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HEAD & NECK CANCER

A Treatment Guide for Patients and their Families

Navigating your way through treatment

Includes words of support from a renowned head & neck surgeon and a clinical nutritionist

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7th Edition

HEAD & NECK CANCER

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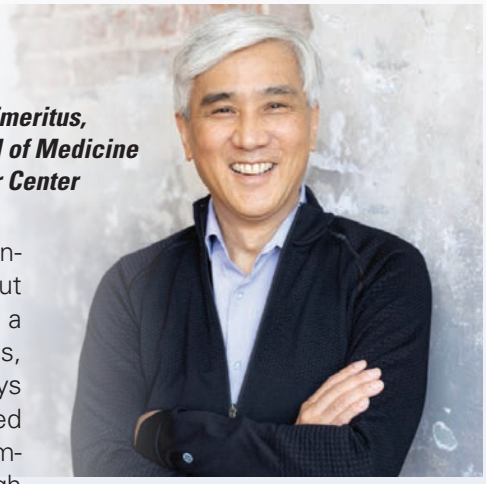

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You've just heard someone tell you that you have cancer. Your care team is diligently working to get accurate data, put it together into a meaningful medical diagnosis, and develop a personalized plan of care, meant just for you. Behind the scenes, some of these same team members are working on new ways to help you and the "next" you. New innovations being developed through clinical trials include precise radiation therapies, cancer vaccines, empowerment of your own immune system to kill cancer and surveillance through saliva and blood samples. It is important to take a breath and read through this information as you are able. It is an honor for us to be able to share some wisdom and "hold your hand" with words during your upcoming journey.

Just as your team is working hard for you, you have a role to play in your health. This starts with doing exactly what you've done in the past with any new challenge: LEARN. Learning comes in many forms, ranging from studying materials to asking questions of experts. Your medical care team can help with what is good information and what is not. The best information comes from those who deal with cancer daily and is consistent across many different sources, while bad information can do a lot of harm. Just as it's important for your care team to ask questions, your team can learn a lot about you and what is going on through the questions you ask, so ask them. Knowledge will be one of your biggest assets as you make decisions.

Next, fighting cancer is a TEAM SPORT. Having both family and friends on your team is a winning combination. There's a lot happening, simply too much for just one person. Having help preparing for a medical appointment, taking notes during the visit, prompting you with reminders about questions and just having a warm hand or a strong arm to hold makes all the difference. Also, communication and feedback are key to having a successful team. Both you, and the "next" you, benefit when your team hears constructive feedback.

Finally, TAKE CARE OF YOURSELF. You need to be at your best so the treatment can work at its best. Continue with all of your standard primary care maintenance exams and tests to ensure the rest of your body stays strong now and in the future. Healthy habits like eating nutritiously, keeping the blood flowing by being active, sleeping well, reducing as much stress as possible, and stopping smoking, vaping and drinking alcohol all help make you stronger for the journey ahead. They also form habits that will pay you and your close ones forward for the rest of your life.

You got this! ■

Embrace the confidence that comes with understanding your diagnosis

Several cancer types fall under the category of head and neck cancer: oral (mouth), pharynx (throat), larynx (voice box), sinus and nasal, thyroid, and salivary gland. These areas are integral to some of our most vital functions. Depending on your diagnosis, your treatment may also affect your appearance. Therefore, it is critical to surround yourself with a medical team and support community that will help you navigate the road ahead.

Your doctor will order a variety of tests to diagnose and learn about your cancer. Those tests may include a physical exam, imaging studies, blood tests, genomic tests, tissue biopsy or liquid biopsy. Your doctor will be looking for the tumor's location and size, whether it has spread to lymph nodes or other organs, any biomarkers, and the type or subtype of the cancer.

Next, your cancer will be classified and staged according to the TNM system developed by the American Joint Committee on Cancer (AJCC). This system classifies the cancer by tumor (T), node (N) and metastasis (M). The T category describes the size and location of the primary tumor. The N category indicates whether the lymph nodes show evidence of cancer cells. The number and location of these lymph nodes are important because they show how far the disease has spread. The M category describes metastasis (spread of cancer to another part of the body), if any.

In certain cancers, the stage is also determined by other factors. For throat cancer, the presence of human papillomavirus (HPV) and the location of the cancer cells are considered. For thyroid cancer, the subtype of cancer and age of the patient influence the stage. This information helps your doctor determine the best treatment options for you.

Be aware that the stage of your cancer may change. If your cancer returns after treatment, diagnostic tests may be repeated to reassess your stage. This is known as restaging. If a new stage is assigned, it is often preceded by an "r" to denote that it has been restaged.

Staging tables for each cancer start on page 21. Each table is unique. Look carefully at the table headlines and sections to ensure the information applies to your diagnosis. ■

Specialized testing can impact treatment decisions

For a long time, treating head and neck cancers has been largely dominated by surgery and radiation therapy. But, now, new treatment options may be available to target specific biomarkers found through genomic testing. Several biomarkers have already been identified in some head and neck cancers, with more likely to be discovered in the future. These help doctors provide more personalized patient care.

THE ROLE OF MUTATIONS

Just as every person has a specific mix of genes that is unique to them, cancers are driven by a mixture of specific mutations (changes that occur in the DNA of a cell). Genomic testing is specialized testing that identifies the presence or absence of cancer-causing mutations. It allows doctors to learn about a tumor's genome, which is a complete set of its DNA. By unlocking the DNA code of the tumor, doctors can better understand its unique characteristics.

To learn how genomic testing is used in head and neck cancer, it is important to understand biomarkers. They are substances, such as genes and molecules, which are produced by cancer cells or other cells of the body in response to cancer. They can be measured in the blood, plasma, urine, cerebrospinal fluid or other body fluids or tissues. They are also known as tumor markers or biological markers. Testing for biomarkers is also known as molecular testing.

The goal of this testing is to provide the tools your medical team needs to personalize your treatment. In cases where your doctor determines it has a clinical benefit, some of the potential uses include the following:

- Diagnosing and staging a cancer
- Determining prognosis (outlook)
- Predicting how the tumor might behave, such as how fast growing it is and how likely it is to metastasize (spread)
- Evaluating whether therapies are available to treat mutations in that specific cancer
- Choosing treatment
- Monitoring treatment effectiveness
- Watching for progression or recurrence

Even if testing is performed, keep in mind that the test results will not provide a solution in every case. Not every tumor has known mutations, and some are identified that do not yet have a specialized treatment. In addition, not all cancer centers offer molecular testing, so it is important to find out whether it has been performed on your blood or tissue samples. If it was, ask your doctor to explain which biomarkers were tested for and the results.

Understanding the types of mutations your tumor has will help you make informed decisions with your doctor about your treatment options. If a mutation is found, your doctor will determine whether the testing indicates you are a candidate for immunotherapy or targeted therapy.

BIOMARKERS FOR HEAD AND NECK CANCER

With head and neck cancers, biomarkers are most often tested during the diagnosis and staging process but may also be checked for when a tumor returns because it may have different mutations than before. It is also recommended to test for biomarkers if the cancer is recurrent or metastatic.

Some of the biomarkers that may be tested for in head and neck cancer include the following:

Epstein-Barr virus (EBV) is associated with some nasopharyngeal cancers and may be tested to help make a diagnosis as well as assess the response of therapy and monitor for recurrence. It is believed that after an infection with EBV, some of the virus' DNA mixes with the DNA of cells in the nasopharynx (upper part of the throat, see page 7) and is able to divide and grow abnormally. Genomic testing can detect the virus in tu-mor cells or in the blood.

Human papillomavirus (HPV) is primarily tested with throat cancers as a part of the staging process. It has specific subtypes that are linked to throat cancers, specifically oropharyngeal cancer (see *HPV and Cancer,* page 4). Research is still determining whether HPV is a biomarker for any of the other types of head and neck cancer. Determining a patient's HPV status can provide prognostic information and place patients into risk categories. Some doctors will do a blood test for circulating tumor tissue-modified viral (TTMV) HPV DNA, which may be used to monitor patients post-treatment for a possible recurrence.

Genes may be tested to determine a patient's eligibility to receive certain types of targeted therapy. Currently, therapies are approved for people with abnormalities in the *BRAF, RET, p53* and *NTRK* genes.

Programmed cell death-ligand 1 (PD-L1) helps determine whether a patient is likely to respond to immunotherapy.

Proteins and growth factors affect how tumor cells develop and survive. They are tested to determine whether a person has abnormalities in the vascular endothelial growth factor (*VEGF*), epidermal growth factor receptor (*EGFR*) and the *MEK* protein. A type of targeted therapy known as a tyrosine kinase inhibitor (TKI) is available to treat these abnormalities.

Thyroid hormone levels, such as thyroglobulin, thyroid-stimulating hormone, thyroglobulin antibodies, and medullary type-specific tests, which include calcitonin and carcinoembryonic antigen (CEA) levels, are biomarkers for thyroid cancer. It is recommended that you are tested for mutations in the *RET* gene if you have a family history of medullary thyroid cancer.

Tumor mutational burden (TMB) is the total number of mutations (changes) found in the DNA of cancer cells. Tumors that have a high number of mutations appear to be more likely to respond to certain types of immunotherapy.

Other biomarker-based treatment strategies are being tested in clinical trials. ■

Take an active role in your care by exploring clinical trials

Clinical trials rely on volunteers to help doctors search for new and better ways to prevent, diagnose, treat and cure cancer, and they are a critical component of cancer research. These highly regulated studies evaluate whether a new treatment, such as a drug, drug combination, surgical procedure, type of radiation therapy or a combination of therapies, is equally or more effective than the current standard of care.

You are encouraged to discuss a clinical trial with your health care team early in your care, especially if it has not been mentioned already. Regardless of where you are in the continuum of care – newly diagnosed or ready for a new option – clinical trials offer possible access to state-of-the-art treatments. Depending on your unique situation, a clinical trial may even be your best first option. Your medical team will guide you through the process if that is the next step. You can also help search for clinical trials on your own (see below).

As with any cancer treatment, those used in clinical trials present potential benefits and possible risks. They often have extra time commitments as well. It is important to be able to accommodate the tests and appointments that are required for the trial.

Using the resources in the back of this guide and those from your health care team, learn more about this potential treatment option so you can make an educated treatment decision. It may ease your mind to know that most of the advances made in treating cancer today were once developed, tested and evaluated through the clinical trials process and were approved by the U.S. Food and Drug Administration (FDA). By simply participating, you will be a partner in cancer research, helping improve treatments for future patients.

If you are interested in participating in the future of cancer care but prefer not to join a therapeutic trial, consider a non-treatment trial that evaluates the following:

- Disease prevention and patient screening methods
- Diagnostic tools and procedures
- Genetic risk factors
- Ways to improve health and/or quality of life ■

Searching for a clinical trial

Let your doctor know if you are interested in learning more about clinical trials that may fit into your treatment plan. While they search, you can, too.

Have your exact diagnosis, pathology report and details of previous treatments available. These will help you narrow the list of active trials to those that may be a good fit for you.

Search online. Many websites offer ways to search for a clinical trial. Some are customized to a certain cancer type; others are much broader. Generally, clinical trial search sites are hosted by the government, the National Cancer Institute, cancer advocacy groups, pharmaceutical companies and industry trade organizations, academic medical centers and major hospitals. No single list contains every open clinical trial, and new trials are continually being added, so check back often. For a list of clinical trials websites, see page 19.

Request assistance by phone call. This is convenient for people who are not tech savvy, do not have access to the tools necessary to search online or simply prefer to talk to a person.

Consider many factors. As you search, look for trials that include your cancer type, age, location and the distance you are willing to travel.

Identify potential trials. Discuss those you find with your doctor to determine whether you may be eligible. Every participant in a specific trial must meet the same criteria to ensure the data gathered during the trial is valid. Common criteria include cancer type, subtype, stage, biomarker status and treatment history. You may not qualify for every trial that appeals to you. Some may be closed, or you may not meet eligibility criteria. For example, if a trial requires that you have already had a specific treatment and you have not, you will not be eligible. Under certain extreme conditions, you and your doctor may apply to the FDA to join a clinical trial that is closed or otherwise inaccessible. This is known as Expanded Access, also called Compassionate Use.

Learn about the treatment options available for you

Research is expanding the type of head and neck cancer treatments available. Scientists are looking to find more effective therapies, including drugs, drug combinations, surgical techniques and types of radiation therapy. Improving side effect management to help improve patients' quality of life is also a goal.

Your treatment plan will be based on many factors: whether you are newly diagnosed or are experiencing a recurrence; the presence of symptoms; your overall health; the aggressiveness of the cancer; and your goals of treatment, which may include curing the cancer, controlling tumor growth and pain, and improving your quality of life.

Flexibility and patience will become very important. The treatment plan you start with may change if test results or symptoms indicate the need. Your doctor will monitor you regularly, and you will be responsible for communicating with your health care team and keeping follow-up appointments.

Your doctor may ask you about your smoking status to determine the potential effectiveness of radiation therapy and surgical treatments. Smoking is known to reduce treatment effectiveness and is also associated with an increased risk of second cancers.

TREATMENT OPTIONS

Treatments can be used alone or in combination and at different times. First-line therapy is the first treatment used. Second-line therapy is given when the first-line therapy does not work or is no longer effective. Standard of care refers to the most widely recommended treatments for the type and stage of cancer you have.

Local treatments are directed at a specific organ or a limited area of the body and include surgery and radiation therapy. Systemic treatments, which are typically drug therapies, travel throughout the body.

Your treatment options may include the following. For more specific options, go to *Treatment by Cancer Type*, page 6.

Surgery is used to remove a solid tumor. It may offer the best chance of controlling the disease and keeping it from spreading, especially for people with early-stage disease. Surgery may be used to stage and treat the cancer or to relieve or prevent symptoms that might otherwise occur later. Many types of surgery are available. A neck dissection, which is the removal of lymph nodes and surrounding tissue from the neck, is a common procedure that may be used. Surgery may also accompany other treatment types.

Reconstructive surgery may be an option to restore appearance or functionality (see *Reconstruction & Rehabilitation*, page 13).

Radiation therapy uses high-energy radia-

HPV AND CANCER

The human papillomavirus (HPV) is a virus that can lead to cancer and, particularly, oropharyngeal (throat) and cervical cancer. HPV is the most common sexually transmitted disease in the United States. Most people acquire an HPV infection at some point in their lifetime, and the majority are able to heal from it, often without symptoms. If the infection does not resolve, however, it may lead to the development of cancer.

If your doctor suspects throat cancer, you will likely be tested for the HPV biomarker. Its presence helps your doctor appropriately stage the cancer and determine the treatment that may be most effective for you (see *Throat Cancer*, page 7). HPV biomarker testing may also be conducted to predict an HPV-associated throat cancer recurrence.

What this means for your family

Because HPV is spread through sexual contact, it is important to learn how this diagnosis may affect your loved ones.

First, it is important to realize that most people diagnosed with a head and neck cancer are over the age of 45 and never had the opportunity to receive the vaccine because it was not yet available. They also are no longer eligible for it. Additionally, the HPV vaccine does not treat existing infections or diseases. As a result, the goal should be prevention. Advocate for vaccinating younger family members to try to prevent future infections from the types of HPV that most often cause oropharyngeal and other cancers.

Three vaccines are approved by the U.S. Food and Drug Administration (FDA) for male and female children and young adults, 9 to 26 years old, to provide protection against new HPV infections and include:

- **Gardasil** (Human Papillomavirus Quadrivalent [Types 6, 11, 16, and 18] Vaccine, Recombinant).
- **Gardasil 9** (Human Papillomavirus 9-valent Vaccine, Recombinant). Gardasil 9's approval was recently expanded to include males and females ages 27 through 45 years.
- **Cervarix** (Human Papillomavirus Bivalent [Types 16 and 18] Vaccine, Recombinant).

Using condoms and dental dams properly may lower the chance that HPV is passed from one person to another. Consult your health care team and the listings in the back of this guide for more resources about HPV in the Head & Neck category, page 19.

Key facts about HPV:

- More than 150 types of HPV exist, and about 40 types can be spread through sexual contact from the skin and mucous membranes (lining of the mouth, throat or genital tract).
- HPV-related throat cancers are increasing fastest among men in the United States.
- Oropharyngeal (throat) cancers affect the middle part of the throat, including the base of the tongue and tonsils, and are the most common type of cancer caused by HPV.
- Nine strains of HPV are known to cause cancer, with HPV being linked to approximately 70 percent of throat cancers.
- HPV is also linked to anal, cervical, penile, vaginal and vulvar cancers.

tion to destroy cancer cells and shrink tumors. Some people with localized disease or bone pain that does not lessen with chemotherapy may receive it to specific parts of the body.

