



What

You

Need

To

Know

About™

Oral

Cancer

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
National Institutes of Health
National Cancer Institute
National Institute of Dental
and Craniofacial Research

This booklet is about oral cancer. The Cancer Information Service can help you learn more about this disease. The staff can talk with you in English or Spanish.

The number is 1-800-4-CANCER (1-800-422-6237). The number for deaf and hard of hearing callers with TTY equipment is 1-800-332-8615. The call is free.

Este folleto es acerca del cáncer de la boca. Llame al Servicio de Información sobre el Cáncer para saber más sobre esta enfermedad. Este servicio tiene personal que habla español.

El número a llamar es el 1-800-4-CANCER (1-800-422-6237). Personas con problemas de audición y que cuentan con equipo TTY pueden llamar al 1-800-332-8615. La llamada es gratis.

Contents

The Mouth and Throat	2
Understanding Cancer	3
Oral Cancer: Who's at Risk?	5
Early Detection	8
Symptoms	8
Diagnosis	9
Staging	11
Treatment	12
Side Effects of Cancer Treatment	20
Nutrition	25
Reconstruction	27
Rehabilitation	27
Follow-up Care	28
Support for People with Oral Cancer	29
The Promise of Cancer Research	30
Dictionary	32
National Cancer Institute Information Resources	43
National Institute of Dental and Craniofacial Research Information Resources	47

What You Need To Know About™ Oral Cancer

Each year in the United States, about 29,000 people learn they have *cancer** of the oral cavity (the mouth and lips) or the oropharynx (the part of the throat at the back of the mouth).

This National Cancer Institute (NCI) booklet has important information to help people with oral cancer and their family and friends better understand this disease. It discusses possible causes, symptoms, diagnosis, and treatment of the disease. It also has information about rehabilitation and about sources of support to help patients cope with oral cancer.

Scientists are studying oral cancer to learn more about this disease, and doctors are exploring new ways to treat it. This research keeps increasing our knowledge about oral cancer. The NCI provides the most up-to-date information by telephone and on the Internet:

- **Telephone (1-800-4-CANCER):** Information Specialists at NCI's Cancer Information Service can answer questions about cancer and can send materials published by NCI.
- **Internet (<http://cancer.gov>):** Cancer.gov is NCI's Web site. It has a wide range of information that is updated regularly. People can ask questions online and get immediate help through *LiveHelp*. Many NCI booklets and fact sheets can be viewed at <http://cancer.gov/publications>. People in the United

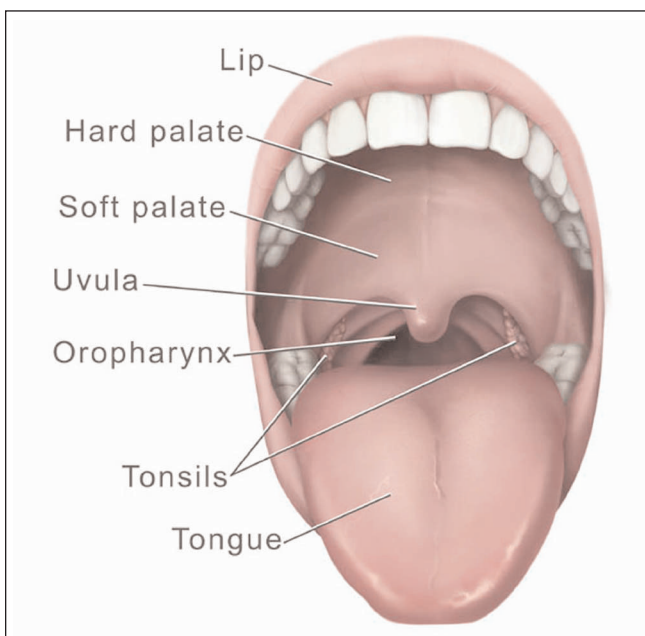
*Words that may be new to readers appear in *italics*. The "Dictionary" section explains these terms. Some words in the "Dictionary" have a "sounds-like" spelling to show how to pronounce them.

States and its territories may use this Web site to order publications. This Web site also explains how people outside the United States can mail or fax their requests for NCI publications.

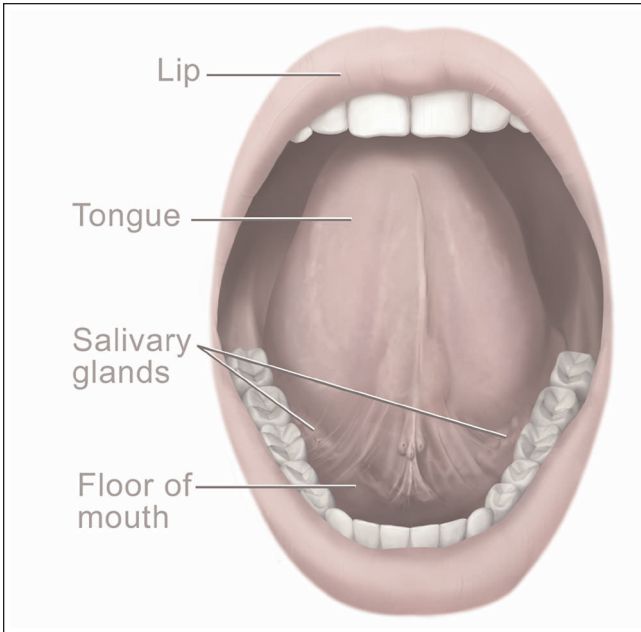
The Mouth and Throat

This booklet is about cancers that occur in the mouth (*oral cavity*) and the part of the throat at the back of the mouth (*oropharynx*). The oral cavity and oropharynx have many parts:

- Lips
- Lining of your cheeks
- *Salivary glands* (*glands* that make *saliva*)
- Roof of your mouth (*hard palate*)



This picture shows the parts of the mouth and throat.



