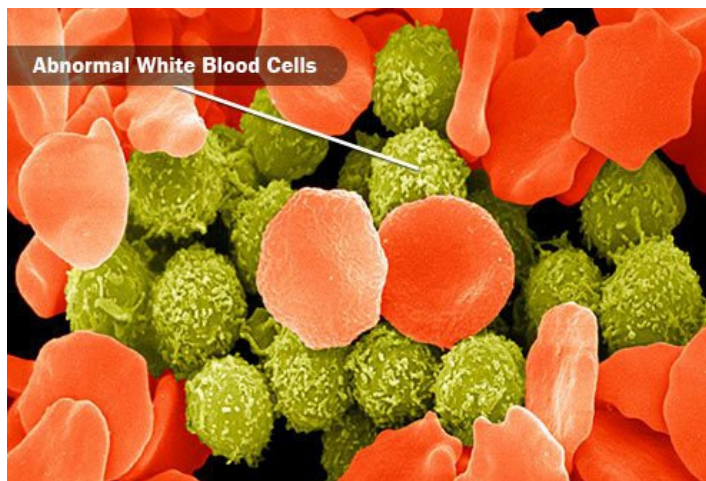


# Cancer: Guide to Leukemia



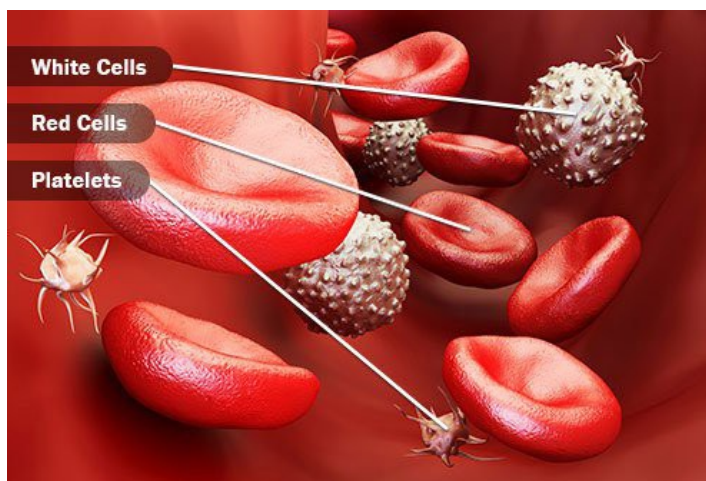
## What Is It?

Leukemia is cancer of the blood cells. It shows up at about the same rate today as it did in the 1950s, but new treatments mean you can live with it longer than ever and sometimes be cured. While it's the most common cancer in children, more adults than kids get it. There are several types. Most start in white blood cells, but how they unfold and the treatment you need can be very different.



## Who Gets It?

We don't know what causes leukemia, but chemicals like benzene, found in cigarettes and used in some industries, can raise the odds. Cancer treatment with some types of chemo and radiation may do it, too. You're also more likely to get it if you have certain genetic conditions, such as Down syndrome and Fanconi anemia. If your parent, brother, sister, or child has it, that suggests a higher chance for you to have it as well.



## About Your Blood Cells

You have three main types: White ones that fight disease, red ones that carry oxygen, and platelets that help form clots when you're injured. All of them start out as stem cells in your bone marrow, the spongy tissue at the core of your bones. Your marrow makes and releases hundreds of billions of these cells every day. Normally, it's all very orderly. With leukemia, the whole process gets thrown off-kilter.



## What Goes Wrong

All it takes is a change in the DNA of a single blood cell. DNA is your body's recipe book, and a small tweak can have big impacts. That one cell divides into two that have the same mistake, which divide again, and soon you have a lot of broken cells that don't follow the rules. They can't do their normal job, and they take up space in your bone marrow, crowding out healthy cells. That's what leads to symptoms.



### Early Signs and Symptoms

There's no telltale sign for leukemia. The symptoms tend to be vague. At first, it may just seem like the flu. Having fewer red blood cells can give you anemia, making you pale, tired, and short of breath. When you're low on healthy white blood cells, you can't fight infections as well. You get sick more often, and the sickness lasts longer. With low platelets, you bruise and bleed more easily.



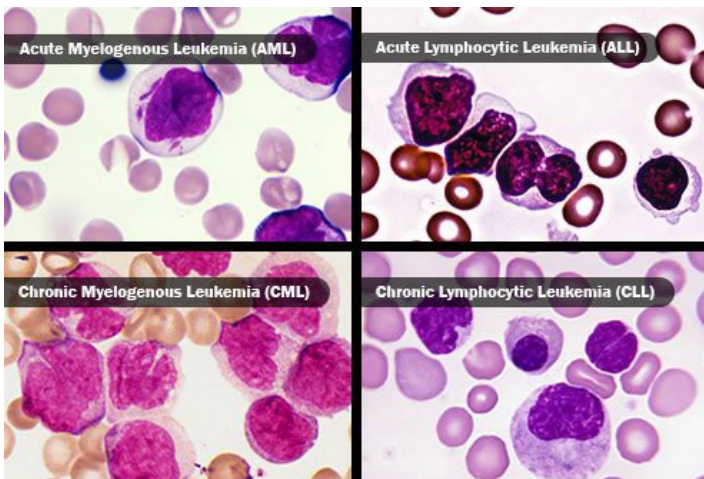
### Other Symptoms

You may feel generally unwell and weak with chills, fever, and night sweats. You can get nosebleeds, small red spots on your skin, and have swollen or bleeding gums. You might lose weight for no clear reason, and your joints and bones might hurt. Cancer cells may build up and cause swelling in your lymph nodes, spleen, and liver. If they collect in your brain, you could have headaches, confusion, and seizures.