External-beam radiation therapy (EBRT) is the most common type of radiation therapy used to treat many types of head and neck cancer. It is delivered from a machine. Different types of EBRT include proton therapy, three-dimensional conformal radiation therapy (3D-CRT), intensity-modulated radiation therapy (IMRT), hyperfractionated therapy and stereotactic radiosurgery.

Radioactive iodine therapy involves giving radioactive iodine (I-131) in liquid or pill form to treat some forms of thyroid cancer. It may be used after surgery in patients with thyroid cancer who are at increased risk of recurrence. The radioactive iodine will concentrate in any remaining thyroid tissue, and the radiation will kill the cancer cells.

Drug therapy may include chemotherapy, hormone therapy, immunotherapy or targeted therapy.

Chemotherapy is typically used only in patients with advanced head and neck cancers. It may be given alone or in combination with other forms of treatment. It may be given intravenously (IV) through a small tube inserted into a vein or port, or taken orally as a pill. Most patients with early-stage head and neck cancers do not receive chemotherapy.

Hormone therapy is a part of treatment to supplement the hormone the thyroid gland makes if the thyroid is partially or fully removed. It may also be used to slow down the growth of remaining differentiated cancer cells. It is typically given orally as a pill that is taken daily.

Immunotherapy helps the body's own immune system recognize and destroy cancer cells. It may be used as first-line therapy for metastatic, recurrent or unresectable (inoperable) head and neck cancers. It may be used when the cancer progresses during or after platinum-based chemotherapy. The main type of immunotherapy approved for head and neck cancers is immune checkpoint inhibitors, which prevent the immune response from slowing down so that immune cells continue fighting cancer. It may be given intravenously (IV) through a vein or a port or as an injection.

Some immunotherapies are approved as tumor-agnostic treatment, which means they are approved to treat any type of cancer that has the molecular alterations known as microsatellite instability-high (MSI-H), deficient mismatch repair (dMMR) or tumor mutational burden-high (TMB-H).

Targeted therapy uses drugs or other substances to identify and attack specific cancer cells. Targeted therapy is designed to affect only cancer cells. Some of these drugs are oral medications given in pill form, and others are given by IV. Some may be given alone or in combination with other drug therapies.

When given for head and neck cancers, these drugs target specific genes, such as *BRAF, RET* and *NTRK,* or proteins and growth factors, including *VEGF, EGFR* and *MEK*. This therapy may be used with or without chemotherapy and after surgery for advanced stage head and neck cancers.

Chemoradiation, also called chemoradiotherapy, combines chemotherapy with radiation therapy. It makes cancer cells more sensitive to radiation, making it easier for the radiation to kill them.

Watchful waiting, sometimes known as active surveillance, may be recommended for tumors that appear to be growing very slowly. Delaying treatment postpones potential treatment side effects for as long as possible while the doctor closely monitors for signs the cancer has progressed or returned.

Clinical trials are medical research studies that may offer access to leading-edge treatments not yet widely available. They may be an option at any stage, even as a first-line treatment (see *Clinical Trials,* page 3). Ask your doctor whether you should consider a clinical trial. ■

SOME HEAD AND NECK CANCER DRUGS

These therapies may be used alone or in combination. For additional combination therapies your doctor might suggest, go to PatientResource.com/Head_and_Neck_Treatment

- bleomycin sulfate (Blenoxane)
- cabozantinib (Cabometyx, Cometriq)
- cetuximab (Erbitux)
- cisplatin (Platinol)
- dabrafenib (Tafinlar) and trametinib (Mekinist)
- docetaxel (Taxotere)
- doxorubicin hydrochloride (Adriamycin)
- entrectinib (Rozlytrek)
- hydroxyurea (Hydrea)
- larotrectinib (Vitrakvi)
- lenvatinib (Lenvima)
- methotrexate sodium (Methotrexate LPF)
- nivolumab (Opdivo)
- pembrolizumab (Keytruda)
- selpercatinib (Retevmo)
- sorafenib (Nexavar)
- vandetanib (Caprelsa)

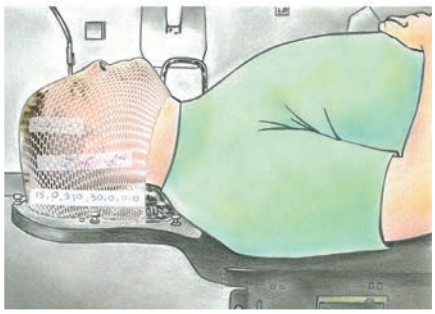
As of 7/7/23

THERMOPLASTIC MASK

Mask ensures accurate delivery of radiation beams

Radiation beams must target the same spot every time for radiation therapy to be most effective. In most cases, semi-permanent marks or permanent tattoos are placed on your skin to indicate the exact location the radiation beams must hit to reach the tumor. To ensure your safety, you must be in the same position for every treatment. Body molds or other immobilizing devices, such as a special mesh head mask called a thermoplastic mask, may be necessary.

The mask is created from a mold of your face and head, and it is a tight fit. Wearing it and being unable to move can cause anxiety, especially if you are claustrophobic. Your treatment team will help make you as comfortable as possible, so tell them if you feel anxious. Your doctor may prescribe medication to help you relax.



Discuss all potential therapies with your doctor

Progress in treating head and neck cancers continues to be made, giving patients hope for a more promising outcome. Discuss all of your treatment options, including clinical trials, with your doctor to make the most informed decisions about your care. Share any quality-of-life concerns early so they can be addressed and prepared for.

➥ *Staging tables for thyroid cancer* on page 24.

THYROID CANCER

The thyroid gland is located below the larynx (voice box) in the front of the neck. Shaped like a butterfly, it produces hormones that regulate heart rate, body temperature, growth and metabolism. It also contains four parathyroid glands (not shown) that are pea-sized organs on the back of the thyroid. They produce hormones that control blood calcium levels.

Thyroid tissues contain two types of cells. Follicular cells produce the thyroid hormone, and parafollicular cells (commonly called C-cells) produce a hormone involved in processing calcium.

Although thyroid cancer is often not accompanied by many symptoms, it is sometimes discovered on imaging scans or other tests performed to diagnose another medical condition. There are four main types of thyroid cancer: papillary, follicular, medullary and anaplastic.

Of the four, papillary thyroid cancer is the most common. It begins in the follicular cells, as does follicular thyroid cancer. Both are called well-differentiated cancers because their cells look similar to healthy thyroid cells when viewed under a microscope. These typically spread and grow slowly.

Medullary thyroid cancer begins in the C-cells and is more aggressive than papillary or follicular thyroid cancer.

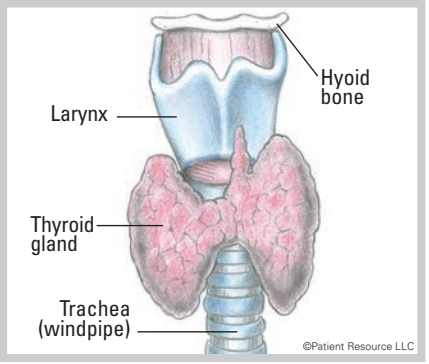
Anaplastic thyroid cancer is called undifferentiated or poorly differentiated because its cells look very different from healthy thyroid cells. It tends to grow and spread very quickly and is the most aggressive form of thyroid cancer.

TREATMENT OPTIONS

Your doctor will develop a treatment plan based on the type and stage of the thyroid cancer as well as your age, overall health, symptoms, previous treatments and preferences for quality of life. One or more of the following therapies may be recommended.

Surgery is the most common treatment for thyroid cancer, and various procedures and techniques may be available. Your surgeon may also remove lymph nodes in the neck to see whether the cancer has spread.

THYROID ANATOMY



Lobectomy, also called hemithyroidectomy, may be used in some low-risk cases when only half of the thyroid needs to be removed.

Near-total thyroidectomy is used to remove all but a very small part of the thyroid. Some lymph nodes may also be removed.

Total thyroidectomy removes the entire thyroid gland. As a result, thyroid hormone therapy must be taken after surgery because thyroid hormones can no longer be produced in the body.

Radioactive iodine treatment can be used to destroy remaining thyroid cells that were not removed by surgery or that have spread beyond what can be removed with surgery. This involves giving radioactive iodine (I-131) in liquid or pill form. The thyroid absorbs almost all iodine that enters the body. The radioactive iodine will concentrate in any remaining thyroid tissue, and the radiation will kill the cancer cells.

This treatment is standard of care for papillary or follicular thyroid cancer that has spread to lymph nodes in the neck or other parts of the body. Radioactive iodine treatment is not effective in medullary thyroid cancer or anaplastic thyroid cancer because the cancer cells do not absorb iodine.

Radiation therapy is typically given after surgery and concentrates on targeted cancer cells in a specific area. It is more often used as part of treatment for medullary and anaplastic thyroid cancers. External-beam radiation therapy is often used for later stage thyroid cancer that has spread to critical areas of the neck, such as the trachea, voice box or esophagus.

Drug therapy is systemic therapy that travels throughout the body and may include chemotherapy, hormone therapy or targeted therapy.

Chemotherapy uses drugs to destroy cancer cells by preventing them from growing and dividing. It may consist of a single drug or multiple drugs given in combination. It may also be combined with other types of treatment.

Hormone therapy is used after surgery to replace the hormone needed by the body after part of or the whole thyroid is removed. It may also slow the growth of remaining differentiated cancer cells. This medication is a pill. Taking calcium and vitamin D supplements may be necessary if the parathyroid gland function is affected by surgery.

Targeted therapy helps slow or stop the progression of disease in certain types of thyroid cancer. Two types approved for thyroid cancer include tyrosine kinase inhibitors, which block signals needed for tumors to grow, and protein kinase inhibitors, which block proteins needed for cell growth and may kill cancer cells. They may be an option if specific molecular (genetic) abnormalities are found in the tumor. Some of these abnormalities include a neurotrophic tyrosine receptor kinase (*NTRK*) genetic fusion, a *BRAF V600E* gene mutation and *RET* mutation-positive cancers. In some cases, targeted therapy may be used to treat certain types of metastatic thyroid cancer.

Watchful waiting is a strategy to avoid treatment and potential side effects for as long as possible. It may be recommended for tumors that appear to be growing very slowly. Your doctor will closely monitor you for signs the cancer has progressed or returned before starting treatment.

THYROID CANCER RESOURCES

American Thyroid Association: www.thyroid.org
Bite Me Cancer: www.bitemecancer.org
HNC Living Foundation: www.hncliving.org
Light of Life Foundation: www.lightoflifefoundation.org
ThyCa: Thyroid Cancer Survivors' Association, Inc.: www.thyca.org
Thyroid Head & Neck Cancer Foundation (THANC): www.thancfoundation.org

➥*Staging tables for throat cancer* on page 23.

THROAT CANCER

The throat, or pharynx (FAYR-inx), is a hollow tube that starts behind the nose and leads to the esophagus. As part of both the respiratory and the digestive systems, it functions as a passageway for air, food and liquid. It is divided into three parts: the nasopharynx (behind the nose); the oropharynx, which includes the soft palate (the back of the roof of the mouth), the base of the tongue and the tonsils; and the hypopharynx, which is the lowest portion of the throat. Throat cancer typically begins in the thin, flat squamous (SKWAY-mus) cells lining the mucous membranes.

The human papillomavirus (HPV) is linked to most oropharyngeal cancers (see *HPV and Cancer,* page 4). Nasopharyngeal cancer may be caused by the Epstein-Barr virus (EBV), particularly in people of Asian descent.

TREATMENT OPTIONS

As your doctor tailors your treatment plan, several factors will be considered during the process, including the region of the throat where the cancer occurs, whether the cancer is primary or recurrent, and the presence of certain biomarkers related to HPV. Check the staging table headlines carefully in this guide (see page 23) to find the ones that apply to you because different tables are used based on the HPV status and region of the throat where the cancer is located.

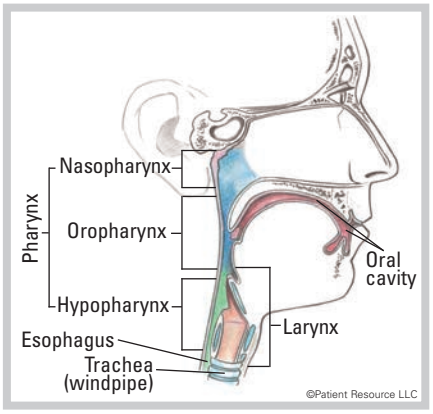
Throughout treatment, your doctor will try to preserve as much normal function as possible. One or more of the following options may be in your treatment plan.

Surgery is commonly used to treat oropharyngeal and hypopharyngeal cancers. It is rarely used for nasopharyngeal cancers because the area is difficult to reach. However, it may be used for nasopharyngeal cancer that does not respond to radiation therapy and to remove lymph nodes or other tissues in the neck. One or more of the following surgeries may be used.

Transoral robotic surgery (TORS) is an option for early-stage oropharyngeal cancers (especially those containing HPV+ tumors). It can be used to remove cancers from the tonsils or the back one-third of the tongue, called the base of the tongue. TORS may also be used to treat certain small hypopharyngeal cancers.

Radical tonsillectomy, also known as lateral oropharyngectomy, removes the tonsil as well as a cuff of tissue around the tonsil, including part of the soft palate, pharynx and base of the tongue.

THROAT ANATOMY



Base of tongue resection removes the tumor from the back one-third of the tongue.

Partial pharyngectomy removes part of the pharynx (throat).

Laryngopharyngectomy removes tumors in the hypopharynx, the lowest part of the throat. This involves the removal of the larynx (voice box), including the vocal folds and pharynx. With this approach, a surgeon reconstructs the pharynx and creates a stoma for breathing (see *Stoma Care*, page 13.) This type of surgery is typically reserved for large tumors or those that fail nonsurgical treatment.

A *neck dissection* to remove lymph nodes may be performed.

Reconstructive surgery may be recommended to restore function or appearance and replace missing tissue. This surgery would take place at the same time the cancer is being removed (see *Reconstruction & Rehabilitation*, page 13).

Radiation therapy may be given alone or with chemotherapy (chemoradiation) as a first-line treatment for throat cancers in which surgery is not a good option.

External-beam radiation therapy (EBRT) is the most common type of radiation therapy used to treat throat cancers. It includes stereotactic radiation therapy, intensity-modulated radiation therapy (IMRT), and proton therapy, with IMRT being the most commonly used and well-researched.

Hyperfractionated radiation therapy, in which the radiation is given in smaller doses but more frequently, is an approach that may be used for certain cases of advanced throat cancer to improve the way the tumor responds to treatment.

Radiation with or without chemotherapy may also be recommended following surgery as adjuvant treatment for advanced stage cancers. This therapy may be used to eliminate any remaining cancer cells and to lower the risk of recurrence.

Drug therapy may be used alone or in combination with other therapies.

Chemotherapy given alone may be used to treat cancers that are not able to be removed surgically or that have returned (recurred). In this case, the goal of treatment may be to prevent growth instead of cure. It may be given after surgery with radiation therapy (chemoradiation) if the risk for recurrence is high. For nasopharyngeal cancers, additional chemotherapy may be given before starting chemoradiation treatment, also called neoadjuvant chemotherapy. Chemoradiation may be an option for the first treatment used.

Immunotherapy in the form of immune checkpoint inhibitors may be an option for treating certain recurrent or metastatic throat cancers. The doctor will test for the tumor's PD-L1 expression, which may indicate whether the tumor could respond to immunotherapy. If expression is more than 1 percent, the tumor is considered to be PD-L1 positive and immunotherapy alone may be used. If PD-L1 is negative, immunotherapy and traditional chemotherapy are often combined for patients who have recurrent or metastatic cancer. It may also be used if the cancer continues to grow or spread during treatment with platinum-based chemotherapy.

Targeted therapy drugs may treat types of throat cancer that contain specific genetic abnormalities, proteins or growth factors. Epidermal growth factor receptor (*EFGR*) inhibitors are approved for oropharyngeal and hypopharyngeal cancers in combination with radiation therapy or chemotherapy.

THROAT CANCER RESOURCES

American Cancer Society: www.cancer.org
Laryngeal and Hypopharyngeal Cancer
Nasopharyngeal Cancer
Oral Cavity and Oropharyngeal Cancer

Centers for Disease Control (CDC): www.cdc.gov
Human Papillomavirus (HPV) and Cancer

Head & Neck Cancer Alliance: headandneck.org

National Cancer Institute: www.cancer.gov
Hypopharyngeal Cancer Treatment
Nasopharyngeal Cancer Treatment
Oropharyngeal Cancer Treatment

➥*Staging tables and illustrations for oral cancer* on page 21.