This picture shows area under the tongue.

- Back of your mouth (*soft palate* and *uvula*)
- Floor of your mouth (area under the tongue)
- Gums and teeth
- Tongue
- *Tonsils*

Understanding Cancer

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

Normally, cells grow and divide to form new cells as the body needs them. When cells grow old, they die, and new cells take their place.

Sometimes this orderly process goes wrong. New cells form when the body does not need them, and old cells do not die when they should. These extra cells can form a mass of tissue called a growth or *tumor*.

Tumors can be *benign* or *malignant*:

- **Benign tumors** are not cancer:
 - Benign tumors are rarely life-threatening.
 - Generally, benign tumors can be removed, and they usually do not grow back.
 - Cells from benign tumors do not invade the tissues around them.
 - Cells from benign tumors do not spread to other parts of the body.
- **Malignant tumors** are cancer:
 - Malignant tumors are generally more serious than benign tumors. They may be life-threatening.
 - Malignant tumors often can be removed, but sometimes they grow back.
 - Cells from malignant tumors can invade and damage nearby tissues and organs.
 - Cells from malignant tumors can spread to other parts of the body. The cells spread by breaking away from the original cancer (*primary tumor*) and entering the bloodstream or *lymphatic system*. They invade other organs, forming new tumors and damaging these organs. The spread of cancer is called *metastasis*.

Oral Cancer

Oral cancer is part of a group of cancers called *head and neck cancers*. Oral cancer can develop in any part of the oral cavity or oropharynx. Most oral cancers begin in the tongue and in the floor of the mouth.

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*.

When oral cancer spreads (metastasizes), it usually travels through the lymphatic system. Cancer cells that enter the lymphatic system are carried along by *lymph*, a clear, watery fluid. The cancer cells often appear first in nearby *lymph nodes* in the neck.

Cancer cells can also spread to other parts of the neck, the lungs, and other parts of the body. When this happens, the new tumor has the same kind of abnormal cells as the primary tumor. For example, if oral cancer spreads to the lungs, the cancer cells in the lungs are actually oral cancer cells. The disease is metastatic oral cancer, not lung cancer. It is treated as oral cancer, not lung cancer. Doctors sometimes call the new tumor “distant” or metastatic disease.

Oral Cancer: Who’s at Risk?

Doctors cannot always explain why one person develops oral cancer and another does not. However, we do know that this disease is not contagious. You cannot “catch” oral cancer from another person.

Research has shown that people with certain *risk factors* are more likely than others to develop oral cancer. A risk factor is anything that increases your chance of developing a disease.

The following are risk factors for oral cancer:

- **Tobacco:** Tobacco use accounts for most oral cancers. Smoking cigarettes, cigars, or pipes; using chewing tobacco; and dipping snuff are all linked to oral cancer. The use of other tobacco products (such as *bidis* and *kreteks*) may also increase the risk of oral cancer. Heavy smokers who use tobacco for a long time are most at risk. The risk is even higher for tobacco users who drink alcohol heavily. In fact, three out of four oral cancers occur in people who use alcohol, tobacco, or both alcohol and tobacco.
- **Alcohol:** People who drink alcohol are more likely to develop oral cancer than people who don't drink. The risk increases with the amount of alcohol that a person consumes. The risk increases even more if the person both drinks alcohol and uses tobacco.
- **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 head and neck cancer:** People who have had head and neck cancer are at increased risk of developing another primary head and neck cancer. Smoking increases this risk.

Some studies suggest that not eating enough fruits and vegetables may increase the chance of getting oral cancer. Scientists also are studying whether infections with certain *viruses* (such as the *human papilloma-virus*) are linked to oral cancer.

Quitting tobacco reduces the risk of oral cancer. Also, quitting reduces the chance that a person with oral cancer will get a second cancer in the head and neck region. People who stop smoking can also reduce their risk of cancer of the lung, larynx, mouth, pancreas, bladder, and esophagus. There are many resources to help smokers quit:

- The Cancer Information Service at 1-800-4-CANCER can talk with callers about ways to quit smoking and about groups that offer help to smokers who want to quit. Groups offer counseling in person or by telephone.
- Also, your doctor or dentist can help you find a local smoking cessation program.
- Your doctor can tell you about medicine (*bupropion*) or about nicotine replacement therapy, which comes as a patch, gum, lozenges, nasal spray, or inhaler.
- The “National Cancer Institute Information Resources” section on page 43 has information about the Federal Government’s smoking cessation Web site, <http://www.smokefree.gov>.

If you think you may be at risk, you should discuss this concern with your doctor or dentist. You may want to ask about an appropriate schedule for checkups. Your health care team will probably tell you that not using tobacco and limiting your use of alcohol are the most important things you can do to prevent oral cancers. Also, if you spend a lot of time in the sun, using a lip balm that contains sunscreen and wearing a hat with a brim will help protect your lips.

Early Detection

Your regular checkup is a good time for your dentist or doctor to check your entire mouth for signs of cancer. Regular checkups can detect the early stages of oral cancer or conditions that may lead to oral cancer. Ask your doctor or dentist about checking the tissues in your mouth as part of your routine exam.

Symptoms

Common symptoms of oral cancer include:

- Patches inside your mouth or on your lips that are white, a mixture of red and white, or red
 - 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 won't heal
- Bleeding in your mouth
- Loose teeth
- Difficulty or pain when swallowing
- Difficulty wearing dentures
- A lump in your neck
- An earache

Anyone with these symptoms should see a doctor or dentist so that any problem can be diagnosed and treated as early as possible. Most often, these symptoms do not mean cancer. An infection or another problem can cause the same symptoms.

