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# Treating Oral Cavity and Oropharyngeal Cancer

## How are oral cavity and oropharyngeal cancers treated?

The main treatment options for people with oral cavity and oropharyngeal cancers are:

- [Surgery for Oral Cavity and Oropharyngeal Cancer](#)
- [Radiation Therapy for Oral Cavity and Oropharyngeal Cancer](#)
- [Chemotherapy for Oral Cavity and Oropharyngeal Cancer](#)
- [Targeted Therapy for Oral Cavity and Oropharyngeal Cancer](#)
- [Immunotherapy for Oral Cavity and Oropharyngeal Cancer](#)
- [Palliative Treatment for Oral Cavity and Oropharyngeal Cancer](#)

## Common treatment approaches

Different treatments may be used either alone or in combination, depending on the stage and location of the tumor. In general, surgery is the first treatment for cancers of the oral cavity, and may be followed by radiation or combined chemotherapy and radiation. Oropharyngeal cancers are usually treated with a combination of chemotherapy and radiation.

- [Treatment Options for Oral Cavity and Oropharyngeal Cancer by Stage](#)

## Who treats oral cavity and oropharyngeal cancer?

Based on the stage and location of the tumor, you may have different types of doctors on your treatment team. These doctors may include:

- An **otolaryngologist** (also known as an ear, nose, and throat, or ENT doctor): a surgeon who treats certain diseases of the head and neck.
- An **oral and maxillofacial surgeon**: a dental surgeon who treats diseases of the mouth, teeth, and jaws.
- A **radiation oncologist**: a doctor who treats cancer with radiation therapy.
- A **medical oncologist**: a doctor who treats cancer with medicines such as chemotherapy or targeted therapy.

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, nutrition specialists, social workers, speech therapists, dentists, psychologists, and other health professionals. Treating cancers in the mouth and throat can affect how you eat, look, and breathe. A cancer care team will work with you to limit changes to your body and adjust to changes that take place while using the best treatments available.

- [Health Professionals Associated With Cancer Care<sup>1</sup>](#)

## **Making treatment decisions**

It's important to discuss all of your treatment options, including treatment goals and possible side effects, with your doctors to help make the decision that best fits your needs. It's also very important to ask questions if there is anything you're not sure about.

When you choose a treatment plan, consider your overall health, the type and stage of the cancer, the chances of curing the disease, and the possible impact of the treatment on important functions like speech, chewing, and swallowing.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- [What Should You Ask Your Doctor About Oral Cavity and Oropharyngeal Cancers?<sup>2</sup>](#)
- [Seeking a Second Opinion<sup>3</sup>](#)

## **Thinking about taking part in a clinical trial**

Clinical trials are carefully controlled research studies that are done to get a closer look

at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- [Clinical Trials](#)<sup>4</sup>

### **Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- [Complementary and Alternative Medicine](#)<sup>5</sup>

### **Help getting through cancer treatment**

People with cancer need support and information, no matter what stage of illness they may be in. Knowing all of your options and finding the resources you need will help you make informed decisions about your care.

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be an important part of your care. These might include nursing or social work services,

financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- [Palliative Care](#)<sup>6</sup>
- [Find Support Programs and Services in Your Area](#)<sup>7</sup>

### **Choosing to stop treatment or choosing no treatment at all**

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)<sup>8</sup>

*The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.*

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## **Surgery for Oral Cavity and Oropharyngeal Cancer**

Several types of operations can be used to treat oral cavity and oropharyngeal cancers. Depending on [where the cancer is](#)<sup>1</sup> and its [stage](#)<sup>2</sup>, different operations may be used to remove the cancer. Surgery is often the first treatment used for these cancers. It's most commonly used for early stage cancers, those that are small and haven't spread.

After cancer is removed, reconstructive surgery can be done to help restore the appearance and function of the areas affected by the cancer or cancer treatment.

## Tumor resection

In a tumor resection, the entire tumor and a margin (edge) of normal-looking tissue around it is removed (resected). The margin of normal tissue is taken out to reduce the chance of any cancer cells being left behind.

The main (primary) tumor is removed using a method based on its size and location. For example, if a tumor is in the front of the mouth, it might be relatively easy to remove it through the mouth. But a larger tumor (especially when it has grown into the oropharynx) may need to be removed through an incision (cut) in the neck or by cutting the jaw bone with a special saw to get to the tumor. (This is called a *mandibulotomy*.)

Based on the location and size of the tumor, one of the operations listed here may be needed to remove it:

### **Mohs micrographic surgery (for some cancers of the lip)**

Some cancers of the lip may be removed by *Mohs surgery*, also known as *micrographic surgery*. The tumor is removed in very thin slices. Each slice is looked at right away under the microscope to see if there are cancer cells. Slices are removed and examined until no cancer cells are seen.

This method can reduce the amount of normal tissue removed with the tumor and limit the change in appearance the surgery causes. It requires a surgeon trained in the technique and may take more time than a standard tumor resection.

### **Glossectomy (removal of the tongue)**

Glossectomy may be needed to treat cancer of the tongue. For smaller cancers, only part of the tongue (less than 1/3) may need to be removed (partial glossectomy). For larger cancers, the entire tongue may need to be removed (total glossectomy).