ORAL CANCER

More than half of all head and neck cancers develop in the oral cavity (also called the mouth), which includes the lips, gums, lining inside the cheeks, roof of the mouth, retromolar trigone (small spot behind the wisdom teeth), front two-thirds of the tongue, and the floor of the mouth underneath the tongue. Most oral cancers form from squamous (SKWAY-mus) cells, which are thin, flat cells that line moist surfaces in your mouth and throat.

The symptoms of oral cancer can also signal many other conditions, so they are frequently diagnosed at a late stage. Some symptoms may include a sore in the mouth or lip that doesn't heal; red or white patch on the gums, tongue, tonsil or lining of the mouth; a lump on the lip, mouth, neck or throat; persistent sore throat; hoarseness or change in voice; and difficulty chewing, swallowing or moving the jaws or tongue. Dentists typically screen for cancer at regular six month or annual appointments.

TREATMENT OPTIONS

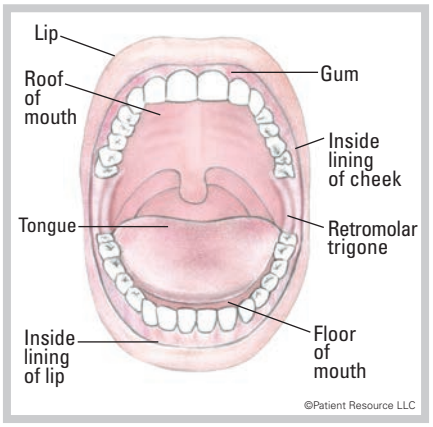
When discussing your treatment plan with your doctor, keep in mind that your ability to speak and eat normally and your appearance may be altered. As a result, it is very important to have detailed discussions with your doctor about the benefits, risks and potential side effects and late effects of every treatment, including quality-of-life issues. You are also encouraged to discuss reconstructive options. Many surgeons who remove head and neck cancer are also trained in reconstruction and can expertly perform both parts of the surgery (see *Reconstruction & Rehabilitation*, page 13).

Your treatment plan may include one or more of the following options.

Surgery is typically the recommended treatment for oral cavity cancers. It is performed to remove small, early-stage tumors of the lip, gums, roof of the mouth, front of the tongue, floor of the mouth and inside the cheeks. It may also be used to remove larger tumors and those that have metastasized (spread) to nearby tissue or lymph nodes in the neck. The goal of surgery is to remove the tumor; however, your surgeon will also focus on preserving as much function as possible. Various procedures and techniques are potential options.

Tumor resection removes the tumor and a margin of healthy tissue surrounding it.

ORAL ANATOMY



Glossectomy removes all or part of the tongue. A partial glossectomy removes less than half of the tongue; a hemiglossectomy removes half of the tongue; and a subtotal or total glossectomy removes most or all of the tongue.

Maxillectomy removes all or part of the hard palate.

Mandibulectomy removes all or part of the jawbone.

Composite resection is common in treating advanced oral cancers. It may involve the removal of multiple areas affected by cancer, such as part of the jaw, tongue and floor of the mouth.

Mohs micrographic surgery may be recommended for some types of lip cancer. After removing the tumor, the surgeon removes a tiny fragment of tissue that had surrounded it and examines it under a microscope. The process is repeated until clear margins are seen. This type of procedure is performed by a dermatologist.

Neck dissection removes some of the lymph nodes in the neck when the cancer has spread to the area, or if there is a significant risk it will spread to the lymph nodes.

Reconstructive procedures may be recommended to repair or replace removed areas, improve the ability to eat and speak, and help restore appearance as much as possible (see *Reconstruction & Rehabilitation*, page 13).

Radiation therapy may be recommended if you are not a candidate for surgery (due to other medical problems or the extent of the cancer). It is not designed to cure the cancer, but to slow down its growth and spread, and alleviate symptoms.

When it is used, it is given after surgery as adjuvant therapy to destroy remaining cancer cells and reduce the risk of the cancer recurring. It may also be used alone or with chemotherapy (chemoradiation) for cancer that has a high risk of recurring. It can be given in the form of external-beam radiation therapy, which is delivered by a machine outside of the body.

Radiation therapy to the oral cavity can affect your teeth. Before beginning this type of treatment, you will be required to have a thorough dental exam with a dentist experienced in treating people with cancer to address existing problems (see *Dental & Oral Side Effects,* page 15). If you smoke, be aware that research indicates radiation therapy is more effective in patients who have stopped smoking before beginning treatment.

Drug therapy may be used alone or with other therapies.

Chemotherapy can be used for oral cavity cancer if you are not a candidate for surgery. This can be given with the goal of slowing down the growth and spread of the cancer. It is more commonly used as adjuvant treatment following surgery if your cancer has aggressive features and a high risk of returning.

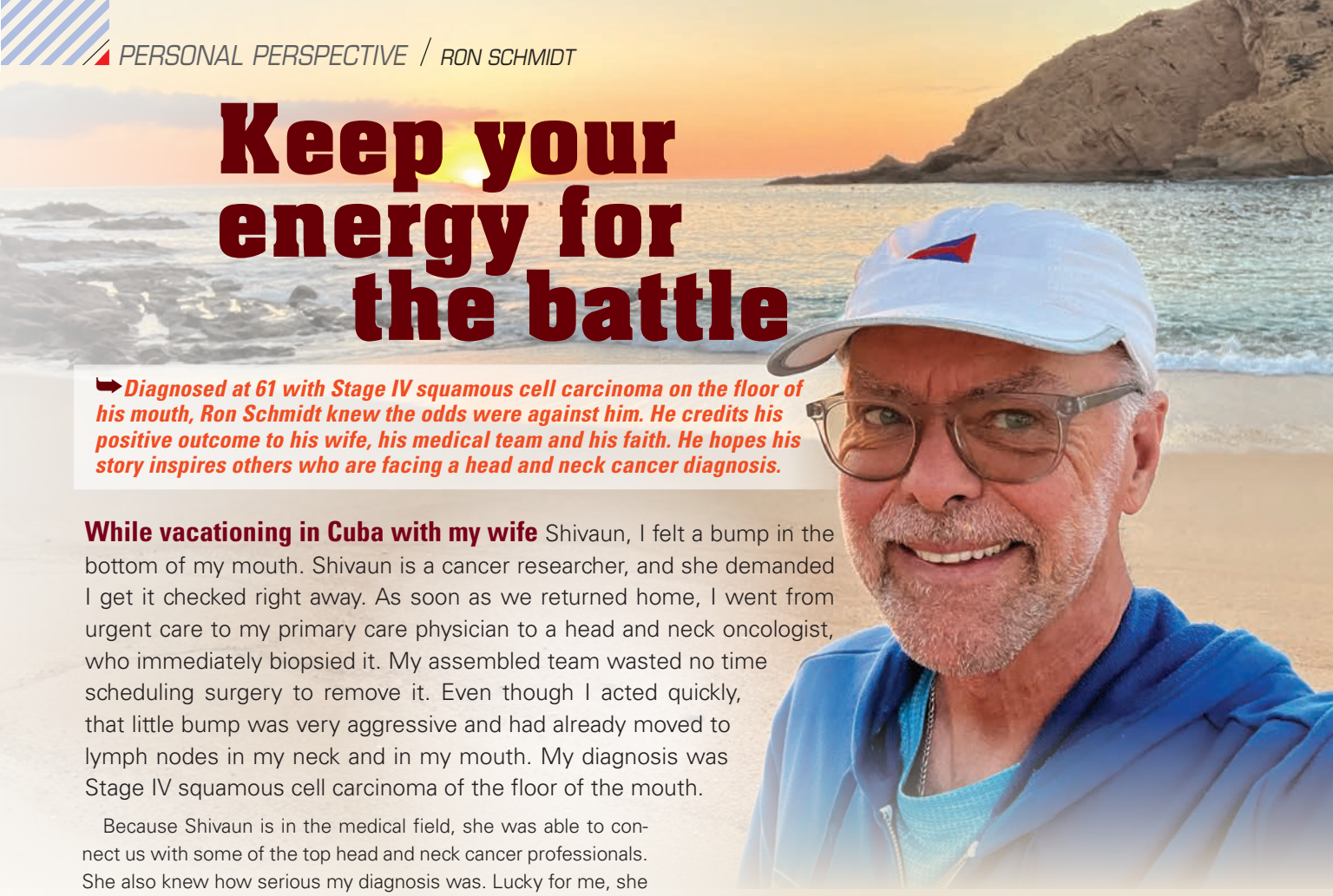
Immunotherapy in the form of immune checkpoint inhibitors may be part of your treatment plan if you have recurrent or metastatic oral cancer. The doctor will test for the tumor's PD-L1 expression, which may indicate whether the tumor could respond to immunotherapy. If expression is more than 1 percent, the tumor is considered to be PD-L1 positive and immunotherapy alone may be used. If PD-L1 is negative, immunotherapy and traditional chemotherapy are often combined for patients who have recurrent or metastatic cancer.

Targeted therapy may be an option to treat types of oral cancer that contain specific genetic abnormalities, proteins or growth factors. Targeted therapy in the form of epidermal growth factor receptor (*EGFR*) inhibitors may be used in combination with radiation therapy. Targeted therapy drugs may be given alone or in combination with chemotherapy or radiation therapy.

ORAL CANCER RESOURCES

American Cancer Society: www.cancer.org
Oral Cavity and Oropharyngeal Cancer
American Society of Clinical Oncology: www.cancer.net
Oral and Oropharyngeal Cancer
National Cancer Institute: www.cancer.gov
Lip and Oral Cavity Cancer Treatment
Oral Cancer Awareness Foundation (OrCA): www.4orca.org
The Oral Cancer Foundation: www.oralcancerfoundation.org
Support for People with Oral and Head and Neck Cancer (SPOHNC): www.spohnc.org

Keep your energy for the battle



Diagnosed at 61 with Stage IV squamous cell carcinoma on the floor of his mouth, Ron Schmidt knew the odds were against him. He credits his positive outcome to his wife, his medical team and his faith. He hopes his story inspires others who are facing a head and neck cancer diagnosis.

While vacationing in Cuba with my wife Shivaun, I felt a bump in the bottom of my mouth. Shivaun is a cancer researcher, and she demanded I get it checked right away. As soon as we returned home, I went from urgent care to my primary care physician to a head and neck oncologist, who immediately biopsied it. My assembled team wasted no time scheduling surgery to remove it. Even though I acted quickly, that little bump was very aggressive and had already moved to lymph nodes in my neck and in my mouth. My diagnosis was Stage IV squamous cell carcinoma of the floor of the mouth.

Because Shivaun is in the medical field, she was able to connect us with some of the top head and neck cancer professionals. She also knew how serious my diagnosis was. Lucky for me, she has a caregiver type of personality. She doesn't get too emotional. She just kicks into gear and gets things done.

Treatment began right away with extensive surgery to remove part of my jaw and most of my lower front teeth. For reconstruction, the doctor used skin from my leg to rebuild part of my mouth. I have a partial plate where my lower front teeth were removed and now I can chew better, and I look better.

I followed surgery with radiation therapy 5 days a week for 7 weeks then quarterly scans to monitor my condition. That is how we discovered the cancer had returned, and it was in my right lung. I had surgery to remove the lower right lobe of that lung.

At this point, my oncologist recommended adding immunotherapy to my treatment plan. I trusted him completely, so I agreed. I asked how we'd know if it was working, and I'll never forget his answer. He said we'll never know if it is, but we will know if it isn't.

I had monthly immunotherapy infusions for a year with no side effects and nothing has shown us it isn't working. I keep my follow-up appointments for scans. My last scan showed I was NED (no evidence of disease).

As a public speaker and commercial insurance broker, it was hard not to feel emotional about my diagnosis. Cancer hit me right where it counts — my speaking tool. It was a long road back to good speech. I worked with a speech therapist twice a week for four months, and I also benefited from swallow therapy.

For me, radiation therapy was the toughest part of treatment, but my team helped me manage it. A feeding tube was necessary because it was not possible to eat by mouth. I lost 50 pounds and have kept 40 off. I'm pretty comfortable at this weight and still drink the protein smoothies recommended by my naturopath. They helped rebuild my body once I could eat again.

The radiation to my head caused lymphedema on the left side of my cheek, neck, throat and tongue. We treated it with a pneumatic device that massaged the area. I had headgear to massage my lymph nodes and wore a vest for massaging my underarms and torso. I feel like I have the lymphedema under control even though it will never completely go away.

One permanent impact is that because some salivary glands in my mouth were removed and because of radiation therapy, my mouth gets very dry. It makes it very important to drink plenty of fluids while I'm eating. My sense of taste has changed, and I find it best to stay away from spicy foods.

My faith has been instrumental. Early on I watched a video of a minister with Stage IV cancer. She described putting all your energy into opening one of two doors. One was a door of fear; the other a door of faith. I chose the door of faith and focused all my energy on healing. That put me in the right mindset. Even when I go for follow-up scans, I don't get nervous about what I might find. I am confident I'm healed.

It was so powerful to talk with people who'd gone down the same path. I highly advocate that anyone on this crazy journey have someone who has gone through it to hold their hand. I look forward to sharing my experience with others through Friend for Life Cancer Support Network.

Life is good now. I'm retired from my primary career and still as passionate as ever about life. I no longer sweat the small stuff. I get up every morning and help the sun rise. I row or swim, eat a little food, nap on the beach, then I take the rest of the day to do whatever I feel like doing.

Surround yourself with the support of a good medical team and loved ones. Choose to have a positive attitude and the faith to heal. ■

➥Staging tables for major salivary gland cancer on page 22.

MAJOR SALIVARY GLAND CANCER

Your head and neck contain salivary glands that help you lubricate, swallow and digest food and keep your mouth and throat moist. The enzymes within saliva begin the process of breaking down food while antibodies help prevent infections in the mouth and throat.

You have major and minor salivary glands, with a set of three major glands on each side of your face:

- The parotid glands are the largest of the major glands and are located just in front of each ear.
- The submandibular glands below your mandible (jawbone) are smaller.
- The sublingual glands under the mouth floor are the smallest.

You also have hundreds of minor salivary glands.

Tumors most often occur in the parotid glands. Tumors in the minor salivary glands are not common; however, they are more likely to be malignant when they occur.

TREATMENT OPTIONS

When developing your treatment plan, your doctor will consider the subtype, stage and grade of your cancer. Multiple subtypes have been identified in major salivary gland cancer. In general, the lower the tumor grade, the better the prognosis (outlook). Your overall health, the impact to your speech, chewing and swallowing, and your preferences are also considered.

Talk with your doctor about the benefits and risks as well as the potential side effects and late effects of each type of therapy before making decisions.

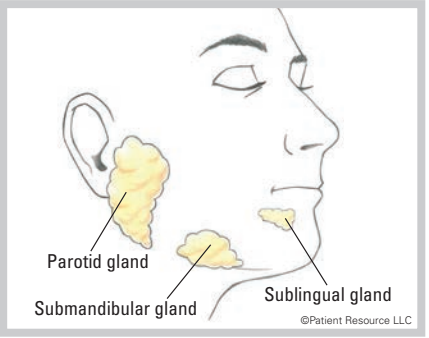
One or more of the following options may be part of your treatment plan.

Surgery is the most common treatment for major salivary gland cancer to remove the tumor and surrounding tissue. More than one surgery may be needed to treat the cancer and to repair the area (see *Reconstruction & Rehabilitation*, page 13). One of the follow-ing procedures may be used.

Superficial parotidectomy may be used to remove cancer in the outside part of the parotid gland, also known as the superficial lobe. This involves removing the lobe.

Total parotidectomy to remove the entire parotid gland may be used if the cancer extends to deeper tissues. Removal of the facial nerve may be required, which would affect facial movement.

MAJOR SALIVARY GLAND ANATOMY



A *neck dissection* to remove some lymph nodes in your neck may be recommended. Your doctor will consider the exact location and stage of your tumor.

Other surgical procedures are available depending on the diagnosis.

Radiation therapy may be recommended for intermediate or high grade or advanced salivary gland cancers after surgery (adjuvant therapy) to kill remaining cancer cells. If surgery is not an option, radiation may be the main treatment, but radiation therapy may not be effective alone against some salivary gland tumors. It is sometimes used to manage symptoms of pain, bleeding or trouble swallowing and in cases of recurrent or advanced salivary gland cancer. Two main types of radiation may be used.

External-beam radiation therapy (EBRT) uses a machine outside the body to send radiation toward the cancer. Different types of EBRT are available and include intensity-modulated radiation therapy; proton therapy, which uses charged particles called protons; and fast neutron radiation therapy, which uses neutrons.

This treatment may also be combined with chemotherapy, known as chemoradiation.

Drug therapy may be recommended for some cases. It is typically reserved for patients with late-stage cancer or to relieve symptoms.

Chemotherapy is the main type of drug therapy chosen to treat salivary gland cancer.