Diagnosis

If you have symptoms that suggest oral cancer, the doctor or dentist checks your mouth and throat for red or white patches, lumps, swelling, or other problems. This exam includes looking carefully at the



roof of the mouth, back of the throat, and insides of the cheeks and lips. The doctor or dentist also gently pulls out your tongue so it can be checked on the sides and underneath. The floor of your mouth and lymph nodes in your neck also are checked.

If an exam shows an abnormal area, a small sample of tissue may be removed. Removing tissue to look for cancer cells is called a *biopsy*. Usually, a biopsy is done with *local anesthesia*. Sometimes, it is 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 cancerous.

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 the biopsy shows that cancer is present, your doctor needs to know the *stage* (extent) of your disease to plan the best treatment. The stage is based on the size of the tumor, whether the cancer has spread and, if so, to what parts of the body.

Staging may require lab tests. It also may involve *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 have 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.

The doctor may order one or more *imaging* tests to learn whether the cancer has spread:

- **Dental x-rays:** An x-ray of your entire mouth can show whether cancer has spread to the jaw.
- **Chest x-rays:** 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 the mouth, throat, neck, or elsewhere in the body show up on the CT scan.
- **MRI:** A powerful magnet linked to a computer is used to make detailed pictures of your body. The doctor can view these pictures on a monitor and can print them on film. An MRI can show whether oral cancer has spread.

Treatment

Many people with oral cancer want to take an active part in making decisions about their medical care. It is natural to want to learn all you can about your disease and your treatment choices. However, shock and stress after the diagnosis can make it hard to think of everything you want to ask the doctor. It often helps to make a list of questions before an appointment. To help remember what the doctor says, you may take notes or ask whether you may use a tape recorder. You may also want to have a family member or friend with you when you talk to the doctor—to take part in the discussion, to take notes, or just to listen.

Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat oral cancer include *oral and maxillofacial surgeons*, *otolaryngologists* (ear, nose, and throat doctors), *medical oncologists*, *radiation oncologists*, and *plastic surgeons*. You may be referred to a team that includes specialists in *surgery*, *radiation therapy*, or *chemotherapy*. Other health care professionals who may work with the specialists as a team include a *dentist*, *speech pathologist*, *nutritionist*, and *mental health counselor*.

Getting a Second Opinion

Before starting treatment, you might want a second opinion about the diagnosis and the treatment plan. Some insurance companies require a second opinion; others may cover a second opinion if you or your doctor requests it.

There are a number of ways to find a doctor for a second opinion:

- Your doctor may refer you to one or more specialists. At cancer centers, several specialists often work together as a team.
- The Cancer Information Service, at 1-800-4-CANCER, can tell you about nearby treatment centers.
- A local or state medical or dental society, a nearby hospital, or a medical or dental school can usually provide the names of specialists in your area.
- The American Board of Medical Specialties (ABMS) has a list of doctors who have had training and exams in their specialty. You can find this list in the *Official ABMS Directory of Board Certified Medical Specialists*. The directory is available in most public libraries. Or you can look up doctors at **<http://www.abms.org>**. (Click on Who's Certified.)
- The American Dental Association (ADA) Web site provides a list of dentists by specialty and location. The ADA Member Directory is available at **<http://www.ada.org/public/directory/index.html>**.
- The NCI provides a helpful fact sheet called "How To Find a Doctor or Treatment Facility If You Have Cancer." It is available on the Internet at **<http://cancer.gov/publications>**.

Preparing for Treatment

The choice of treatment depends mainly on your general health, where in your mouth or oropharynx the cancer began, the size of the tumor, and whether the cancer has spread. Your doctor can describe your treatment choices and the expected results. You will want to consider how treatment may affect normal activities such as swallowing and talking, or whether it will change the way you look. You and your doctor can



work together to develop a treatment plan that meets your needs and personal values.

You do not need to ask all your questions or understand all the answers at once. You will have other chances to ask your doctor to explain things that are not clear and to ask for more information.

Methods of Treatment

Oral cancer treatment may include surgery, radiation therapy, or chemotherapy. Some patients have a combination of treatments.

At any stage of disease, people with oral cancer may have treatment to control pain and other symptoms, to relieve the side effects of therapy, and to ease emotional and practical problems. This kind of

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

- What is the stage of the disease? Has the cancer spread? If so, where?
- What are my treatment choices? Which do you recommend for me? Will I have more than one kind of treatment?
- What are the expected benefits of each kind of treatment?
- What are the risks and possible *side effects* of each treatment? How will treatment affect my normal activities? Will I be given anything to control side effects?
- How long will treatment last?
- Will I have to stay in the hospital?
- What is the treatment likely to cost? Is this treatment covered by my insurance plan?
- Would a *clinical trial* (research study) be appropriate for me? (See pages 30 and 31 for more information about clinical trials.)
- Should I try to quit smoking?

treatment is called *supportive care*, *symptom management*, or *palliative care*. Information about supportive care is available on NCI's Web site at **<http://cancer.gov>** and from NCI's Cancer Information Service at 1-800-4-CANCER.

You may want to talk to the doctor about taking part in a clinical trial, a research study of new treatment methods. The section on "The Promise of Cancer Research" on page 30 has more information about clinical trials.

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. Patients may have surgery alone or in combination with radiation therapy.

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

- What kind of operation do you recommend for me?
- Do I need any lymph nodes removed? Why?
- How will I feel after the operation? How long will I be in the hospital?
- What are the risks of surgery?
- Will I have trouble speaking, swallowing, or eating?
- Where will the scars be? What will they look like?
- Will I have any long-term effects?
- Will I look different?
- Will I need *reconstructive* or *plastic surgery*? When can that be done?
- Will I lose my teeth? Can they be replaced? How soon?
- Will I need to see a specialist for help with my speech?
- When can I get back to my normal activities?
- How often will I need checkups?
- Would a clinical trial be appropriate for me?