## Mandibulectomy (removal of the jaw bone)

For a mandibulectomy (or mandibular resection), the surgeon removes all or part of the jaw bone (mandible). This operation may be needed if the tumor has grown into the jaw bone. If a tumor near the jaw is hard to move when the doctor examines it, it often means that the cancer has grown into the jaw bone.

If the jaw bone looks normal on imaging tests and there's no evidence the cancer has spread there, the bone may not need to be cut all the way through. In this operation, also known as a *partial-thickness mandibular resection* or *marginal mandibulectomy*, the surgeon removes only part or a piece of jaw bone.

If the x-ray shows the tumor has grown into the jaw bone, a large part of the jaw will need to be removed in an operation called a *segmental mandibulectomy*. The removed piece of the mandible can then be replaced with a piece of bone from another part of the body, such as the fibula (the smaller of the lower leg bones), hip bone, or the shoulder blade. A metal plate or a piece of bone from a deceased donor may also be used to repair the bone.

## Maxillectomy

If cancer has grown into the hard palate (front part of the roof of the mouth), all or part of the involved bone (maxilla) will need to be removed. This operation is called a *maxillectomy* or *partial maxillectomy*.

The hole in the roof of the mouth this operation creates can be filled with a special denture called a *prosthesis*. This is created by a prosthodontist, a dentist with special training.

## Robotic surgery

Increasingly, trans-oral robotic surgery (TORS) is being used to remove cancers of the throat (including the oropharynx).

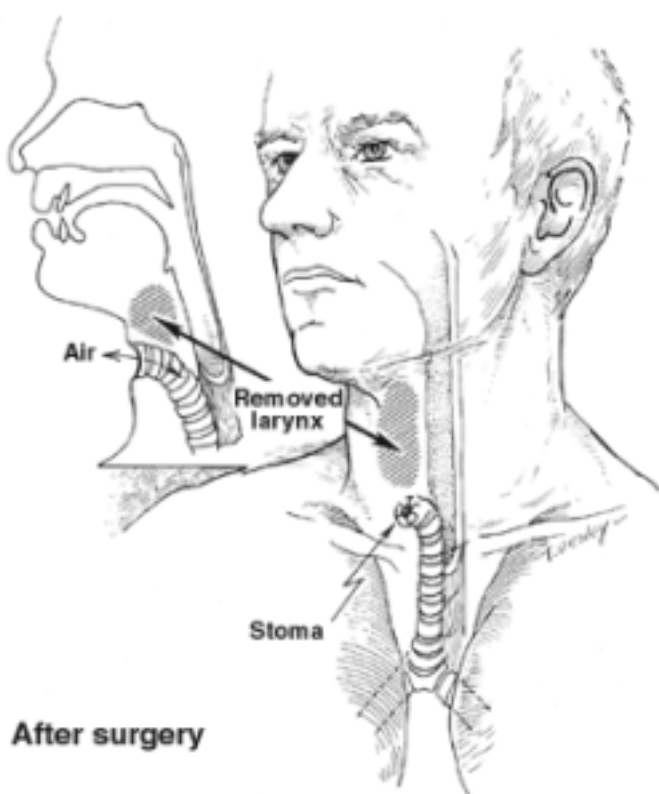
Because the more standard, open surgeries for throat cancer can cause a number of problems, these cancers have often been treated with [chemotherapy](#) combined with [radiation](#) (called *chemoradiation*) over the past decade. But newer robotic surgeries may allow surgeons to completely remove throat cancers with fewer side effects. Patients whose cancers are totally removed with surgery might be able to avoid further treatment with radiation and/or chemotherapy. Since these procedures are newer, it's important to have them done by surgeons (and at treatment centers) experienced in this

approach.

### Laryngectomy (removal of the voice box)

Very rarely, surgery to remove large tumors of the tongue or oropharynx may require removing tissue that a person needs to swallow normally. As a result, food may enter the windpipe (trachea) and reach the lungs, where it can cause pneumonia. When there's a high risk of this, the voice box (larynx) may also be removed during the same operation as the one to remove the cancer. Removal of the larynx is called a *laryngectomy*.

When the voice box is removed, the windpipe is attached to a hole (stoma) made in the skin in the front of the neck. You breathe and cough through this stoma (instead of breathing through the mouth or nose). This is called a *tracheostomy* or *trach* (trake).



Losing your voice box will mean that normal speech is no longer possible, but people can learn other ways to speak. See [Laryngeal and Hypopharyngeal Cancer](#)<sup>3</sup> to find out more about voice restoration.

## Neck dissection

Cancers of the oral cavity and oropharynx often spread to the [lymph nodes](#)<sup>4</sup> in the neck. Removing these lymph nodes (and other nearby tissues) is called a *neck dissection* or *lymph node dissection* and is done at the same time as the surgery to remove the main tumor. The goal is to remove lymph nodes proven to contain cancer. Sometimes doctors recommend an *elective lymph node dissection*. This may be done if there's no proof that the cancer has spread to the lymph nodes, but there's a high chance that it has based on tumor size.

In some early stage mouth and lip cancers, a [sentinel lymph node biopsy](#)<sup>5</sup> might be done to test the lymph nodes for cancer before removing them. This should only be done by doctors and at treatment centers with a lot of experience in the technique.

