sometimes pictures need to be made with a *CT scan* or *MRI* to find a hidden tumor. (Page 11 describes imaging tests.)

The removal of a small piece of tissue to look for cancer cells is called a *biopsy*. Usually, a biopsy is done with *local anesthesia*. Sometimes, it's done 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 the doctor or dentist 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 be awake? Will it hurt?
- How soon will I know the results?
- Are there any risks? What are the chances of infection or bleeding after the biopsy?
- How should I care for the biopsy site afterward? How long will it take to heal?
- Will I be able to eat and drink normally after the biopsy?
- If I do have cancer, who will talk with me about treatment? When?

Staging

If oral cancer is diagnosed, your doctor needs to learn the extent (stage) of the disease to help you choose the best treatment. When oral 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.

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

Your doctor may order one or more of the following tests:

- **X-rays:** An x-ray of your entire mouth can show whether cancer has spread to the jaw. Images of your chest and lungs can show whether cancer has spread to these areas.
- **CT scan:** An x-ray machine linked to a computer takes a series of detailed pictures of your body. You may receive an injection of dye. Tumors in your mouth, throat, neck, lungs, or elsewhere in the body can show up on the CT scan.
- **MRI:** A powerful magnet linked to a computer is used to make detailed pictures of your body. An MRI can show whether oral cancer has spread.

- **Endoscopy:** The doctor uses a thin, lighted tube (*endoscope*) to check your throat, windpipe, and lungs. The doctor inserts the endoscope through your nose or mouth. Local anesthesia is used to ease your discomfort and prevent you from gagging. Some people also may be given a mild sedative. Sometimes the doctor uses general anesthesia to put a person to sleep. This exam may be done in a doctor's office, an outpatient clinic, or a hospital.
- **PET scan:** You receive an injection of a small amount of *radioactive* sugar. The radioactive sugar gives off signals that the PET scanner picks up. The PET scanner makes a picture of the places in your body where the sugar is being taken up. Cancer cells show up brighter in the picture because they take up sugar faster than normal cells do. A PET scan shows whether oral cancer may have spread.

Doctors describe the stage of oral cancer based on the size of the tumor, whether it has invaded nearby tissues, and whether it has spread to the lymph nodes or other tissues:

- **Early cancer:** Stage I or II oral cancer is usually a small tumor (smaller than a walnut), and no cancer cells are found in the lymph nodes.
- **Advanced cancer:** Stage III or IV oral cancer is usually a large tumor (as big as a lime). The cancer may have invaded nearby tissues or spread to lymph nodes or other parts of the body.

Treatment

People with early oral cancer may be treated with *surgery* or *radiation therapy*. People with advanced oral cancer may have a combination of treatments. For example, radiation therapy and *chemotherapy* are often given at the same time. Another treatment option is *targeted therapy*.

The choice of treatment depends mainly on your general health, where in your mouth or throat the cancer began, the size of the tumor, and whether the cancer has spread.

Many doctors encourage people with oral cancer to consider 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 oral cancer. See the Taking Part in Cancer Research section on page 33.

Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat oral cancer include:

- Head and neck *surgeons*
- Dentists who specialize in surgery of the mouth, face, and jaw (*oral and maxillofacial surgeons*)
- Ear, nose, and throat doctors (*otolaryngologists*)
- *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 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. You and your health care team can work together to develop a treatment plan that meets your needs.

Oral cancer and its treatment can lead to other health problems. For example, radiation therapy and chemotherapy for oral cancer can cause dental problems. That's why it's important to get your mouth in good condition before cancer treatment begins. See a dentist for a thorough exam one month, if possible, before starting cancer treatment to give your mouth time to heal after needed dental work.

Before, during, and after cancer treatment, you can have *supportive care* to control pain and other symptoms, to relieve the side effects of therapy, and to help you cope with the feelings that a diagnosis of cancer can bring. You can get information about supportive care on the NCI Web site at **<http://www.cancer.gov/cancerinfo/coping>** and from the NCI Cancer Information Service at **1-800-4-CANCER** or **LiveHelp (<http://www.cancer.gov/help>)**.