Radiation Therapy

Radiation therapy (also called *radiotherapy*) is a type of *local therapy*. It affects cells only in the treated area. Radiation therapy is used alone for small tumors or for patients who cannot have surgery. It may be used before surgery to kill cancer cells and shrink the tumor. It also may be used after surgery to destroy cancer cells that may remain in the area.

Radiation therapy uses high-energy rays to kill cancer cells. Doctors use two types of radiation therapy to treat oral cancer:

- ***External radiation***: The radiation comes from a machine. Patients go to the hospital or clinic once or twice a day, generally 5 days a week for several weeks.
- ***Internal radiation (implant radiation)***: The radiation comes from *radioactive* material placed in seeds, needles, or thin plastic tubes put directly in the tissue. The patient stays in the hospital. The implants remain in place for several days. Usually they are removed before the patient goes home.

Some people with oral cancer have both kinds of radiation therapy.

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

- Which type of radiation therapy do you recommend for me? Why do I need this treatment?
- When will the treatments begin? When will they end?
- Should I see my dentist before I start treatment? If I need dental treatment, how much time does my mouth need to heal before radiation therapy starts?
- 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 during therapy?
- How will my mouth and face look afterward?
- Are there any long-term effects?
- Can I continue my normal activities?
- Will I need a special diet? For how long?
- How often will I need checkups?
- Would a clinical trial be appropriate for me?

Chemotherapy

Chemotherapy uses anticancer drugs to kill cancer cells. It is called *systemic therapy* because it enters the bloodstream and can affect cancer cells throughout the body.

Chemotherapy is usually given by injection. It may be given in an outpatient part of the hospital, at the doctor's office, or at home. Rarely, a hospital stay may be needed.

You may want to ask the doctor these questions before having chemotherapy:

- Why do I need this treatment?
- Which drug or drugs will I have?
- How do the drugs work?
- Should I see my dentist before I start chemotherapy? If I need dental treatment, how much time does my mouth need to heal before the chemotherapy begins?
- What are the expected benefits of the 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?
- Will I need to stay in the hospital? How long?
- How will treatment affect my normal activities?
- Would a clinical trial be appropriate for me?

Side Effects of Cancer Treatment

Because treatment often damages healthy cells and tissues, unwanted side effects are common. These side effects depend mainly on the location of the tumor and the type and extent of the treatment. Side effects may not be the same for each person, and they may even change from one treatment session to the next. Before treatment starts, your health care team will explain possible side effects and suggest ways to help you manage them.

The NCI provides helpful booklets about cancer treatments and coping with side effects. Booklets such as *Radiation Therapy and You*, *Chemotherapy and You*, and *Eating Hints for Cancer Patients* may be viewed, downloaded, and ordered from <http://cancer.gov/publications>. These materials also may be ordered by calling the Cancer Information Service at 1-800-4-CANCER.

The National Institute of Dental and Craniofacial Research (NIDCR) also provides helpful materials. *Head and Neck Radiation Treatment and Your Mouth*, *Chemotherapy and Your Mouth*, and other booklets are available from NIDCR. See “National Institute of Dental and Craniofacial Research Information Resources” on page 47 for a list of publications.

Surgery

It takes time to heal after surgery, and the time needed to recover is different for each person. You may be uncomfortable 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 is common to feel tired or weak for a while. 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 the 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. Reconstructive or plastic surgery may be done to rebuild the bones or tissues of the mouth. (See “Reconstruction” on page 27.)

Radiation Therapy

Almost all patients who have radiation therapy to the head and neck area develop oral side effects. That is why it is important to get the mouth in good condition before cancer treatment begins. Seeing a dentist two weeks before cancer treatment begins gives the mouth time to heal after dental work.

The side effects of radiation therapy depend mainly on the amount of radiation given. Some side effects in the mouth go away after radiation treatment ends, while others last a long time. A few side effects (such as dry mouth) may never go away.

Radiation therapy may cause some or all of these side effects:

- **Dry mouth:** 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:** Radiation can cause major tooth decay problems. 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 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 baking soda and 1/8 teaspoon salt in one cup of warm water. After you rinse with this solution, follow with a plain water rinse.
- **Sore throat or mouth:** Radiation therapy can cause painful ulcers and inflammation. 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.
- **Sore or bleeding gums:** It is important to brush and floss teeth gently. You may want to avoid areas that are sore or bleeding. To protect your gums from damage, it is a good idea to avoid the use of toothpicks.
- **Infection:** Dry mouth and damage to the lining of the mouth from radiation therapy can cause infection to develop. It helps to check your mouth every day for sores or other changes and to tell your doctor or nurse about any mouth problems.

- **Delayed healing after dental care:** Radiation treatment may make it hard for tissues in the mouth to heal. It helps to have a thorough dental exam and complete all needed dental treatment well before radiation therapy begins.
- **Jaw stiffness:** Radiation can affect the chewing muscles and make it difficult for you to open your mouth. You can prevent or reduce jaw stiffness by exercising your jaw muscles. Health care providers often 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 do not 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.
- **Changes in the sense of taste and smell:** During radiation therapy, food may taste or smell different.
- **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 directed at the neck may cause your larynx to swell, causing voice changes and the feeling of a lump in your throat. Your doctor may suggest medicine to reduce this swelling.
- **Changes in the *thyroid*:** Radiation treatment 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.