### How Types of Leukemia Are Different

Although leukemia can affect more than one type of blood cell, it's named based on the kind of white blood cell it starts in (myeloid or lymphoid) and how fast it gets worse (acute or chronic). Acute cancers come on within weeks as young white blood cells flood your bone marrow. They're often found after you have an infection that just won't go away. Chronic cancers show up much more slowly. Often, a routine blood test happens to uncover them.

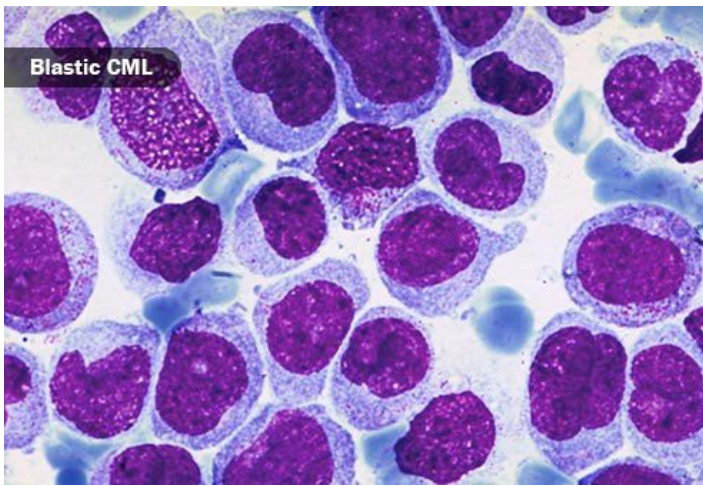


### Common Types of Leukemia

Acute myelogenous leukemia (AML) is the most common acute type in adults. Acute lymphocytic leukemia (ALL) is the most common one in children.

Chronic myelogenous leukemia (CML) is one of the few cancers with a direct link to a known defect in your DNA.

Chronic lymphocytic leukemia (CLL) leads to white blood cells that don't die off when they should.



### Stages or Phases

Unlike other cancers, stages of leukemia don't describe how far the cancer has spread. Higher stages need more aggressive methods or are harder to treat. CLL may be low-, intermediate- (or standard), or high-risk. CML in the chronic phase has the least young white blood cells (called blasts), the accelerated phase has more, and the blast phase even more. Acute leukemia progresses so quickly that it isn't assigned a stage.



### Tests for Diagnosis

The first test you'll get is a complete blood count (CBC). It shows how many blood cells of each type you have. Often, it can pretty much tell you if you have leukemia. To confirm a diagnosis and find out more details, you may have a bone marrow biopsy. Your doctor uses a needle, usually in your hipbone, to take a sample of bone marrow. Both tests can also check how well your treatment is working.



### Other Tests

To choose the best treatment, you need to learn as much as possible about the cancer. A test called a blood smear can show how many blasts you have and what they look like. You might get tests to find out about the DNA of the cancer cells. Your doctor may do imaging like CT, MRI, and ultrasound to check for cancer in your lymph nodes and organs. And you could get a lumbar puncture to see if it has spread to your brain and spinal cord.



### Chemotherapy

This is the standard treatment for acute leukemia. Chemo uses drugs to attack cancer cells throughout the body. The first round could last several weeks. Once the cancer is in remission, you usually get more cycles of chemo spread out over 4-8 months. With some types of cancer, you may need more treatments over the next 2-3 years. You'll also get medications to help with side effects like throwing up.



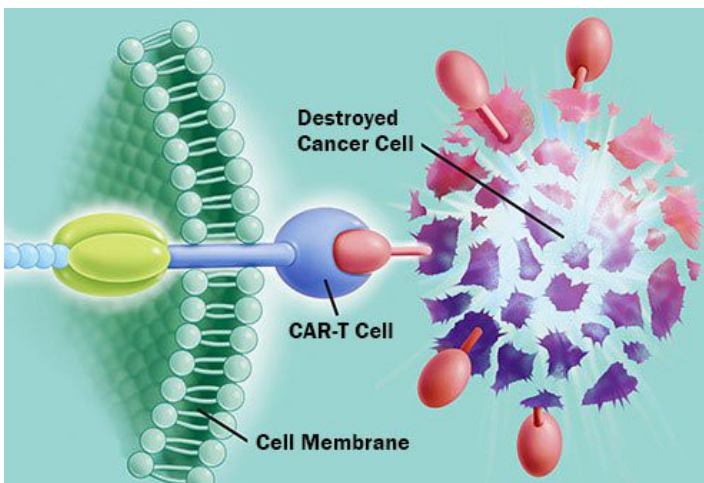
### Stem Cell Transplant

Higher doses of chemotherapy can kill more cancer cells, but they'll wipe out healthy cells, too. That's when you might need stem cells from a donor to restore your supply. It can be risky because your body may reject the new cells, so it's mainly used when other treatments haven't worked. Sometimes, a stem cell transplant can cure the cancer, but it could also cause life-threatening damage to your immune system.