There are several types of neck dissection procedures, and they differ in how much tissue is removed from the neck. The amount of tissue removed depends on the primary cancer's size and how much it has spread to lymph nodes.

- In a *partial* or *selective* neck dissection only a few lymph nodes are removed.
- For a *modified radical* neck dissection, most lymph nodes on one side of the neck between the jaw bone and collarbone are removed, as well as some muscle and nerve tissue.
- In a *radical* neck dissection, nearly all nodes on one side, as well as even more muscles, nerves, and veins are removed.

The most common side effects of any neck dissection are numbness of the ear, weakness when raising the arm above the head, and weakness of the lower lip. These side effects are caused when nerves that supply these areas are damaged during the operation. After a selective neck dissection, the nerve might only be injured and can heal over time. Nerves heal slowly, but in this case, the weakness of the shoulder and lower lip may go away after a few months. If a nerve is removed as part of a radical neck dissection or because of involvement with tumor, the weakness will be permanent.

After any neck dissection procedure, physical therapy can help improve neck and shoulder movement.

## Reconstructive surgery

Operations may be needed to help restore the structure of areas affected by more extensive surgeries to remove the cancer.



For small tumors, the narrow edge of normal tissue removed along with the tumor is usually small enough that reconstructive surgery isn't needed. But removing larger tumors may cause defects in the mouth, throat, or neck that will need to be repaired. Sometimes a thin slice of skin, taken from the thigh or other area, can be used to repair a small defect. This is called a *skin graft*.

To repair a larger defect, more tissue may be needed. A piece of muscle with or without skin may be rotated from an area close by, such as the chest (pectoralis major pedicle flap) or upper part of the back (trapezius pedicle flap).

Thanks to advances in microvascular surgery (sewing together small blood vessels under a microscope), there are many more options for reconstructing the oral cavity and oropharynx. Tissue from other areas of the body, such as the intestine, arm muscle, abdominal (belly) muscle, or lower leg bone, may be used to replace parts of the mouth, throat, or jaw bone.

Before you have extensive head and neck surgery, talk to the surgeon about your options for reconstructive surgery.

## **Surgery to save or restore body function**

### **Tracheostomy**

A tracheostomy or trach is a stoma (hole) made through the skin in the front of the neck and attached to the trachea (windpipe). It's done to help a person breathe.

If a lot of swelling is expected in the airway after the cancer is removed, the doctor may want to do a short-term tracheotomy (using a small plastic tube) to allow the person to breathe more easily until the swelling goes down. It stays in place for a short time, and is then removed (or reversed) when it's no longer needed.

If the cancer is blocking the throat and is too big to remove completely, an opening may be made to connect a lower part of the windpipe to a stoma (hole) in the front of the neck. This is done to bypass the tumor and allow the person to breathe more comfortably. This is called a permanent *tracheostomy*.

A permanent tracheostomy is also needed after a total laryngectomy.

### **Feeding tubes**

Cancers in the oral cavity and oropharynx may keep you from swallowing enough food

to maintain good nutrition. This can make you weak and make it harder to complete treatment. Sometimes the treatment itself can make it hard to eat enough.

A **gastrostomy tube (G-tube)** is a feeding tube that's put through the skin and muscle of your abdomen (belly) and right into your stomach. Sometimes this tube is placed during an operation, but often it's put in endoscopically. While you are sedated (using drugs to put you in a deep sleep), the doctor puts a long, thin, flexible tube with a camera on the end (an endoscope) down the throat to see inside the stomach. The feeding tube is then guided through the endoscope and to the outside of the body. When the feeding tube is placed through endoscopy, it's called a **percutaneous endoscopic gastrostomy, or PEG tube**. Once in place, it can be used to put liquid nutrition right into the stomach. As long as they can still swallow normally, people with these tubes can eat normal food, too.

PEGs can be used for as long as needed. Sometimes these tubes are used for a short time to help keep you healthy and fed during treatment. They can be removed when you can eat normally.

If the swallowing problem is likely to be only short-term, another option is to place a **nasogastric feeding tube (NG tube)**. This tube goes in through the nose, down the esophagus, and into the stomach. Again, special liquid nutrients are put in through the tube. Some people dislike having a tube coming out of their nose, and prefer a PEG.

In any case, the patient and family are taught how to use the tube. After you go home, home health nurses usually visit to make sure you are comfortable with tube feedings.

## Dental extraction and implants

When radiation treatment is planned, a dental evaluation must be done. Depending on the radiation plan and condition of your teeth, some or even all of the teeth may need to be removed before radiation can start. The teeth may be removed either by the head and neck surgeon or an oral surgeon. If left in and exposed to radiation, teeth that are broken or infected (abscessed) are very likely to cause problems such as infections and areas of necrosis (bone death) in the jaw.

If part of the jaw bone (mandible) is removed and reconstructed with bone from another part of the body, the surgeon might place dental implants (hardware to which prosthetic teeth can be attached) in the bone. This can be done either at the same time the mandible is reconstructed or at a later date.

## Surgery risks and side effects

All surgery carries risk, including blood clots, infections, complications from anesthesia, and pneumonia. These risks are generally low but are higher with more complex operations.

If the surgery is not too complex, the main side effect may be some [pain](#)<sup>6</sup> afterward, which can be treated with medicines.