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

- What is the stage of the disease? Has the oral cancer spread? If so, where?
- What is the goal of treatment? What are my treatment choices? Which do you recommend for me? Will I have more than one type of treatment?
- What are the expected benefits of each type of treatment?
- What are the risks and possible side effects of each treatment? How can side effects be managed?
- Should I see a dentist before treatment begins? Can you recommend a dentist who has experience working with people who have oral cancer?
- Will I need to stay in the hospital? If so, for how long?
- If I have pain, how will it be controlled?
- What will the treatment cost? Will my insurance cover it?
- How will treatment affect my normal activities?
- Would a clinical trial (research study) be appropriate for me?
- How often will I need checkups?
- Can you recommend other doctors who could give me a second opinion about my treatment options?

Surgery

Surgery to remove the tumor in the mouth or throat is a common treatment for oral cancer. Sometimes the surgeon also removes lymph nodes in the neck. Other tissues in the mouth and neck may be removed as well. You may have surgery alone or in combination with radiation therapy.

It takes time to heal after surgery, and the time needed to recover is different for each person. You may have pain for the first few days after surgery. However, medicine can usually control the 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 relief.

It's common to feel tired or weak for a while after surgery. Also, surgery may cause tissues in your face to swell. This swelling usually goes away within a few weeks. However, removing lymph nodes can result in swelling that lasts a long time.

Surgery to remove a small tumor in your mouth may not cause any lasting problems. For a larger tumor, however, the surgeon may remove part of the palate, tongue, or jaw. This surgery may change your ability to chew, swallow, or talk. Also, your face may look different after surgery. You may have reconstructive or plastic surgery to rebuild the bones or tissues of the mouth. (See the Reconstruction section on page 29.)

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

- Do you recommend surgery to remove the tumor? If so, do I need any lymph nodes removed? Will other tissues in my mouth or neck need to be removed?
- 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 specialist for help?
- Will I look different after surgery? Where will the scars be?
- Will I need reconstructive or plastic surgery? When can that be done?
- Will I lose my teeth? Can they be replaced? How soon?

Radiation Therapy

Radiation therapy uses high-energy rays to kill cancer cells. It's an option for small tumors or for people who can't have surgery. Or, it may be used before surgery to shrink the tumor. It also may be used after surgery to destroy cancer cells that may remain in the area.

Doctors use two types of radiation therapy to treat oral cancer. Some people with oral cancer have both types:

- ***External radiation therapy***: The radiation comes from a machine. Some treatment centers offer *IMRT*, which uses a computer to more closely target the oral tumor to lessen the damage to healthy tissue. 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.
- ***Internal radiation therapy (implant radiation therapy or brachytherapy)***: Internal radiation therapy isn't commonly used for oral cancer. The radiation comes from radioactive material in seeds, wires, or tubes put directly in the mouth or throat tissue. You may need to stay in the hospital for several days. Usually the radioactive material is removed before you go home.

The side effects of radiation therapy depend mainly on the amount of radiation given. Radiation therapy may cause mouth and dental problems:

- **Sore throat or mouth**: Radiation therapy can cause painful ulcers and inflammation in the mouth and throat. Your doctor can suggest medicines to help control the pain. Your doctor also may suggest special rinses to numb the throat and mouth to help relieve the soreness. If your pain continues, you can ask your doctor about stronger medicines.
- **Dry mouth**: A dry mouth can make it hard for you to eat, talk, and swallow. It can also lead to tooth decay. You may find it helpful to drink lots of water, suck ice chips or sugar-free hard candy, and use a saliva substitute to moisten your mouth.

- **Tooth decay:** Cavities may be a significant problem after radiation therapy. Good mouth care can help you keep your teeth and gums healthy and can help you feel better.
 - Doctors usually suggest that people gently brush their teeth, gums, and tongue with an extra-soft toothbrush and *fluoride* toothpaste after every meal and before bed. If brushing hurts, you can soften the bristles in warm water.
 - Your dentist may suggest that you use fluoride gel on your teeth before, during, and after radiation treatment.
 - It also helps to rinse your mouth several times a day with a solution made from 1/4 teaspoon of baking soda and 1/4 teaspoon of salt in one quart of warm water. After you rinse with this solution, follow with a plain water rinse.
- **Sore or bleeding gums:** It's important to brush and floss teeth gently. You may want to avoid brushing and flossing areas that are sore or bleeding. To protect your gums from damage, avoid using toothpicks.
- **Infection:** Dry mouth and damage to the lining of your mouth from radiation therapy can cause infection to develop. Check your mouth every day for sores or other changes, and tell your doctor or nurse about any mouth problems.
- **Delayed healing after dental care:** It's important to have all needed dental treatment completed one month before radiation therapy to allow time for the mouth to heal. Dental treatment after radiation therapy can be complicated by slow healing and the risk of infection.