Immunotherapy in the form of immune checkpoint inhibitors may be used to treat recurrent or metastatic salivary gland cancer that has stopped responding to chemotherapy. The doctor will test for the tumor's PD-L1 expression, which may indicate whether the tumor could respond to immunotherapy, and for tumor mutational burden (TMB). If PD-L1 expression is more than 1 percent, the tumor is considered to be PD-L1 positive and immunotherapy alone may be used. If PD-L1 is negative, immunotherapy and traditional chemotherapy are often combined for recurrent or metastatic cancer. If TMB is high, this treatment may also be an option.

Targeted therapy may be an option for some subtypes of salivary gland cancer through clinical trials. This type of personalized treatment attacks the source of a tumor's growth, focusing on certain parts of cells and the signals that cause them to grow unchecked or keep from dying. In salivary gland cancer, some of these drugs also target specific genes or molecular alterations, including neurotrophic tyrosine receptor kinase (*NTRK*), human epidermal growth factor receptor-2 (*HER2*) and epidermal growth factor receptor (*EGFR*).

MAJOR SALIVARY GLAND CANCER RESOURCES

American Cancer Society: www.cancer.org
Salivary Gland Cancer

American Society of Clinical Oncology: www.cancer.net
Salivary Gland Cancer

National Cancer Institute: www.cancer.gov
Salivary Gland Cancer Treatment

LARYNGEAL CANCER

Often called the voice box, the larynx (LAYR-inx) is a short, hollow organ in the lower part of your throat that contains the vocal cords. It is part of the respiratory system and is a passageway to the lungs that is involved in your ability to talk, breathe and swallow. Cartilage walls that form your Adam's apple protect the vocal cords. When you swallow, a tissue flap called the epiglottis (eh-pih-GLAH-tis) covers your trachea (windpipe) to keep food and liquid from entering your lungs.

The larynx, which is only two inches long, has three parts. The vocal cords are in the middle part called the glottis. Above is the supraglottis, and below is the subglottis, which ends at the top of your trachea.

Called laryngeal (layr-en-JEE-ul) cancer, cancer of the larynx most often first develops in the organ's moist lining in thin, flat squamous (SKWAY-mus) cells and is called squamous cell carcinoma.

Your doctor will evaluate your voice, breathing and swallowing functions before treatment begins. You will also discuss the benefits and risks of each treatment option and the impact potential side effects and late effects may have on your quality of life.

TREATMENT OPTIONS

The primary goal of your health care team will be to focus on preserving (as much as possible) your larynx because removing, de-

➥*Staging tables for laryngeal cancer* on page 24

stroying or shrinking the tumor will affect your ability to speak, eat and breathe.

One or more of the following treatments may be used.

Surgery is a common treatment for early glottic cancers and locally advanced T4a tumors. It is less common to treat T2 to T3 tumors surgically. The following procedures, beginning with least invasive, may be recommended.

Vocal cord stripping removes the superficial layers of tissue on the vocal cords. This technique can be done for a biopsy sample or to treat pre-cancers and early-stage cancers of the vocal cords. Most people can eat, speak and breathe normally after recovery.

Endoscopic resection is performed through an endoscope (a thin, lighted camera) and is used to remove cancer that is confined to the vocal cords or is early stage.

Transoral laser microsurgery (TLM) avoids the need for neck incisions and may be used to remove laryngeal cancers that are superficial or limited in extent.

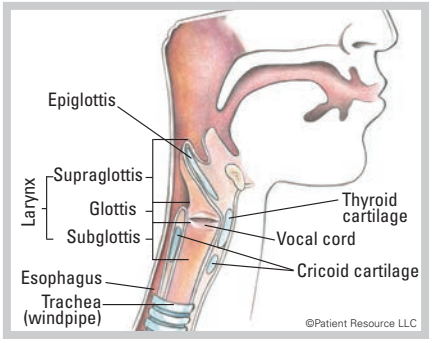
Cordectomy removes all or part of a vocal cord and may be used to remove small cancers of the glottis. Removing part of a vocal cord typically causes permanent hoarseness and may cause temporary swallowing difficulties.

Laryngectomy removes all or part of the larynx. Your ability to speak after recovering from surgery depends on how much of the larynx is removed:

- Supraglottic laryngectomy removes the part of the larynx above the vocal cords and may be used when tumors are confined to the supraglottis. Speech therapy will be necessary after recovery, and the effect on speech varies.
- Vertical hemilaryngectomy may be used to treat cancers of the vocal cords. It involves removing one vocal cord and leaving the other intact. You may still have some ability to speak, but your speech will change.
- Supracricoid laryngectomy removes a large part of the larynx, including both vocal cords. Your ability to speak is preserved, although how you speak will change.

Because all of the above types of laryngectomy also affect your ability to safely swallow, most patients require at least a temporary feeding tube during recovery. Many patients will also need a tracheostomy tube after surgery that may be removed once everything is healed and the swelling has resolved. Patients with underlying lung problems, such as COPD or emphysema, are generally not candidates for this type of surgery.

LARYNX ANATOMY



Total laryngectomy removes the entire larynx and vocal cords. This surgery permanently separates the trachea (windpipe) from the esophagus and then attaches the trachea to a hole created in the front of the neck called a stoma (see *Stoma care*, page 13). The stoma is the new airway to breathe through instead of breathing through your mouth and nose. A total laryngectomy may be used to treat advanced or recurrent cancers when there are no other viable options. Following recovery, you must learn new ways to communicate because normal speech is no longer possible. Most of the time, you will be able to swallow after you heal from surgery. If your doctor performs a laryngectomy, you may also have reconstructive surgery (see *Reconstruction & Rehabilitation*, page 13).

A *neck dissection* to remove some lymph nodes in your neck may be recommended. Your doctor will consider the exact location and stage of your tumor.

Radiation therapy with or without chemotherapy is an option for many patients and is often called organ preservation treatment — meaning you keep your larynx. Radiation is typically an option for patients with T1 to T3 tumors. Radiation may also be used for patients with more advanced tumors that are not candidates for surgery.

If radiation therapy is a part of your treatment plan, it is recommended you have a pre-treatment evaluation by an oncologic dentist and speech pathologist before receiving radiation therapy (see *Dental & Oral Side Effects*, page 15). Smoking can interfere with the effectiveness of this treatment, so it is recommended that you stop before beginning therapy.

External-beam radiation therapy (EBRT) is most commonly used to treat laryngeal cancer. It is typically given once daily for a set amount of time. Types of EBRT include three-dimensional conformal radiation therapy (3D-CRT) and intensity-modulated radiation therapy (IMRT).

Another type, hyperfractionated radiation therapy, involves treatments containing small doses of radiation given more than once a day. It is given over the same period of time as standard radiation therapy.

Chemoradiation therapy combines radiation therapy with chemotherapy for more advanced cancers. They are frequently used together because chemotherapy often enhances the effectiveness of radiation therapy. It may be used if organ preservation surgery is not an option.

For advanced stage cancers, radiation with or without chemotherapy may be recommended to eliminate any remaining cancer cells and to lower the risk of recurrence.

Drug therapy may be used alone or in combination with other therapies.

Chemotherapy may be used alone, or before surgery or radiation therapy, or both. Chemoradiation therapy may be used after surgery to decrease the likelihood of recurrence. It may be the primary treatment in some cases. If no traces of the tumor remain, surgery may not be necessary.

Immunotherapy in the form of immune checkpoint inhibitors may be used to treat recurrent or metastatic laryngeal cancer if surgery or chemoradiation is not an option. The doctor will test for the tumor's PD-L1 expression, which may indicate whether the tumor could respond to immunotherapy. If expression is more than 1 percent, the tumor is considered to be PD-L1 positive, and immunotherapy alone may be used. If PD-L1 is negative, immunotherapy and traditional chemotherapy are often combined for recurrent or metastatic cancer.

Targeted therapy may be used for laryngeal cancer that contains specific genetic abnormalities, proteins or growth factors. Epidermal growth factor receptor (*EFGR*) inhibitors are approved in combination with radiation therapy for laryngeal cancer that has not spread. *EGFR* inhibitors may be used with chemotherapy for metastatic laryngeal cancer.

LARYNGEAL CANCER RESOURCES

American Society of Clinical Oncology:
www.cancer.net
Laryngeal and Hypopharyngeal Cancer

American Speech-Language-Hearing Association:
www.asha.org
Laryngeal Cancer

Head and Neck Cancer Alliance:
headandneck.org

International Association of Laryngectomees:
www.theialvoice.org

National Cancer Institute: www.cancer.gov
Laryngeal Cancer Treatment

➥*Staging tables for sinus & nasal cancer* on page 22.

SINUS & NASAL CANCER

The sinuses and the nasal cavity work together to filter, warm and moisten the air you breathe before it reaches your lungs. Cells in the sinuses make mucus to keep your nose from drying out.

The nose leads into the nasal cavity, which is divided by your septum (dividing wall of the nose) into two passages. Your nasal cavity is a space that extends above the roof of your mouth and into the passageway from your mouth to your throat.

You have four paranasal sinuses: in the hollow spaces in the bones around your nose; behind your cheekbones; above, below and between your eyes; and in the center of your skull. Named for the bones that surround them, they are the frontal, ethmoid, sphenoid and maxillary sinuses.

Cancer typically develops in thin, flat squamous (SKWAY-mus) cells lining the sinuses and nasal cavity. The most common place for this type of cancer to occur is in the maxillary sinuses.

TREATMENT OPTIONS

Your treatment plan will be determined based on the stage of the disease and your age, overall health, symptoms, previous treatments and preferences for quality of life. One or more of the following therapies may be recommended.

Surgery is frequently used to remove any stage of sinus and nasal cancer. It may be the only treatment needed for early-stage cancer. During surgery, the cancer will be removed along with an area of normal tissue around it and some surrounding bone or other nearby tissues. It may also be used if the cancer is found in the nasal cavity. If the tumor is found in the septum, the whole septum may be removed.

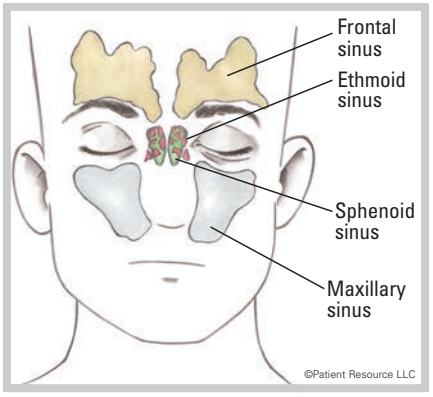
Multiple types of surgery are available. Your doctor will consider the location and stage of your cancer to choose the appropriate surgery for you.

Many early sinus and nasal cancers can be removed endoscopically (with a thin, lighted camera and instruments designed to pass through the nose) and do not require incisions on the face. However, many advanced tumors will require external incisions for adequate removal.

Medial maxillectomy may be used to treat a tumor in the sidewall of the nasal cavity and may involve removing the sidewall.

Maxillectomy may be done if the tumor has grown into the maxillary sinus. A maxillectomy may involve removal of bone from the roof of the mouth, part or all of the eye socket, part of the cheekbone, upper teeth and/or the bony part of the upper nose. In very advanced cancers that involve the eye itself, an exenteration, which includes removal of the eye, may be necessary.

SINUS & NASAL ANATOMY



Endoscopic ethmoidectomy may be used if the tumor is small and found only in the ethmoid sinuses. This involves the use of an endoscope (a thin, lighted camera) to reach the ethmoid sinuses through the nose. In some cases, it is necessary to make an incision (cut) between the nasal bridge and the eye to reach the ethmoid sinuses. This is called an external ethmoidectomy.

Craniofacial resection may be done if the cancer is found in the ethmoid, frontal and/or sphenoid sinuses. This surgery is more extensive than a maxillectomy because it can include removal of the upper parts of the eye socket and front of the skull base.

A *neck dissection* (removal of lymph nodes in the neck) is often performed, regardless of whether the cancer is in the sinus or nasal cavity:

- A selective neck dissection involves removal of lymph nodes from a limited area of the neck.
- A modified radical neck dissection involves removal of most of the lymph nodes on one side of the neck between the jawbone and collarbone, in addition to some muscle and nerve tissue.
- A radical neck dissection involves removal of nearly all of the lymph nodes on one side of the neck and even more muscle, nerves and veins.

Reconstructive surgery may be needed after the primary surgery to restore functional ability and/or appearance. Missing tissue, skin or bone may be replaced during this surgery (see *Reconstruction & Rehabilitation*, page 13).

Radiation therapy may be the main treatment if your general health is too poor for surgery. It is generally used for cancers in the sphenoid sinuses because these areas are difficult to reach surgically. It can be used after surgery as adjuvant treatment. It may also be combined with chemotherapy (chemoradiation). Radiation delivery methods vary by type and stage of cancer.

External-beam radiation therapy (EBRT) is delivered by a machine outside of the body. Types of this treatment include three-dimensional conformal radiation therapy (3D-CRT) and intensity-modulated radiation therapy (IMRT).

Proton therapy uses protons instead of X-rays and may benefit some patients, depending on the location of the tumor.

Drug therapy may be given alone or in combination with other therapies.

Chemotherapy may be given before surgery as neoadjuvant therapy or after surgery as adjuvant therapy. It may be combined with radiation therapy (chemoradiation). It is usually given for advanced disease.

Immunotherapy in the form of immune checkpoint inhibitors may be part of your treatment plan if you have a certain type of recurrent or metastatic sinus and nasal cancer. The doctor will test for the tumor's PD-L1 expression, which may indicate whether the tumor could respond to immunotherapy. If expression is more than 1 percent, the tumor is considered to be PD-L1 positive and immunotherapy alone may be used. If PD-L1 is negative, immunotherapy and traditional chemotherapy are often combined for recurrent or metastatic cancer.

Targeted therapy may be an option to treat certain types of sinus and nasal cancer. Targeted therapy in the form of epidermal growth factor receptor (*EGFR*) inhibitors may be used in combination with radiation therapy. Targeted therapy drugs may be used with or without chemotherapy and after surgery for advanced cancers. ■

SINUS & NASAL CANCER RESOURCES

American Cancer Society: www.cancer.org
Nasal Cavity and Paranasal Sinus Cancer

American Society of Clinical Oncology: www.cancer.net
Nasal Cavity and Paranasal Sinus Cancer

Head and Neck Cancer Alliance: headandneck.org

HNC Living Foundation: www.hncliving.org

National Cancer Institute: www.cancer.gov
Paranasal Sinus and Nasal Cavity Cancer Treatment

Restoring how you look, feel and function

Your medical team will do everything possible to help you begin to feel more like yourself. Multiple options are available and certain organizations are dedicated to contributing financially to help head and neck cancer survivors afford procedures that will help them live fully during and after treatment (see *Assistance & Support,* pages 19 & 20).

RECONSTRUCTIVE SURGERY

This type of surgery can help you perform vital functions that may have been altered by your cancer or its treatment. It may also help restore your appearance, if needed or desired. Reconstruction may require more than one procedure, and it may not produce results right away. Before treatment begins, consult with a skilled surgeon who is experienced in head and neck reconstruction. Ask about your options; the timing of any surgeries you will have; where surgery will occur; who will perform it; and what to expect afterward.

Flap Surgery

Sometimes treatment involves surgery to remove a large amount of soft tissue or bone. Your surgeon may use a "flap" procedure in which healthy skin or tissue is rotated or moved to fill the wound.

With local flap surgery, the surgeon rotates or moves nearby tissue that has an attached blood supply. The tissue goes onto the surgical site from this nearby site. This might include muscle and skin from your chest (pectoralis major flap) or skin from your shoulder (supraclavicular flap).

With free flap surgery, a specially trained surgeon removes a "flap" of tissue plus its feeding artery and vein from another part of the body. The surgeon uses this tissue to reconstruct areas in the head and neck. This involves creating a new blood supply by sewing the flap's artery and vein into an artery and vein near the wound (called microvascular reconstruction). Free flaps are most often taken from the forearm, thigh, lower leg or back/shoulder blade.

REHABILITATION

Dental Rehabilitation

After surgery to remove your upper or lower jaw and teeth, your doctor may suggest dentures or dental implants. These can improve your appearance and help you eat more normally.

Gastrostomy tube (G-tube)

An inability to swallow may prevent you from getting the right nutrition. A tube inserted into your stomach through a small incision in your belly (called a gastronomy tube) or through your nose (called a nasogastric tube) allows you to receive liquid nutrition (see *Nutrition*, page 16). Swallow therapy may also be prescribed.

Prosthesis

This is an artificial replacement for your ear, eye, nose, hard palate or teeth. A specialist (a maxillofacial prosthodontist or anaplastologist) can design a custom prosthesis.

Tracheostomy

A surgeon creates a hole called a tracheostoma – or stoma – in the front of the neck and connects it to the windpipe. Then the surgeon inserts a hollow plastic device (tracheostomy tube) into the stoma. You can breathe through this new airway.

