

Leukemia

The National Cancer Institute (<http://www.cancer.gov/>), lists leukemia as one of 13 common causes of cancer and provides the following information.

To obtain a free copy of this document, go to www.masterdocs.com.

Understanding Cancer

Cancer begins in cells, the building blocks that make up *tissues*. Tissues make up the organs of the body. Normally, cells grow and divide to form new cells as the body needs them. When cells grow old, they die, and new cells take their place.

Sometimes this orderly process goes wrong. New cells form when the body does not need them, and old cells do not die when they should. These extra cells can form a mass of tissue called a growth or *tumor*.

Not all tumors are cancer. Tumors can be *benign* or *malignant*.

Benign tumors are not cancer:

- Benign tumors are rarely life-threatening.
- Usually, benign tumors can be removed, and they seldom grow back.
- Cells from benign tumors do not spread to tissues around them or to other parts of the body.

Malignant tumors are cancer:

- Malignant tumors generally are more serious than benign tumors. They may be life-threatening.
- Malignant tumors often can be removed, but they can grow back.
- Cells from malignant tumors can invade and damage nearby tissues and organs. Also, cancer cells can break away from a malignant tumor and enter the bloodstream or lymphatic system. That is how cancer cells spread from the original cancer (*primary tumor*) to form new tumors in other organs. The spread of cancer is called *metastasis*.

Leukemia

The National Cancer Institute (NCI) booklet (NIH Publication No. 02-3775) has important information about leukemia,* cancer that starts in blood cells. Each year, leukemia is diagnosed in about 29,000 adults and 2,000 children in the United States.

What Is Leukemia?

Leukemia is a type of *cancer*. Cancer is a group of many related diseases. All cancers begin in *cells*, which make up *blood* and other *tissues*. Normally, cells grow and divide to form new cells as the body needs them. When cells grow old, they die, and new cells take their place.

Sometimes this orderly process goes wrong. New cells form when the body does not need them, and old cells do not die when they should. Leukemia is cancer that begins in blood cells.

Types of Leukemia

The types of leukemia are grouped by how quickly the disease develops and gets worse. Leukemia is either *chronic* (gets worse slowly) or *acute* (gets worse quickly):

- ***Chronic leukemia***—Early in the disease, the abnormal blood cells can still do their work, and people with chronic leukemia may not have any *symptoms*. Slowly, chronic leukemia gets worse. It causes symptoms as the number of leukemia cells in the blood rises.
- ***Acute leukemia***—The blood cells are very abnormal. They cannot carry out their normal work. The number of abnormal cells increases rapidly. Acute leukemia worsens quickly.

The types of leukemia are also grouped by the type of white blood cell that is affected. Leukemia can arise in *lymphoid* cells or *myeloid* cells. Leukemia that affects lymphoid cells is called *lymphocytic* leukemia. Leukemia that affects myeloid cells is called myeloid leukemia or *myelogenous* leukemia.

There are four common types of leukemia:

- ***Chronic lymphocytic leukemia*** (*chronic lymphoblastic leukemia*, CLL) accounts for about 7,000 new cases of leukemia each year. Most often, people diagnosed with the disease are over age 55. It almost never affects children.
- ***Chronic myeloid leukemia*** (*chronic myelogenous leukemia*, CML) accounts for about 4,400 new cases of leukemia each year. It affects mainly adults.
- ***Acute lymphocytic leukemia*** (*acute lymphoblastic leukemia*, ALL) accounts for about 3,800 new cases of leukemia each year. It is the most common type of leukemia in young children. It also affects adults.
- ***Acute myeloid leukemia*** (*acute myelogenous leukemia*, AML) accounts for about 10,600 new cases of leukemia each year. It occurs in both adults and children.

Hairy cell leukemia is a rare type of chronic leukemia. This booklet does not deal with hairy cell leukemia or other rare types of leukemia. Together, these rare leukemias account for about 5,200 new cases of leukemia each year. The Cancer Information Service (1-800-4-CANCER) can provide information about these types of leukemia.

Leukemia: Who's at Risk?

No one knows the exact causes of leukemia. Doctors can seldom explain why one person gets this disease and another does not. However, research has shown that people with certain *risk factors* are more likely than others to develop leukemia. A risk factor is anything that increases a person's chance of developing a disease.

Studies have found the following risk factors for leukemia:

- **Very high levels of *radiation***—People exposed to very high levels of radiation are much more likely than others to develop leukemia. Very high levels of radiation have been caused by atomic bomb explosions (such as those in Japan during World War II) and nuclear power plant accidents (such as the Chernobyl [also called Chornobyl] accident in 1986).

Medical treatment that uses radiation can be another source of high-level exposure. Radiation used for diagnosis, however, exposes people to much lower levels of radiation and is not linked to leukemia.

- **Working with certain chemicals**—Exposure to high levels of *benzene* in the workplace can cause leukemia. Benzene is used widely in the chemical industry. *Formaldehyde* is also used by the chemical industry. Workers exposed to formaldehyde also may be at greater risk of leukemia.

- **Chemotherapy**—Cancer patients treated with certain cancer-fighting drugs sometimes later develop leukemia. For example, drugs known as alkylating agents are associated with the development of leukemia many years later.
- **Down syndrome** and certain other genetic diseases—Some diseases caused by abnormal chromosomes may increase the risk of leukemia.
- **Human T-cell leukemia virus-I** (HTLV-I)—This virus causes a rare type of chronic lymphocytic leukemia known as human T-cell leukemia. However, leukemia does not appear to be contagious.
- **Myelodysplastic syndrome**—People with this blood disease are at increased risk of developing acute myeloid leukemia.

In the past, some studies suggested exposure to electromagnetic fields as another possible risk factor for leukemia. Electromagnetic fields are a type of low-energy radiation that comes from power lines and electric appliances. However, results from recent studies show that the evidence is weak for electromagnetic fields as a risk factor.

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

This document is provided as a service to the public by TMT (Taylor MicroTechnology, Inc.). TMT does not provide medical advice to you. TMT does inform you of publicly available medical information. However, please realize that the possible diagnoses provided may not include the cause of your own pain, and that a reliable diagnosis can only be obtained by contacting your own health care provider. For details of the Content Disclaimer and Legal Disclaimers regarding materials provided by TMT, see www.masterdocs.com/disclaimer.htm.