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## **[Anemia](#) [1]**

**This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 10/2014**

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

Red blood cells contain hemoglobin, an iron protein that carries oxygen to all parts of the body. If the level of red blood cells is too low, parts of the body do not get enough oxygen and cannot work properly. Most people with anemia feel tired or weak. The fatigue associated with anemia often lowers a person's quality of life and ability to cope with cancer and treatment side effects.

### **Signs and symptoms**

Relieving side effects—also called symptom management, [palliative care](#) [3], or supportive care—is an important part of cancer care and treatment. Talk with your health care team about any symptoms you experience, including any new symptoms or a change in symptoms.

People with anemia may experience some of these symptoms:

- [Fatigue](#) [4]
- Muscle weakness
- Rapid or irregular heart beat and occasional chest pain
- [Difficulty breathing or shortness of breath](#) [5]
- Dizziness or fainting
- Pale skin or lips
- [Headaches](#) [6]
- Difficulty concentrating
- [Insomnia](#) [7]

- Difficulty staying warm
- [Bleeding problems](#) [8]

## Causes

Red blood cells are made in the bone marrow, the soft, spongy tissue found inside larger bones. A hormone called erythropoietin, made in the kidneys, tells the body when to make more red blood cells. Therefore, any damage to the kidney or bone marrow can cause anemia.

- Chemotherapy is one cause of anemia. Most of the time, the effect of chemotherapy on the bone marrow is temporary, and anemia will improve a few months after chemotherapy is finished. Sometimes, chemotherapy harms the bone marrow so it cannot make enough red blood cells. Chemotherapy with platinum drugs may harm the kidneys, lowering the production of erythropoietin. These drugs include cisplatin (Platinol) and carboplatin (Paraplatin).
- Cancers such as leukemia, lymphoma, and multiple myeloma that affect the bone marrow directly or cancers that have spread to the bone or bone marrow may crowd out normal red blood cells, resulting in anemia.
- Radiation therapy to large areas of the body or to bones in the pelvis, legs, chest, or abdomen can also damage the bone marrow, lowering its ability to make red blood cells.
- Nausea, vomiting, and [loss of appetite](#) [9] may cause a lack of nutrients needed to make red blood cells, including iron, vitamin B12, and folic acid.
- Excessive bleeding causes anemia if red blood cells are lost faster than they are replaced. This may happen after surgery or from a tumor that is causing internal bleeding.
- The body's immune system response to cancer cells can also cause anemia, called anemia of chronic disease.

## Diagnosis and treatment

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. A blood value called the hematocrit is the percentage of red blood cells relative to the other cells and plasma in whole blood. The hemoglobin value is generally one-third of the hematocrit value. You may hear either term at the center where you are tested. They both measure the amount of red blood cells. People with a specific type of cancer or those receiving cancer treatments known to cause anemia may have regular blood tests, usually a complete blood count (CBC), to look for anemia and other blood-related complications.

Treatment for anemia depends on your symptoms and the cause of anemia:

- If the anemia causes symptoms, the person with cancer may need a transfusion of red blood cells.
- If chemotherapy causes the anemia, the doctor may treat it with erythropoiesis-stimulating agents such as epoetin alfa (Epogen, Eprex, Procrit) or darbepoetin alfa (Aranesp). These drugs are forms of erythropoietin that are grown in the laboratory and work by telling the

bone marrow to make more red blood cells. Both are given as a series of injections and can take up to four weeks to start working; however, they also are associated with serious health risks. Learn more about [the recommendations for epoetin and darbepoetin treatment](#) [10].

- If the anemia is caused by a lack of nutrients, your doctor may prescribe iron or folic acids pills or vitamin B12. Occasionally, vitamin B12 is given as an injection if your doctor is concerned about the vitamin being absorbed through the stomach. Eating foods high in iron or folic acid may also help. Foods high in iron include red meats, dried beans or fruits, almonds, broccoli, and enriched breads and cereal. Foods high in folic acid include enriched breads and cereals, asparagus, broccoli, spinach, and lima beans.

## More Information

[ASCO Answers Fact Sheet: Anemia \(PDF\)](#) [11]

[Side Effects](#) [12]

## Additional Resource

[National Cancer Institute: Anemia](#) [13]

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## Links

[1] <http://www.cancer.net/navigating-cancer-care/side-effects/anemia>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/31921>

[4] <http://www.cancer.net/node/25048>

[5] <http://www.cancer.net/node/25055>

[6] <http://www.cancer.net/node/25253>

[7] <http://www.cancer.net/node/25058>

[8] <http://www.cancer.net/node/25243>

[9] <http://www.cancer.net/node/25043>

[10] <http://www.cancer.net/node/29871>

[11] [http://www.cancer.net/sites/cancer.net/files/asco\\_answers\\_anemia.pdf](http://www.cancer.net/sites/cancer.net/files/asco_answers_anemia.pdf)

[12] <http://www.cancer.net/node/25238>

[13] <http://www.cancer.gov/cancertopics/coping/chemo-side-effects/anemia>