In some cases, the surgeon must remove your voice box (called a laryngectomy). This requires placing a soft, plastic or silicone tube (laryngectomy tube) – or lary tube – to help with the healing process. Once healing is complete, you no longer need the laryngectomy tube, but the stoma is permanent. You then breathe through this hole.

GETTING COMFORTABLE WITH YOUR SELF-IMAGE

If you struggle with your self-esteem, do not ignore your feelings or become isolated. Ask for referrals to therapists and other specialists. Some of the best advice may come from other head and neck cancer survivors.

- Swelling and scarring changes. These occur with treatment and over time. Once you heal from treatment, try concealing makeup to even out your skin tone. Ask your doctor about prescription makeup.
- Trouble speaking. This may make you feel self-conscious. Speech therapy can help you improve your communication skills and regain confidence. A speech-language pathologist can teach you exercises or new ways of speaking.
- Your stoma. Over time, you may think less and less about your stoma. To disguise it, try wearing turtlenecks, scarves, crew neck cotton undershirts or jewelry. ■

Stoma Care

These suggestions may help you adapt to your stoma. Seek out the advice of your medical team and other cancer survivors with stomas.

► **Add humidity.** Breathing through your nose or mouth moistens, warms and filters air, but breathing dry, cool air through a stoma can cause a buildup of thick, crusty mucus. It can also lead to coughing and trouble breathing. Using saline squirts and humidifiers when sleeping can help ease these symptoms. Ask your health care team about heated humidifiers and heat and moisture exchange systems (HMEs).

► **Clean your stoma daily.** Your body may produce more mucus, which can plug the stoma. Keep tissues handy throughout the day to remove any extra mucus. Your health care team will provide detailed guidelines about how to clean and suction out your stoma.

► **Cover your stoma when you cough.** Covering your stoma with a tissue allows you to catch any mucus your cough produces. It may feel strange to cough through your stoma at first, but most people adjust fairly quickly.

► **Dress comfortably.** Choose soft, cotton garments to avoid irritating the stoma.

► **Maintain personal hygiene.** When you bathe or shower, use a shower shield, collar, stoma cover or washcloth. This helps avoid getting water and soap in your stoma. Even the smallest amounts can cause severe coughing and irritation.

► **Use a stoma cover.** This helps keep pollen, dust, pet hair and aerosol sprays from going into your lungs.

► **Wear a medical ID** that alerts others you have a stoma.

Be proactive about symptoms and side effects

Most cancer treatments have side effects, but some can be managed or minimized, and others can even be prevented. The key is you. Be an active participant in your care by talking with your health care team about those to watch for and what to do if they occur. Then, let your team know as soon as a side effect begins. The sooner you reach out, the sooner you may get relief.

People primarily think of physical side effects with cancer treatment, but you and your loved ones may also experience emotional, practical, nutritional, spiritual, financial and other challenges associated with cancer. Your health care team is standing by to address these with supportive care services.

Supportive care is sometimes called palliative care, which is often confused with hospice care. They are not the same thing. Hospice is reserved for end-of-life care, and supportive care is available immediately after the diagnosis of any serious illness.

POTENTIALLY SEVERE SIDE EFFECTS

Though serious side effects are rare, they can occur with certain treatments. Ask your doctor whether the therapies in your treatment plan put you at risk and, if so, how to identify the symptoms and when to report symptoms and seek emergency care.

- Infection can occur as a result of a low white blood cell count (neutropenia) and other factors.
- Immune-related adverse events (irAEs) may occur if the immune system becomes overstimulated by treatment and causes inflammation in one or more organs or systems in the body. Some irAEs can develop rapidly, becoming severe and even life-threatening without immediate medical attention.
- Cytokine release syndrome can occur if immune cells affected by treatment rapidly release large amounts of cytokines into the bloodstream. Symptoms may include headache, fever, nausea, rash, low blood pressure, rapid heartbeat and difficulty breathing.
- Infusion-related reactions most frequently occur with intravenous (IV) treatments, usually soon after exposure to the drug.
- Tumor lysis syndrome (TLS) may occur after the treatment of a fast-growing cancer and with some types of drug therapy. TLS can potentially damage the kidneys, heart, liver and other organs.

COMMON SIDE EFFECTS

Some common side effects of head and neck cancer treatments are listed in Table 1. Having multiple treatments can intensify side effects, but keep in mind that every person responds to treatment differently. Also, be aware of side effects that develop weeks, months or years after treatment ends. These are called late effects. Some disappear over time, while others are permanent.

ACKNOWLEDGE EMOTIONAL SIDE EFFECTS

A cancer diagnosis affects more than your body. It also affects your well-being, self-confidence and overall mental health, making it important to take advantage of the supportive care services available. Support is accessible in many forms, both in person and online. Some organizations offer one-on-one buddy programs that pair you with another person who has the same type of cancer as you. Sharing your feelings with people who have been through something similar can be very helpful.

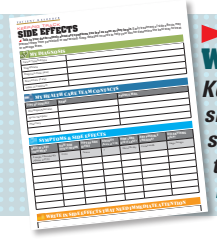
Advocacy groups and national organizations are also available (see *Assistance & Support*, page 19). Some organizations specifically help head and neck cancer survivors manage the unique financial challenges of treatment. Through donations, grants and volunteers, patients are able to move forward with treatment and recovery with much-needed help in a variety of areas, from access to liquid nutrition and transportation to medical appointments and custom dental prosthetics. ■

TABLE 1

SOME COMMON SIDE EFFECTS OF HEAD & NECK CANCER TREATMENT

Side Effect*	Symptoms
Anemia	Low energy, weakness, dizziness, light-headedness, shortness of breath, rapid heartbeat
Bone loss and pain	Weakened bone caused by the cancer or treatment
Chemo brain (cognitive dysfunction)	Brain fog, confusion and/or memory problems
Constipation	Difficulty passing stools or having less frequent bowel movements compared to your usual bowel habits
Decreased appetite	Eating less than usual, feeling full after minimal eating, not feeling hungry
Diarrhea	Frequent loose or watery bowel movements that are commonly an inconvenience but can become serious if left untreated
Difficulty swallowing	Also called dysphagia; may include painful swallowing
Fatigue	Tiredness that is much stronger and harder to relieve than the fatigue an otherwise healthy person has
Fever	Raised body temperature that could signal an infection
Hair loss (alopecia)	Hair loss on the head, face and body
Headache	Pain or discomfort in the head
Lymphedema	Swelling where lymph nodes have been removed or damaged
Nausea and vomiting	The feeling of needing to throw up and/or throwing up
Neuropathy	Numbness, pain, burning sensations and tingling, usually in the hands or feet at first
Neutropenia	Low white blood cell count that increases the risk of infection
Pain	Pain and aches that occur in the muscles, bones, tendons, ligaments or nerves
Respiratory problems	Shortness of breath (dyspnea) with or without cough, upper respiratory infections
Skin reactions	Rash, redness and irritation or dry, flaky or peeling skin that may itch
Thrombocytopenia	Low number of platelets in the blood, which can lead to bruising and bleeding
Trismus	Jaw stiffness, reduced ability to open mouth wide, pain opening and closing mouth
Weight changes	Gaining or losing weight unintentionally

**Side effects listed alphabetically. Talk to your health care provider about what to expect with your treatment.*



TRACK SIDE EFFECTS WHEN THEY HAPPEN

Keep track of your symptoms and side effects as they occur, then share your notes with your care team. Download a free tracker at PatientResource.com/Tracker

Dental professionals are key to your team

Treatments for head and neck cancer may be accompanied by dental and oral side effects that can range from mild to severe. Before treatment begins, see a dentist who specializes in treating people with cancer to take care of any existing dental problems so they do not become worse during treatment. Then, continue to work closely with your health care team so you know the side effects to expect and strategies to help you manage or even prevent them.

The following dental and oral side effects are common and can generally be attributed to specific treatments (see Table 1).

Dry mouth, or xerostomia (zeer-oh-STOH-mee-uh), occurs when the salivary glands do not produce enough saliva because of damage from radiation therapy, chemotherapy or surgery. This condition is uncomfortable and increases your risk of both oral infections and tooth decay.

Infections are a greater risk for many reasons related to cancer treatments, including damage to mouth tissues, a lower white blood cell count (neutropenia) and a weakened immune system. These therapies, as well as steroids and antibiotics, can also alter the balance of bacteria in your mouth, making you susceptible to a fungal infection commonly called thrush. Confirm the symptoms that require a call to the doctor.

Jaw and/or mouth stiffness, also known as trismus, can be caused by surgery, radiation therapy or even stress. Often painful, it can interfere with healing and lead to malnutrition. Prevention is very important because the condition is difficult to treat. Ask your health care team about jaw muscle exercises, such as opening your mouth as far as possible without pain, then closing it to repeat. Medication may be used to relax your jaw and mouth muscles.

Mouth pain and soreness can make eating, chewing and swallowing difficult, preventing you from getting adequate nutrition. Pain can also slow the healing process. Controlling mouth pain is essential to the success of your treatment as well as your quality of life.

Mouth sores, or oral mucositis (myoo-koh-SY-tis), occurs when mucous membranes become inflamed. It is common with chemotherapy and is also possible with radiation therapy. Tiny sores begin in the mouth lining and become red, burn-like or ulcer-like sores, making it difficult to eat, drink or swallow.

> ***"To keep my throat flexible enough to swallow, I would sing 'Ah' from a high pitch to a low pitch several times every day. Now I do this from low to high pitch to help strengthen my throat muscles and further improve my swallowing ability."***

*~ **Rick Long**, musician, nurse and Stage IV throat cancer survivor*

Swallowing difficulties, called dysphagia (diz-FAY-jee-uh), and painful swallowing can make getting adequate nutrition a real challenge. Your health care team will determine the underlying cause, which could be related to treatment or to the cancer itself. You will likely be referred to a speech therapist to learn techniques that will help make swallowing easier. Drinking thickened fluids may also help. Call your doctor right away if you cough or choke while eating.

Taste changes are common after receiving radiation therapy to the head or neck because cells in the salivary glands and/or taste buds can become damaged. Your sense of smell may also be affected. The condition generally lessens within a few months after treatment ends.

Tooth decay and **gum disease** are likely. It is important to find a dentist experienced in treating cancer survivors. Discuss how frequently you should schedule routine dental visits.

PRACTICAL SUGGESTIONS

Some of the most effective solutions come from other head and neck cancer survivors. These suggestions may also help improve some of the common dental and oral side effects:

- Schedule regular dental visits to prevent tooth decay and gum disease.
- Check your mouth daily. Many problems can be seen or felt. The sooner you notice them, the quicker they can be managed.
- Rinse your mouth several times a day and after eating with a mixture of 1 tablespoon of baking soda in 1 quart of warm water.
- Even though you may not be using your mouth to eat as much or at all, brushing your teeth, flossing and caring for your gums should remain a priority. Use a soft-bristled toothbrush with a fluoride toothpaste every four hours and at bedtime.
- Use unscented lip balm to keep your lips from drying and cracking. Avoid oil-based products.
- Wear dentures that fit properly. Brush and rinse dentures every day.
- Avoid spicy, acidic and crunchy foods.
- Sip water often, and keep a water bottle and straw with you.
- Avoid alcohol and tobacco products.
- Use a non-alcohol-based mouthwash to avoid irritating your mouth lining.
- Use plastic utensils instead of metal ones to avoid the metal taste that may accompany chemotherapy.
- To enhance flavor, add extra seasoning to foods with spices.
- Use sugar-free lemon drops, gum or mints to help keep your mouth moist. ■

TABLE 1

DENTAL & ORAL SIDE EFFECTS BY TREATMENT TYPE

Treatment	Oral Side Effects*
Drug therapy	Bleeding, dry mouth, infection, inflammation, mouth sores, pain and soreness, swallowing difficulties, taste changes
Radiation therapy (in the area where the radiation beams are aimed)	Breakdown of bone or tissue, dry mouth, growth of fibrous tissue or muscle, gum disease, infection, inflamed mucous membranes, jaw and/or mouth stiffness, mouth sores, pain and soreness, swallowing difficulties, taste changes, tooth decay
Surgery	Infection, jaw and/or mouth stiffness, pain and soreness, swallowing difficulties

**Oral side effects listed alphabetically. Talk to your health care provider about what to expect with your treatment.*

Prepare for the possible nutrition challenges ahead

Getting the nutrients and fluids your body needs to heal from treatment may require a new approach for how and what you eat. A dietitian can work closely with you to help you manage these changes. Though it sounds daunting, do not let it overwhelm you. Your dietitian and the other members of your care team know exactly how to help.

While you are still able to eat normally, you are encouraged to consume more protein and calories to better prepare your body for treatment.

DURING TREATMENT

Using enteral (EN-teh-rul) nutrition (tube feeding) is common during or after treatment for head and neck cancer. It is a temporary or permanent method for getting your necessary nutrients. It may be your only source of nutrition or it may supplement the food you eat by mouth.

A tube is placed directly through your abdomen and into the stomach or intestine. The formula that goes into the feeding tube is a liquid mixture to maintain strength and fuel the healing process. It can be given in several "meals" throughout the day (also called bolus feeding), or a specific amount can be delivered over a certain amount of time through a special pump. In the hospital, your health care team will manage this for you. If you need to continue (or begin) this type of feeding at home, you will be trained on the process.

AS YOU HEAL

Once you are able to take food by mouth, the consistency of that food will gradually change. The goal will be to get back to eating solid foods, and it will happen at your own pace. These are the basic diet types:

- Clear liquid diet: Liquids that are easily digested and generally see through. They can quench your thirst and may help relieve treatment side effects, but you will never be able to get all the nutrition you need from just a clear liquid diet.
- Full liquid diet: Foods that are smooth and can be poured. A thickening agent can adjust the thickness of the liquid for easier swallowing.
- Puréed or blenderized diet: Foods that are puréed in a blender.
- Soft diet: Foods that are easier to chew and swallow. They can often be mashed easily with a fork.
- Regular diet: Includes all food groups.
- Nutritional supplements: These can accompany any type of diet to help maintain the nutritional status your body needs. Be sure to read labels to find high protein, high calorie options.

DINING OUT

Getting on with your life may include eating out. Ask your speech pathologist what you can do to help you feel comfortable eating in public. These suggestions may also help:

- Choose a restaurant that offers selections you can eat easily.
- Reserve a table that allows for more privacy.
- Ask that your water glass be kept full.
- Request that half your meal be cut into small pieces and placed in a carryout container. ■

From the Dietitian's Desk

Proper nutrition is part of your treatment plan

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Nutrition will be a valuable part of your treatment and recovery, and it will be very important to have a partner by your side early on. Ideally, you will meet with a dietitian on day one to help you understand the challenges ahead. If your cancer center does not have a dietitian on staff, ask for a referral. The dietitian can provide many resources and help you overcome any barriers you have.

Because of the nature of head and neck cancer treatment, your relationship with food will change, specifically what you eat and how you eat. "Healthy diet" takes on a new meaning. Typically, we recommend avoiding things such as heavy creams and butter. Not anymore. Because weight loss will naturally occur with your treatment, keeping weight on, however you can, will become a goal.

Your body needs extra nutrients during treatment, and being well-nourished helps make your recovery faster and easier. Your physician may encourage you to eat a high calorie, high protein diet before treatment begins and continue for as long as you are able to eat normally once treatment is underway.

Your dietitian can recommend the best foods to include in your diet. You may have used high protein/low calorie drinks to stay fit, but now you will need high protein/high calorie drinks.

For many people, there comes a time when they must rely on enteral nutrition (tube feeding) because they can't get all the nutrition they need by mouth. People are often fearful about tube feeding, so your dietitian will introduce the concept early on to help you get into the right mindset. Think of nutrition as a type of treatment, and tube feeding as a tool to help you be successful.

Your dietitian will show you how to administer a feeding and how to care for the tube. Many people go home with their feeding tube and can easily manage it alone or with the help of a caregiver.

Keep in mind that the more weight you lose, the longer it will take to recover. Too much weight loss could turn a 3 to 6 month recovery time into one that takes 9 to 12 months.

Your dietitian will see you regularly, whether as a hospital inpatient or when you come in for treatments, and will be by your side every step of the way.

Chart a path forward to continued recovery

Despite being relieved to finish treatment, you may struggle making the shift to a new way of living. It can take a while to recover from the physical, emotional and mental aspects of head and neck cancer. Be patient as you adjust to this next chapter of your life. A survivorship plan will support you as you continue to recover.