- **Skin changes in the treated area:** The skin in the treated area may become red or dry. Good skin care is important at this time. It is helpful to expose this area to the air while protecting it from the sun. Also, avoid wearing clothes that rub the treated area, and do not shave the treated area. You should not use lotions or creams in the treated area without your doctor's advice.
- **Fatigue:** You may become very tired, especially in the later weeks of radiation therapy. Resting is important, but doctors usually advise their patients to stay as active as they can.

Although the side effects of radiation therapy can be distressing, 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.

Chemotherapy

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 also cause bleeding in the mouth and a deep pain that feels like a toothache. The problems you have depend on the type and amount of anticancer drugs you receive, and how your body reacts to them. You may have these problems only during treatment or for a short time after treatment ends.

Generally, anticancer drugs affect cells that divide rapidly. In addition to cancer cells, these rapidly dividing cells include the following:

- **Blood cells:** These cells fight infection, help your blood to clot, and carry oxygen to all parts of the body. When drugs affect your blood cells, you are more likely to get infections, bruise or bleed easily, and feel very weak and tired.

- **Cells in hair roots:** Chemotherapy can lead to hair loss. The hair grows back, but sometimes the new hair is somewhat different in color and texture.
- **Cells that line the digestive tract:** Chemotherapy can cause poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores. Many of these side effects can be controlled with drugs.

Nutrition

Eating well during cancer treatment means getting enough calories and protein to prevent weight loss, regain strength, and rebuild healthy tissues. But eating well may be difficult after treatment for oral cancer. Some people with cancer find it hard to eat because they lose their appetite. They may not feel like eating because they are uncomfortable or tired. A dry or sore mouth or changes in smell and taste also may make eating difficult.

If your mouth is dry, you may find that soft foods moistened with sauces or gravies are easier to eat. Thick soups, puddings, and milkshakes often are easier to swallow. Nurses and dietitians can help you choose the right foods. Also, the National Cancer Institute booklet *Eating Hints for Cancer Patients* contains many useful ideas and recipes. The “National Cancer Institute Information Resources” section on page 43 tells how to get this publication.

After surgery or radiation therapy for oral cancer, some people need a feeding tube. A feeding tube is a flexible plastic tube that is passed into the stomach through an incision in the abdomen. In almost all cases, the tube is temporary. Most people gradually return to a regular diet.



To protect your mouth during cancer treatment, it helps to avoid:

- Sharp, crunchy foods like taco chips
- Foods that are hot, spicy, or high in acid like citrus fruits and juices
- Sugary foods that can cause cavities
- Alcoholic drinks

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 replaced.

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 oral cavity from the chest, arm, or leg. The plastic surgeon uses this tissue for repair.

If you are thinking about reconstruction, you may wish to consult with a plastic or *reconstructive surgeon* before your treatment 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

The 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. Rehabilitation may include being fitted with a dental *prosthesis* (an artificial dental device) and having dental implants. It also may involve speech therapy, dietary counseling, or other services.

Sometimes surgery to rebuild the bones or tissues of the mouth is not possible. A dentist with special training (a *prosthodontist*) may be able to make you a prosthesis to help you eat and talk normally. You may need special training to learn to use it.

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. Often speech therapy continues after you return home.

Follow-up Care

Follow-up care after treatment for oral cancer is important. Even when the cancer seems to have been completely removed or destroyed, the disease sometimes returns because undetected cancer cells remained in the body after treatment. The doctor monitors your recovery and checks for recurrence of cancer. Checkups help ensure that any changes in your health are noted. Your doctor will probably encourage you to inspect your mouth regularly and continue to visit your dentist. It is important to report any changes in your mouth right away.

Checkups include exams of the mouth, throat, and neck. From time to time, your doctor may do a complete physical exam, order blood tests, and take x-rays.

People who have had oral cancer have a chance of developing a new cancer in the mouth, throat, or other areas of the head and neck. This is especially true for those who use tobacco or who drink alcohol heavily. Doctors strongly urge their patients to stop using tobacco and alcohol to cut down the risk of a new cancer and other health problems.

The NCI has prepared a booklet for people who have completed their treatment to help answer questions about follow-up care and other concerns.

Facing Forward Series: Life After Cancer Treatment provides tips for making the best use of medical visits. It describes how to talk to your health care team about creating a plan of action for recovery and future health.

Support for People with Oral Cancer

Living with a serious disease such as oral cancer is not easy. You may worry about caring for your family, keeping your job, or continuing daily activities. You may have concerns about treatments and managing side effects, hospital stays, and medical bills. Doctors, nurses, and other members of the health care team can answer your questions about treatment, working, or other activities. Meeting with a social worker, counselor, or member of the clergy can be helpful if you want to talk about your feelings or discuss your concerns. Often, a social worker 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. The NCI's fact sheets "Cancer Support Groups: Questions and Answers" and "National Organizations That Offer Services to People With Cancer and Their Families" tell how to find a support group. See "National Cancer Institute Information Resources" on page 43 for ordering information.

The Cancer Information Service can provide information to help patients and their families locate programs, services, and publications.

The Promise of Cancer Research

Doctors all over the country are conducting many types of clinical trials. These are research studies in which people volunteer to take part. In clinical trials, doctors are testing new ways to treat oral cancer. Research has already led to advances, and researchers continue to search for more effective approaches.

People who join clinical trials may be among the first to benefit if a new approach is shown to be effective. And if participants do not benefit directly, they still make an important contribution to medical science by helping doctors learn more about the disease and how to control it. Although clinical trials may pose some risks, researchers do all they can to protect their patients.

Researchers are testing anticancer drugs and combinations of drugs. They are studying radiation therapy combined with drugs and other treatments. They also are testing drugs that prevent or reduce the side effects of radiation therapy.

If you are interested in learning more about joining a clinical trial, you may want to talk with your doctor. You may want to read *Taking Part in Clinical Trials: What Cancer Patients Need To Know*. The NCI also offers an easy-to-read brochure called *If You Have Cancer...What You Should Know About Clinical Trials*.

