

Low White Blood Cell Count Precautions

White blood cells play an important part in fighting infection. When your white blood cells (WBCs) fall to below normal, you are more at risk for infection. Some of the reasons WBCs go below normal are having radiation or chemotherapy, having a high leukemia white cell count, AIDS or other immune diseases.

A **neutrophil** is a type of white blood cell. It is the best infection fighter. Neutrophils make up half or more of your white cells. Neutrophils are measured by an **Absolute Neutrophil Count**, also called ANC. Your risk of infection goes up as your WBCs and neutrophils fall below normal.

If your WBC falls below 2.0 (2,000) or your ANC is 1.0 (1,000) or lower, you are at increased risk for infection. Here is a table to help you understand how the risk of infection changes with your cell counts:

WBC Count	Absolute Neutrophil Count	Risk of Infection
10.0 (10,000)	5.0 (5,000)	Normal
5.0 (5,000)	2.5 (2,500)	Low
2.0 (2,000)	1.0 (1,000)	Moderate or Increased
1.0 (1,000)	0.5 (500)	High
0	0	Very High or Extreme

When your counts are low, it is important that you use the guidelines in this handout to try to prevent infection. However, when your WBCs and neutrophils are low, you are also more at risk from the germs that are always present in your body. Sometimes getting an infection cannot be prevented.

This handout is for informational purposes only. Talk with your doctor or health care team if you have any questions about your care.

Ways to help prevent infection when your risk is higher than normal

- Clean your hands often, especially before and after meals and after using the toilet. Use an antibacterial soap like Dial, Irish Spring, Lever 2000 or Chlorhexidine Gluconate. Alcohol hand sanitizer can also be used. Use paper towels or have your own cloth towel to dry your hands. Paper towels should be disposed of after each use. Cloth towels should be changed daily. See the patient education handout, “Hand Washing”, to learn how to wash your hands well. Alcohol hand sanitizer can also be used when there is no visible soiling on your hands.
- Persons coming in contact with you should use alcohol hand sanitizer or wash their hands with antibacterial soap. To dry their hands they should use disposable paper towels or a cloth towel that is changed each day. They should not use your towel.
- Shower everyday. Or, take a bath if you are permitted. Pay special attention to your armpits, groin, and private areas. Use an antibacterial soap when bathing, then rinse thoroughly and pat your skin dry. Apply lotion to dry skin. Inspect your skin closely for cuts, rashes, redness, swelling, tenderness, itching, drainage or odors. Call your doctor or nurse if you have any of these signs. Also, if you cut yourself and it does not heal in three days, call your doctor or nurse.
- Brush your teeth after eating and before bedtime with a soft toothbrush. Swish and spit with a mouthwash that does not have alcohol in it. Inspect your mouth closely once a day with a flashlight. Report any redness, white patches, cuts, or bumps on the inside of your mouth, gums, or lips. Also report any sore throat or a cough, especially if you are coughing up anything.
- Keep your fingernails and toenails clean and cut short.
- After urinating or having a bowel movement always wipe front to back and wash hands thoroughly afterwards. A very soft toilet tissue is recommended. Wet wipes may also be helpful to improve cleanliness and avoid skin irritation. Call your doctor or nurse if you have any change in urine color or odor, burning when you urinate, a need to urinate more often, or you feel like you have to go right away.
- Call your doctor or nurse if you have increasing amounts of watery diarrhea.

- Use an electric razor to avoid cutting your skin.
- Wear gloves when gardening.
- Add moisture to dry air. The water in a humidifier needs to be changed daily. Clean the humidifier with an antibacterial soap or alcohol daily. Change your furnace filters once a month.
- **When your WBC count is below normal, you need to wear a N-95 face mask.** This mask should be worn anytime you are in a public place including the hospital and clinic. This mask must also be worn in construction areas or any place where dirt and soil are being moved.
- Wear a N-95 face mask or leave a room when it is being dusted, swept, or vacuumed.
- Check your temperature two times a day, in the morning and at bedtime. Call your doctor or nurse if you have a fever of 100.4 degrees Fahrenheit (38 Celsius) or higher, or as you are instructed. Call if you are chilled, sweating a lot, or feeling more tired than usual. Also call if you have warm, flushed skin or cool, clammy skin, or if you feel restless, irritable, or confused. **Fevers can be life threatening, call your doctor or nurse right away.**
- Look for ways to help you relax. Try to keep a positive attitude and discuss your thoughts and feelings with your family, friends, and members of the health care team. If you need ideas or help to deal with stress, ask a nurse for help. There are resources, support groups, and skilled professionals available to help you.
- Find something interesting to do, a fun hobby, keeping a journal, or working on a project. This may help make your illness more bearable.
- Get plenty of rest and exercise. A balance of both is important. Pace yourself do not get too tired. Try to get 6 to 8 hours of sleep a night. Walk, or at least sit up in the chair, 3 to 4 times a day.
- Remember to get your blood work checked as often as your doctor requested.
- Do your cough and deep breathing exercises or use your incentive spirometer as you have been instructed.

