

Preventing Infection – What You Need to Know



The Basics

Infections are caused by tiny organisms such as bacteria, viruses, fungi and parasites. These organisms can be found just about anywhere, including the water, soil, your body, and on surfaces anywhere you go. Usually harmless, some organisms can cause reactions in the body. These reactions are a part of our normal immune response that protects us from disease. If your immune system is normal and healthy, it is likely your immune system will fight off the infection and you will not get sick.

People with cancer, on the other hand, may be at increased risk for infections for various reasons.

- The cancer itself may be weakening the immune system, which is the body system that protects and fights off infections.
- Cancer treatments, such as chemotherapy and radiation, can lower the total number of healthy white blood cells in the body. **Neutrophils**, a type of white blood cell (WBC) made in bone marrow, are one of the first to arrive at the site of infection. If your neutrophil level drops below normal, it is called **neutropenia**. This may be caused by your cancer or by your treatment. The larger the decrease in your number of neutrophils and the longer the shortage lasts, the greater your risk of infection.
- Other medications used in therapy, such as steroids, can also suppress the immune system.

How do you get an infection?

Organisms that cause infection or illness can be passed from person to person, through insects or animals, and through the ingestion of contaminated food or water.

Some more specific examples include:

- Getting bitten by a mosquito carrying a bacteria it passes along to you
- Inhaling tiny particles that linger in the air or droplets from someone sneezing or coughing in your face
- Ingesting droplets from sharing a spoon or touching a doorknob that someone who is sick may have touched
- Eating contaminated meat improperly cooked

What are the signs of infection?

Each organism causing an infection may result in different signs and symptoms, but there are many general signs. Infection can progress very fast if your immune system is weakened. That is why people with cancer or in treatment need to stay very aware of how they are feeling and call their doctor if they think they may have an infection.

Some signs to look for are

- Fever
- Cough
- Body aches, fatigue
- Areas of skin that are red, tender or swollen
- If you are having surgery, your health care team will give you instructions when you leave the hospital about what symptoms to watch for.



How to protect yourself from infection

Hand washing is one of the best methods to prevent an infection from spreading.

It is important to vigorously wash your hands with soap and water for 20 seconds, making sure not to miss your thumbs, fingertips and in between your fingers. These are areas that are often missed when hand washing. You should use soap and water if your hands are look dirty and after using the toilet.

If your hands are not visibly soiled or soap and water are not available, using an alcohol based hand sanitizer is okay.

It is important for your healthcare providers, caregiver, family, and visitors to wash or sanitize their hands as well so they do not pass infection to you. This means it is okay for you to ask others if they have washed or sanitized their hands (this is called hand hygiene). They are human and can forget and you asking could be their reminder.

When should you wash or sanitize your hands?

- ✓ Before eating, drinking, or taking medication
- ✓ After using the bathroom, coughing, sneezing, or blowing your nose
- ✓ Before touching your eyes, nose, mouth, or contact lenses
- ✓ Before and after performing any care with your central lines, catheters, and dressings (wound care)
- ✓ After touching things in the environment that are frequently touched by others



Along with good hand hygiene, you should also practice good personal hygiene to prevent infection. Your skin is the largest organ and the fastest growing, and it is the first layer of defense to prevent

infectious organisms from entering your body. Every day you shed 30,000 to 40,000 dead skin cells while new ones are growing. Good personal hygiene will help remove those dead skin cells, along with any bacteria or waste your body excretes through your sweat.

- ✓ Bathe or shower regularly using a mild soap.
- ✓ Change towels daily and do not share towels.
- ✓ Check your skin closely for rashes, redness, signs of infection, or cuts that don't seem to be healing.
- ✓ Use a soft toothbrush to clean your teeth after meals and before going to bed.
- ✓ Be sure to keep any wound dressings dry and if they become wet, you should change them as soon as possible.

Other key points to remember

- Avoid people who are sick and crowds of people during cold and flu season.
- Get plenty of rest. Fatigue can cause stress on your immune system that can raise your risk of infection.
- Eat a well-balanced diet with proper nutrition. If you have questions about what to eat, ask your doctor if you can talk with one of our dieticians.
- Check the expiration dates on foods to prevent you from eating spoiled foods. Do not eat raw meat or seafood and thoroughly wash fruits and vegetables.
- Ask your provider what vaccines you can get. Depending on your diagnosis, you may not be able to receive LIVE vaccines.