These NCI publications describe how research studies are carried out and explain their possible benefits and risks. NCI's Web site includes a section on clinical trials at http://cancer.gov/clinical_trials with general information about clinical trials and detailed information about specific studies. The Cancer Information Service at 1-800-4-CANCER or at *LiveHelp* at <http://cancer.gov> can answer questions and provide information about clinical trials. Another source of information about clinical trials is <http://clinicaltrials.gov>.

Dictionary

Benign (beh-NINE): Not cancerous. Benign tumors do not spread to tissues around them or to other parts of the body.

Bidi: A cigarette made by rolling tobacco by hand into a dried leaf. Most bidis come from India in a variety of flavors.

Biopsy (BY-op-see): The removal of cells or tissues for examination under a microscope. When only a sample of tissue is removed, the procedure is called an incisional biopsy or core biopsy. When an entire lump or suspicious area is removed, the procedure is called an excisional biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy or fine-needle aspiration.

Bupropion (byoo-PROE-pee-ON): A substance that is used to treat depression, and to help people quit smoking. It belongs to the family of drugs called antidepressants.

Cancer: A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread through the bloodstream and lymphatic system to other parts of the body.

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

Chemotherapy (kee-mo-THER-a-pee): Treatment with anticancer drugs.

Clinical trial: A type of research study that uses volunteers to test new methods of screening, prevention, diagnosis, or treatment of a disease. The study may be carried out in a clinic or other medical facility. Also called a clinical study.

CT scan: Computed tomography 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 computerized tomography and computerized axial tomography (CAT) scan.

Dental implant: A small metal pin placed inside the jawbone or oral tissue. Dental implants can be used to help anchor a false tooth or teeth, or a crown or bridge.

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

Endoscope (EN-dah-skope): A thin, lighted tube used to look at tissues inside the body.

Endoscopy (en-DAHS-ko-pee): The use of a thin, lighted tube (called an endoscope) to examine the inside of the body.

Erythroleukoplakia (eh-RITH-ro-LOO-ko-PLAY-kee-a): A patch found in the mouth that is a mixture of red and white. It can develop into cancer.

Erythroplakia (eh-RITH-ro-PLAY-kee-a): A reddened patch with a velvety surface found in the mouth. It can develop into cancer.

External radiation (ray-dee-AY-shun): Radiation therapy that uses a machine to aim high-energy rays at the cancer. Also called external-beam radiation.

Fluoride: A mineral that helps prevent tooth decay. Fluoride may be present in drinking water. It may be applied to the teeth as a gel, in toothpaste, or as a rinse.

General anesthesia (an-es-THEE-zha): Drugs that cause loss of feeling or awareness and put the person to sleep.

Gland: An organ that makes one or more substances, such as hormones, digestive juices, sweat, tears, saliva, or milk. Endocrine glands release the substances directly into the bloodstream. Exocrine glands release the substances into a duct or opening to the inside or outside of the body.

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 portion of the roof of the mouth.

Head and neck cancer: Cancer that arises in the head or neck region (in the nasal cavity, sinuses, lip, mouth, salivary glands, throat, or larynx [voice box]).

Human papillomaviruses (pap-ih-LO-ma-VYE-rus-is): HPVs. Viruses that cause abnormal tissue growth (warts). Some types of HPV are associated with cervical and certain other cancers.

Imaging: Tests that produce pictures of areas inside the body.

Implant radiation (ray-dee-AY-shun): A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, internal radiation, or interstitial radiation therapy.

Internal radiation (ray-dee-AY-shun): A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy.

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

Leukoplakia (loo-ko-PLAY-kee-a): A white patch that may develop on mucous membranes such as the gums, the tongue, or the inside of the cheeks, and may become cancerous.

Local anesthesia (an-es-THEE-zha): Drugs that cause a temporary loss of feeling in one part of the body. The patient remains awake but has no feeling in the part of the body treated with the anesthetic.

Local therapy: Treatment that affects cells in the tumor and the area close to it.

Lymph (limf): The clear fluid that travels through the lymphatic system and carries cells that help fight infections and other diseases. Also called lymphatic fluid.

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 a lymph gland.

Lymphatic system (lim-FAT-ik SIS-tem): The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels (a network of thin tubes that carry lymph and white blood cells). Lymphatic vessels branch, like blood vessels, into all the tissues of the body.

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

Medical oncologist (MED-i-kul on-KOL-o-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, and biological therapy. A medical oncologist often is the main health care provider for a person who has cancer. A medical oncologist also may coordinate treatment provided 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-ta-sis): The spread of cancer from one part of the body to another. A tumor formed from 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-ta-seez).

MRI: Magnetic resonance imaging (mag-NET-ik REZ-o-nans IM-a-jing). 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 or X-ray. MRI is especially useful for imaging the brain, spine, the soft tissue of joints, and the inside of bones. Also called nuclear magnetic resonance imaging.

Nutritionist: A health professional with special training in nutrition who can offer help with the choice of foods a person eats and drinks. Sometimes called a dietitian.

Oral cavity: The mouth.

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

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

Oropharynx (or-oh-FAIR-inks): The part of the throat at the back of the mouth. It includes the soft palate, the base of the tongue, and the tonsils.

Otolaryngologist (OAT-oh-LAR-in-GOL-uh-jist):

A doctor who specializes in treating diseases of the ear, nose, and throat. Also called an ENT (ear, nose, and throat) doctor.

Palliative care (PAL-ee-yuh-tiv): Care that prevents or relieves the symptoms of disease or the side effects of treatment. Palliative care is not given to cure a disease but to improve a patient's quality of life. It attempts to meet the patient's physical, emotional, spiritual, and practical needs by helping to relieve pain, depression, or other problems. Also known as comfort care, supportive care, and symptom management.