Surgery for cancers that are large or hard to reach may be very complicated, in which case side effects may include infection; wound breakdown; problems with eating, breathing, and speaking; or on very rare occasions death during or shortly after the procedure. Surgery also can be disfiguring, especially if bones in the face or jaw need to be removed. The surgeon's skill is very important in minimizing these side effects, while removing all of the cancer, so it's important to choose a surgeon with a lot of experience in these types of cancer.

**Impact of glossectomy:** Most people can still speak if only part of the tongue is removed, but they often notice that their speech isn't as clear as it once was. The tongue is important in swallowing, so this may also be affected. Speech therapy can often help with these problems.

When the entire tongue is removed, patients lose the ability to speak and swallow. With reconstructive surgery and a good rehabilitation program including speech therapy, some people may regain the ability to swallow and speak well enough to be understood.

**Impact of laryngectomy:** Laryngectomy, the surgery that removes the voice box, leaves a person without the normal means of speech. There are several ways to restore one's voice. See [Laryngeal and Hypopharyngeal Cancer](#)<sup>7</sup> to find out more about voice restoration.

After a laryngectomy, the person breathes through a stoma (tracheostomy) placed in the front of the lower neck. Having a stoma means that the air you breathe in and out will no longer pass through your nose or mouth, which would normally help moisten, warm, and filter the air (removing dust and other particles). The air reaching the lungs will be dryer and cooler. This can irritate the lining of the breathing tubes and cause thick or crusty mucus to build up.

It's important to learn how to take care of your stoma. You will need to use a humidifier over the stoma as much as possible, especially right after the operation, until the airway lining has a chance to adjust to the drier air now reaching it. You will also need to learn how to suction out and clean your stoma to help keep your airway open. Your doctors, nurses, and other health care professionals can teach you how to care for and protect your stoma, which includes precautions to keep water from entering the windpipe while

showering or bathing, as well as keeping small particles out of the windpipe.

**Impact of facial bone removal:** Some cancers of the head and neck are treated with operations that remove part of the facial bone structure. Because the changes that result are so visible, they can have a major effect on how people view themselves. They can also affect speech and swallowing.

It's important to talk with your doctor about these changes before the surgery. This can help you prepare for them. You can also get an idea about what options might be available afterward. Recent advances in facial prostheses (man-made replacements) and in reconstructive surgery now give many people a more normal look and clearer speech. These things can be a great help to a person's self-esteem.

## More information about Surgery

For more general information about surgery as a treatment for cancer, see [Cancer Surgery](#)<sup>8</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>9</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer/about/what-is-oral-cavity-cancer.html](http://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer/about/what-is-oral-cavity-cancer.html)
2. [www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer/detection-diagnosis-staging/staging.html](http://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer/detection-diagnosis-staging/staging.html)
3. [www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer.html](http://www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer.html)
4. [www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html](http://www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html)
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7. [www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer.html](http://www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer.html)
8. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/surgery.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/surgery.html)
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# Radiation Therapy for Oral Cavity and Oropharyngeal Cancer

Radiation therapy uses high-energy x-rays or particles to destroy cancer cells or slow their rate of growth. Radiation therapy can be used in many ways to treat and oropharyngeal cancers:

- It can be used as the main treatment for small cancers.
- People with larger cancers may need both [surgery](#) and radiation therapy or a combination of radiation therapy and [chemotherapy](#) or a [targeted drug](#).
- After surgery, radiation therapy can be used, either alone or with chemotherapy, as an additional (adjuvant) treatment to try to kill any cancer cells that might not have been removed during surgery. This is called *adjuvant radiation therapy*. Most experts agree that radiation used this way should be started within 6 weeks of surgery.
- Radiation may be used (along with chemotherapy) to try to shrink some larger cancers before surgery. This is called *neoadjuvant therapy*. In some cases this makes it possible to use less extensive surgery and remove less tissue.
- Radiation therapy can also be used to help ease symptoms of advanced cancer, such as pain, bleeding, trouble swallowing, and problems caused by bone metastases (cancer that has spread to bones).

## External beam radiation therapy

The most common way to give radiation for these cancers is to carefully focus a beam of radiation from a machine outside the body. This is called *external beam radiation therapy* or *EBRT*. To reduce the risk of side effects, doctors carefully figure out the exact dose needed and aim the beam as accurately as they can to hit the tumor.

Before your treatments start, the radiation team will take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. Radiation therapy is much like getting an x-ray, but the radiation is stronger. The procedure itself is painless. Each treatment lasts only a few minutes, although the setup time — getting you into place for treatment — takes longer.

Treatments are usually given 5 days a week for 6 to 7 weeks. But sometimes other schedules are used, for instance:

**Hyperfractionation** refers to giving the total radiation dose in a larger number of doses, for example giving 2 smaller doses per day instead of 1 large dose a day.

**Accelerated fractionation** means giving 2 or more doses each day so that the radiation treatment is completed faster (3 weeks instead of 6 weeks, for instance).

Hyperfractionation and accelerated fractionation schedules may reduce the risk of cancer coming back in or near the place it started (called *local recurrence*) and might help some people live longer. The drawback is that treatments given on these schedules also tend to have more severe side effects.