- **Jaw stiffness:** Radiation therapy can affect the chewing muscles and make it difficult for you to open your mouth. Ask your health care team to show you how to prevent or reduce stiffness by exercising your jaw muscles. For example, they may suggest opening and closing the mouth as far as possible (without causing pain) 20 times in a row, 3 times a day.
- **Denture problems:** Radiation therapy can change the tissues in your mouth so that dentures don't fit anymore. Because of soreness and dry mouth, some people may not be able to wear dentures for as long as one year after radiation therapy. After the tissues heal completely and your mouth is no longer sore, your dentist may need to refit or replace your dentures.

In addition to mouth and dental problems, radiation therapy aimed at the head and neck may cause other problems:

- **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.
- **Changes in how food tastes and smells:** Radiation therapy for oral cancer may cause food to taste or smell different. These changes can last for several months, especially if radiation therapy is given at the same time as chemotherapy.
- **Changes in voice quality:** Your voice may be weak at the end of the day. It may also be affected by changes in the weather. Radiation therapy directed at the neck may cause your larynx (voice box) to swell, causing voice changes and the feeling of a lump in your throat. Your doctor may suggest medicine to reduce this swelling.

- **Skin changes in the treated area:** The skin in the treated area may become red or dry. Good skin care is important. It's helpful to expose this area to the air while protecting it from the sun. Also, avoid wearing clothes that rub the treated area, and don't shave the treated area. You should not use lotions or creams in the treated area without your doctor's advice. These skin changes should go away when treatment ends, but a long-term effect is that hair may not grow back in the moustache or beard area.
- **Weight loss:** You may lose weight if you have eating problems from a sore throat and trouble swallowing. Your health care team may suggest a feeding tube to help prevent weight loss. See the Nutrition section on page 28.
- **Changes in the thyroid:** Radiation therapy can affect your thyroid (an organ in your neck beneath the voice box). If your thyroid does not 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.

Some side effects in the mouth go away after radiation therapy ends, but others last a long time. A few side effects (such as dry mouth) may never go away. 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?
- Will I need a special diet? For how long?
- How will my mouth and face look afterward?
- Are there any long-term effects?

Chemotherapy

Chemotherapy uses drugs to kill cancer cells. The drugs that treat oral 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.

Chemotherapy and radiation therapy can cause some of the same side effects, including painful mouth and gums, dry mouth, infection, and changes in taste. Some anticancer drugs can cause bleeding in the mouth and a deep pain that feels like a toothache.

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.

Some drugs used for oral 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 oral cancer receive a type of drug known as targeted therapy. It may be given along with radiation therapy or chemotherapy.

Cetuximab (Erbix) was the first targeted therapy approved for oral cancer. Cetuximab binds to oral 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 before having chemotherapy or targeted therapy:

- Which drug or drugs will I have?
- What are the expected benefits of treatment?
- What are the risks and possible side effects of treatment? What can I do about them?
- When will treatment start? When will it end?
- How will treatment affect my normal activities?



Second Opinion

Before starting treatment, you might want a second opinion about your diagnosis, the stage of cancer, and the treatment plan. You may even want to talk to several different doctors about all of the treatment options, their side effects, and the expected results. For example, you may wish to discuss your treatment plan with a surgeon, radiation oncologist, and medical oncologist.

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 your options.

It may take some time and effort to gather your medical records and see another doctor. In most cases, it's not a problem to take several weeks to get a second opinion. 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. You may want to find a medical center that has a lot of experience treating people with oral cancer.

The NCI Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)** or **LiveHelp** (<http://www.cancer.gov/help>) can tell you about nearby treatment centers. 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 treatment for oral cancer. You need the right amount of calories, protein, vitamins, and minerals to maintain your strength and to heal.

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

Tell your health care team if you're having any problems eating, drinking, or digesting your food. 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.

Sore Mouth

If your mouth is sore, you may find that you want to avoid acidic foods, such as oranges and tomatoes. Also, to protect your mouth during cancer treatment, it helps to avoid sharp, hard foods, such as chips.

