Thyroid Cancer

What is the thyroid gland?
The thyroid is a butterfly shaped gland located in the neck. Your thyroid makes and stores hormones, which help regulate your heart rate, blood pressure and body temperature. Hormones also help to regulate the rate at which food is changed into energy. The thyroid uses iodine to make several of its hormones.

Are there different types of thyroid cancer?
There are four major types of thyroid cancer:

- **Papillary (PAP-ih-lar-ee) tumor** is a cancer that starts in the cells that make the thyroid hormones with iodine. These cancer cells grow very slowly.

- **Follicular (fo-LIK-yu-ler) tumor** is a cancer that starts in the cells that make iodine containing hormones. This tumor has a thin layer of tissue around it. This thin layer of tissue is called a capsule.

- **Medullary (MED-yoo-LAIR-ee) tumor** is a cancer that affects cells in the thyroid that helps maintain a healthy level of calcium in the blood.

- **Anaplastic (ana-a-PLAS-tik) tumor** is a cancer that is the fastest growing thyroid tumors. These cancer cells are very abnormal and spread rapidly to other parts of the body.
What are the risk factors for thyroid cancer?

The exact causes of thyroid cancer are not known. Research has shown that people with certain risk factors are more likely than others to get thyroid cancer. A risk factor is anything that increases a person’s chance of developing a disease.

The following risk factors are associated with an increased chance of developing thyroid cancer:

- **Radiation.** People exposed to high levels of radiation are much more likely than others to develop papillary or follicular thyroid cancer. Exposure could occur from high-dose x-rays used in some cancer treatments. Another source of radiation is radioactive fallout. This includes fallout from atomic weapons testing, nuclear power plant accidents, and releases from atomic weapons production plants. Such radioactive fallout contains radioactive iodine (I-131).

  People, who were exposed to one or more sources of I-131, especially if they were children at the time of their exposure, may have an increased risk for thyroid diseases.

  People who are concerned about their exposure to radiation from medical treatments or radioactive fallout may wish to ask the Cancer Information Service at 1-800-4-CANCER about additional sources of information.

- **Family history.** Medullary thyroid cancer can be caused by a change, or alterations, in a gene called RET. The altered RET gene can be passed from parent to child. Nearly everyone with the altered RET gene will develop medullary thyroid cancer. A blood test can detect an altered RET gene. If the abnormal gene is found in a person with medullary thyroid cancer, the doctor may suggest that other family members be tested. For those found to carry the altered RET gene, the doctor may recommend frequent lab tests or surgery to remove the thyroid before cancer develops. When medullary thyroid cancer runs in a family, the doctor may call this “familial medullary thyroid cancer” or “multiple endocrine neoplasia (MEN) syndrome”. People with the MEN syndrome may develop other types of cancer.

  A small number of people with a family history of goiter (enlargement of the thyroid gland) or certain precancerous polyps in the colon are at risk for developing papillary thyroid cancer.

- **Being female.** In the United States, women are two to three times more likely than men to develop thyroid cancer.
• **Age.** Most patients with thyroid cancer are more than 40 years old. People with anaplastic thyroid cancer are usually more than 65 years old.

• **Race.** In the United States, white people are more likely than African Americans to be diagnosed with thyroid cancer.

• **Not enough iodine in the diet.** The thyroid needs iodine to make thyroid hormone. In the United States, iodine is added to salt to protect people from thyroid problems. Thyroid cancer seems to be less common in the United States than in countries where iodine is not part of the diet.

Most people who have known risk factors do not get thyroid cancer. On the other hand, many who do get the disease have none of these risk factors. People who think they may be at risk for thyroid cancer should discuss this concern with their doctor. The doctor may suggest ways to reduce the risk and can plan a schedule for checkups.

**What are the signs of thyroid cancer?**

Early thyroid cancer often does not cause signs. However, as the cancer grows, signs may include:

• A lump, or nodule, in the front of the neck
• Hoarseness or difficulty speaking in a normal voice
• Swollen lymph nodes, especially in the neck
• Difficulty swallowing or breathing
• Pain in the throat or neck

These are not sure signs of thyroid cancer. An infection, a benign goiter, or another problem also could cause these signs. Anyone with these signs should see a doctor as soon as possible. Only a doctor can diagnose and treat the problem.

**How does my doctor check for thyroid cancer?**

Your doctor may use several tests to learn more about the size and location of your thyroid lump.

• The doctor may perform a **physical exam** and ask about your personal and family medical history.
- The doctor may order **blood tests** to check to see if thyroid hormone levels are too high or too low.

- The doctor may order a **radioactive iodine scan**. This uses a very small amount of radioactive material to make thyroid lumps show up on a picture.

- **Ultrasound** is another way of seeing a picture of the thyroid gland. The ultrasound tells your doctor:
  - If the lumps are filled with fluid or solid tissue
  - The number of lumps
  - The size of the lumps

- **Biopsy.** The removal of tissue to look for cancer cells is called a biopsy. A biopsy is the only sure way to know whether a lump is cancerous. The doctor may remove tissue through a needle or during surgery. There are two different types of biopsy methods that may be used:
  - **Fine needle aspiration.** The doctor removes a sample of tissue from a thyroid lump with a thin needle. A pathologist looks at the cells under a microscope to check for cancer. Sometimes, the doctor uses an ultrasound device to guide the needle through the lump.
  - **Surgical biopsy.** If a diagnosis cannot be made from the fine needle aspiration, the doctor may operate to remove the nodule. A pathologist then checks the tissue for cancer cells.

**What treatments are used for thyroid cancer?**

People with thyroid cancer have many treatment options. This depends on the type and stage of thyroid cancer. Some patients receive a combination of treatments.

The doctor is the best person to describe the treatment choices and discuss the expected results.

- Surgery is the most common form of treatment for thyroid cancer. The surgeon usually removes part of the entire thyroid and any affected tissue, such as lymph nodes. Ask your nurse for the handout **Thyroid or Parathyroid Surgery** for more information.
• If you have a papillary or follicular thyroid cancer that has not spread, you may also receive treatment with I 131 iodine. You would swallow the iodine that then collects in any of the thyroid cancer cells that remain in your body after surgery. Ask your nurse of the handout Iodine - 131 for more information.

• After surgery and/or treatment with radioactive iodine, hormones can be used. These are taken in the form of a pill. Hormone pills are usually part of the treatment plan for papillary and follicular cancer.

• If your thyroid cancer has spread, surgery may not be recommended. Your treatment may include some form of chemotherapy, radioactive iodine, external radiation therapy and/or hormone therapy.

• Regular follow up is very important after treatment for thyroid cancer. It may include periodic exams, x-rays, scans and blood tests.

Your doctor can also provide information about taking part in a clinical trial. A clinical trial is a research study that helps to discover new ways to improve health and cancer care.

Adapted from: NIH Publication, # 01 4994