### Targeted Therapy

These medications are commonly used for chronic leukemia. They leave healthy cells alone and attack only cancer cells, which work differently. Tyrosine kinase inhibitors (TKIs) can basically cure CML, though you have to take them for life. For CLL, medicines called monoclonal antibodies mark cancer cells so your immune system can destroy them. And kinase inhibitors keep CLL cells from growing and dividing.



### Gene Therapy

CAR T is a new kind of customized immunotherapy. For each dose, some of your white blood cells are removed and sent to a lab, where they get a new gene added that tells them to target and kill specific leukemia cells. These modified T cells then go back into your body to help kill the cancer. This treatment is only for people who are younger than 25 and have B-cell ALL that other treatments haven't worked on or that has come back.



### Protect Your Brain and Spine

This is something people with ALL are concerned about. While this type of cancer doesn't start in your central nervous system, at least half the time it ends up spreading there. To prevent that from happening, you get chemotherapy drugs directly into your spine. You may need more than one round of it.



### **Watch and Wait**

For many types of leukemia, you start treatment right away. But with CLL, it's common to hold off until you have symptoms. You still get regular checkups and routine tests to keep a close eye on things. Some people never have any issues and live out a normal life. You'll start treatment if your white blood cell levels jump, your platelets drop, or you get symptoms like swollen lymph nodes.



### **During Treatment**

Both leukemia and the treatments for it can lower your healthy blood cell count. To help your body get through the illness, you may need blood transfusions for anemia, antibiotics for infections, and platelet transfusions for problems with bleeding. Also, because your chances of an infection are greater, you and anyone who comes close to you need to wash your hands well and often.



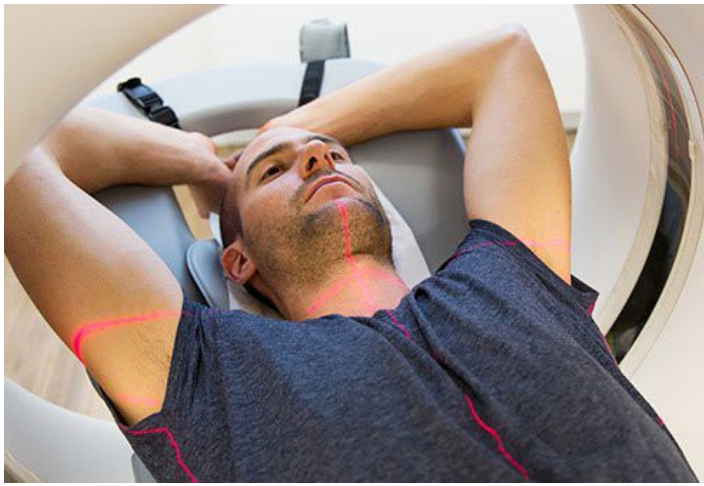
### **Survival Rates**

Keep in mind that a lot goes into your personal outlook, including the type of leukemia you have, how advanced it is, and your overall health. Survival rates are averages, not your destiny. The 5-year relative survival rate for leukemia is about 60%. That means compared with every 10 people who don't have leukemia, on average, six people who do have it are still alive after 5 years.



### **Leukemia in Children**

About 3 of 4 kids with leukemia have ALL; the rest usually have AML. It's very rare for children to get any of the chronic types. ALL turns out to be a great success story, partly because kids tend to respond very well to treatment. It can take 2-3 years, but almost all kids -- about 9 out of 10 -- get fully cured. Success rates for AML are also much higher for children than adults.



### Follow-Up Care

Whether you're in remission, watchfully waiting, or getting ongoing treatment, regular checkups and tests will become a part of your life. Talk openly with your doctor not just about changes in symptoms, but also about any emotional and day-to-day struggles you might have. Ask about a survivorship care plan, which addresses both your medical needs and your overall well-being.



### Prevention

There's not a lot you can do to prevent leukemia, and there are no special screening tests to look out for it. The things you *can* do are not smoke, stay away from benzene, and avoid really high levels of radiation. Other than that, your best tool is your annual exam. This lets your doctor keep tabs on your health and often includes routine blood tests that could spot the disease early on.

**Sources:** [https://www.medicinenet.com/cancer\\_leukemia\\_causes\\_symptoms\\_treatment/article.htm](https://www.medicinenet.com/cancer_leukemia_causes_symptoms_treatment/article.htm)

Reviewed by [Laura J. Martin, MD](#) on Sunday, April 22, 2018

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