Radiation is commonly given using techniques that help doctors focus the radiation more precisely, such as such as [three-dimensional conformal radiation therapy \(3D-CRT\)](#)<sup>1</sup> and [intensity modulated radiation therapy \(IMRT\)](#)<sup>2</sup>. These use the results of imaging tests, like MRI, and special computer programs to precisely map the cancer's location. Radiation beams are then shaped and aimed at the tumor from several directions, which makes the treatments less likely to damage normal nearby tissues than older ways of giving external beam radiation.

## Brachytherapy

Another way to deliver radiation is by [placing radioactive materials right into or near the cancer](#)<sup>3</sup>. This is called *internal radiation*, *interstitial radiation*, or *brachytherapy*. The radiation travels only a very short distance, which limits its effects on nearby normal tissues.

Brachytherapy is not used often to treat oral cavity or oropharyngeal cancers because newer external radiation approaches, such as IMRT, are now very precise. When brachytherapy is used, it's most often combined with external radiation to treat early lip or mouth cancers.

Different types of brachytherapy may be used. In one form, hollow catheters (thin tubes)



are placed into or around the tumor during surgery. They're left in place for several days while the patient stays in the hospital. Radioactive materials are put into the tubes for a short time each day.

In another form, small radioactive pellets (about the size and shape of a grain of rice) are put right into the tumor. The pellets give off low levels of radioactivity for several weeks and, over time, lose their strength. The pellets themselves are just left in place and rarely cause any problems.

## Possible side effects of radiation therapy

Radiation of the mouth and throat area can cause several short-term side effects, including:

- Skin changes like a sunburn or suntan in the treated area that slowly fades away
- Hoarseness
- Loss of sense of taste
- Redness and soreness or even pain in the mouth and throat

Sometimes open sores develop in the mouth and throat, making it hard to eat and drink during treatment. Liquid feeding through a tube placed into the stomach may be needed. (See [Surgery for Oral Cavity and Oropharyngeal Cancer](#) for more on tube feedings.)

Radiotherapy may also cause long-lasting or permanent side effects:

**Damage to the salivary glands:** Permanent damage to the salivary (spit) glands can cause a dry mouth. This can lead to problems eating and swallowing.

The lack of saliva can also lead to tooth decay (cavities). People treated with radiation to the mouth or neck need to practice careful oral hygiene to help prevent this problem. Fluoride treatments may also help.

Newer radiotherapy techniques such as IMRT may help reduce this side effect. A drug called amifostine (Ethyol<sup>®</sup>) can also help reduce this side effect by limiting radiation damage to normal tissues. It's given into a vein over 15 minutes just before each radiation treatment. Amifostine has side effects, such as low blood pressure, nausea, and vomiting, that can make it hard to tolerate.

**Damage to the jaw bone:** This problem, known as *osteoradionecrosis of the jaw*, can be a serious side effect of radiation treatment. This is more common after tooth



infection, extraction, or trauma, and it can be hard to treat. The main symptom is pain in the jaw. In some cases, the bone actually breaks. Sometimes the fractured bone heals by itself, but often the damaged bone will have to be repaired with surgery.

To help prevent this problem, people getting radiation to the mouth or throat area need to see a dentist to have any problems with their teeth treated before radiation is started. In some cases, teeth may need to be removed.

**Damage to the pituitary or thyroid gland:** If the pituitary or thyroid gland is exposed to radiation, their production of hormones may decrease over time. This can lead to problems with metabolism that may need to be corrected with medicine.

Side effects tend to be worse if [chemotherapy](#) is given at the same time as radiation (chemoradiation). Both the radiation and the chemotherapy side effects are worse, which can make this treatment hard to tolerate. For this reason, it's important that anyone getting chemoradiation be in relatively good health before starting treatment, that they understand the possibility of serious side effects, and that they're treated at a medical center with a lot of experience with this approach.

## More information about radiation therapy

To learn more about how radiation is used to treat cancer, see [Radiation Therapy](#)<sup>4</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>5</sup>.

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1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation/external-beam-radiation-therapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation/external-beam-radiation-therapy.html)
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5. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html)

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## Chemotherapy for Oral Cavity and Oropharyngeal Cancer

Chemotherapy (chemo) is the use of anti-cancer drugs to treat cancer. For oral cavity and oropharyngeal cancers, the drugs are given into a vein or taken by mouth, which allows them to enter the bloodstream and reach cancer that has spread throughout the body.

### How is chemo used to treat oral cavity and oropharyngeal cancers?

Chemo may be used in several different situations:

- Chemo (typically combined with [radiation therapy](#)) may be used instead of [surgery](#) as the main treatment for some cancers. (This is called chemoradiation.)
- Chemo (combined with radiation therapy) may be given after surgery to try to kill any small deposits of cancer cells that may have been left behind. This is known as *adjuvant chemotherapy*.
- Chemo (sometimes with radiation therapy) may be used to try to shrink some larger cancers before surgery. This is called *neoadjuvant* or *induction chemotherapy*. In some cases this makes it possible to use less radical surgery and remove less tissue. This can lead to fewer serious side effects from surgery.
- Chemo (with or without radiation therapy) can be used to treat cancers that are too large or have spread too far to be removed by surgery. The goal is to slow the growth of the cancer for as long as possible and to help relieve any symptoms the cancer is causing.

