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## Patient education: Leukemia in adults (The Basics)

Written by the doctors and editors at UpToDate

**What is leukemia?** — Leukemia is a type of cancer of blood cells. Blood is made up of different types of cells that are made in the center of your bones, in a part called the bone marrow.

When people have leukemia, their bone marrow makes abnormal blood cells instead of normal blood cells. These abnormal blood cells grow out of control, get into the blood, and travel around the body. Sometimes, these cells collect in certain parts of the body.

When the bone marrow makes abnormal blood cells, it does not make the normal blood cells a person's body needs. This can cause symptoms.

There are different types of leukemia. Some types grow very slowly ("chronic leukemias"), while others grow much faster ("acute leukemias"). Sometimes, people have a type of chronic leukemia that is slow-growing at first and later becomes a fast-growing acute leukemia.

**What are the symptoms of leukemia?** — Leukemia does not always cause symptoms, especially at first. When it does cause symptoms, the most common ones include:

- Feeling very tired and weak
- Bleeding more easily than normal
- Getting sick from infections more easily than normal

These symptoms can also be caused by conditions that are not leukemia. But if you have these symptoms, you should let your doctor or nurse know.

**Is there a test for leukemia?** — Yes. Your doctor or nurse can use different tests to diagnose leukemia. These include:

- Blood tests
- Bone marrow biopsy – For this test, a doctor takes a small sample of the bone marrow. The sample is then examined under a microscope to see if abnormal (cancer) cells are present.

Your doctor or nurse will also do an exam and ask about your symptoms.

**How is leukemia treated?** — Doctors can treat leukemia in different ways. Sometimes, doctors treat leukemia right away. Other times, if the leukemia is slow-growing and not causing symptoms, doctors might watch it closely until treatment is needed.

The right treatment for you will depend on the type of leukemia you have, your age, and your other health problems.

Treatment for leukemia can include one or more of the following:

- **Chemotherapy** – Chemotherapy is the medical term for medicines that kill cancer cells or stop them from growing.
- **Radiation therapy** – Radiation kills leukemia cells.
- **Immunotherapy** – This is the term doctors use for medicines that kill cancer cells by recognizing proteins on the cancer cells.
- **Bone marrow transplant (also called "stem cell transplant")** – This treatment replaces cells in the bone marrow that are killed by chemotherapy or radiation. These "donor" cells can come from different places, including:
  - You – Your cells can be taken out of your bone marrow before your treatment is completed and put back in after you have completed chemotherapy or radiation treatment.
  - People who are related to you, and whose tissue type ("HLA type") matches yours
  - People who are not related to you, but whose HLA type matches yours
  - Blood (that matches yours) from a newborn baby's umbilical cord

**What happens after treatment?** — After treatment, you will be checked every so often to see if the leukemia comes back. Regular follow up tests include talking with your doctor, exams, and blood tests. Sometimes, the doctor will also do a bone marrow biopsy.

**What happens if the leukemia comes back?** — If the leukemia comes back, you might have more chemotherapy, radiation, or bone marrow transplantation.

**What else should I do?** — It is important to follow all your doctor's instructions about visits and tests. It's also important to talk to your doctor about any side effects or problems you have during treatment.

Getting treated for leukemia involves making many choices, such as what treatment to have and when.

Always let your doctors and nurses know how you feel about a treatment. Any time you are offered a treatment, ask:

- What are the benefits of this treatment? Is it likely to help me live longer? Will it reduce or prevent symptoms?
- What are the downsides to this treatment?
- Are there other options besides this treatment?
- What happens if I do not have this treatment?

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