

Infection and Neutropenia During Cancer Treatment

An infection is the invasion and growth of germs in the body. Some cancers and treatments like chemotherapy lower your white blood cells, which fight infection, raising your risk. When the neutrophil count is very low, this is called neutropenia. Infections during cancer treatment can be life threatening, so call your healthcare team right away if you notice signs of infection.

This page is for people having cancer treatment, and the people caring for them. It explains why infections are more dangerous during treatment, which signs to watch for, and when to call for help.

What infection and neutropenia are

An infection is the invasion and growth of germs in the body, such as bacteria, viruses, yeast, or other fungi. An infection can begin anywhere in the body and may spread throughout the body. It can cause a range of signs.

Some types of cancer and treatments such as chemotherapy may increase your risk of infection. This is because they lower the number of white blood cells, the cells that help your body fight infection. Neutrophils are one type of white blood cell. During chemotherapy, there are times in your treatment cycle when your neutrophils are particularly low. At those times you are at increased risk of infection. Stress, poor nutrition, and not enough sleep can also weaken the immune system.

You will have blood tests to check for neutropenia—a condition in which there is a low number of neutrophils. Medicine may sometimes be given to help prevent infection or to increase the number of white blood cells.

When your infection-fighting cells are low, everyday germs can be more dangerous—so prevention matters.

Signs of infection

Call your healthcare team if you have signs of an infection, which can include:

- fever of 100.4 degrees F (38 degrees C) or higher (see below)
- chills

- cough or sore throat
- diarrhea
- ear pain, headache or sinus pain, or a stiff or sore neck
- skin rash
- sores or white coating in your mouth or on your tongue
- swelling, redness, soreness, pain or fluid where a catheter, port or line enters your body
- urine that is bloody or cloudy, or pain when you urinate

What counts as a fever

During chemotherapy, or any time your team has told you your white count is low, a temperature of 100.4 °F (38 °C) or higher means calling your care team right away, at any hour. One reading is enough. Do not wait an hour or check again first. CDC says to call your doctor immediately at that number, and to know which number to call when the office is closed ([CDC \(cdc.gov/cancer-preventing-infections/patients/fever.html\)](https://www.cdc.gov/cancer-preventing-infections/patients/fever.html)). NCI adds that you should call even if it is the weekend or the middle of the night. If your team has given you a lower number, use theirs.

Infections during cancer treatment can be life threatening and require urgent medical attention. Be sure to talk with your doctor or nurse before taking any medicine—even aspirin, acetaminophen (such as Tylenol), or ibuprofen (such as Advil)—for a fever. These medicines can lower a fever but may also mask or hide signs of a more serious problem.

Ways to prevent infection

Your healthcare team will talk with you about these and other ways to prevent infection:

- **Wash your hands often and well.** Use soap and warm water to wash your hands well, especially before eating. Have people around you wash their hands well too.
- **Stay extra clean.** If you have a catheter, keep the area around it clean and dry. Clean your teeth well and check your mouth for sores each day. Clean any scrape or cut well. Let your doctor or nurse know if your bottom is sore or bleeds, as this could raise your risk of infection.
- **Avoid germs.** Stay away from people who are sick or have a cold. Avoid crowds and people who have just had a live vaccine, such as one for chicken pox, polio, or measles. Follow food safety guidelines—make sure meat, fish, and eggs are well cooked, keep hot foods hot and cold foods cold, and wash or peel raw fruits and vegetables as advised.

Food safety

Some cancer treatments make it easier to get sick from contaminated food. Handling and preparing food safely can help reduce your risk of foodborne illness. Your healthcare team can point you to food safety tips that fit your situation.

When to get help sooner

- **Call 911 or go to an emergency department if** an infection starts to look like sepsis. The CDC lists confusion or disorientation, shortness of breath, a high heart rate or weak pulse, extreme pain or discomfort, clammy or sweaty skin, and fever with shivering or feeling very cold. Sepsis is a life-threatening emergency, and low neutrophils make it move fast. Do not drive yourself.
- **Call your oncology team the minute it happens, at any hour, if** your temperature reaches 100.4°F (38°C) or higher. If your team has given you a lower number, use theirs. One reading is enough. Also call if you get hard shaking chills even with a normal reading. With neutropenia this is not something to hold until morning. The [CDC](https://www.cdc.gov/cancer-preventing-infections/patients/fever.html) (cdc.gov/cancer-preventing-infections/patients/fever.html) says a fever during chemotherapy is a medical emergency, and that you should call your doctor right away. If you go to the emergency room, tell the person checking you in that you are a cancer patient having chemotherapy. The CDC says you should be seen quickly. If you cannot reach your team quickly, go to the ER or call 911. Do not drive yourself. Do not take acetaminophen or ibuprofen first to see whether it settles, because that can hide the very sign your team needs.
- **Call your care team right away, at any hour, if** you have any of these while your counts are low. The [CDC](https://www.cdc.gov/cancer-preventing-infections/patients/symptoms.html) (cdc.gov/cancer-preventing-infections/patients/symptoms.html) lists them as signs of infection and says to call your doctor right away, because infection during chemotherapy can lead to hospitalization or death:
 - the skin around a catheter, port or line turns red, sore, or swollen, or the site hurts or leaks fluid
 - burning when you pass urine, or cloudy or bloody urine
 - a new or changed cough, a sore throat, or a stiff neck
 - a new mouth sore, diarrhea, or new pain, such as an ache in an ear or sinus
 - a white coating in your mouth or on your tongue, or a new skin rash

Sources

- **National Cancer Institute, *Infection and Neutropenia During Cancer Treatment*:** <https://www.cancer.gov/about-cancer/treatment/side-effects/infection> (cancer.gov/about-cancer/treatment/side-effects/infection)
- **CDC, *About Sepsis*:** <https://www.cdc.gov/sepsis/about/index.html> (cdc.gov/sepsis/about/index.html)
- **CDC, *Watch Out for Fever*:** <https://www.cdc.gov/cancer-preventing-infections/patients/fever.html> (cdc.gov/cancer-preventing-infections/patients/fever.html)

Source: National Cancer Institute (cancer.gov/about-cancer/treatment/side-effects/infection)

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