## Which chemo drugs are used?

The chemo drugs used most often for cancers of the oral cavity and oropharynx are:

- Cisplatin
- Carboplatin
- 5-fluorouracil (5-FU)
- Paclitaxel (Taxol<sup>®</sup>)
- Docetaxel (Taxotere<sup>®</sup>)
- Hydroxyurea

Other drugs that are used less often include

- Methotrexate
- Bleomycin
- Capecitabine

A chemo drug may be used alone or combined with other drugs. Combining drugs can often shrink tumors better, but tend to cause more side effects. A commonly used combination is cisplatin and 5-FU. This combination works better than either drug alone in shrinking cancers of the oral cavity and oropharynx. Another combination often used is cisplatin, 5-FU, plus docetaxel.

Doctors give chemotherapy in cycles, with each treatment followed by a rest period to allow the body time to recover. Each chemo cycle lasts for a few weeks.

For cancers of the head and neck (such as oral cavity and oropharyngeal cancers), chemo is often given at the same time as radiation (called *chemoradiation*). Cisplatin alone is the preferred chemo drug when given along with radiation. Some doctors prefer to give the radiation and chemo before surgery. But for some people, the side effects can be too severe.

For people whose cancers are too advanced for surgery but not widespread, getting chemo and radiation together might produce a better outcome than radiation alone. But this combined approach can be hard to tolerate, especially for people in poor health.

## Possible side effects of chemotherapy

Chemo drugs attack cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in the bone marrow, the lining of the mouth and intestines, and the hair follicles divide quickly and are also affected. This can lead to side effects.

The side effects of chemo depend on the type and dose of drugs given and how long they are taken. Side effects can include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Diarrhea
- Low blood counts

Chemo can affect the blood-producing cells of the bone marrow, leading to low blood cell counts. This can lead to:

- Increased chance of infections (due to low white blood cell counts)
- Easy bruising or bleeding (due to low blood platelet counts)
- Fatigue (due to low red blood cell counts)

Along with the risks above, some side effects are seen more often with certain chemo drugs. For example, 5-FU often causes diarrhea. This might need to be treated with drugs like loperamide. Cisplatin, docetaxel, and paclitaxel can cause nerve damage

(called *neuropathy*). This can lead to numbness and tingling in the hands and feet. This often improves once treatment is stopped, but for some people it can last a long time. Cisplatin can also cause kidney damage. To help prevent this, intravenous (IV) fluid is given before and after each dose.

Although most side effects get better over time once treatment is stopped, some can last a long time or even be permanent. If your doctor plans treatment with chemo be sure to discuss the drugs that will be used and the possible side effects. Once chemo is started, tell your health care team if you notice any changes or have any side effects. There are ways to prevent or treat many of the side effects of chemo. For example, many drugs are available to help prevent or treat nausea and vomiting.

## More information about chemotherapy

For more general information about how chemotherapy is used to treat cancer, see [Chemotherapy](#)<sup>1</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>2</sup>.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html)
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## Targeted Therapy for Oral Cavity and Oropharyngeal Cancer

As researchers have learned more about the changes in cells that cause oral cavity and oropharyngeal cancer, they have developed newer drugs that specifically target these changes. Targeted drugs work differently from standard [chemotherapy](#) (chemo) drugs. They often have different (and often less severe) side effects.

Cetuximab (Erbix<sup>®</sup>) is a man-made version of an immune system protein, called a [monoclonal antibody](#)<sup>1</sup>. It targets a protein on the surface of certain cells called epidermal growth factor receptor (EGFR) that helps cells grow and divide. Oral cavity and oropharyngeal cancer cells often have higher than normal amounts of EGFR. By blocking EGFR, cetuximab can help slow or stop cell growth.

Cetuximab may be combined with [radiation therapy](#) for some earlier stage cancers. For more advanced cancers, it may be combined with standard chemo drugs such as cisplatin, or it may be used by itself.

Cetuximab is given by infusion into a vein (IV), usually once a week. A rare but serious side effect of cetuximab is an allergic reaction during the first infusion, which could cause problems with breathing and low blood pressure. You may be given medicine before treatment to help prevent this.

## Side effects of targeted therapy

Many people develop skin problems such as an acne-like rash on the face and chest during treatment, which in some cases can lead to infections. Cetuximab can make your skin very sensitive to the sun, so you'll need to protect your skin while getting treatment and for at least months after treatment. Other side effects may include headache, tiredness, fever, and diarrhea.

## More information about targeted therapy

To learn more about how targeted drugs are used to treat cancer, see [Targeted Cancer Therapy](#)<sup>2</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>3</sup>.

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# Immunotherapy for Oral Cavity and Oropharyngeal Cancer

Immunotherapy is the use of medicines that help a person's own immune system find and destroy cancer cells. It can be used to treat some people with oral cavity or oropharyngeal cancer.

## Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking normal cells in the body. To do this, it uses “checkpoints” – proteins on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. But newer drugs that target these checkpoints hold a lot of promise as cancer treatments.

**Pembrolizumab (Keytruda)** and **nivolumab (Opdivo)** are drugs that target PD-1, a protein on immune system cells called T cells that normally helps keep these cells from attacking other cells in the body. By blocking PD-1, these drugs boost the immune response against cancer cells. This can shrink some tumors or slow their growth.