YOUR SURVIVORSHIP PLAN

Managing your health is easier when you have a plan. Whether your therapy is finished or you need maintenance therapy, you will work closely with your doctor to develop a survivorship plan that will likely include the following:

- A detailed record of your diagnosis and treatment
- A schedule for follow-up tests and exams
- A list of potential late or lasting side effects from treatment
- The symptoms that should prompt you to call the doctor
- Steps you can take to enhance your health
- Reminders for appointments with other health care providers

You and your doctor will customize your plan based on details of your medical history, including a very thorough summary of your diagnosis and treatment history, age and other health conditions, and your expectations for the future.

FOLLOW-UP CARE

This is a key part of a survivorship plan. Many different health care providers may be involved, including your primary care doctor, oncologist and other specialists. Before you resume care with your primary care physician, ask your oncologist to set up a long-term follow-up care plan that includes the following:

- A follow-up appointment schedule for ongoing monitoring, which may include imaging, blood work and liquid biopsy, to check for circulating tumor cells, which may indicate whether cancer cells are present
- Screening for other cancers
- Maintenance medications or therapies, including the type and dosage, and how often and how long you need them
- A list of possible side effects and how to prevent or manage them
- Referral(s) for cancer rehabilitation, such as physical or occupational therapy, speech therapy, a dietitian, a lymphedema specialist or others
- Health care team members you will see for follow-up care, along with their contact information
- Goals for a healthier lifestyle

Having a head and neck cancer increases your risk for recurrence, second cancers and lasting or late side effects from treatment. That is why your follow-up plan should include any risk factors you have, such as:

- The site of the primary cancer
- Alcohol and tobacco use (cigarettes, chewing tobacco or electronic cigarettes)
- The presence of the human papillomavirus (HPV) (see *HPV and Cancer*, page 4)
- Poor dental hygiene
- Prolonged time in the sun, linked to cancer of the lip

HEALTHY LIFESTYLE

Making healthy changes may help lower your risk of cancer growing or coming back, and it can help you feel better.

This may include eating well, reaching or maintaining a healthy weight, drinking enough fluids, improving fitness and increasing strength. You may have eating challenges from the cancer or its treatment. Working with a dietitian can help ensure you get the nutrients your body needs.

Be sure to learn about other lifestyle changes, such as ways to stop smoking, reduce or avoid alcohol, and manage stress. Ask your primary care doctor about the vaccines you need, such as those for COVID-19, shingles or the flu.

LIFE GOALS

Set realistic expectations for yourself and others about what you can – and cannot – do going forward. Be prepared to explain to family, friends, employers and coworkers that you have had a life-altering experience and that some things have changed.

When planning treatment, you may have shared your life goals with your medical team. Now is a good time to revisit them, making any changes that better fit your life now. What was a priority for you before you had cancer may no longer be important.

For example, you may want to rethink your career path. Or you may need changes at your current workplace to allow you to do your job. Your employer is required under the Americans with Disabilities Act (ADA) to provide reasonable accommodations for you. Meet with someone from human resources for details about the ADA and how it applies where you work.

SURVIVORSHIP SUPPORT AND COMMUNITY RESOURCES

Until recently, your medical team, caregivers and many others have come together to provide you with constant care. No doubt, that support has been comforting. This is changing somewhat now, and you may be surprised that you feel lonely. You will find that you still need and want care. It is available — it will just come in different forms now.

Some larger cancer centers, community treatment centers and cancer advocacy groups provide survivorship clinics and programs for adults who have had cancer treatment. And you may want to reach out to other cancer survivors by phone, online or in person. There is still more to learn and share with each other. Together, you can offer each other knowledge, support and hope. ■

▶ CREATE YOUR SURVIVORSHIP CARE PLAN

Ask your doctor for a plan or get started on your own. You can download a sample *Survivorship Care Plan* at **PatientResource.com/SurvivorshipPlan**
To fill it in, request copies of all your test and biopsy results, surgeries, pathology reports and consultation notes from your doctor's office.

Practical ways to help your loved one

Being a caregiver for someone with a head and neck cancer is challenging. Flexibility, patience and compassion will be key. Having a plan may help you understand how to best help. Start with these suggestions and remember that your loved one's needs will change.

Learn about this diagnosis. Using reputable resources such as this guide and those recommended by the health care team, learn about your loved one's head and neck cancer diagnosis, treatment and rehabilitation options, and the common challenges ahead.

Get permission to receive medical information. Be sure you are authorized to communicate with your loved one's health care team, renew prescriptions and more. Introduce yourself to the key contacts and ask about their preferred contact method, such as by phone, text or through the portal.

Act as communications central. Treatment may affect your loved one's ability to speak. Before treatment begins, determine how you will communicate with each other, such as writing notes or texting. Then, create an email group so you can update friends and family throughout treatment. This will dramatically reduce phone calls and individual emails as well as ensure that everyone gets the same information.

Manage a healthy diet. Maintaining proper nutrition is critical. Your dietitian can teach you to help with tube feeding (if applicable) and offer suggestions for the different types of food that can be eaten once your loved one resumes eating by mouth. Don't neglect your own dietary needs. You need to stay strong and healthy.

Watch for side effects. Before treatment begins, find out which symptoms and side effects require regular or emergency medical attention. Track when side effects occur, how long they last and whether anything makes them better. You can download a free side effect tracker at PatientResource.com/Tracker Share this information with the health care team at regularly scheduled appointments or sooner if your loved one is not getting relief.

Get creative with clothing. Sometimes people with a stoma are more comfortable when it is concealed. Help find comfortable clothing and accessories to cover it.

Find emotional support for both of you. Depression is common for head and neck cancer patients and caregivers. It may be helpful to include an onco-psychologist on your team. Learning from patients and caregivers whose lives are affected by head and neck cancer can be extremely valuable. Local and national advocacy groups offer help online, by phone and in person.

Explore assistance resources. Financial and patient assistant resources, such as HNC Living Foundation (hncliving.org) and KEY+YOU (keyplusyou.com), may be able to help. See *Assistance & Support*, page 19. ■

MEET THE TEAM

A multidisciplinary team will be involved with the care plan. The team may include the following highly skilled professionals.

Anaplastologists specialize in making custom prostheses, such as eyes, ears and noses, to rehabilitate an absent, disfigured or malformed part of the body.

Head and neck oncologic surgeons provide expertise in surgical procedures of the head and neck (an otolaryngologist with specialized surgical training).

Maxillofacial prosthodontists create custom dentures or other prostheses to help restore facial appearance, speech and the ability to eat normally.

Medical oncologists treat cancer with drug therapy or other medications.

Oncologic dentists and **oral oncologists** provide expert dental or oral care for people with head and neck cancer.

Oncology nurses provide inpatient or outpatient care in a cancer treatment facility.

Otolaryngologists treat diseases of the ear, nose and throat; also called an ENT.

Palliative care specialists work to provide physical and emotional relief for cancer symptoms and treatment-related side effects.

Patient navigators and **nurse navigators** serve as guides through diagnosis, treatment and follow-up; may also be patient advocates. They identify barriers to treatment, such as the need for transportation or help with copays and deductibles, and access resources to resolve such barriers. They are also commonly involved with coordination throughout the continuum of care.

Psychologists/onco-psychologists address psychological, emotional and social issues that affect cancer patients and their loved ones.

Radiation oncologists treat cancer using radiation therapy.

Reconstructive and **plastic surgeons** use reconstructive procedures and techniques to help restore function and appearance after cancer treatment.

Registered dietitians and **nutritionists** help meet nutritional challenges that arise during and after treatment by providing nutrition advice based on your medical condition and individual needs.

Rehabilitation specialists, including **physical therapists** and **occupational therapists,** help restore movement and build physical strength after cancer treatment; and **speech and language therapists** offer strategies and techniques for regaining or improving the ability to speak, swallow or use other oral motor skills following treatment.

Social workers assist you and your family if you need psychosocial (emotional) care or assistance, or require resources outside of medical care or advance directive planning.

Support and financial resources available for you

BASIC LIVING EXPENSES

Allyson Whitney Foundation ..... www.allysonwhitney.org, 845-707-4681
Bringing Hope Home ..... www.bringinghopehome.org, 484-580-8395
Cleaning for a Reason ..... www.cleaningforareason.org, 877-337-3348
Family Reach Foundation ..... www.familyreach.org, 973-394-1411
HNC Living Foundation ..... www.hncliving.org, 913-402-6028
National Cancer Assistance Foundation ..... www.natcaf.org, 866-413-5789
Stupid Cancer ..... www.stupidcancer.org, 212-619-1040

CAREGIVERS & SUPPORT

BeholdBeGold ..... www.beholdbegold.org
Cactus CancerSociety ..... www.cactuscancer.org
CanCare ..... www.cancare.org, 713-461-0028
CANCER101 ..... www.cancer101.org, 646-638-2202
Cancer and Careers ..... www.cancerandcareers.org, 646-929-8032
Cancer*Care* ..... www.cancercare.org, 800-813-4673
Cancer Connection ..... www.cancer-connection.org, 413-586-1642
Cancer Hope Network ..... www.cancerhopenetwork.org, 877-467-3638
Cancer Really Sucks! ..... www.cancerreallysucks.org
Cancer Support Community ..... www.cancersupportcommunity.org, 888-793-9355
Cancer Support Community Helpline 888-793-9355
Cancer Support Services ..... www.cancersupportservices.org, 877-593-4212
Cancer Survivors Network ..... csn.cancer.org, 800-227-2345
Caregiver Action Network ..... www.caregiveraction.org, 855-227-3640
CaringBridge ..... www.caringbridge.org, 651-789-2300
Center to Advance Palliative Care ..... www.capc.org, 347-835-0658
Chemo Angels ..... www.chemoangels.com
Cleaning for a Reason ..... www.cleaningforareason.org, 877-337-3348
Connect Thru Cancer ..... www.connectthrucancer.org, 610-436-5555
Cooking with Cancer ..... www.cookingwithcancer.org, 205-978-3570
Family Caregiver Alliance ..... www.caregiver.org, 800-445-8106
Friend for Life Cancer Support Network www.friend4life.org, 866-374-3634
The Gathering Place ..... www.touchedbycancer.org, 216-595-9546
Guide Posts of Strength, Inc. ..... www.cancergps.org, 336-883-4483
Imerman Angels ..... www.imermanangels.org, 866-463-7626
Livestrong Foundation ..... www.livestrong.org, 855-220-7777
Living Hope Cancer Foundation ..... www.getupandlive.org
Lotsa Helping Hands ..... www.lotsahelpinghands.com
MyLifeLine ..... www.mylifeline.org, 888-793-9355
National LGBT Cancer Project ..... www.lgbtcancer.org, 917-301-1913
Patient Empowerment Network ..... www.powerfulpatients.org, 833-213-6657
SHARE Caregiver Circle ..... www.sharecancersupport.org/caregivers-support, 844-275-7427
Stronghold Ministry ..... www.mystronghold.org, 877-230-7674
Triage Cancer ..... www.triagecancer.org, 424-258-4628
Walk with Sally ..... www.walkwithsally.org, 310-322-3900
Well Spouse Association ..... www.wellspouse.org, 732-577-8899
WeSPARK Cancer Support Center ..... www.wespark.org, 818-906-3022
Wigs & Wishes ..... www.wigsandwishes.org, 856-582-6600

CHEMOTHERAPY

Chemo Angels ..... www.chemoangels.com
ChemoExperts ..... www.chemoexperts.com
The Chemotherapy Foundation ..... www.chemotherapyfoundation.org, 212-213-9292

CLINICAL TRIALS

Cancer Support Community ..... www.cancersupportcommunity.org/find-clinical-trial, 888-793-9355
Center for Information & Study on Clinical Research Participation ..... www.searchclinicaltrials.org, 877-633-4376
ClinicalTrials.gov ..... www.clinicaltrials.gov
Head and Neck Cancer Alliance ..... www.headandneck.org/clinical-trials, 866-792-4622
Lazarex Cancer Foundation ..... www.lazarex.org, 877-866-9523, 925-820-4517
National Cancer Institute ..... www.cancer.gov/clinicaltrials, 800-422-6237
NCI Cancer Information Service 800-422-6237
ThyCa: Thyroid Cancer Survivors' Association, Inc. ..... www.thyca.org/about/clinical-trials, 877-588-6078
WCG CenterWatch ..... www.centerwatch.com, 866-219-3440

COMMUNICATION SUPPORT

Cancer Survivors Network ..... csn.cancer.org, 800-227-2345

CaringBridge ..... www.caringbridge.org, 651-789-2300
MyLifeLine ..... www.mylifeline.org, 888-793-9355

COMPLEMENTARY PROGRAMS & ALTERNATIVE MEDICINE

Believe Big ..... www.believebig.org
The Center for Mind-Body Medicine ..... www.cmbm.org
National Center for Complementary and Integrative Health ..... www.nccih.nih.gov
Office of Cancer Complementary and Alternative Medicine ..... cam.cancer.gov
Society for Oncology Massage www.s4om.org
Stewart's Caring Place ..... www.stewartscaringplace.org

FERTILITY & CANCER

Alliance for Fertility Preservation ..... www.allianceforfertilitypreservation.org
American Society for Reproductive Medicine ..... www.reproductivefacts.org, 202-863-4985
Livestrong Fertility ..... www.livestrong.org/fertility, 855-220-7777
RESOLVE: The National Infertility Association ..... www.resolve.org, 703-556-7172
SaveMyFertility ..... www.savemyfertility.org, 517-884-8848

HEAD & NECK CANCER

Adenoid Cystic Carcinoma Organization International ..... www.accoi.org
American Thyroid Association ..... www.thyroid.org
Bite Me Cancer ..... www.bitemecancer.org
Head and Neck Cancer Alliance ..... www.headandneck.org
HNC Living Foundation ..... www.hncliving.org
HPV Cancers Alliance ..... www.hpvalliance.org
International Association of Laryngectomees ..... www.theialvoice.org
Light of Life Foundation ..... www.lightoflifefoundation.org
National HPV Vaccination Roundtable ..... www.hpvroundtable.org
Oral Cancer Awareness Foundation (OrCA) www.4orca.org
The Oral Cancer Foundation ..... www.oralcancerfoundation.org
Support for People with Oral and Head and Neck Cancer (SPOHNC) ..... www.spohnc.org
ThyCa: Thyroid Cancer Survivors' Association, Inc. ..... www.thyca.org
Thyroid Head & Neck Cancer Foundation (THANC) ..... www.thancfoundation.org

IMMUNOTHERAPY

Cancer Research Institute ..... www.cancerresearch.org/patients, 800-992-2623
Cancer Support Community ..... www.cancersupportcommunity.org, 888-793-9355
Society for Immunotherapy of Cancer ..... www.sitcancer.org, 414-271-2456

MEDICAL CARE EXPENSES

The Assistance Fund ..... www.tafcares.org, 855-845-3663
Cancer*Care* ..... www.cancercare.org, 800-813-4673
Cancer Warrior, Inc. ..... www.cancerwarriorinc.org, 702-546-8575
Hair to Stay ..... www.hairtostay.org, 800-270-1897
HNC Living Foundation ..... www.hncliving.org, 913-402-6028
Patient Access Network Foundation ..... www.panfoundation.org, 866-316-7263
Patient Advocate Foundation ..... www.patientadvocate.org, 800-532-5274

MENTAL HEALTH SERVICES

American Psychosocial Oncology Society Helpline 866-276-7443

NUTRITION

American Cancer Society ..... www.cancer.org, 800-227-2345
Cancer*Care* ..... www.cancercare.org, 800-813-4673
Cancer Support Community ..... www.cancersupportcommunity.org, 888-793-9355
Thyroid Head & Neck Cancer Foundation (THANC) ..... thancfoundation.org/for-patients/eating-healthy-treating-cancer, 646-685-3982

PAIN MANAGEMENT

American Chronic Pain Association ..... www.acpanow.com
American Society of Anesthesiologists ..... www.asahq.org, 847-825-5586

Cancer Pain Research Consortium ..... www.cancerpainresearch.com, 707-260-0849
U.S. Pain Foundation ..... www.uspainfoundation.org, 800-910-2462

PRESCRIPTION EXPENSES

America's Pharmacy ..... www.americaspharmacy.com, 888-495-3181
Cancer*Care* Co-Payment Assistance Foundation ..... www.cancercarecopay.org, 866-552-6729
Cancer Financial Assistance Coalition ..... www.cancerfac.org
Good Days ..... www.mygooddays.org, 972-608-7141
HealthWell Foundation ..... www.healthwellfoundation.org, 800-675-8416
HNC Living Foundation ..... www.hncliving.org, 913-402-6028
Medicine Assistance Tool ..... www.medicineassistancetool.org, 571-350-8643
National Organization for Rare Disorders ..... www.rarediseases.org, 800-999-6673
NeedyMeds ..... www.needymeds.org, 800-503-6897
Patient Access Network Foundation ..... www.panfoundation.org, 800-394-0161
Patient Advocate Foundation Co-Pay Relief ..... www.copays.org, 866-512-3861
RxAssist ..... www.rxassist.org
RxHope ..... www.rxhope.org
SingleCare ..... www.singlecare.com, 844-234-3057
Stupid Cancer ..... www.stupidcancer.org, 212-619-1040
Together Rx Access ..... www.togetherrxaccess.com

