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[Thyroid Cancer - Treatment Options](#) [1]

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ON THIS PAGE: You will learn about the different ways doctors use to treat people with thyroid cancer. To see other pages, use the menu on the side of your screen.

This section outlines treatments that are the standard of care (the best known treatments available) for this specific type of cancer. When making treatment plan decisions, patients are also encouraged to consider clinical trials as an option.

A clinical trial is a research study to test a new approach to treatment to evaluate whether it is safe, effective, and possibly better than the standard treatment. Clinical trials may test such approaches as a new drug, a new combination of standard treatments, or new doses of current therapies. Your doctor can help you review all treatment options. For more information, see the [About Clinical Trials](#) [3] and [Latest Research](#) [4] sections.

Treatment overview

In cancer care, different types of doctors often work together to create a patient's overall treatment plan that combines different types of treatments. This is called a [multidisciplinary team](#) [5]. Cancer care teams also include a variety of other health care professionals, including physician assistants, oncology nurses, social workers, pharmacists, counselors, dietitians, and others.

For thyroid cancer, this team may also include a surgeon, medical oncologist, radiation oncologist, and endocrinologist, which is a doctor specializing in problems with hormones, glands, and the endocrine system.

Thyroid cancer is commonly treated by one or a combination of treatments. Descriptions of

these treatment options are listed below, followed by an outline of common cancer treatments given by stage of disease (see [Stages](#) [6]).

Treatment options and recommendations depend on several factors, including:

- The type and stage of cancer
- Possible side effects
- The patient's preferences
- The patient's overall health

Take time to learn about your treatment options and be sure to ask questions about things that are unclear. Also, talk about the goals of each treatment with your doctor and what you can expect while receiving the treatment.

Cancer treatment is often selected based on guidelines recommended by panels of expert physicians. Although most thyroid cancer is curable, there can be different opinions in how to treat thyroid cancer, particularly regarding which combination of treatments to use and the timing when treatments are done. Patients are encouraged to [seek a second opinion](#) [7] before starting treatment because they should be comfortable with the treatment plan they choose and should ask about clinical trials.

Learn more about [making treatment decisions](#) [8].

Surgery

Surgery is the removal of the tumor and some surrounding healthy tissue during an operation. Surgery may also be called a resection. It is the main treatment for most people with thyroid cancer. A surgical oncologist is a doctor who specializes in treating cancer using surgery. Depending on the size of the nodule, common surgical options include:

- **Lobectomy.** This surgery removes the gland's lobe with the cancerous nodule.
- **Near-total thyroidectomy.** Also called subtotal thyroidectomy, this is surgery to remove the thyroid gland except for a small part.
- **Total thyroidectomy.** This surgery removes the entire thyroid gland.

There are different surgical techniques that can be used for a thyroidectomy:

- **Conventional thyroidectomy.** This is when the surgeon makes one large incision near the base or middle of the neck. This gives the surgeon direct access to the patient's thyroid gland for the operation. At some cancer centers, newer surgical techniques are being offered to reduce or avoid neck scarring.
- **An endoscopic thyroidectomy.** During this procedure, the surgeon makes several small incisions and then inserts a video camera and surgical instruments to complete the surgery.
- **Robotic thyroidectomy.** The surgeon makes an incision elsewhere, such as in an armpit or chest, then uses a robotic tool to complete the surgery.

Not all surgical options are recommended for all patients. Talk with your doctor about the best approach to treat you.

If there is evidence or risk of spread of cancer to the lymph nodes in the neck, the surgeon may also perform a neck dissection. This is surgery to remove the lymph nodes in the neck that can also be called a lymphadenectomy.

In general, complications of thyroid surgery may include damage to the nearby parathyroid glands that help regulate blood calcium levels, excessive bleeding, or wound infections. If the nerves to the larynx are damaged during surgery, this may cause temporary or permanent hoarseness or a "breathy" voice.

Without the thyroid gland, the body stops producing thyroid hormone, which is essential to a body's functioning. Hormone replacement (see below), usually given by a daily pill, is the best solution. The patient may also have to take vitamin D and calcium supplements if the parathyroid gland function is impaired after surgery.

If a tumor cannot be removed using surgery, it is called unresectable. The doctor will then recommend other treatment options.

Learn more about [the basics of cancer surgery](#) [9].

Hormone treatment

Patients who are treated with surgery for papillary, follicular, and medullary thyroid cancer require thyroid hormone therapy. In addition to replacing the hormone that is needed by the body, the thyroid hormone medication will slow down the growth of any remaining differentiated cancer cells.