These drugs can be used after [chemotherapy](#) in people with oral cavity or oropharyngeal cancer that has returned after treatment or that has spread to other parts of the body. Pembrolizumab is also an option as the first treatment in some people.

These drugs are given as an intravenous (IV) infusion, typically every 2, 3, or 4 weeks.

## Possible side effects

Side effects of these drugs can include:

- Feeling tired or weak
- Fever
- Cough
- Nausea
- Itching
- Skin rash
- Loss of appetite
- Muscle or joint pain



- Constipation or diarrhea

Other, more serious side effects occur less often:

**Infusion reactions:** Some people might have an infusion reaction while getting these drugs. This is like an allergic reaction, and can include fever, chills, flushing of the face, rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It's important to tell your doctor or nurse right away if you have any of these symptoms while getting these drugs.

**Autoimmune reactions:** These drugs work by basically removing one of the safeguards that normally helps keep the body's immune system in check. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, skin, or other organs.

It's very important to report any new side effects to your health care team promptly. If serious side effects do occur, treatment may need to be stopped and you may get high doses of corticosteroids to suppress your immune system.

## More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see [Cancer Immunotherapy](#)<sup>1</sup>.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>2</sup>.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html)

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## Palliative Treatment for Oral Cavity and Oropharyngeal Cancer

Many treatments for oral cavity and oropharyngeal cancer are intended to remove or to destroy the cancer cells or slow their growth. But maintaining a patient's quality of life is another important goal of treatment. This is true for people being treated to try to cure the cancer and for people whose cancer is too advanced to be cured. If the goal of treatment is a cure, palliative treatments can help ease symptoms from the cancer treatment itself. If the cancer is advanced, palliative treatment might play an even larger role, helping to keep the person comfortable and maintain a good quality of life for as long as possible.

Pain is a significant concern for many people with cancer. It can almost always be treated with milder drugs like ibuprofen or acetaminophen or, if needed, with stronger medicines like morphine or drugs like it (known as *opioids*). For more on pain, what can be done about it, and how to keep track of it, see [Cancer Pain](#)<sup>1</sup>.

Nutrition is another important concern for people with oral cavity or oropharyngeal cancers. Both the cancer and its treatment can make it hard to swallow. If this affects how a person eats or drinks, a feeding tube may be needed. (See [Surgery for Oral and Oropharyngeal Cancer](#).) This tube will most likely be needed for a short time during treatment, but in some cases it may need to be left in longer. For more about what to eat during cancer treatment, see [Nutrition for People with Cancer](#)<sup>2</sup>.

There are many other ways your doctor can help you maintain your quality of life and help control your symptoms. But you have to tell your doctor how you're feeling and what symptoms you're having. Some people don't like to disappoint their doctors by telling them they're not feeling well. Others just don't want to complain. This does no one any good. Your doctor wants to know how you really feel. Talking about the symptoms you're having lets your doctor give treatments that can relieve the symptoms. Getting treatment that works can help you feel better and let you focus on the things

that are important to you.

For more information on palliative care, see [Palliative or Supportive Care](#)<sup>3</sup>.

To learn more about side effects and how to manage them, see [Managing Cancer-related Side Effects](#)<sup>4</sup>.

## Hyperlinks

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# Treatment Options for Oral Cavity and Oropharyngeal Cancer by Stage

*This information is based on AJCC Staging systems prior to 2018 which were primarily based on tumor size and lymph node status. Since the [updated staging system for oropharyngeal cancer](#)<sup>1</sup> now also includes the p16 status of the tumor, the stages may be higher or lower than previous staging systems. Whether or not treatment strategies will change with this new staging system are yet to be determined. You should discuss your stage and treatment options with your physician.*

The type of treatment your doctor will recommend depends on where the tumor is and how far the cancer has spread. Here are common ways to treat different stages of oral cavity and oropharyngeal cancer. But each situation is different. Your doctor may have reasons for suggesting a treatment option not mentioned here.

Most experts agree that treatment in a [clinical trial](#)<sup>2</sup> should be considered for any type or stage of cancer in the head and neck areas. This way people can get the best treatment available now and may also get the new treatments that are thought to be even better.

## Stage 0 (carcinoma in situ)

Although cancer in this stage is on the surface layer and has not started to grow into deeper layers of tissue, it can do so if not treated. The usual treatment is [surgery](#) (usually Mohs surgery, surgical stripping, or thin resection) to remove the top layers of tissue along with a small margin (edge) of normal tissue. Close follow-up is important to watch for signs that the cancer has come back. Carcinoma in situ that keeps coming back after surgery may need to be treated with [radiation therapy](#).

Nearly all people with this stage survive a long time without the need for more intense treatment. Still, it's important to note that continuing to smoke increases the risk that a [new cancer](#)<sup>3</sup> will develop.

## Stages I and II

Most patients with stage I or II oral cavity and oropharyngeal cancer do well when treated with [surgery](#) and/or [radiation therapy](#). [Chemotherapy](#) (chemo) given along with radiation (called *chemoradiation*) is another option. It can be used alone, but it's most often used after surgery to treat any cancer cells that may be left behind. Both surgery and radiation work well in treating these cancers. The choice depends on your preferences and the expected side effects, including how the treatment might affect how you look and how you swallow and speak.

