

National Cancer Institute

What You Need
To Know About™

Thyroid Cancer

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
National Institutes of Health

National Cancer Institute Services

This is only one of many free booklets for people with cancer.

You may want more information for yourself, your family, and your doctor.

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

Call NCI's Cancer Information Service

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

Visit NCI's website

<http://www.cancer.gov>

Chat online

LiveHelp, NCI's instant messaging service

<http://www.cancer.gov/livehelp>

E-mail

cancergovstaff@mail.nih.gov

Order publications

<http://www.cancer.gov/publications>

1-800-4-CANCER

Get help with quitting smoking

1-877-44U-QUIT (1-877-448-7848)

Contents

- 1 About This Booklet**
- 3 The Thyroid**
- 5 Cancer Cells**
- 6 Types of Thyroid Cancer**
- 8 Diagnosis**
- 10 Staging**
- 11 Treatment**
 - 15 Surgery
 - 18 Thyroid Hormone Treatment
 - 19 Radioactive Iodine Therapy
 - 22 External Radiation Therapy
 - 24 Chemotherapy
- 25 Second Opinion**
- 27 Follow-up Care**
- 29 Sources of Support**
- 30 Taking Part in Cancer Research**

32 Words to Know

41 National Cancer Institute Publications

About This Booklet

This National Cancer Institute (NCI) booklet is for you—someone who has just been diagnosed with **cancer** of the **thyroid**.

This booklet shows words that may be new to you in **bold**. See the **Words to Know** section to learn what a new word means and how to pronounce it.

In 2012, more than 43,000 women and 13,000 men will be diagnosed with thyroid cancer in the United States. Most will be older than 45.

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

- **Diagnosis and staging**
- **Treatment**
- **Follow-up care**
- **Taking part in research studies**

You can read this booklet from front to back. Or you can read only the sections you need right now.

This booklet has lists of questions that you may want to ask your doctor. Many people find it helpful to take a list of questions to a doctor visit. To help remember what your doctor says, you can take notes. You may also want to have a family member or friend go with you when you talk with the doctor—to take notes, ask questions, or just listen.

For the latest information about thyroid cancer, please visit NCI's website at <http://www.cancer.gov/cancertopics/types/thyroid>.

Also, NCI's Cancer Information Service can answer your questions about cancer. We can also send you NCI booklets and fact sheets. Call **1-800-4-CANCER (1-800-422-6237)**. Or, chat using **LiveHelp**, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>.

The Thyroid

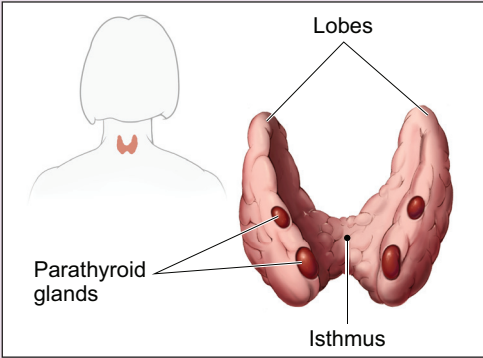
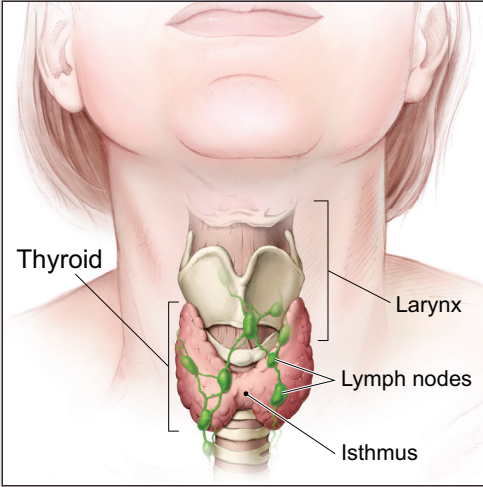
The thyroid is a **gland** at the front of your neck beneath your voice box (**larynx**). A healthy thyroid is a little larger than a quarter. It usually can't be felt through the skin.

The thyroid has two parts (lobes). A thin piece of **tissue** (the **isthmus**) connects the two lobes.