RADIATION ONCOLOGY

American Society for Radiation Oncology ..... www.astro.org, 703-502-1550
National Association for Proton Therapy ..... www.proton-therapy.org, 202-919-4536
RadiologyInfo.org ..... www.radiologyinfo.org
RT Answers ..... www.rtanswers.org, 703-502-1550
Society of Interventional Radiology ..... www.sirweb.org, 703-691-1805

REIMBURSEMENT & PATIENT ASSISTANCE PROGRAMS

Bayer US Patient Assistance Foundation ..... patientassistance.bayer.us, 866-228-7723
Bristol-Myers Squibb Access Support ..... bmsaccesssupport.bmscustomerconnect.com/patient, 800-861-0048
Bristol-Myers Squibb Patient Assistance Foundation ..... bmspaf.org, 800-736-0003
Cabometyx EASE ..... www.cabometyx.com/cost-financial-support, 844-901-3273
Caprelsa Access Support ..... caprelsa.com/pt_resources_and_support.asp, 800-367-4999
Erbitux Savings Card ..... www.lillyoncologysupport.com/erbitux-financial-support, 866-472-8663
Genentech Access Solutions ..... genentech-access.com/patient, 877-436-3683
Genentech Oncology Co-pay Assistance Program ..... copayassistancenow.com, 855-692-6729
Genentech Patient Foundation ..... gene.com/patients/patient-foundation, 888-941-3331
Keytruda KEY+YOU ..... www.keyplusyou.com, 855-398-7832, press 2
Keytruda Merck Access Program ..... merckaccessprogram-keytruda.com/hcc/, 855-257-3932
Lenvima Eisai Reimbursement Resources ..... eisaireimbursement.com/patient/lenvima, 866-613-4724
Lilly Cares Foundation Patient Assistance Program ..... www.lillycares.com, 800-545-6962
Lilly Oncology Support Center ..... www.lillyoncologysupport.com, 866-472-8663
Merck Patient Assistance Program ..... www.merckhelps.com, 800-727-5400
Novartis Oncology Universal Co-pay Program ..... copay.novartisoncology.com, 877-577-7756
Novartis Patient Assistance Foundation ..... www.novartis.us/our-products/patient-assistance/patient-assistance-foundation-enrollment, 800-277-2254
Novartis Patient Assistance NOW Oncology (PANO) ..... patient.novartisoncology.com/financial-assistance/pano, 800-282-7630
Opdivo BMS Access Support ..... bmsaccesssupport.bmscustomerconnect.com/patient/financial-support, 800-861-0048
Retevmo Savings Card ..... www.retevmo.com/savings-support, 866-472-8663
Rozlytrek Access Solutions ..... genentech-access.com/patient/brands/rozlytrek, 877-436-3683
Sanofi CareASSIST ..... www.sanoficareassist.com, 833-930-2273
Sanofi Patient Connection ..... www.sanofipatientconnection.com, 888-847-4877
Tafinlar + Mekinist Financial Resources ..... www.us.tafinlarmekinist.com, 877-577-7756
Vitrakvi Access Services by Bayer ..... www.vitrakvi-us.com/patient-assistance-program, 800-288-8374

STOPPING TOBACCO USE

American Cancer Society ..... www.cancer.org
BecomeAnEx ..... www.becomeanex.org
Freedom from Smoking ..... www.lung.org/quit-smoking, 800-586-4872
National Cancer Institute Smoking Quitline 877-448-7848
North American Quitline Consortium ..... naquitline.org, 800-398-5489
QuitSTART ..... smokefree.gov
Smokefree.gov ..... smokefree.gov
SmokefreeTXT ..... smokefree.gov/smokefreetxt
Tobacco Quitline 1-800-QUIT-NOW (800-784-8669)

SURVIVORSHIP

13thirty Cancer Connect www.13thirty.org
A Time to Heal Cancer Foundation ..... www.atimetohealfoundation.org, 402-401-6083
American Society of Clinical Oncology ..... www.cancer.net/survivorship, 888-651-3038
Angel On My Shoulder ..... www.angelonmyshoulder.org
Cactus Cancer Society ..... www.cactuscancer.org
Cancer ABCs ..... www.cancerabcs.org, 516-445-2026
Cancer and Careers ..... www.cancerandcareers.org, 646-929-8032
Cancer Hope Network ..... www.cancerhopenetwork.org, 877-467-3638
Cancer Support Community ..... www.cancersupportcommunity.org, 888-793-9355
Cancer Survivors Network ..... csn.cancer.org, 800-227-2345
Cancer*Care* ..... www.cancercare.org, 800-813-4673
Centers for Disease Control and Prevention (CDC) ..... www.cdc.gov/cancer/survivors, 800-232-4636
Global Resource for Advancing Cancer Education (GRACE) ..... www.cancergrace.org
Hope for Two...The Pregnant with Cancer Network ..... www.hopefortwo.org
Imerman Angels ..... www.imermanangels.org, 866-463-7626
Indian American Cancer Network ..... www.iacannetwork.org
Livestrong Foundation ..... www.livestrong.org
National Cancer Survivors Day ..... ncsd.org, 615-794-3006
The National Children's Cancer Society ..... www.thenccs.org
National Coalition for Cancer Survivorship ..... www.canceradvocacy.org, 877-622-7937
National LGBT Cancer Network ..... www.cancer-network.org, 212-675-2633
National LGBT Cancer Project ..... www.lgbtcancer.org, 917-301-1913
Reel Recovery ..... www.reelrecovery.org, 208-303-0040
River Discovery ..... riverdiscovery.org
Stupid Cancer ..... www.stupidcancer.org, 212-619-1040
Survivor's Outdoor Experience ..... www.survivorsoutdoorexperience.org
Triage Cancer ..... www.triagecancer.org, 424-258-4628
True North Treks ..... www.truenorthtreks.org
Walk With Sally ..... www.walkwithsally.org, 310-322-3900

VETERANS' ASSISTANCE

Cancer*Care* ..... www.cancercare.org, 800-813-4673
Family Caregiver Alliance ..... www.caregiver.org, 800-445-8106
Fisher House Foundation ..... www.fisherhouse.org, 888-294-8560
National Hospice and Palliative Care Organization ..... www.nhpco.org, 703-837-1500
U.S. Pain Foundation ..... www.uspainfoundation.org, 800-910-2462

➥ *For more resources, go to* PatientResource.com

STAGES OF ORAL CANCER

CLASSIFYING ORAL CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
Tis	Carcinoma in situ.
T1	Tumor not more than 2 cm, with depth of invasion (DOI) not more than 5 mm. DOI is depth of invasion and not tumor thickness.
T2	Tumor not more than 2 cm, with DOI more than 5 mm *or* tumor more than 2 cm and not more than 4 cm, with DOI not more than 10 mm. DOI is depth of invasion and not tumor thickness.
T3	Tumor more than 2 cm and not more than 4 cm with DOI more than 10 mm; *or* tumor more than 4 cm with DOI not more than 10 mm. DOI is depth of invasion and not tumor thickness.
T4	Moderately advanced or very advanced local disease.
T4a	Moderately advanced local disease. Tumor more than 4 cm with DOI more than 10 mm *or* tumor invades adjacent structures only (e.g. through cortical bone of the mandible [lower jawbone] or maxilla [upper jawbone], or involves the maxillary sinus or skin of the face). DOI is depth of invasion and not tumor thickness.
T4b	Very advanced local disease. Tumor invades masticator space (located on either side of the face around the jawbones), pterygoid plates, or skull base and/or encases the internal carotid artery.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(-).
N2	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(+); *or* larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); *or* metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-); *or* in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension, ENE(-).
N2a	Metastases in single ipsilateral (on the same side) node 3 cm or smaller in greatest dimension and ENE*(+); *or* a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-).
N2b	Metastases in multiple ipsilateral (on the same side) nodes, none larger than 6 cm in greatest dimension and ENE*(-).
N2c	Metastases in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension and ENE*(-).
N3	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-); *or* metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-).
N3b	Metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE*(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

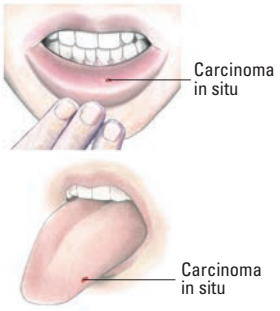
*Extranodal extension (ENE) refers to cancer cells that have spread beyond the lymph node into surrounding tissues.

STAGING ORAL CANCER

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3 T1, T2, T3	N0 N1	M0 M0
IVA	T4a T1, T2, T3, T4a	N0, N1 N2	M0 M0
IVB	Any T T4b	N3 Any N	M0 M0
IVC	Any T	Any N	M1

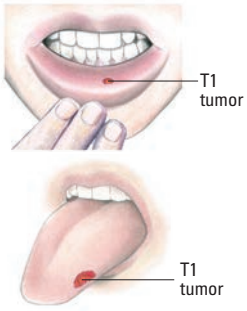
ILLUSTRATED STAGES OF ORAL CANCER

Stage 0



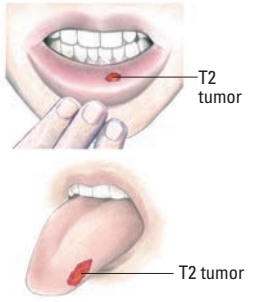
A cluster of malignant cells, known as carcinoma in situ, is present but has not spread to surrounding tissues.

Stage I



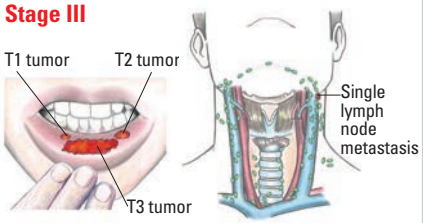
The tumor is not more than 2 cm with a depth of invasion (how deeply the tumor cells have invaded) of not more than 5 mm.

Stage II



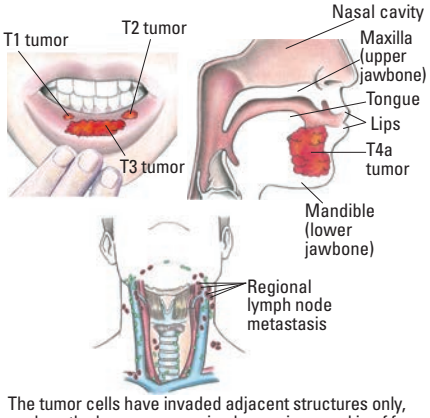
The tumor is not more than 2 cm with a depth of invasion (DOI) (how deeply the tumor cells have invaded) of more than 5 mm but not more than 10 mm, or the tumor is more than 2 cm but not more than 4 cm with a DOI of not more than 10 mm.

Stage III



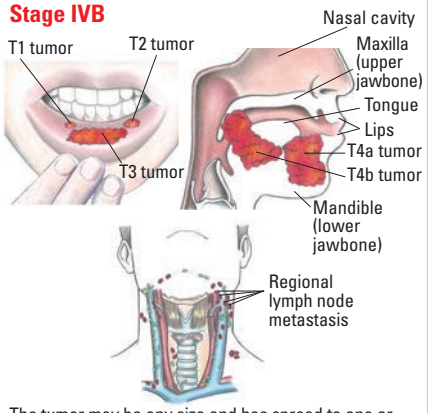
The tumor is not more than 2 cm with a depth of invasion (DOI) (how deeply the tumor cells have invaded) of not more than 5 mm (T1), or not more than 2 cm with a DOI of more than 5 mm but not more than 10 mm, or the tumor is more than 2 cm but not more than 4 cm with a DOI of not more than 10 mm (T2) and has spread to a single lymph node on the same side. Or, the tumor is more than 4 cm or any size with a DOI of more than 10 mm (T3) and may or may not have spread to a single lymph node on the same side.

Stage IVA



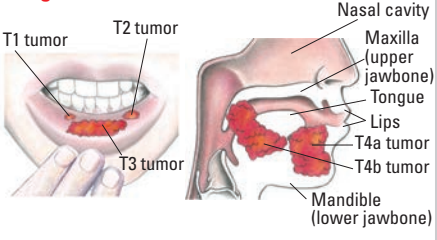
The tumor cells have invaded adjacent structures only, such as the lower or upper jawbone, sinus or skin of face, or extensive tumor with bilateral tongue involvement and/or depth of invasion (DOI) (how deeply the tumor cells have invaded) of more than 20 mm (T4a), and may have spread to one lymph node on the same side. Or, the tumor is 2 cm or smaller with a depth of invasion DOI of 5 mm or less (T1), 2 cm or less with a DOI of more than 5 mm but not more than 10 mm, or more than 2 cm but not more than 4 cm with a DOI of 10 mm or less (T2), or more than 4 cm or any size with a DOI of more than 10 mm (T3), or is a T4a tumor, and has spread to one or more lymph nodes.

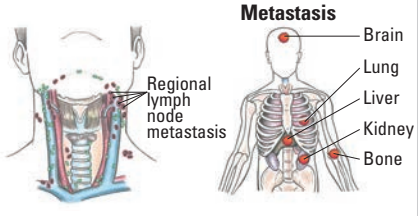
Stage IVB



The tumor may be any size and has spread to one or more lymph nodes on one or both sides; or the tumor cells have spread to the jawbones, skull bone and/or encases the carotid artery (T4b) and may have spread to one or more lymph nodes.

Stage IVC





The tumor can be any size, may have spread to one or more lymph nodes and has spread to distant parts of the body.

SCAN TO ALSO VIEW STAGING ILLUSTRATIONS ONLINE FOR ORAL CANCER

All of the staging tables on pages 21 through 24 are used with permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original and primary source for this information is the AJCC Cancer Staging Manual, Eighth Edition (2017) published by Springer Science+Business Media.

STAGES OF MAJOR SALIVARY GLAND CANCER

CLASSIFYING MAJOR SALIVARY GLAND CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
T0	No evidence of primary tumor.
Tis	Carcinoma in situ.
T1	Tumor 2 cm or smaller in greatest dimension without extraparenchymal extension (spread to surrounding tissues).
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension without extraparenchymal extension (spread to surrounding tissues).
T3	Tumor larger than 4 cm and/or tumor having extraparenchymal extension (spread to surrounding tissues).
T4	Moderately advanced or very advanced disease.
T4a	Moderately advanced disease. Tumor invades skin, mandible (lower jaw), ear canal, and/or facial nerve.
T4b	Very advanced local disease. Tumor invades skull base and/or pterygoid plates and/or encases carotid artery.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(-).
N2	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(+); *or* larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); *or* metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-); *or* in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension, ENE(-).
N2a	Metastasis in single ipsilateral (on the same side) node 3 cm or smaller in greatest dimension and ENE*(+); *or* a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-).
N2b	Metastases in multiple ipsilateral (on the same side) nodes none larger than 6 cm in greatest dimension and ENE*(-).
N2c	Metastases in bilateral (on both sides) or contralateral (on the opposite side) lymph nodes, none larger than 6 cm in greatest dimension and ENE*(-).
N3	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-); *or* metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-).
N3b	Metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE*(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

*Extranodal extension (ENE) refers to cancer cells that have spread beyond the lymph node into surrounding tissues.