Pathologist (pa-THOL-o-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Plastic surgeon: A surgeon who specializes in reducing scarring or disfigurement that may occur as a result of accidents, birth defects, or treatment for diseases.

Plastic surgery: An operation that restores or improves the appearance of body structures.

Primary tumor: The original tumor.

Prosthesis (pros-THEE-sis): A device that replaces part of the body.

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

Radiation oncologist (ray-dee-AY-shun on-KOL-o-jist): A doctor who specializes in using radiation to treat cancer.

Radiation therapy (ray-dee-AY-shun): The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or from materials called radioisotopes. Radioisotopes produce radiation and can be placed in or near the tumor or in the area near cancer cells. This type of radiation treatment is called internal radiation therapy, implant radiation, interstitial radiation, or brachytherapy. Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy, irradiation, and x-ray therapy.

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

Radiotherapy (RAY-dee-o-THER-a-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, 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, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiation therapy, irradiation, and x-ray therapy.

Reconstructive surgeon: 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.

Reconstructive surgery: Surgery that is done to reshape or rebuild (reconstruct) a part of the body changed by previous surgery.

Risk factor: Anything that increases a person's chance of developing a disease. Some examples of risk factors for cancer include a family history of cancer, use of tobacco products, certain foods, being exposed 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 aid in digestion and protects the mouth against infections.

Salivary glands (SAL-ih-vair-ee): Glands in the mouth that produce saliva.

Side effects: Problems that occur when treatment affects tissues or organs other than the ones meant to be affected by the treatment. 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 muscular (not bony) part at the back of the roof of the mouth.

Speech pathologist (pa-THOL-o-jist): A specialist who evaluates and treats people with communication and swallowing problems. Also called a speech therapist.

Squamous cell carcinoma (SKWAY-mus sel kar-sin-O-ma): 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. Also called epidermoid carcinoma.

Squamous cells (SKWAY-mus): Flat cells that look like fish scales under a microscope. These cells cover internal and external surfaces of the body. They 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.

Stage: The extent of a cancer within the body. If the cancer has spread, the stage describes how far it has spread from the original site to other parts of the body.

Staging (STAY-jing): Performing exams and tests to learn the extent of the cancer within the body, especially whether the disease has spread from the original site to other parts of the body. It is important to know the stage of the disease in order to plan the best treatment.

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 that prevents or relieves the symptoms of disease or the side effects of treatment. Supportive care is not given to cure a disease but to improve a patient's quality of life. It attempts to meet the patient's physical, emotional, spiritual, and practical needs by helping to relieve pain, depression, or other problems. Also known as 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.

Symptom: An indication that a person has a condition

or disease. Some examples of symptoms are headache, fever, fatigue, nausea, vomiting, and pain.

Symptom management: Care that prevents or relieves the symptoms of disease or the side effects of treatment. Symptom management is not given to cure a disease but to improve a patient's quality of life. It attempts to meet the patient's physical, emotional, spiritual, and practical needs by helping to relieve pain, depression, or other problems. Also known as palliative care, comfort care, and supportive care.

Systemic therapy (sis-TEM-ik THER-a-pee): Treatment using substances that travel through the bloodstream, reaching and affecting cells all over the body.

Thyroid (THIGH-royd): A gland located beneath the voice box (larynx) that produces thyroid hormone. The thyroid helps regulate growth and metabolism.

Thyroid hormone: A hormone made by the thyroid gland that affects heart rate, blood pressure, body temperature, and weight. It can also be made in the laboratory.

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

Tonsils: Small masses of lymphoid tissue on either side of the throat.

Tumor (TOO-mer): A new mass of excess tissue that results from abnormal cell division. Tumors perform no useful body function. They may be benign (not cancerous) or malignant (cancerous).

Uvula (YOOV-yuh-la): The soft flap of tissue that hangs down at the back of the mouth (at the edge of the soft palate).

Virus (VYE-rus): A microorganism that can infect cells and cause disease.

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 Information Resources

You may want more information for yourself, your family, and your doctor. The following National Cancer Institute (NCI) services are available to help you.

Telephone

Cancer Information Service (CIS)

Provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information Specialists translate the latest scientific information into understandable language and respond in English, Spanish, or on TTY equipment.

Telephone: 1-800-4-CANCER (1-800-422-6237)

TTY: 1-800-332-8615

Internet

<http://cancer.gov>

The NCI's Cancer.gov™ Web site provides information from numerous NCI sources. It offers current information on cancer prevention, screening, diagnosis, treatment, genetics, supportive care, and ongoing clinical trials. It also provides information about NCI's research programs and funding opportunities, cancer statistics, and the Institute itself. Cancer.gov provides live, online assistance through *LiveHelp*. Cancer.gov is at **<http://cancer.gov>** on the Internet.

<http://www.smokefree.gov>

The Tobacco Control Research Branch of NCI, in collaboration with the Centers for Disease Control and Prevention and the American Cancer Society, created a smoking cessation Web site. It offers online quitting advice through NCI's *LiveHelp* service. It also provides national and state telephone quitline numbers and access to printed materials about quitting tobacco. It is located on the Internet at **<http://www.smokefree.gov>**.

Print Materials

You can order National Cancer Institute (NCI) publications by writing to the address below:

Publications Ordering Service
National Cancer Institute
Suite 3035A
6116 Executive Boulevard, MSC 8322
Bethesda, MD 20892–8322

Some NCI publications can be viewed, downloaded, and ordered from **<http://cancer.gov/publications>** on the Internet. If you are in the United States or one of its territories, you may order these and other NCI booklets by calling the Cancer Information Service at 1–800–4–CANCER.