### Lip

Surgery is preferred for small cancers that can be removed. Radiation alone may also be used as the first treatment. In this case, surgery might be needed later if radiation doesn't completely get rid of the tumor.

Large or deep cancers often require surgery. If needed, reconstructive surgery can help correct the defect in the lip.

If the tumor is thick, it increases the risk that the cancer might have spread to lymph nodes in the neck, so the surgeon may remove them (called lymph node dissection) so they can be checked for cancer spread.

### Oral cavity

For cancers of the floor of the mouth, front of the tongue, inside of the cheek, gums, and hard palate, surgery is the main treatment. Lymph nodes in the neck may be removed (called lymph node dissection) to check them for cancer spread. If it looks like the

cancer hasn't been completely removed or if it has a high risk of coming back based on how the cancer cells look under the microscope (grade), radiation (often combined with chemo) may be added.

Radiation can be used instead of surgery as the main treatment for some people. This is most often done for people who can't have surgery because of other medical problems.

## Oropharynx

For cancers of the back of the tongue, soft palate, and tonsils, the main treatment is radiation therapy aimed at the cancer and the lymph nodes in the neck. Surgery can be used as the main treatment (instead of radiation). This would include removing lymph nodes in the neck (lymph node dissection). If any cancer remains after surgery, chemoradiation is often used.

## Stages III and IVA

### Oral cavity cancers

These cancers in the floor of the mouth, front of the tongue, inside of the cheek, gums, and hard palate include bigger cancers, those that have grown into nearby tissues, and/or those that have spread to nearby lymph nodes in the neck. They're often treated with a combination of [surgery](#) and [radiation](#). Surgery is often done first and includes taking out some of the neck lymph nodes (lymph node dissection).

### Oropharyngeal cancers

These are cancers in the back of the tongue, soft palate, and tonsils that are larger cancers, have grown into nearby tissues, and/or have spread to nearby lymph nodes in the neck. These cancers are often treated with chemoradiation, although radiation and [cetuximab](#) may be used in some cases. The effect of combining radiation with both [chemo](#) and cetuximab is also being studied. Any cancer that remains after chemoradiation is removed with surgery. If the cancer has spread to neck lymph nodes, they may also need to be removed (a lymph node dissection) after chemoradiation is done.

Another option is to treat first with surgery to remove the cancer and neck lymph nodes. This is often followed by radiation or chemoradiation to lower the chance of the cancer coming back.

The choice of treatment is influenced by where the cancer is, how much it has spread, the expected side effects, patient preferences, and the patient's current health status.

Some doctors give chemo as the first treatment, followed by chemoradiation, and then surgery if needed. Not all doctors agree with this approach, though.

## Stages IVB and IVC

These are [HPV-negative cancers](#)<sup>4</sup> that have already spread into nearby tissues, structures, and maybe [lymph nodes](#)<sup>5</sup>. Stage IVC cancers have spread to other parts of the body, such as the lungs. These cancers are usually treated with [chemo](#), [cetuximab](#), or both. [Immunotherapy](#), alone or with chemo, might be another option. Other treatments such as [radiation](#) may also be used to help [relieve symptoms](#) from the cancer or to help prevent new problems.

[Clinical trials](#)<sup>6</sup> are looking at different ways of combining radiation and chemo with or without cetuximab or other new agents to improve survival and quality of life, and reduce the need for radical or deforming surgery to treat these advanced cancers in the mouth and throat.

## Recurrent oral cavity or oropharyngeal cancer

When cancer come backs after treatment, it's called [recurrent cancer](#)<sup>7</sup>. Recurrence can be local (in or near the same place the cancer first started), regional (in nearby [lymph nodes](#)<sup>8</sup>), or distant (spread to other organs such as the lungs or bone). Treatment options for recurrent cancers depend on the location and size of the cancer, what treatments have already been used, and the person's general health.

If the cancer comes back in the same area and [radiation therapy](#) was used as the first treatment, [surgery](#) is often the next treatment, if the cancer can be removed completely and the patient is healthy enough for surgery. Usually, external beam radiation therapy cannot be repeated in the same site except in certain cases. But internal radiation (brachytherapy) can often be used to control the cancer if it has come back in the place it started. If surgery was used first, more surgery, radiation therapy, [chemo](#), [cetuximab](#), [immunotherapy](#), or a combination of these may be options.

If the cancer comes back in the lymph nodes in the neck, the nodes are often removed with surgery (lymph node dissection). This may be followed by radiation.

If the cancer comes back in a distant area, chemo (and/or cetuximab) is often used. [Immunotherapy](#) might be an option as well. These treatments may shrink or slow the

growth of some cancers for a while and help relieve symptoms, but these cancers are very hard to cure.

If further treatment is recommended, it's important to talk to your doctor so that you understand what the goal of treatment is — whether it's to try to cure the cancer or to [keep it under control](#)<sup>9</sup> for as long as possible and relieve symptoms. This can help you weigh the pros and cons of each treatment. Because these cancers are hard to treat, [clinical trials](#)<sup>10</sup> of newer treatments may be a good option for some people.

## Hyperlinks

1. <https://author-prod.cancer.org/content/cancer/en/cancer/oral-cavity-and-oropharyngeal-cancer/detection-diagnosis-staging/staging.html>
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**Written by**

The American Cancer Society medical and editorial content team  
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