Thyroid hormone replacement is levothyroxine (Levothroid, Levoxyl, Synthroid, Tirosint, Unithroid, and other brand names.) Levothyroxine typically comes as a pill that should be taken daily, at the same time each day, so that the body receives a consistent supply. Also, be sure to talk with your doctor about all other medications you take, including [dietary supplements such as iron or calcium](#) [10], to avoid interactions with your thyroid hormone replacement. Read more about [tips to take your medication correctly](#) [11].

Thyroid pills may have a few side effects. Occasionally, some patients develop a rash or lose some hair during the first months of treatment.

Hyperthyroidism, which is too much hormone, may cause weight loss, chest pain, rapid heart rate, irregular heartbeat, cramps, diarrhea, a feeling of being hot, sweats, and bone loss or osteoporosis.

Hypothyroidism, which is too little hormone, may cause fatigue, weight gain, dry skin and hair, and a feeling of being cold

The amount or dose of thyroid hormone required is different for every patient and tumor type, and it can change as a person ages. The doctor will monitor your thyroid hormone levels through regular blood tests. Talk with your doctor about what signs to watch for that may mean it is time to adjust your dose, or amount, of hormone supplement.

Radioactive iodine (radioiodine) therapy

The thyroid absorbs almost all iodine that enters a body. Therefore, a type of radiation therapy called radioactive iodine (also called I-131 or RAI) can find and destroy thyroid cells not removed by surgery and those that have spread beyond the thyroid. A doctor who specializes in giving radiation therapy to treat cancer is called a radiation oncologist.

This treatment is an option for most people with the papillary and follicular types. A small test dose may be given prior to full treatment to be sure the tumor cells will absorb the I-131. Patients with MTC or anaplastic thyroid cancer are not treated with I-131.

I-131 therapy is given in either liquid or pill form. Patients receiving I-131 to destroy cancer cells may or may not be hospitalized for two to three days, depending on several factors including the dose given. Patients are encouraged to drink fluids to help the I-131 pass quickly through the body. Within a few days, most of the radiation is gone. Talk with your doctor about ways to limit radiation exposure to other people, including children, who may be around you during this treatment and the days following it.

In preparation for radioactive iodine treatment after surgery, patients are usually asked to follow a low-iodine diet for two to three weeks beforehand. In addition to the low-iodine diet, patients will be asked to either stop taking thyroid hormone replacement pills temporarily or receive injections of recombinant TSH (Thyrogen) while taking the hormone replacement. If the hormone therapy is stopped during the preparation period, the patient will likely experience side effects

due to hypothyroidism (see above).

It is important to discuss the possible short-term and long-term effects of I-131 therapy with your doctor. On the first day of treatment, patients may experience nausea and vomiting. In certain circumstances, pain and swelling can occur in the areas where the radioactive iodine is collected. Because iodine is concentrated in salivary gland tissue, patients may experience swelling of the salivary glands. This may result in xerostomia, sometimes called dry mouth.

Large or cumulative doses of radioactive iodine may cause infertility, which is the inability to produce a child, especially in men. It is recommended that women avoid pregnancy for at least one year after radioactive iodine treatment. There is a risk of secondary cancer with the use of I-131 (see the section on [Follow-up](#) [12] Care). Occasionally, patients may require repeated radioactive treatments over time. However, there is a maximum total dose of radioactive iodine allowed over time, and once reached, this may prevent further use of this treatment.

External-beam radiation therapy

External-beam radiation is another type of radiation therapy in which high-energy x-rays are given from a machine outside the body to destroy cancer cells. An external-beam radiation therapy regimen (schedule) usually consists of a specific number of treatments given over a set period of time. When used to treat thyroid cancer, radiation therapy is usually given as outpatient therapy, either in a hospital or clinic, five days a week for about five to six weeks.

For thyroid cancer, external-beam radiation therapy is used only in certain circumstances, typically when later-stage thyroid cancer has not responded to I-131 radioactive iodine therapy (see above). Radiation therapy is usually given after surgery, and treatment is concentrated on a specific area, only affecting cancer cells at that site.

Side effects depend on the treatment dosage and area and may include redness of the skin, odynophagia (painful swallowing), cough, occasional hoarseness, nausea, and fatigue. Most side effects go away soon after treatment is finished.

Learn more about [the basics of external-beam radiation therapy](#) [13].

Chemotherapy and Targeted therapy

Chemotherapy is the use of drugs to destroy cancer cells and is sometimes used to treat thyroid cancer. Chemotherapy is given by a medical oncologist, a doctor who specializes in treating cancer with medication. A chemotherapy regimen (schedule) usually consists of a specific number of cycles given over a set period of time. A patient may receive one drug at a time or combinations of different drugs at the same time.