The thyroid makes **hormones**:

- **Thyroid hormone:** The **thyroid follicular cells** make **thyroid hormone**. This hormone affects heart rate, blood pressure, body temperature, and weight. For example, too much thyroid hormone makes your heart race, and too little makes you feel very tired.
- **Calcitonin:** The **C cells** in the thyroid make **calcitonin**. This hormone plays a small role in keeping a healthy level of **calcium** in the body.

Four or more tiny **parathyroid glands** are on the back of the thyroid. These glands make **parathyroid hormone**. This hormone plays a big role in helping the body maintain a healthy level of calcium.



The pictures show the front and back of the thyroid.

Cancer Cells

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

Normal thyroid cells grow and divide to form new cells as the body needs them. When normal cells grow old or get damaged, they die, and new cells take their place.

Sometimes, this process goes wrong. New cells form when the body does not need them, and old or damaged cells do not die as they should. The buildup of extra cells often forms a mass of tissue called a **nodule**. It may also be called a growth or **tumor**.

Most thyroid nodules are **benign**. Benign nodules are not cancer (**malignant**):

■ **Benign nodules:**

- Are usually not harmful
- Don't invade the tissues around them
- Don't spread to other parts of the body
- Usually don't need to be removed

■ **Malignant nodules** (thyroid cancer):

- May sometimes be a threat to life
- Can invade nearby tissues and organs
- Can spread to other parts of the body
- Often can be removed or destroyed, but sometimes thyroid cancer returns

Thyroid cancer cells can spread by breaking away from the thyroid tumor. They can travel through **lymph vessels** to nearby **lymph nodes**. They can also spread through **blood vessels** to the lungs, liver, or bones. After spreading, cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues.

See the **Staging** section on page 10 for information about thyroid cancer that has spread.

Types of Thyroid Cancer

There are several types of thyroid cancer:

- **Papillary:** In the United States, **papillary thyroid cancer** is the most common type. About 86 of every 100 people with thyroid cancer have this type. It begins in follicular cells and usually grows slowly. If diagnosed early, most people with papillary thyroid cancer can be cured.
- **Follicular:** The second most common type is **follicular thyroid cancer**. A little more than 9 of every 100 people with thyroid cancer have this type. It begins in follicular cells and usually grows slowly. If diagnosed early, most people with follicular thyroid cancer can be treated successfully.
- **Medullary:** **Medullary thyroid cancer** is not common. About 2 of every 100 people with thyroid cancer have this type. It begins in C cells and can make abnormally high levels of calcitonin. Medullary thyroid cancer tends to grow slowly. It can be easier to control if it's found and treated before it spreads to other parts of the body.

Medullary Thyroid Cancer Sometimes Runs in Families

A change in a **gene** called *RET* can be passed from parent to child. Nearly everyone with a changed *RET* gene develops medullary thyroid cancer. The disease occurs alone, as **familial medullary thyroid cancer**, or with other cancers, as **multiple endocrine neoplasia (MEN) syndrome**.

A blood test can usually detect a changed *RET* gene. If it's found in a person with medullary thyroid cancer, the doctor may suggest that family members also be tested. For those who have a changed gene, the doctor may recommend frequent lab tests or **surgery** to remove the thyroid before cancer develops.

- **Anaplastic:** The least common type is **anaplastic thyroid cancer**. About 1 of every 100 people with thyroid cancer has this type. Most people with anaplastic thyroid cancer are older than 60. The cancer begins in follicular cells of the thyroid. The cancer cells tend to grow and spread very quickly. Anaplastic thyroid cancer is very hard to control.

Tests and treatment options depend on the type of thyroid cancer.

