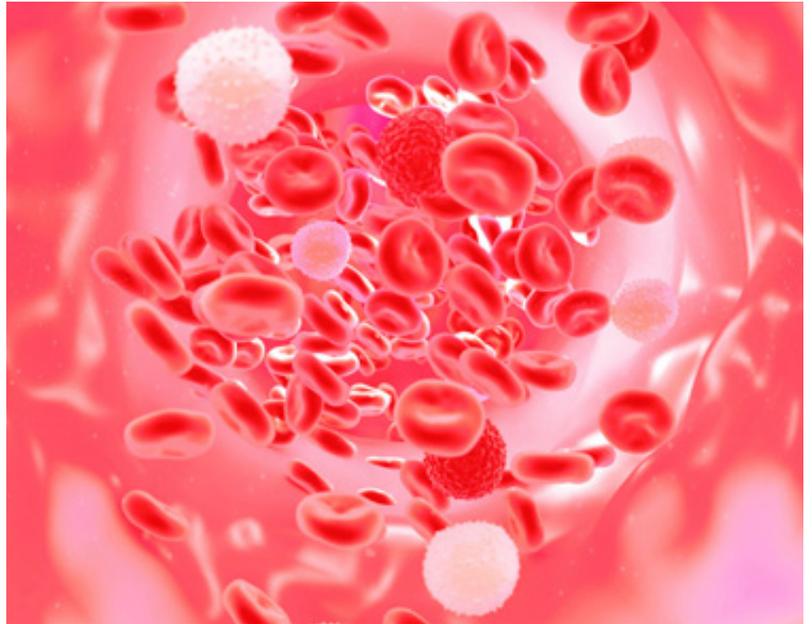


## Anemia

### What is anemia?

Anemia is an abnormally low level of red blood cells that occurs when the body does not make enough blood, loses blood, or destroys red blood cells. It is common in people with cancer, especially those receiving chemotherapy.

Red blood cells contain hemoglobin, an iron-containing protein that carries oxygen to all parts of the body. If red blood cell levels are too low, parts of the body do not get enough oxygen and cannot work properly.



### What are the symptoms of anemia?

Most people with anemia feel tired or weak. Other symptoms may include rapid heartbeat, shortness of breath, chest pain, dizziness, pale skin, headaches, difficulty concentrating, insomnia (trouble falling asleep or staying asleep), and cold hands and feet. However, people with mild anemia may not experience any symptoms.

### What causes anemia?

Red blood cells are made in the bone marrow. A hormone called erythropoietin, made in the kidneys, tells the body when to make more red blood cells. Therefore, anything that damages the bone marrow or kidneys can cause anemia. This includes some types of chemotherapy or radiation therapy to large areas of the body or directed at bones in the pelvis, legs, chest, or abdomen. In addition, cancers that affect the bone marrow directly or cancers that spread to the bone may crowd out healthy red blood cells, resulting in anemia. Nausea, vomiting, and loss of appetite may cause a lack of nutrients needed to make red blood cells.

Excessive bleeding causes anemia if red blood cells are lost faster than they are replaced, which may happen after surgery or when a tumor causes internal bleeding. Sometimes red blood cells are destroyed at a rate faster than they can be replaced. For instance, specific medications or chemotherapy may cause the antibodies in a person's immune system to destroy red blood cells. Another cause is microangiopathic hemolytic anemia, which is the mechanical destruction of red blood cells.

### How is anemia diagnosed?

Anemia is diagnosed with a blood test that counts the number or percentage of red blood cells and measures the amount of hemoglobin in a person's blood. People with certain types of cancer or those having cancer treatment known to cause anemia may have frequent blood tests to look for anemia and other blood-related complications.

### What are the treatment options for anemia?

Treatment for anemia depends on your symptoms and the cause of anemia. Some people who experience anemia symptoms need a transfusion of red blood cells. If the anemia is caused by a lack of nutrients, the doctor may prescribe vitamin B12, iron, or folic acid supplements. If chemotherapy is the cause, the doctor may treat it with erythropoiesis-stimulating agents, which tell the bone marrow to make more red blood cells. However, these drugs can be associated with other health risks.

## Questions to ask the doctor

Regular communication is important for making informed decisions about your health care. Consider asking the following questions of your health care team:

- Does my cancer or cancer treatment put me at risk for developing anemia?
- Will you test my blood to look for signs of anemia? If so, how often will I need to have these tests?
- Would you explain my laboratory test results?
- What is causing my anemia?
- What are my treatment options?
- What are the risks and benefits of each option?
- Would you recommend a dietary supplement for anemia?
- Who can help me understand my nutritional needs?
- Whom should I call if I have questions or problems?
- Is there anything else I should be asking?

Find additional information about anemia and other side effects at [www.cancer.net/sideeffects](http://www.cancer.net/sideeffects).

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## TERMS TO KNOW

### Bone marrow:

Soft, spongy tissue found inside larger bones

### Chemotherapy:

The use of drugs to destroy cancer cells

### Complete blood count:

Blood test that evaluates the number of white blood cells, red blood cells, and platelets

### Dietary supplement:

A product taken by mouth to provide vitamins, minerals, or other nutrients missing from a person's diet

### Hematocrit:

Blood test that measures the percentage of total blood volume that is made up of red blood cells

### Nadir:

Low point, often used in reference to blood cell counts

### Phlebotomist:

A technician who collects blood samples for evaluation in a laboratory

### Radiation therapy:

The use of high-energy x-rays or other particles to destroy cancer cells

### Symptom management:

The relief of side effects, also called palliative or supportive care

### Transfusion:

Process by which donated blood or blood components are transferred into a person's body through an intravenous line

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