- If you have any type of vascular device (central line or PICC), learn how to take care of it properly. Closely follow the instructions to care for it. Be sure anyone who touches your catheter or provides care for your vascular access device has cleaned his or her hands first. Tell your doctor or nurse if the skin around it looks infected (red, swollen, drainage that looks like pus) or changes in any way.

Avoid These Things

Avoid contact with possible sources of infection:

- People with contagious diseases including colds, sore throats, cold sores, diarrhea, or flu, “pink eye”, chicken pox, measles or mumps.
- People who have been recently vaccinated with Sabin oral polio, rubella, measles, mumps, yellow fever or smallpox vaccines, if they have a fever or rash.
- Crowds of people.
- Stagnant water, such as water in flower vases, denture cups, soap dishes, and respiratory equipment.
- Do not shake hands with people.
- Avoid contact with pet or human waste. Do not clean cat litter boxes, fish tanks or change diapers.
- Dentures that do not fit well may cause mouth sores that can get infected.
- Avoid being around dust and chemical irritants such as cleaning supplies.
- Avoid being near houseplants. Place these in a room that you do not use.
- Do not use rectal thermometers, enemas or suppositories.
- Use stool softeners or laxatives to avoid being constipated. Try to have a bowel movement at least every other day.
- Do not allow your rectal areas to become sore, for example, from diarrhea. Use a sitz bath for comfort and keep the area clean after each diarrhea stool. Use lotions to decrease skin irritation and reduce the risk of infection.

- Do not use douches or tampons.
- Do not take bubble baths or use a hot tub.
- Avoid using a razor blade or other sharp objects.
- Do not dig around your nails with a sharp object.
- Ask your doctor before getting vaccinations.
- Do not create a lot of friction during sexual intercourse. Use a water based lubricant if needed, such as K-Y jelly. Use a condom to reduce the risk of infection. Do not use vaginal contraceptives. Do not have oral or anal intercourse when you WBCs are below 2.0 (2,000).

Diet and Food Guidelines when Your WBCs are below 2.0 (2,000)

Food can carry harmful germs, which can cause infection. Clean handling of food is necessary to avoid infection caused by food germs. If your doctor wants you to follow an immunocompromised diet (low bacterial diet), please ask for the handout **Immunocompromised Diet for Cancer Patients** or **Immunocompromised Diet Guidelines** for more detailed information.

- Do not keep cooked foods at room temperature for more than 2 hours. Refrigerate all foods. If they are left out at room temperature for over 2 hours, throw them out.
- Replace dishcloths and dishtowels daily. If you use a sponge, sanitize it daily in a bleach solution, or heat in a microwave oven for one minute or run it through the dishwasher and dry.
- Use paper towels and a disinfecting cleaning spray to wipe counters down after cutting/handling raw meat.
- Do not use canned foods if the end or lid of the can is bulging or if the can is dented or the seam is rusted.
- Never eat anything with mold on it.
- Wash all fruits and vegetables well under running water. If the fruit or vegetable has a mushy spot, a brown spot, or any signs of insects, do not use any part of it.

- Avoid all pre-cut fresh fruits and vegetables in delis, restaurants and grocery stores.
- Avoid fresh fruits and vegetables that cannot be washed well, like berries and broccoli.
- Scrub melons with a potato brush and soap before cutting.
- Always cook ground meat until it is well done.
- Wash your utensils and disinfect cutting board with bleach between meats and other foods.
- Avoid foods from bulk bins, buffets and other areas where multiple people may have touched them. Never eat food samples that are sitting out.
- Wash your hands with an antibacterial soap before handling any food. Also, wash your hands between handling raw meats and other foods.
- If you question a food's safety, do not take a chance. Be safe and throw it out.
- Foods stay fresher if they are purchased in smaller containers.
- Leftovers should not be refrigerated for more than three days. If you have leftovers that you cannot eat in that time, freeze them. Frozen foods keep for 6 months to 1 year.

You play an important part in protecting yourself from infections when your WBCs are low. Follow these guidelines and remind others to do the same. If you are having problems following these guidelines, talk to your doctor, nurse or dietitian. Some of the guidelines may be adapted to better meet your needs.

For more information on infection prevention, we encourage you to visit our video library at <http://cancer.osu.edu/patientvideos>.