Diagnosis

If your doctor thinks that you may have thyroid cancer, you'll have one or more of the following tests:

- **Physical exam:** Your doctor feels your thyroid for lumps (nodules). Your doctor also checks your neck and nearby lymph nodes for growths or swelling.
- **Blood tests:** Your doctor may check for abnormal levels of **thyroid-stimulating hormone** (TSH) in the blood. Too much or too little TSH means the thyroid is not working well. If your doctor thinks that you may have medullary thyroid cancer, you'll be checked for a high level of calcitonin and have other blood tests.
- **Ultrasound:** An **ultrasound** device uses sound waves that can't be heard by humans. The sound waves make a pattern of echoes as they bounce off organs inside your neck. The echoes create a picture of your thyroid and nearby tissues. The picture can show thyroid nodules that are too small to be felt. Your doctor uses the picture to learn the size and shape of each nodule and whether the nodules are solid or filled with fluid. Nodules that are filled with fluid are usually not cancer. Nodules that are solid may be cancer.
- **Thyroid scan:** Your doctor may order a scan of your thyroid. You swallow a small amount of a **radioactive** substance (such as **radioactive iodine**), and it travels through the bloodstream. Thyroid cells that absorb the radioactive substance can be seen on a scan. Nodules that take up more of the substance than the thyroid tissue around them are called "hot" nodules. Hot nodules are usually not cancer. Nodules that take up less

substance than the thyroid tissue around them are called “cold” nodules. Cold nodules may be cancer.

- **Biopsy:** A **biopsy** is the only sure way to diagnose thyroid cancer. A **pathologist** checks a sample of thyroid tissue for cancer cells using a microscope.

Your doctor may take tissue for a biopsy in one of two ways:

- **With a thin needle:** Your doctor removes a sample of tissue from a thyroid nodule with a thin needle. An ultrasound device can help your doctor see where to place the needle. Most people have this type of biopsy.
- **With surgery:** If a diagnosis can't be made from tissue removed with a needle, a **surgeon** removes a lobe or the entire thyroid. For example, if the doctor suspects follicular thyroid cancer, the lobe that contains the nodule may be removed for diagnosis.

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

- Will I have to go to the hospital?
- How long will it take? Will I be awake? Will it hurt?
- Are there any risks? What is the chance of infection or bleeding afterward?
- Will I have a scar on my neck?
- How soon will I know the results? Who will explain them to me?
- If I do have cancer, who will talk to me about the next steps? When?

Staging

If the biopsy shows that you have cancer, your doctor will need to learn the extent (stage) of the disease to help you choose the best treatment.

The stage is based on the size of the nodule and whether the cancer has invaded nearby tissues or spread to other parts of the body. Thyroid cancer spreads most often to nearby tissues in the neck or to lymph nodes. It may also spread to the lungs and bones.

When cancer spreads from its original place to another part of the body, the new tumor has the same kind of cancer cells and the same name as the original tumor. For example, if thyroid cancer spreads to the lungs, the cancer cells in the lungs are actually thyroid cancer cells. The disease is **metastatic** thyroid cancer, not lung cancer. It's treated as thyroid cancer, not as lung cancer. Doctors sometimes call the new tumor in the lung “distant” disease.

Staging may involve one or more of these tests:

- **Ultrasound:** An ultrasound exam of your neck may show whether cancer has spread to lymph nodes or other tissues near your thyroid.
- **CT scan:** An **x-ray** machine linked to a computer takes a series of detailed pictures of your neck and chest area. A **CT scan** may show whether cancer has spread to lymph nodes, other areas in your neck, or your chest.
- **MRI:** **MRI** uses a powerful magnet linked to a computer. It makes detailed pictures of your neck and chest area. MRI may show whether cancer has spread to lymph nodes or other areas.

- **Chest x-ray:** An x-ray of the chest can often show whether cancer has spread to the lungs.
- **Whole body scan:** You may have a whole body scan to see if cancer has spread from the thyroid to other parts of the body. You get a small amount of a radioactive substance (such as radioactive iodine). The substance travels through the bloodstream. Thyroid cancer cells in other organs or the bones take up the substance. Thyroid cancer that has spread may show up on a whole body scan.

Treatment

Treatment options for people with thyroid cancer are...

- **Surgery**
- **Thyroid hormone treatment**
- **Radioactive iodine therapy**
- **External radiation therapy**
- **Chemotherapy**

You'll probably receive more than one type of treatment. For example, the usual treatment for papillary thyroid cancer is surgery, thyroid hormone treatment, and radioactive iodine therapy. **External radiation therapy** and **chemotherapy** are not often used for people with papillary thyroid cancer.

