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About Acute Myeloid Leukemia (AML)

Get an overview of acute myeloid leukemia and the latest key statistics in the US.

Overview of AML

If you have been diagnosed with acute myeloid leukemia or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- [What Is Acute Myeloid Leukemia \(AML\)?](#)

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What Is Acute Myeloid Leukemia (AML)?

many kinds of cancer. Cells in nearly any part of the body can become cancer. To learn more about cancer and how it starts and grows, see [What Is Cancer?](#)¹

Leukemias are cancers that start in cells that would normally develop into different types of blood cells. Most often, leukemia starts in early forms of white blood cells, but some leukemias start in other blood cell types. There are several types of leukemia, which are divided based mainly on whether the leukemia is acute (fast growing) or chronic (slower growing), and whether it starts in myeloid cells or lymphoid cells.

Acute myeloid leukemia (AML) starts in the bone marrow (the soft inner part of certain bones, where new blood cells are made), but most often it quickly moves into the blood, as well. It can sometimes spread to other parts of the body including the lymph nodes, liver, spleen, central nervous system (brain and spinal cord), and testicles.

Most often, AML develops from cells that would turn into white blood cells (other than lymphocytes), but sometimes AML develops in other types of blood-forming cells. The different types of AML are discussed in [Acute Myeloid Leukemia \(AML\) Subtypes and Prognostic Factors](#)².

Acute myeloid leukemia (AML) has many other names, including acute myelocytic leukemia, acute myelogenous leukemia, acute granulocytic leukemia, and acute non-lymphocytic leukemia.

Normal bone marrow, blood, and lymph tissue

To understand leukemia, it helps to know about the blood and lymph systems.

Bone marrow

Bone marrow is the soft inner part of certain bones. It is made up of blood-forming cells, fat cells, and supporting tissues. A small fraction of the blood-forming cells are **blood stem cells**.

Inside the bone marrow, blood stem cells develop into new blood cells. During this process, the cells become either lymphocytes (a kind of white blood cell) or other blood-forming cells, which are types of **myeloid cells**. Myeloid cells can develop into red blood cells, white blood cells (other than lymphocytes), or platelets. These myeloid cells are the ones that are abnormal in AML.

Types of blood cells

There are 3 main types of blood cells:

Red blood cells (RBCs) carry oxygen from the lungs to all other tissues in the

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Key Statistics for Acute Myeloid Leukemia (AML)

Information on treatment success rates for AML in adults can be found in [Treatment Response Rates for Acute Myeloid Leukemia](#)².

Visit the [American Cancer Society's Cancer Statistics Center](#)³ for more key statistics.

Hyperlinks

What's New in Acute Myeloid Leukemia (AML) Research?

- [Genetics of acute myeloid leukemia \(AML\)](#)
- [Improving treatment for acute myeloid leukemia \(AML\)](#)

Genetics of acute myeloid leukemia (AML)

Researchers continue to make progress in understanding how normal bone marrow cells can develop into leukemia cells. It has become clear that there are many types of AML. Each type of AML might have different DNA (gene) changes that affect how it will progress and which treatments might be most helpful. Researchers continue to study how DNA changes specific to different AML types can help us understand how to best treat each person's AML.

Detecting minimal residual disease

In recent years, highly sensitive tests have been developed to detect even the smallest amount of leukemia left after treatment (known as **minimal residual disease**, or **MRD**), even when there are so few leukemia cells left that they can't be found by routine bone marrow tests.

Multiparameter flow-cytometry (MFC), quantitative polymerase chain reaction (qPCR), and next-generation sequencing (NGS) are tests that can be used to identify even very small numbers of AML cells in a biopsy sample. These tests are useful in determining how completely the treatment has destroyed the AML cells.

Studies are looking at how to best use the information from these tests. The presence of

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limit unwanted side effects. This is especially important for older people who might not be able to tolerate the side effects of current treatments for AML.

The effectiveness of chemo may be limited in some cases because the leukemia cells can become resistant to it over time. Research is now looking at ways to prevent or reverse this resistance by using other drugs along with chemo. They are also looking at combining chemo with newer types of drugs to see if this might work better.

Stem cell transplants

Researchers continue to refine [stem cell transplants](#)²

Researchers are also looking at newer types of targeted drugs to treat AML.

Immunotherapy drugs

Immunotherapy works to boost the body's immune system to help fight off or destroy cancer cells.

Bispecific antibodies: A bispecific antibody consists of two antibodies that each attach to a different target. Once inside the body, this type of drug can act as a link to bring two types of cells close together. One antibody is usually designed to attach to a target on the leukemia cell, while the other is designed to attach to a target on immune cells (for example, T cells). When the bispecific antibody brings the leukemia cell and immune cell together, the immune system is alerted and starts to fight the leukemia cell. Several bispecific antibodies are now being studied for use against AML.

Antibody-drug conjugates (ADC): An ADC is a drug with two parts: an **antibody**

Hyperlinks

1. www.cancer.org/cancer/types/acute-myeloid-leukemia/treating/chemotherapy.html
2. www.cancer.org/cancer/types/acute-myeloid-leukemia/treating/bone-marrow-stem-cell-transplant.html
3. www.cancer.org/cancer/types/acute-myeloid-leukemia/treating/targeted-therapy.html

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Last Revised: June 5, 2024

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