STAGING MAJOR SALIVARY GLAND CANCER

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3 T0, T1, T2, T3	N0 N1	M0 M0
IVA	T4a T0, T1, T2, T3, T4a	N0, N1 N2	M0 M0
IVB	Any T T4b	N3 Any N	M0 M0
IVC	Any T	Any N	M1

SCAN TO VIEW STAGING ILLUSTRATIONS FOR MAJOR SALIVARY GLAND CANCER

STAGES OF SINUS & NASAL CANCER

CLASSIFYING SINUS & NASAL CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
Tis	Carcinoma in situ.
Maxillary Sinus	
T1	Tumor limited to maxillary sinus mucosa with no erosion or destruction of bone.
T2	Tumor causing bone erosion or destruction including extension into the hard palate and/or middle nasal meatus, except extension to posterior wall of maxillary sinus and pterygoid plates.
T3	Tumor invades any of the following: bone of the posterior wall of maxillary sinus, subcutaneous tissues, floor or medial wall of orbit (eye socket), pterygoid fossa, ethmoid sinuses.
T4	Moderately advanced or very advanced local disease.
T4a	Moderately advanced local disease. Tumor invades anterior orbital contents (eye socket), skin of cheek, pterygoid plates, infratemporal fossa, cribriform plate, sphenoid or frontal sinuses.
T4b	Very advanced local disease. Tumor invades any of the following: orbital apex (eye socket), dura (membrane surrounding the brain and spinal cord), brain, middle cranial fossa, cranial nerves other than maxillary division of trigeminal nerve (V2), nasopharynx (upper part of throat) or clivus (bony base of skull).
Nasal Cavity and Ethmoid Sinus	
T1	Tumor restricted to any one subsite, with or without bony invasion.
T2	Tumor invading two subsites in a single region or extending to involve an adjacent region within the nasoethmoidal complex, with or without bony invasion.
T3	Tumor extends to invade the medial wall or floor of the orbit (eye socket), maxillary sinus, palate, or cribriform plate.
T4	Moderately advanced or very advanced local disease.
T4a	Moderately advanced local disease. Tumor invades any of the following: anterior orbital contents (eye socket), skin of nose or cheek, minimal extension to anterior cranial fossa, pterygoid plates, sphenoid or frontal sinuses.
T4b	Very advanced local disease. Tumor invades any of the following: orbital apex (eye socket), dura (membrane surrounding the brain and spinal cord), brain, middle cranial fossa, cranial nerves other than (V2), nasopharynx (upper part of throat) or clivus (bony base of skull).
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(-).
N2	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(+); *or* larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); *or* metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-); *or* in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension and ENE(-).
N2a	Metastasis in single ipsilateral (on the same side) node 3 cm or smaller in greatest dimension and ENE*(+); *or* a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-).
N2b	Metastases in multiple ipsilateral (on the same side) nodes none larger than 6 cm in greatest dimension and ENE*(-).
N2c	Metastases in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension and ENE*(-).
N3	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-); *or* metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-).
N3b	Metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE*(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

*Extranodal extension (ENE) refers to cancer cells that have spread beyond the lymph node into surrounding tissues.

STAGING SINUS & NASAL CANCER

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3 T1, T2, T3	N0 N1	M0 M0
IVA	T4a T1, T2, T3, T4a	N0, N1 N2	M0 M0
IVB	Any T T4b	N3 Any N	M0 M0
IVC	Any T	Any N	M1

SCAN TO VIEW STAGING ILLUSTRATIONS FOR SINUS & NASAL CANCER

STAGES OF THROAT CANCER (OROPHARYNGEAL, HYPOPHARYNGEAL, NASOPHARYNGEAL)

(HPV-) CLASSIFYING OROPHARYNGEAL AND HYPOPHARYNGEAL CANCERS

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
Tis	Carcinoma in situ.
Oropharyngeal (HPV-)	
T1	Tumor 2 cm or smaller in greatest dimension.
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension.
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis.
T4	Moderately advanced or very advanced local disease.
T4a	Moderately advanced local disease. Tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate or mandible (jawbone).
T4b	Very advanced local disease. Tumor invades lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, or skull base or encases carotid artery.
Hypopharyngeal	
T1	Tumor limited to one subsite of hypopharynx and/or 2 cm or smaller in greatest dimension.
T2	Tumor invades more than one subsite of hypopharynx or an adjacent site, or measures larger than 2 cm but not larger than 4 cm in greatest dimension without fixation of hemilarynx.
T3	Tumor larger than 4 cm in greatest dimension or with fixation of hemilarynx or extension to esophageal mucosa.
T4	Moderately advanced and very advanced local disease.
T4a	Moderately advanced local disease. Tumor invades thyroid/cricoid cartilage, hyoid bone, thyroid gland, esophageal muscle or central compartment soft tissue.
T4b	Very advanced local disease. Tumor invades prevertebral fascia, encases carotid artery or involves mediastinal structures.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(-).
N2	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(+); *or* larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); *or* metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-); *or* in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension and ENE(-).
N2a	Metastasis in a single ipsilateral (on the same side) node 3 cm or smaller in greatest dimension and ENE*(+); *or* a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-).
N2b	Metastases in multiple ipsilateral (on the same side) nodes none larger than 6 cm in greatest dimension and ENE*(-).
N2c	Metastases in bilateral (on both sides) or contralateral (on the opposite side) lymph nodes, none larger than 6 cm in greatest dimension and ENE*(-).
N3	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-); *or* metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-).
N3b	Metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE*(+); *or* multiple ipsilateral, contralateral (on the opposite side) or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

*Extranodal extension (ENE) refers to cancer cells that have spread beyond the lymph node into surrounding tissues.

(HPV-) STAGING OROPHARYNGEAL AND HYPOPHARYNGEAL CANCERS

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3 T1, T2, T3	N0 N1	M0 M0
IVA	T4a T1, T2, T3, T4a	N0, N1 N2	M0 M0
IVB	Any T T4b	N3 Any N	M0 M0
IVC	Any T	Any N	M1

SCAN TO VIEW STAGING ILLUSTRATIONS FOR THROAT CANCER

(HPV+) CLASSIFYING OROPHARYNGEAL CANCER

Classification / Definition	
TUMOR (T)	
T0	No primary identified.
T1	Tumor 2 cm or smaller in greatest dimension.
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension.
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis.
T4	Moderately advanced local disease. Tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate or mandible (jawbone) or beyond.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in four or fewer lymph nodes.
N2	Metastasis in more than four lymph nodes.
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

(HPV+) STAGING OROPHARYNGEAL CANCER

Stage	T	N	M
I	T0, T1, T2	N0, N1	M0
II	T0, T1, T2 T3, T4	N2 N0, N1	M0 M0
III	T3, T4	N2	M0
IV	Any T	Any N	M1

CLASSIFYING NASOPHARYNGEAL CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
T0	No tumor identified, but EBV*-positive cervical node(s) involvement.
Tis	Carcinoma in situ.
T1	Tumor confined to nasopharynx (behind nasal cavity/upper part of throat), or extension to oropharynx and/or nasal cavity without parapharyngeal involvement.
T2	Tumor with extension to parapharyngeal space, and/or adjacent soft tissue involvement (medial pterygoid, lateral pterygoid, prevertebral muscles).
T3	Tumor with infiltration of bony structures at skull base, cervical vertebra, pterygoid structures, and/or paranasal sinuses.
T4	Tumor with intracranial extension, involvement of cranial nerves, hypopharynx, orbit, parotid gland, and/or extensive soft tissue infiltration beyond the lateral surface of the lateral pterygoid muscle.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Unilateral (on one side) metastasis in cervical lymph node(s) and/or unilateral or bilateral metastasis (on both sides) in retropharyngeal lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage.
N2	Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage.
N3	Unilateral (on one side) or bilateral (on both sides) metastasis in cervical lymph node(s), larger than 6 cm in greatest dimension, and/or extension below the caudal border of cricoid cartilage.
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

*Epstein-Barr virus

STAGING NASOPHARYNGEAL CANCER

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T0, T1, T2 T2	N1 N0	M0 M0
III	T0, T1, T2, T3 T3 T3	N2 N0 N1	M0 M0 M0
IVA	T4 T4 T4 Any T	N0 N1 N2 N3	M0 M0 M0 M0
IVB	Any T	Any N	M1

STAGES OF THYROID CANCER

CLASSIFYING THYROID CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
T0	No evidence of primary tumor.
Anaplastic & Differentiated	
T1	Tumor ≤ (not more than) 2 cm in greatest dimension limited to the thyroid.
T1a	Tumor ≤ (not more than) 1 cm in greatest dimension limited to the thyroid.
T1b	Tumor > (more than) 1 cm but ≤ (not more than) 2 cm in greatest dimension limited to the thyroid.
T2	Tumor > (more than) 2 cm but ≤ (not more than) 4 cm in greatest dimension limited to the thyroid.
T3	Tumor > (more than) 4 cm limited to the thyroid, or gross extrathyroidal extension (extended beyond the thyroid) invading only strap muscles.
T3a	Tumor > (more than) 4 cm limited to the thyroid.
T3b	Gross extrathyroidal extension (extended beyond the thyroid) invading only strap muscles (sternohyoid, sternothyroid, thyrohyoid or omohyoid muscles) from a tumor of any size.
T4	Includes gross extrathyroidal extension (extended beyond the thyroid) beyond the strap muscles.
T4a	Gross extrathyroidal extension (extended beyond the thyroid) invading subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve from a tumor of any size.
T4b	Gross extrathyroidal extension (extended beyond the thyroid) invading prevertebral fascia or encasing the carotid artery or mediastinal vessels from a tumor of any size.
Medullary	
T1	Tumor is ≤ (not more than) 2 cm in greatest dimension limited to the thyroid.
T1a	Tumor is ≤ (not more than) 1 cm in greatest dimension limited to the thyroid.
T1b	Tumor is > (more than) 1 cm but ≤ (not more than) 2 cm in greatest dimension limited to the thyroid.
T2	Tumor is > (more than) 2 cm but ≤ (not more than) 4 cm in greatest dimension limited to the thyroid.
T3	Tumor is > (more than) 4 cm or with extrathyroidal extension (extended beyond the thyroid).
T3a	Tumor is > (more than) 4 cm in greatest dimension limited to the thyroid.
T3b	Tumor of any size with gross extrathyroidal extension (extended beyond the thyroid) invading only strap muscles (sternohyoid, sternothyroid, thyrohyoid or omohyoid muscles).
T4	Advanced disease.
T4a	Moderately advanced disease; tumor of any size with gross extrathyroidal extension (extended beyond the thyroid) into the nearby tissues of the neck, including subcutaneous soft tissue, larynx, trachea, esophagus or recurrent laryngeal nerve.
T4b	Very advanced disease; tumor of any size with extension toward the spine or into nearby large blood vessels, gross extrathyroidal extension (extended beyond the thyroid) invading the prevertebral fascia, or encasing the carotid artery or mediastinal vessels.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No evidence of locoregional lymph node metastasis.
N0a	One or more cytologically (based on fine needle aspiration biopsy) or histologically (based on pathologic analysis of tissues after surgery) confirmed benign lymph nodes.
N0b	No radiologic or clinical evidence of locoregional lymph node metastasis.
N1	Metastasis to regional nodes.
N1a	Metastasis to level VI or VII (pretracheal, paratracheal, or prelaryngeal/Delphian, or upper mediastinal) lymph nodes. This can be unilateral (on one side) or bilateral (on both sides) disease.
N1b	Metastasis to unilateral (on one side), bilateral (on both sides), or contralateral (opposite side of thyroid tumor) lateral lymph nodes (levels I, II, III, IV or V) or retropharyngeal lymph nodes.
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

STAGING MEDULLARY THYROID CANCER

Stage	T	N	M
I	T1	N0	M0
II	T2, T3	N0	M0
III	T1 - T3	N1a	M0
IVA	T4a T1 - T3	Any N N1b	M0 M0
IVB	T4b	Any N	M0
IVC	Any T	Any N	M1

STAGING ANAPLASTIC THYROID CANCER

Stage	T	N	M
IVA	T1 - T3a	N0/NX	M0
IVB	T1 - T3a T3b, T4	N1 Any N	M0 M0
IVC	Any T	Any N	M1

STAGING DIFFERENTIATED THYROID CANCER*

Stage	T	N	M
Younger than 55 years			
I	Any T	Any N	M0
II	Any T	Any N	M1
55 years or older			
I	T1, T2	N0/NX	M0
II	T1, T2 T3a, T3b	N1 Any N	M0 M0
III	T4a	Any N	M0
IVA	T4b	Any N	M0
IVB	Any T	Any N	M1

*Includes papillary, follicular, poorly differentiated and Hurthle cell carcinoma

SCAN TO VIEW STAGING ILLUSTRATIONS FOR THYROID CANCER

STAGING LARYNGEAL CANCER

Stage	T	N	M
0	Tis	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T3 T1, T2, T3	N0 N1	M0 M0
IVA	T4a T1, T2, T3, T4a	N0, N1 N2	M0 M0
IVB	Any T T4b	N3 Any N	M0 M0
IVC	Any T	Any N	M1

STAGES OF LARYNGEAL CANCER

CLASSIFYING LARYNGEAL CANCER

Classification / Definition	
TUMOR (T)	
TX	Primary tumor cannot be assessed.
Tis	Carcinoma in situ.
Supraglottis	
T1	Tumor limited to one subsite of supraglottis with normal vocal cord mobility.
T2	Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of the larynx.
T3	Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid area, preepiglottic space, paraglottic space, and/or inner cortex of thyroid cartilage.
T4	Moderately advanced or very advanced.
T4a	Moderately advanced local disease. Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid or esophagus).
T4b	Very advanced local disease. Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures.
Glottis	
T1	Tumor limited to the vocal cord(s) (may involve anterior or posterior commissure) with normal mobility.
T1a	Tumor limited to one vocal cord.
T1b	Tumor involves both vocal cords.
T2	Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility.
T3	Tumor limited to the larynx with vocal cord fixation and/or invasion of paraglottic space and/or inner cortex of the thyroid cartilage.
T4	Moderately advanced or very advanced.
T4a	Moderately advanced local disease. Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, cricoid cartilage, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid or esophagus).
T4b	Very advanced local disease. Tumor invades prevertebral space, encases carotid artery or invades mediastinal structures.
Subglottis	
T1	Tumor limited to the subglottis.
T2	Tumor extends to vocal cord(s) with normal or impaired mobility.
T3	Tumor limited to larynx with vocal cord fixation and/or invasion of paraglottic space and/or inner cortex of the thyroid cartilage.
T4	Moderately advanced or very advanced.
T4a	Moderately advanced local disease. Tumor invades cricoid or thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscles of the tongue, strap muscles, thyroid, or esophagus).
T4b	Very advanced local disease. Tumor invades prevertebral space, encases carotid artery or invades mediastinal structures.
NODE (N)	
NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(-).
N2	Metastasis in a single ipsilateral (on the same side) lymph node 3 cm or smaller in greatest dimension and ENE*(+); *or* larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); *or* metastases in multiple ipsilateral lymph nodes none larger than 6 cm in greatest dimension and ENE(-); *or* in bilateral (on both sides) or contralateral (on the opposite side) lymph node(s), none larger than 6 cm in greatest dimension and ENE(-).
N2a	Metastasis in single ipsilateral (on the same side) node 3 cm or smaller in greatest dimension and ENE*(+); *or* a single ipsilateral node, larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-).
N2b	Metastasis in multiple ipsilateral (on the same side) nodes none larger than 6 cm in greatest dimension and ENE*(-).
N2c	Metastases in bilateral (on both sides) or contralateral (on the opposite side) lymph nodes, none larger than 6 cm in greatest dimension and ENE*(-).
N3	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE*(-); *or* metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE(+); *or* multiple ipsilateral, contralateral (on the opposite side), or bilateral (on both sides) lymph nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
N3a	Metastasis in a lymph node, larger than 6 cm in greatest dimension and ENE*(-).
N3b	Metastasis in a single ipsilateral (on the same side) node larger than 3 cm in greatest dimension and ENE*(+); *or* multiple ipsilateral, contralateral (on the opposite side), or bilateral (on both sides) nodes, any with ENE(+); *or* a single contralateral node of any size and ENE(+).
METASTASIS (M)	
M0	No distant metastasis.
M1	Distant metastasis.

*Extranodal extension (ENE) refers to cancer cells that have spread beyond the lymph node into surrounding tissues.

SCAN TO VIEW STAGING ILLUSTRATIONS FOR LARYNGEAL CANCER

HNC Living FOUNDATION

HNC Living Foundation was formed specifically to help head and neck cancer patients live life fully during and after treatment by providing financial aid. Our grants fund services and programs that directly benefit head and neck cancer patients, supporting their treatment and recovery.

CONTACT US

- **Phone:** 913.402.6028
- **Email:** information@hncliving.org
- **Website:** hncliving.org/for-patients/

WHAT WE HELP WITH

We provide assistance to help with costs incurred as a direct result of head and neck cancer treatment and recovery that aren't covered by insurance. Sample costs include the following:

- **Co-pays & Deductibles**
  (for appointments & treatments)
- **Dental Care**
  including pre-radiation dental clearance, dentures, and other dental treatment resulting from head and neck cancer
- **Nutritional Supplements**
- **Medical Supplies & Equipment**
  (not covered by insurance)
- **Medication & Prescriptions**
  (not covered by insurance)
- **Gas Cards** *(to appointments & treatments)*

We are not able to provide assistance with rent or mortgages, utilities, home modifications, groceries, or with medical bills acquired before the application date.

Susan, an HNC Living Foundation patient

WHO WE HELP

HNC Living Foundation provides people struggling with the financial hardships of cancer. Our funding aims to help those who are at or below 250% of the federal poverty guideline. We assist patients diagnosed with the following types of head and neck cancer:

- **Salivary Gland**
- **Throat or Pharynx**
- **Upper Esophageal**
- **Nasal & Sinus**
- **Thyroid**
- **Laryngeal**
- **Oral**

PATIENT
RESOURCE

Where information equals hope