VACCINES: Haemophilus Influenza (Hib), Meningococcal, and Pneumococcal - Why do you get vaccinated?

If your immune system has been weakened, your body may need help to protect itself from bacteria that can cause very serious illness or death. When you get a vaccine, you are given a Vaccination Information Statement (VIS) which provides you with information about the particular vaccine you are receiving, including what it does, who should get it, and any risks.

- **The *Haemophilus influenza* type b (Hib) vaccine** protects against a bacterial infection that can lead to pneumonia and meningitis. The administration of this vaccine may vary from person to person but it is often given to children in 3 or 4 doses (including a booster).
- **The Meningococcal vaccine** protects against bacterial meningitis and blood infections. It is given every 5 years.
- **The Pneumococcal vaccine** protects you against pneumococcal disease, which is caused by the *Streptococcus pneumoniae* bacteria. Serious complications of this infection are pneumonia, blood infection, and meningitis. It is given in 2 doses, 5 years apart.


Your doctor may draw blood to evaluate your body's immune status after getting a vaccine. This is called a titer. It looks for antibodies your immune system has created against a bacteria to show that the vaccine was effective.

****If you are going to have a bone marrow transplant, or if you have already had one, you should follow your doctor's recommendations on when to be vaccinated.****

Isolation precautions

When you are admitted to the hospital, you may be tested for infections because of symptoms you have. Common tests performed are respiratory panels for upper respiratory symptoms (cough, sneezing, runny nose, sore throat) and stool samples for diarrhea or other reported GI symptoms. If certain tests come back positive, you may be placed on isolation precautions. These precautions are based on the organism causing you to be sick and how it is passed from one person to another.

We have 4 types of isolation. When you are put on isolation, you will notice that there is a yellow cart with several drawers just outside your room. There will also be a sign hung on the door or doorframe that says what type of isolation precautions are in effect.

- **Droplet isolation:** Staff will be wearing a mask to prevent droplet particles from your cough or sneeze from infecting others. If you go anywhere outside of your room, you will be asked to wear a mask as well.
- **Contact isolation:** Staff will be wearing a yellow gown and gloves while they are in the room. This prevents the organisms from getting onto their clothes or skin and out into the hallway and other patient rooms. If you walk in the hallways, you will need to wear a gown and gloves as well. 
- **Airborne isolation:** You will be moved into a room that has negative pressure airflow. Staff will be wearing a special mask to filter the particles that hang in the air and are easily inhaled. Depending on the organism, your nurse may also ask your family to wear a mask as well.
- **Contact PLUS:** Contact PLUS precautions are similar to contact precautions with the exception that you **MUST** wash your hands with soap and water.

Organisms requiring this type of isolation are usually very hard to kill without the manual scrubbing that is done while washing with soap and water. Your family will be asked to wear a gown and gloves as well. **They must wash their hands before entering and after leaving your room.**

***If you are placed on isolation precautions, please ask staff to assist you and your family with using the unit kitchen to prevent spread of infection to other patients.**

**** If you or your family has any questions, please speak with your nurse and they can provide you with additional information.****

What is Clostridioides difficile (C-diff)?

C-diff is a type of bacteria that is naturally found in the gut in small numbers. In some instances, the bacteria can overgrow and release toxins, causing disease. Outside of the body, C-diff bacteria become encapsulated in a spore that makes them hard to treat and kill during cleaning. They can easily spread from person to person and can remain on surfaces for months to years, protected by the spore's outer coat. Because it is a hardy organism and easily transmitted, it is a growing concern for any hospital.



Who is at risk for getting a C-diff infection?

Anyone can potentially become infected from C-diff. However, patients diagnosed with cancer are often at a higher risk for C. diff infections for a number of reasons.

- Your cancer or cancer treatments can weaken your immune system, making it more difficult for your body to fight off infections.
- If you get an infection, your doctor will prescribe antibiotics for you to take. While the antibiotics kill the organism making you sick, they can destroy the good bacteria in your gut at the same time, allowing other opportunistic bacteria to take over.
- Staying in the hospital for an extended period of time for surgery, chemotherapy, or stem cell transplant can also increase your risk.

How is a C. diff infection diagnosed and how is it treated?

Diarrhea is a common side effect of chemotherapy and other medications. If you have C. diff, your stool may have a greenish discoloration and a distinctive odor. You may also have abdominal pain and cramping. If an infection is suspected, your doctor will order a test that checks your stool for the presence of the C-diff toxin.