The treatment that's right for you depends mainly on the type of thyroid cancer (papillary, follicular, medullary, or anaplastic). It also depends on the size of the nodule, your age, and whether the cancer has spread. You and your doctor can work together to develop a treatment plan that meets your needs.

Your doctor may refer you to a specialist who has experience treating thyroid cancer, or you may ask for a referral. You may have a team of specialists:

- **Endocrinologist:** An **endocrinologist** is a doctor who specializes in treating people who have hormone disorders.
- **Thyroidologist:** A **thyroidologist** is an endocrinologist who specializes in treating diseases of the thyroid.
- **Surgeon:** This type of doctor can perform surgery.
- **Nuclear medicine doctor:** A **nuclear medicine** doctor specializes in using radioactive substances to diagnose and treat cancer and other diseases.
- **Medical oncologist:** A **medical oncologist** is a doctor who specializes in treating cancer with drugs.
- **Radiation oncologist:** A **radiation oncologist** is a doctor who specializes in treating cancer with **radiation therapy**.

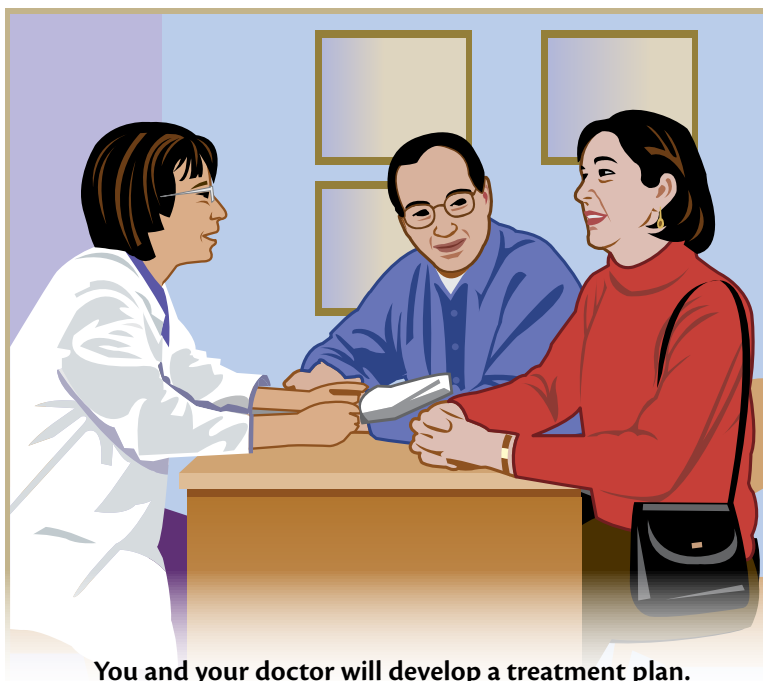
An **oncology nurse** and a **registered dietitian** may also be part of your team.

Your health care team can describe your treatment choices, the expected results of each treatment, and the possible **side effects**. Because cancer treatments often damage healthy cells and tissues, side effects are common. These side effects depend on many factors, including the type of treatment. Side effects may not be the same for each person, and they may even change from one treatment session to the next. Before treatment starts, ask your health care team about possible side effects and how treatment may change your normal activities.

At any stage of the disease, **supportive care** is available to control pain and other symptoms, to relieve the side effects of treatment, and to ease emotional concerns. You can get information about coping on NCI's website at <http://www.cancer.gov/cancertopics/coping>.

Also, you can get information about supportive care from NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**. Or, chat using **LiveHelp**, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>.

You may want to talk with your doctor about taking part in a **clinical trial**. Clinical trials are research studies testing new treatments. They are an important option for people with all stages of thyroid cancer. See the section on **Taking Part in Cancer Research** on page 30.



You and your doctor will develop a treatment plan.

Thank You for previewing this eBook

You can read the full version of this eBook in different formats:

- HTML (Free /Available to everyone)
- PDF / TXT (Available to V.I.P. members. Free Standard members can access up to 5 PDF/TXT eBooks per month each month)
- Epub & Mobipocket (Exclusive to V.I.P. members)

To download this full book, simply select the format you desire below

