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About Acute Lymphocytic Leukemia (ALL)

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

Overview of ALL

If you have been diagnosed with acute lymphocytic 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 Lymphocytic Leukemia \(ALL\)?](#)

Research and Statistics

See the latest estimates for new cases of acute lymphocytic leukemia and deaths in the US and what research is currently being done.

- [Key Statistics for Acute Lymphocytic Leukemia \(ALL\)](#)
- [What's New in Acute Lymphocytic Leukemia \(ALL\) Research?](#)

What Is Acute Lymphocytic Leukemia (ALL)?

- [Normal bone marrow, blood, and lymph tissue](#)

Cancer starts when cells in the body begin to grow out of control. There are 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 spreads, see _____

fat cells, and supporting tissues. A small fraction of the blood-forming cells are **blood stem cells**.

Inside the bone marrow, blood stem cells go through a series of changes to make new blood cells. During this process, the cells develop into 1 of the 3 main types of blood cell components:

- Red blood cells
- Platelets
- White blood cells

Red blood cells

Red blood cells (RBCs) carry oxygen from the lungs to all other tissues in the body, and take carbon dioxide back to the lungs to be removed.

Platelets

Platelets are actually cell fragments made by a type of bone marrow cell called a *megakaryocyte*. Platelets are important in plugging up holes in blood vessels caused by cuts or bruises.

White blood cells

White blood cells (WBCs) help the body fight infections. The main types of WBCs include lymphocytes, granulocytes, and monocytes.

Lymphocytes are the main cells that make up lymph tissue, a major part of the immune system. Lymph tissue is found in lymph nodes, the thymus, the spleen, the tonsils and adenoids, and is scattered throughout the digestive and respiratory systems and the bone marrow.

fighting cells. There are 2 main types of lymphocytes:

- **B lymphocytes (B cells):** B cells help protect the body by making proteins called antibodies. The antibodies attach to germs (bacteria, viruses, and fungi) in the body, which helps the immune system destroy them.
- **T lymphocytes (T cells):** There are several types of T cells, each with a special

job. Some T cells can destroy germs directly, while others play a role in either boosting or slowing the activity of other immune system cells.

ALL develops from early forms of lymphocytes. It can start in either early B cells or T cells at different stages of maturity. This is discussed in [Acute Lymphocytic Leukemia \(ALL\) Subtypes and Prognostic Factors](#)⁴.

Granulocytes are WBCs that have granules in them, which are spots that can be seen under the microscope. These granules contain enzymes and other substances that can destroy germs, such as bacteria. The 3 types of granulocytes – neutrophils, basophils, and eosinophils – are distinguished by the size and color of their granules.

Monocytes also help protect the body against bacteria. After circulating in the bloodstream for about a day, monocytes enter body tissues to become macrophages, which can destroy some germs by surrounding and digesting them.

Hyperlinks

1. www.cancer.org/cancer/understanding-cancer/what-is-cancer.html
2. www.cancer.org/cancer/types/non-hodgkin-lymphoma.html
3. www.cancer.org/cancer/types/hodgkin-lymphoma.html
4. www.cancer.org/cancer/types/acute-lymphocytic-leukemia/detection-diagnosis-staging/how-classified.html

References

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Key Statistics for Acute Lymphocytic Leukemia (ALL)

The American Cancer Society's estimates for acute lymphocytic leukemia (ALL) in the United States for 2024 (including both children and adults) are:

- About 6,550 new cases of ALL (3,590 in males and 2,960 in females)
- About 1,330 deaths from ALL (640 in males and 690 in females)

The risk for developing ALL is highest in children younger than 5 years of age. The risk then declines slowly until the mid-20s, and begins to rise again slowly after age 50. Overall, about 4 of every 10 cases of ALL are in adults.

ALL is not a common cancer, accounting for less than half of 1% of all cancers in the United States. The average person's lifetime risk of getting ALL is about 1 in 1,000. The risk is slightly higher in males than in females, and higher in White people than in African Americans.

Most cases of ALL occur in children, but most deaths from ALL (about 4 out of 5) occur in adults. Children may do better than adults because of differences in the nature of childhood and adult ALL, differences in treatment (children's bodies can often handle aggressive treatment better than adult's), or some combination of these.

Visit the American Cancer Society's Cancer [Statistics Center](#)¹ for more key statistics.

Hyperlinks

Chemotherapy

[Chemotherapy](#)¹ (chemo) is still the main treatment for nearly all cases of ALL. Studies are now being done to find the most effective combination of chemo drugs while limiting unwanted side effects. This is especially important in older patients, who often have a harder time tolerating current treatments.

New chemo drugs are also being developed and tested. For example, **clofarabine (Clolar)** is approved to treat childhood ALL and shows promise in early studies of adults with this disease. **Nelarabine (Arranon)** is a newer drug that can be used to treat T-cell

technique, immune cells called **T cells** are removed from the patient's blood and altered in the lab so they have specific substances (called chimeric antigen receptors, or CARs) that will help them attach to leukemia cells. The [CAR T cells](#)⁶ are then grown in the lab and infused back into the patient's blood, where they can now seek out the leukemia cells and attack them.

This technique has shown very promising results in early clinical trials against some types of advanced, hard-to-treat leukemias, and is now an option for some children and young adults with ALL. It is now being tested in older adults, too. With this treatment, some people have had very serious side effects, including very high fevers and dangerously low blood pressure in the days after it's given. Doctors are learning how to manage these side effects.

Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking other

7. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/immune-checkpoint-inhibitors.html

References

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