Booklets About Cancer Treatment

- *Radiation Therapy and You: A Guide to Self-Help During Treatment*
- *Chemotherapy and You: A Guide to Self-Help During Treatment*
- *Helping Yourself During Chemotherapy: 4 Steps for Patients*
- *Eating Hints for Cancer Patients*

- *Understanding Cancer Pain*
- *Pain Control: A Guide for People with Cancer and Their Families*
- *Get Relief From Cancer Pain*
- *Taking Part in Clinical Trials: What Cancer Patients Need To Know*
- *La quimioterapia y usted: una guía de autoayuda durante el tratamiento del cáncer (Chemotherapy and You: A Guide to Self-Help During Treatment for Cancer)*
- *El dolor relacionado con el cáncer (Understanding Cancer Pain)*
- *La radioterapia y usted: una guía de autoayuda durante el tratamiento del cáncer (Radiation Therapy and You: A Guide to Self-Help During Treatment for Cancer)*
- *La participación en los estudios clínicos: lo que los pacientes de cáncer deben saber (Taking Part in Clinical Trials: What Cancer Patients Need to Know)*
- *Si tiene cáncer...lo que debería saber sobre estudios clínicos (If You Have Cancer...What You Should Know About Clinical Trials)*

Booklets About Living With Cancer

- *Advanced Cancer: Living Each Day*
- *Facing Forward Series: Life After Cancer Treatment*
- *Facing Forward Series: Ways You Can Make a Difference in Cancer*
- *Taking Time: Support for People With Cancer and the People Who Care About Them*
- *When Cancer Recurs: Meeting the Challenge*

- *Siga adelante: la vida después del tratamiento del cáncer (Facing Forward Series: Life After Cancer Treatment)*

Booklets About Quitting Smoking and Spit Tobacco

- *Clearing the Air: Quit Smoking Today*
- *You Can Quit Smoking: A 5-Day Plan To Get Ready*
- *You Can Quit Smoking: Consumer Guide*
- *Smoking Facts and Tips for Quitting*
- *Smoking Facts and Quitting Tips for African Americans*
- *Spit Tobacco: A Guide for Quitting*
- *Datos y consejos para dejar de fumar (Smoking Facts and Tips for Quitting)*
- *Usted puede dejar de fumar (You Can Quit Smoking)*
- *Guía para dejar de fumar: no lo deje para mañana, deje de fumar hoy (Guide for Quitting Smoking: Don't Leave It for Tomorrow, Quit Today)*

Fact Sheets

- “Questions and Answers About Smoking Cessation”
- “How To Find a Doctor or Treatment Facility If You Have Cancer”
- “Cancer Support Groups: Questions and Answers”
- “National Organizations That Offer Services to People With Cancer and Their Families”

National Institute of Dental and Craniofacial Research Information Resources

The National Oral Health Information Clearinghouse

This Clearinghouse is a service of the Federal Government's National Institute of Dental and Craniofacial Research (NIDCR). NIDCR's mission is to promote the general health of the American people by improving their oral, dental, and craniofacial health. Through the conduct and support of research and the training of researchers, the NIDCR aims to promote health, prevent diseases and conditions, and develop new diagnostics and therapies.

NIDCR directs the health awareness campaign, *Oral Health, Cancer Care, and You: Fitting the Pieces Together*. The campaign addresses the importance of preventing and managing the oral side effects of cancer treatments. It is a partnership among NIDCR, NCI, National Institute of Nursing Research, and Centers for Disease Control and Prevention.

NIDCR can supply free information about oral cancer and 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*
- *Quimioterapia y la Boca (Chemotherapy and Your Mouth)*
- *Su Boca y el Tratamiento de Radiación en la Cabeza y el Cuello (Head and Neck Radiation Treatment and Your Mouth)*

Materials may be obtained by contacting the Clearinghouse:

National Institute of Dental and Craniofacial
Research

National Oral Health Information Clearinghouse

Attn: OCCT

1 NOHIC Way

Bethesda, MD 20892-3500

Tel: 301-402-7364

Materials are also available on the Internet at
<http://www.nidcr.nih.gov> under “health information.”

This booklet was written and published by the National Cancer Institute (NCI). The NCI acknowledges and appreciates the collaboration of the National Institute of Dental and Craniofacial Research (NIDCR) in the creation and production of this booklet. NCI and NIDCR are components of the National Institutes of Health, which is the Federal Government's agency for biomedical research.

NCI conducts its own cancer research in laboratories and clinics in Bethesda, Maryland, and also supports and coordinates cancer research conducted by universities, hospitals, research foundations, and private laboratories throughout the United States and abroad. NCI conducts and supports research into better ways to prevent, diagnose, and treat cancer, as well as research on the unique needs of cancer survivors. NCI is responsible for communicating its research findings to the medical community and the public.

The written text of NCI material is in the public domain and is not subject to copyright restrictions. You do not need special permission to reproduce or translate NCI written text. However, we would appreciate a credit line and a copy of any translated material sent to: National Cancer Institute, 31 Center Drive, MSC 2580, Bethesda, MD 20892–2580.

The copyright for artwork developed for NCI by private sector designers, photographers, and illustrators under contract to the Government remains in the hands of the originators. You must have permission to use or reproduce these materials. In many cases, permission will be granted, but a credit line and/or fees for usage may be required. To learn if permission is required, or to obtain permission to reproduce NCI artwork, write to: Communication Services Branch, Office of Communications, National Cancer Institute, Room 10A28, 31 Center Drive, MSC 2580, Bethesda, MD 20892–2580.



National
Institute of
Dental and
Craniofacial
Research

NIH Publication No. 03-1574
Revised June 2003
Printed September 2003