Dry Mouth

If your mouth is dry, you may find that soft foods moistened with sauces or gravies are easier to eat. Smooth soups, puddings, milkshakes, and blended fruit smoothies often are easier to swallow. Also, meal replacement products (such as instant breakfast, Boost[®], or Ensure[®]) may be helpful.

Keep in mind that a dry mouth puts you at greater risk for tooth decay (cavities). Rinse your mouth often, especially after eating or drinking sweet foods.

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 oral 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 at mealtime. When not in use, the small tube attached to your stomach is not visible to others.

Reconstruction

Some people with oral cancer may need to have plastic or reconstructive surgery to rebuild the bones or tissues of the mouth. Research has led to many advances in the way bones and tissues can be rebuilt.

Some people may need *dental implants*. Or they may need to have *grafts* (tissue moved from another part of the body). Skin, muscle, and bone can be moved to the mouth from the chest, arm, or leg. The plastic surgeon uses this tissue for repair.

If you're thinking about reconstruction, you may wish to consult with a plastic or reconstructive surgeon before your treatment for oral cancer begins. You can have reconstructive 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.

Rehabilitation

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.

If oral cancer or its treatment leads to problems with talking, speech therapy will generally begin as soon as possible. A speech therapist may see you in the hospital to plan therapy and teach speech exercises. Speech therapy may continue after you return home.

Some people will need a *prosthesis* to help them talk and eat as normally as possible. A prosthesis is an artificial device that replaces the missing teeth or tissues of the mouth. For example, if part of the palate is removed, a dentist with special training (a *prosthodontist*) may be able to fit you with a plastic device that replaces the missing tissue.

Follow-up Care

You'll need regular checkups of your mouth, throat, and neck after treatment for oral cancer. Checkups help ensure that any changes in your health are noted and treated if needed. Checkups may include a physical exam, blood tests, chest x-rays, or CT scans.

If you have any health problems between checkups, you should contact your doctor.

People who have had oral 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 to stop using tobacco and stop drinking alcohol to cut down the risk of a new cancer and other health problems.

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 oral 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 your treatment and its side effects. They can talk with you about how treatment may affect your work schedule and 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 the disease 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.
- Information specialists at **1-800-4-CANCER** and at **LiveHelp** (<http://www.cancer.gov/help>) can help you locate programs, services, and publications. They can send you a list of organizations that offer services to people with cancer.

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

Taking Part in Cancer Research

Cancer research has led to real progress in oral cancer detection and treatment. Because of research, people with oral cancer can look forward to a better quality of life. Continuing research offers hope that, in the future, even more people with this disease will be treated successfully.

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 approaches are safe and effective.

Doctors are testing chemotherapy, targeted therapy, and combinations of drugs for oral cancer. They are studying radiation therapy combined with drugs and other treatments. Doctors are also testing drugs that prevent or reduce the side effects of radiation therapy.

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

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.

The NCI 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 of oral cancer. The NCI Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)** or at **LiveHelp** (<http://www.cancer.gov/help>) can answer questions and provide information about clinical trials.

Dictionary

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

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

Bidi: A cigarette made by rolling tobacco by hand in a dried leaf from the tendu tree (a member of the ebony family). Most bidis are made in India and they come in different flavors.

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. There are many different types of biopsy procedures. The most common types include: (1) incisional biopsy, in which only a sample of tissue is removed; (2) excisional biopsy, in which an entire lump or suspicious area is removed; and (3) needle biopsy, in which a sample of tissue or fluid is removed with a needle. When a wide needle is used, the procedure is called a core biopsy. When a thin needle is used, the procedure is called a fine-needle aspiration biopsy.

Brachytherapy (BRAY-kee-THAYR-uh-pee): A type of radiation therapy in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called implant radiation therapy, internal radiation therapy, and radiation brachytherapy.

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.

Cell: 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. Cetuximab binds to the epidermal growth factor receptor (EGFR), which is found on the surface of some types of cancer cells. Also called Erbitux.

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

Clinical trial: 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.

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.

Dental implant: A metal device that is surgically placed in the jawbone. It acts as an anchor for an artificial tooth or teeth.

Dentist: A health professional who specializes in caring for the 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.

