

Infection [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 04/2012

An infection occurs when harmful bacteria, viruses, or fungi (such as yeast) invade the body and the immune system is not able to destroy them quickly enough. People with cancer are more likely to develop infections because both cancer and cancer treatments weaken the immune system.

The immune system fights harmful organisms (such as bacteria, viruses, and fungi) that try to invade the body. The immune system includes the skin, the spleen, the lymph nodes, and the bone marrow (a spongy, fatty tissue found inside larger bones). It also includes leukocytes, the infection-fighting white blood cells that are made inside the bone marrow. A condition called leukopenia occurs when the body does not have enough white blood cells and is less capable of fighting infections. Some white blood cells, called neutrophils, can destroy harmful bacteria and fungi. A low level of neutrophils, called [neutropenia](#) [3], often increases the risk of developing dangerous bacterial infections.

Relieving side effects, also called symptom management, [palliative care](#) [4], or supportive care, is an important part of cancer care and treatment. Although infections usually are treatable, they can be serious and potentially life-threatening. Talk with your health care team about any symptoms you experience, including any symptoms of an infection or a change in symptoms.

Signs and symptoms

People with cancer and neutropenia or a low white blood cell count are more likely to develop an infection that becomes serious. Infections may start almost anywhere, and common places include the mouth, skin, lungs, urinary tract, rectum, and genital areas (such as the vagina). Talk with your doctor right away if you experience any of the following signs of infection:

- A fever (temperature of 100.5°F or higher)
- Chills or sweating
- Sore throat, [sores in the mouth](#) [5], or a toothache
- Abdominal pain
- Pain in the perirectal (anal) area
- Pain or burning when urinating, or frequent urination
- [Diarrhea](#) [6] or sores around the anus
- A cough or [shortness of breath](#) [7]

- Any redness, swelling, or pain, particularly around a cut, wound, or the site of intravenous catheter insertion
- Unusual vaginal discharge or itching

Causes

Cancer and cancer treatment can negatively interfere with the immune system in several ways. These include:

- Lack of sleep, stress, poor diet, and other side effects of cancer and cancer treatment may weaken the immune system.
- Chemotherapy often lowers the production of white blood cells in the bone marrow to cause an infection.
- Radiation therapy can also harm the bone marrow, especially when it is given to extensive areas of the body or to the pelvis, legs, chest, or abdomen.
- Cancers that affect the bone marrow directly (such as leukemia and lymphoma) or cancers that metastasize (spread) to the bone (such as breast or lung cancers) may overwhelm normal bone marrow cells, lowering white blood cell production.

Treatment

In some situations, you may receive preventive treatment for infection. For example, if you are at high risk for developing an infection because of neutropenia or because of chemotherapy or radiation therapy, you may be treated with prophylactic (preventive) antibiotics or antifungal medications.

If you develop an infection, you may be treated with antibiotics or antifungal medications. If you develop neutropenia along with a fever (called neutropenic fever), you may need to be hospitalized to receive intravenous (IV) antibiotics. In situations where you have neutropenic fever or are at a higher risk of developing neutropenic fever, your doctor may prescribe medications called colony-stimulating factors or white blood cell growth factors. These drugs encourage the body to make more neutrophils or other types of white blood cells to reduce the risk of an infection and include filgrastim (Neupogen), pegfilgrastim (Neulasta), and sargramostim (Leukine or Prokine). However, this treatment is not suitable if you have neutropenia and no fever. Learn more about [ASCO's recommendations for white blood cell growth factors \[8\]](#).

Tips for preventing infections

There are steps you can take to help prevent infections:

- Get plenty of rest and eat a [well-balanced diet \[9\]](#).
- Avoid contact with people who are sick.
- Do not share food, drink cups, utensils, or other personal items, such as toothbrushes and makeup.
- Wash your hands thoroughly and frequently or use antibacterial hand sanitizers, especially after using the bathroom and before eating.
- Shower or bathe daily and apply lotion to prevent your skin from becoming dry and cracked.
- Be careful using sharp objects, such as scissors or knives, and use an electric shaver to

avoid cuts.

- Do not eat raw foods, including meats, shellfish, and eggs, and wash raw fruits and vegetables. [Learn more about food safety](#) [10].
- Do not change cat litter or handle animal waste.
- Use gloves during gardening and housework, especially while cleaning.
- Clean your teeth and gums with a soft toothbrush and, if your doctor or dentist recommends one, use a mouthwash to prevent infections. [Learn more about dental health during cancer treatment](#) [11].

More Information

[When to Call the Doctor During Cancer Treatment](#) [12]

[Side Effects of Chemotherapy](#) [13]

[Side Effects of Radiation Therapy](#) [14]

[White Blood Cell Growth Factors for Preventing Infection](#) [15]

Additional Resources

[Oncology Nursing Society: The Cancer Journey: Infection](#) [16]

[Centers for Disease Control: Preventing Infections in Cancer Patients](#) [17]

Links:

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

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

[3] <http://www.cancer.net/node/25053>

[4] <http://www.cancer.net/node/25282>

[5] <http://www.cancer.net/node/25051>

[6] <http://www.cancer.net/node/25247>

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

[8] <http://www.cancer.net/node/29816>

[9] <http://www.cancer.net/node/24984>

[10] <http://www.cancer.net/node/24538>

[11] <http://www.cancer.net/node/24499>

[12] <http://www.cancer.net/node/26366>

[13] <http://www.cancer.net/node/24676>

[14] <http://www.cancer.net/node/24677>

[15] <http://www.cancer.net/node/26121>

[16] <http://www.thecancerjourney.org/side/se-9>

[17] <http://www.cdc.gov/features/PreventInfections/>