C. diff is typically treated with either metronidazole/ Flagyl® or oral (liquid) vancomycin/Vancocin®. To help replenish the good bacteria in your gut, your doctor may add a probiotic for you to take.

How can we prevent the spread of C. diff?

Since C. diff becomes a spore outside of the body, it is very difficult to kill, and spreads easily. Several precautions will be taken while you are admitted and being treated.

- You will be placed on 'Contact PLUS' precautions. A yellow cart will be placed outside of your room and a sign will be placed on your door to notify visitors/staff.
- To prevent the spores from being carried out of your room and onto other surfaces, staff, your family, and visitors must wear a yellow gown and gloves. These will need to be put on before they enter your room and removed BEFORE they leave. Gowns and gloves are only used one time each and a new set must be put on every time they re-enter your room.
- If able, there will be designated equipment, such as blood pressure cuffs, thermometers and stethoscopes that can be left in your room and used by staff.
- Alcohol-based hand sanitizers are not effective at killing C. diff spores. Therefore, you, healthcare workers, and your visitors need to wash their hands with soap and water. **It is ok to ask all the staff members caring for you to wash their hands.**
- Your room will be cleaned with a 1:10 bleach solution.

****These C. diff precautions will remain in place until your course of antibiotics has been completed and your symptoms are gone.****

HIV testing

In accordance with New York State Law, Roswell Park offers HIV testing to our patients between the ages of 13 and 64. Testing is voluntary and confidential. The following information may help you decide whether you would like to be tested:

- Human immunodeficiency virus (HIV) is the virus that causes AIDS. It can be transmitted through:
 - unprotected sex (vaginal, anal, or oral sex) with someone who has HIV
 - contact with blood while sharing needles (piercing, tattooing, IV drug use)
 - childbirth (an HIV-infected pregnant women can pass it to their child during pregnancy or deliver)
 - during breastfeeding
- There are treatments for HIV/AIDS that can help an individual stay safe.

Individuals with HIV/AIDS can adopt safe practices to protect uninfected persons from getting HIV and infected people from getting additional strains of HIV.

- The law protects the confidentiality of HIV test results and other related information.
- The law prohibits discrimination based on an individual's HIV status and services are available to help with such consequences.

- Consent for HIV related testing remains in effect until it is withdrawn verbally or in writing. If the consent was given for a specific period of time, it remains in effect for that time period only. In any case, persons may withdraw their consent at any time.

Hepatitis C testing

The Centers for Disease Control and Prevention (CDC) recommend that anyone born between 1945 and 1965 get tested. Roswell Park offers Hepatitis C testing to our patients born in this time frame.

- Anyone can get Hepatitis C but more than 75% of infected adults are “baby boomers” (born 1945-65).
- Most people with Hepatitis C don’t know they are infected. Liver disease and cancer are on the rise.
- The longer people live with Hepatitis C, the more likely they are to develop serious, life-threatening liver disease.
- Get tested and find out if you are infected. Treatments are available that can eliminate the virus from the body and prevent serious liver disease.



Many people can get lifesaving care and treatment. Knowing you have Hepatitis C can help you make important decisions about your health. Successful treatments can eliminate the virus from the body and prevent liver damage, cirrhosis, and even liver cancer. (CDC.gov)

More information from the CDC

- Infection Control: [cdc.gov/infectioncontrol](https://www.cdc.gov/infectioncontrol)
- Weakened Immune System and Adult Vaccination: [cdc.gov/vaccines/adults/rec-vac/health-conditions/weakened-immune.html](https://www.cdc.gov/vaccines/adults/rec-vac/health-conditions/weakened-immune.html)
- Isolation Precautions: [cdc.gov/infectioncontrol/guidelines/isolation](https://www.cdc.gov/infectioncontrol/guidelines/isolation)
- C. diff: [cdc.gov/cdiff](https://www.cdc.gov/cdiff)
- HIV: [cdc.gov/hiv](https://www.cdc.gov/hiv)
- Hepatitis C: www.cdc.gov/hepatitis/hcv
- Hand Hygiene: Back to Basics: www.cdc.gov/hepatitis/hcv



A Final Note

We want to protect you from infectious diseases while you are receiving treatment. You will see many staff members from all different departments. Therefore, you play an important role in preventing the spread of germs throughout the hospital.



Make sure to keep your hands as clean as possible and ask everyone who enters your room to perform hand hygiene.