Endoscope (EN-doh-SKOPE): A thin, tube-like instrument used to look at tissues inside the body. An endoscope has a light and a lens for viewing and may have a tool to remove tissue.

Endoscopy (en-DOSS-koh-pee): A procedure that uses an endoscope to examine the inside of the body. An endoscope is a thin, tube-like instrument with a light and a lens for viewing. It may also have a tool to remove tissue to be checked under a microscope for signs of disease.

Erythroleukoplakia (eh-RITH-roh-LOO-koh-PLAY-kee-uh): An abnormal patch of red and white tissue that forms on mucous membranes in the mouth and may become cancerous. Tobacco (smoking and chewing) and alcohol may increase the risk of erythroleukoplakia.

Erythroplakia (eh-RITH-roh-PLAY-kee-uh): An abnormal patch of red tissue that forms on mucous membranes in the mouth and may become cancerous. Tobacco (smoking and chewing) and alcohol may increase the risk of erythroplakia.

External radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy that uses a machine to aim high-energy rays at the cancer from outside of the body. Also called external-beam radiation therapy.

Fluoride (FLOOR-ide): A form of the element fluorine that helps prevent tooth decay. Fluoride may be naturally present in drinking water or may be added to it. Fluoride may also be put directly on the teeth, as a gel, toothpaste, or a rinse.

General anesthesia (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.

Gland: An organ that makes one or more substances, such as hormones, digestive juices, sweat, tears, saliva, or milk.

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body.

Hard palate (PAL-et): The front, bony part of the roof of the mouth.

HPV: A member of a family of viruses that can cause abnormal tissue growth (for example, genital warts) and other changes to cells. Infection with certain types of HPV increases the risk of developing cervical cancer. Also called human papillomavirus.

Implant radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, internal radiation therapy, and radiation brachytherapy.

IMRT: A type of 3-dimensional radiation therapy that uses computer-generated images to show the size and shape of the tumor. Thin beams of radiation of different intensities are aimed at the tumor from many angles.

This type of radiation therapy reduces the damage to healthy tissue near the tumor. Also called intensity-modulated radiation therapy.

Internal radiation therapy (in-TER-nul RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, implant radiation therapy, and radiation brachytherapy.

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.

Kretek: A cigarette made of a mixture of tobacco and clove.

Leukoplakia (LOO-koh-PLAY-kee-uh): An abnormal patch of white tissue that forms on mucous membranes in the mouth and other areas of the body. It may become cancerous. Tobacco (smoking and chewing) and alcohol may increase the risk of leukoplakia in the mouth.

Local anesthesia (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, targeted therapy, hormonal therapy, and biological 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.

Metastasis (meh-TAS-tuh-sis): The spread of cancer from one part of the body to another. A tumor formed by cells that have spread is called a “metastatic tumor” or a “metastasis.” The metastatic tumor contains cells that are like those in the original (primary) tumor. The plural form of metastasis is metastases (meh-TAS-tuh-SEEZ).

Metastatic (meh-tuh-STA-tik): Having to do with metastasis, which is the spread of cancer from one part of the body to another.

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 computed tomography (CT) 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, NMRI, and nuclear magnetic resonance imaging.

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

Oral and maxillofacial surgeon: A dentist who specializes in surgery of the mouth, face, and jaw.

Oropharynx (OR-oh-FAYR-inks): The part of the throat at the back of the mouth behind the oral cavity. It includes the back third of the tongue, the soft palate, the side and back walls of the throat, and the tonsils.

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.

PET scan: A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerized pictures of areas inside the body where the glucose is used. Because cancer cells often use more glucose than normal cells, the pictures can be used to find cancer cells in the body. Also called positron emission tomography scan.

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.

Prosthesis (pros-THÉE-sis): A device, such as an artificial leg, that replaces a part of the body.

Prosthodontist (pros-tho-DON-tist): A dentist who specializes in replacing missing teeth or other structures of the mouth to restore an individual's appearance or function.

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. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that travels in the blood to tissues throughout the body. Also called irradiation and radiotherapy.

Radioactive (RAY-dee-oh-AK-tiv): Giving off radiation.

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 may increase the chance of developing a disease. Some examples of risk factors for cancer include age, a family history of certain cancers, use of tobacco products, certain eating habits,

obesity, lack of exercise, exposure to radiation or other cancer-causing agents, and certain genetic changes.