Systemic chemotherapy gets into the bloodstream to reach cancer cells throughout the body. Common ways to give chemotherapy include an intravenous (IV) tube placed into a vein using a needle or in a pill or capsule that is swallowed. The goal of chemotherapy can be to destroy

cancer remaining after surgery, slow the tumor's growth, or reduce symptoms.

The side effects of chemotherapy depend on the individual and the dose used, but they can include: fatigue, risk of infection, nausea and vomiting, hair loss, loss of appetite, and diarrhea. These side effects usually go away once treatment is finished.

Targeted therapy is a treatment that targets the cancer's specific genes, proteins, or the tissue environment that contributes to cancer growth and survival. This type of treatment blocks the growth and spread of cancer cells while limiting damage to normal cells. Learn more about the [basics of targeted therapy](#) [14].

Recent studies show that not all tumors have the same targets. To find the most effective treatment, your doctor may run tests to identify the genes, proteins, and other factors in your tumor. This helps doctors better match each patient with the most effective treatment whenever possible. In addition, many research studies are taking place now to find out more about specific molecular targets in the different types of thyroid cancer and new treatments directed at them.

For papillary and follicular thyroid cancer, the U.S. Food and Drug Administration (FDA) has approved two targeted therapies:

- In 2013, the FDA approved a targeted therapy called sorafenib (Nexavar) for later-stage or recurrent differentiated thyroid cancer when I-131 therapy (see above) has not worked. Learn more in a [2013 summary here](#) [15]. Common side effects of sorafenib include hand-foot skin reactions or other skin problems, diarrhea, fatigue, weight loss, and high blood pressure.
- In February 2015, the FDA approved a targeted therapy called lenvatinib (Lenvima, E7080) for later-stage differentiated thyroid cancer that does not respond to surgery and/or I-131 treatment. The side effects of lenvatinib include high blood pressure, diarrhea, decreased appetite, decreased weight, and nausea. More details about this drug can be found in [a 2014 study](#) [16] summary here.

For MTC, there are two other FDA-approved targeted therapy options:

- In 2011, the FDA approved vandetanib tablets (Caprelsa, zd6474), which is a type of targeted therapy known as a tyrosine kinase inhibitor. Specifically, vandetanib is now a standard treatment for adults when MTC is not able to be removed surgically, the disease is worsening, or if MTC has spread to other parts of the body.

The medication is given as a daily pill; the typical daily dose of vandetanib is 300 mg. Common side effects include diarrhea and colon inflammation, skin rash, nausea, high blood pressure, headache, fatigue, loss of appetite, and stomach pain. Additionally, more

serious side effects such as respiratory and heart problems can occur. Blood tests, including serum potassium, calcium, magnesium, and TSH levels (see [Diagnosis](#) [17]), may be done to monitor the body's reaction to this medication on a regular basis.

- In 2012, the FDA approved another tyrosine kinase inhibitor for metastatic MTC called cabozantinib (Cometriq, XL184). The recommended dose is 140 mg, taken in pill form once daily. Side effects may include constipation, stomach pain, high blood pressure, hair color changes, fatigue, nausea, and swelling, in addition to serious colon problems.

Before any targeted treatment begins, talk with your doctor about possible side effects for each specific medication and how they can be managed.

At this time, the use of other, systemic chemotherapy and targeted therapy for the treatment of thyroid cancer is determined on an individual basis and is most often given as part of a clinical trial. See the [Latest Research](#) [4] section for more information.

Learn more about [the basics of chemotherapy](#) [18] and [preparing for treatment](#) [19]. The medications used to treat cancer are continually being evaluated. Talking with your doctor is often the best way to learn about the medications prescribed for you, their purpose, and their potential side effects or interactions with other medications. Learn more about your prescriptions by using [searchable drug databases](#) [20].

Getting care for symptoms and side effects

Cancer and its treatment often cause side effects. In addition to treatment to slow, stop, or eliminate the cancer, an important part of cancer care is relieving a person's symptoms and side effects. This approach is called palliative or supportive care, and it includes supporting the patient with his or her physical, emotional, and social needs.

Palliative care is any treatment that focuses on reducing symptoms, improving quality of life, and supporting patients and their families. Any person, regardless of age or type and stage of cancer, may receive palliative care. It works best when palliative care is started as early as needed in the cancer treatment process.

People often receive treatment for the cancer and treatment to ease side effects at the same time. In fact, patients who receive both often have less severe symptoms, better quality of life, and report they are more satisfied with treatment.

Palliative treatments vary widely and often include medication, nutritional changes, relaxation techniques, emotional support, and other therapies. You may also receive palliative treatments similar to those meant to eliminate the cancer, such as chemotherapy, surgery, or radiation therapy. Talk with your doctor about the goals of each treatment in your treatment plan.