Saliva (suh-LIE-vuh): The watery fluid in the mouth made by the salivary glands. Saliva moistens food to help digestion and it helps protect the mouth against infections.

Salivary gland (SA-lih-VAYR-ee gland): A gland in the mouth that produces saliva.

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.

Soft palate (PAL-et): The back, muscular (not bony) part of the roof of the mouth.

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

Squamous cell (SKWAY-mus sel): Flat cell that looks like a fish scale under a microscope. These cells cover inside and outside surfaces of the body. They are found in the tissues that form the surface of the skin, the lining of the hollow organs of the body (such as the bladder, kidney, and uterus), and the passages of the respiratory and digestive tracts.

Squamous cell carcinoma (SKWAY-mus sel KAR-sih-NOH-muh): Cancer that begins in squamous cells, which are thin, flat cells that look like fish scales. Squamous cells are found in the tissue that forms the surface of the skin, the lining of the hollow organs of the body, and the passages of the respiratory and digestive tracts.

Sunscreen: A substance that helps protect the skin from the sun's harmful rays. Sunscreens reflect, absorb, and scatter both ultraviolet A and B radiation to provide protection against both types of radiation. Using lotions, creams, or gels that contain sunscreens can help protect the skin from premature aging and damage that may lead to skin cancer.

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.

Surgeon: 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.

Tonsil: One of two small masses of lymphoid tissue on either side of the throat.

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.

Uvula: The soft flap of tissue that hangs down at the back of the mouth (at the edge of the soft palate). Also called palatine uvula.

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.

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 order these publications by telephone, on the Internet, or by mail. You may also read them online and print your own copy.

- **By telephone:** People in the United States and its territories may order these and other NCI publications by calling the NCI 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>** on the Internet. People in the United States and its territories may use this Web site to order printed copies. This Web site also explains how people outside the United States can mail or fax their requests for NCI booklets.
- **By mail:** NCI publications may be ordered by writing to the address below:
Publications Ordering Service
National Cancer Institute
P.O. Box 24128
Baltimore, MD 21227

Clinical Trials

- *Taking Part in Cancer Treatment Research Studies*

Finding a Doctor, Support Groups, or Other Organizations

- *How To Find a Doctor or Treatment Facility If You Have Cancer* (also in Spanish)
- *National Organizations That Offer Services to People With Cancer and Their Families* (also in Spanish)

Cancer Treatment and Supportive Care

- *Radiation Therapy and You* (also in Spanish)
- *Understanding Radiation Therapy: What To Know About External Beam Radiation Therapy* (also in Spanish)
- *Chemotherapy and You* (also in Spanish)
- *Targeted Cancer Therapies*
- *Eating Hints for Cancer Patients* (also in Spanish)
- *Pain Control* (also in Spanish)

Coping with Cancer

- *Taking Time: Support for People with Cancer*
- *Managing Radiation Therapy Side Effects: What To Do When You Feel Weak or Tired (Fatigue)* (also in Spanish)

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: A guide for people with cancer*
- *Complementary and Alternative Medicine in Cancer Treatment (also in Spanish)*

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*

Risk Factors

- *Human Papillomaviruses and Cancer*
- *Smokeless Tobacco and Cancer*

Quitting Smoking

- *Clearing the Air: Quit Smoking Today*
- *You Can Quit Smoking*

National Institute of Dental and Craniofacial Research

The mission of the National Institute of Dental and Craniofacial Research (NIDCR) is to improve oral, dental, and craniofacial health through research and research training, and by sharing science-based information with the public and health care professionals.

Oral Complications of Cancer Treatment

Radiation therapy aimed at the head and neck and chemotherapy can cause problems in the mouth and throat. NIDCR can supply free information about taking care of your mouth during cancer treatment. Booklets are available in English and Spanish:

- *Chemotherapy and Your Mouth*
- *Head and Neck Radiation Treatment and Your Mouth*
- *Three Good Reasons to See a Dentist BEFORE Cancer Treatment*

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

National Institute of Dental and Craniofacial
Research
National Oral Health Information Clearinghouse
1 NOHIC Way
Bethesda, MD 20892-3500
Tel: 1-866-232-4528
Fax: 301-480-4098
Email: nidcrinfo@mail.nih.gov

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 oral 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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National Institute of Dental
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