Before treatment begins, talk with your health care team about the possible side effects of your specific treatment plan and palliative care options. And during and after treatment, be sure to tell your doctor or another health care team member if you are experiencing a problem so it can be addressed as quickly as possible. Learn more about the basics of [palliative care](#) [21].

Treatment options by stage

If the thyroid cancer is only within the tissues of the neck, both in the thyroid gland and in the lymph nodes, surgery will typically be the first treatment. Patients with later stage disease may be treated with surgery as well, but other treatments may be done first. Clinical trials may be recommended at any stage as a treatment option.

Stage I: Surgery; hormone therapy; possible radioactive iodine therapy after surgery

Stage II: Surgery; hormone therapy; possible radioactive iodine therapy after surgery

Stage III: Surgery; hormone therapy; possible radioactive iodine therapy or external-beam radiation therapy after surgery

Stage IV: Surgery, hormone therapy, radioactive iodine therapy, external-beam radiation therapy, targeted therapy, and chemotherapy. Radiation therapy may also be used to reduce pain and other problems.

Stage IV thyroid cancer

If the cancer has spread beyond the thyroid to other organs, such as the bones or lungs, it is called metastatic or Stage IV thyroid cancer. Also, all anaplastic thyroid tumors are classified as stage IV at the time of diagnosis, regardless of tumor size, location, or spread.

Patients with this diagnosis are encouraged to talk with doctors who are experienced in treating this stage of cancer, because there can be different opinions about the best treatment plan. Learn more about getting a [second opinion](#) [7] before starting treatment, so you are comfortable with the treatment plan chosen. This discussion may include [clinical trials](#) [3].

Your health care team may recommend a treatment plan that includes a combination of surgery, hormone therapy, radioactive iodine therapy, external-beam radiation therapy, targeted therapy, and chemotherapy. Clinical trials on new treatment approaches may also be recommended. Palliative care will also be important to help relieve symptoms and side effects

For most patients, a diagnosis of metastatic cancer is very stressful and, at times, difficult to bear. Patients and their families are encouraged to talk about the way they are feeling with doctors, nurses, social workers, or other members of the health care team. It may also be helpful to talk with other patients, including through a [support group](#) [22].

Remission and the chance of recurrence

A remission is when cancer cannot be detected in the body and there are no symptoms. This may also be called having “no evidence of disease” or NED.

A remission may be temporary or permanent. This uncertainty causes many people to worry that the cancer will come back. While many remissions are permanent, it’s important to talk with your doctor about the possibility of the cancer returning. Understanding your risk of recurrence and the treatment options may help you feel more prepared if the cancer does return. Learn more about [coping with the fear of recurrence](#) [23].

If the cancer does return after the original treatment, it is called recurrent cancer. It may come back in the same place (called a local recurrence), nearby (regional recurrence), or in another place (distant recurrence).

When this occurs, a cycle of testing will begin again to learn as much as possible about the recurrence. After testing is done, you and your doctor will talk about your treatment options.

Often the treatment plan will include the treatments described above, such as surgery, radioactive iodine therapy, targeted therapy, external-beam radiation therapy, hormone treatment, and chemotherapy. However, they may be used in a different combination or given at a different pace. Your doctor may also suggest clinical trials that are studying new ways to treat this type of recurrent cancer.

People with recurrent cancer often experience emotions such as disbelief or fear. Patients are encouraged to talk with their health care team about these feelings and ask about support services to help them cope. Learn more about [dealing with cancer recurrence](#) [24].

If treatment fails

Recovery from thyroid cancer is not always possible. If the cancer cannot be cured or controlled, the disease may be called advanced or terminal.

This diagnosis is stressful, and advanced cancer is difficult to discuss for many people. However, it is important to have open and honest conversations with your doctor and health care team to express your feelings, preferences, and concerns. The health care team is there to help, and many team members have special skills, experience, and knowledge to support patients and their families. Making sure a person is physically comfortable and free from pain is extremely important.

Patients who have advanced cancer and who are expected to live less than six months may want to consider a type of palliative care called hospice care. Hospice care is designed to provide the best possible quality of life for people who are near the end of life.

You and your family are encouraged to think about where you would be most comfortable: at

home, in the hospital, or in a hospice environment. Nursing care and special equipment can make staying at home a workable alternative for many families. Learn more about [advanced cancer care planning](#) [25].

After the death of a loved one, many people need support to help them cope with the loss. Learn more about [grief and loss](#) [26].

The [next section in this guide is About Clinical Trials](#) [3] and it offers more information about research studies that are focused on finding better ways to care for people with cancer. Or, use the menu on the side of your screen to choose another section to continue reading this guide.

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