

# What to Expect – Your Guide to Breast Cancer Infusion Therapy



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# Your Treatment Overview

Your Cancer Diagnosis: \_\_\_\_\_

Your Cancer Diagnosis Date: \_\_\_\_\_

Cancer Stage: \_\_\_\_\_

Your Cancer Treatment Goal: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Treatment Information

Your Chemotherapy/Immunotherapy Regimen: \_\_\_\_\_

\_\_\_\_\_

Your Chemotherapy/Immunotherapy Drug Names: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Any Oral Chemotherapy Pills: \_\_\_\_\_

Details of Your Chemotherapy/Immunotherapy Regimen: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Duration of Treatment: \_\_\_\_\_

Time Length of Infusions: \_\_\_\_\_

Number of Cycles Planned: \_\_\_\_\_

Number of Days in a Cycle: \_\_\_\_\_

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# WellSpan Infusion Rooms

Infusion room policies may change from one room to another. Before changing infusion rooms check with your infusion nurse to see if they have different policies regarding visitors.

## Before You Arrive

- Dress comfortably – we suggest layers, as the room temperature can change.
- We will supply warm blankets and pillows, but you are welcome to bring your own from home as well.
- If you have a mediport, please wear a lower-cut neck or button-down shirt for easier access. Avoid turtleneck tops.
- If you have any home medications that are due during your visit, please bring them with you.
- You are welcome to bring snacks, books and devices with you. Please avoid strong smells.

## Once You Arrive

- When you arrive, check in with the front desk staff, and they will let the nursing staff know.
- Please be prompt for appointments. If you are running late, please let the office know. If you are more than 15 minutes late for your appointment time, you may need to be rescheduled.
- We welcome family and friends to visit during your appointment. We ask that you limit this to 2 visitors per patient at a time.
- There are restrooms in the infusion room for patient use. Patients on chemotherapy should please flush twice. There are restrooms in the lobby for visitors.
- There are TVs in each bay for patient use. We encourage the use of headphones to keep the noise level down. You can bring your own, or we can provide them.
- Free wifi is available.
- Please be courteous to other guests by keeping volumes low and phone calls off speaker.

## Additional Resources on My WellSpan and WellSpan.org

- **What Is Chemotherapy?**  
wellspan.org/health-library/Document.aspx?id=abq1825#abq1825
- **Cancer: Preparing for Hair Loss From Chemotherapy**  
wellspan.org/health-library/Document.aspx?id=abq2570#abq2570
- **Cancer: Help for Fatigue**  
wellspan.org/health-library/Document.aspx?id=abq1839#abq1839
- **Cancer: Life After Treatment**  
wellspan.org/health-library/Document.aspx?id=abp7276#abp7276
- **Cancer Treatment: Help for When You Feel Sick or Lose Your Appetite**  
wellspan.org/health-library/Document.aspx?id=abq1846#abq1846
- **Cancer Treatment: Help for Mouth and Throat Problems**  
wellspan.org/health-library/Document.aspx?id=abq4431#abq4431
- **Breast Cancer Video Library**  
wellspan.org/health-library/Document.aspx?video=condition&videoID=fidp10123



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## WellSpan Infusion Rooms (continued)

In addition to videos, we offer other tools such as articles and decision makers. Here are a couple examples:

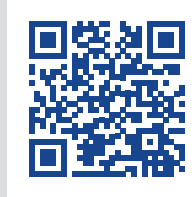
- **Side Effects of Chemotherapy**  
wellspan.org/health-library/Document.aspx?id=tf3284#tf3284



- **Breast Cancer: Should I Have Chemotherapy for Early-Stage Breast Cancer?**  
wellspan.org/health-library/Document.aspx?id=tv8464#tv8464



If you are interested in finding more resources, you can search at [wellspan.org/health-library](https://wellspan.org/health-library).



## Mediport

### Your Bard® PowerPort® Implanted Port

Your Bard® PowerPort® implanted port is a small device (about the size of a quarter). It is used to carry medicine into the bloodstream. The port has one or two small basins that are sealed with a soft silicone top, called a septum. It is placed under the skin on your chest or arm. The port connects to a small, soft tube called a catheter. The catheter is placed inside one of the large central veins that take blood

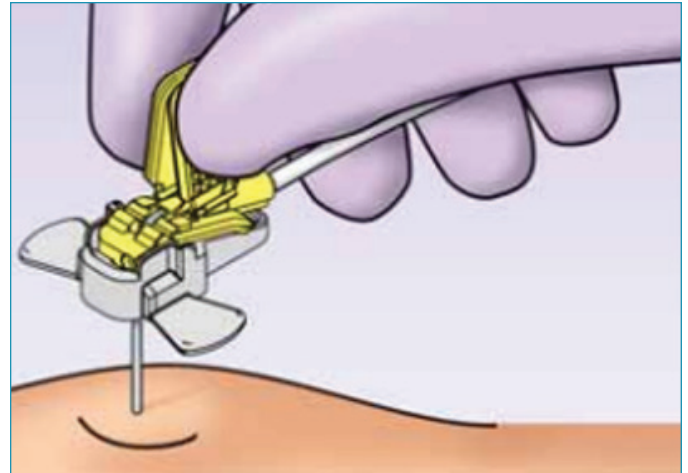
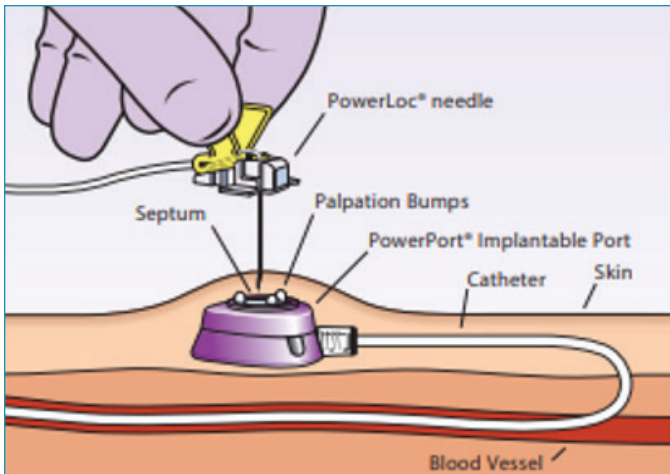
to your heart. When a special needle is put into the septum, it creates “access” to your bloodstream. Medicine and fluids can be given through the needle, and blood samples can be withdrawn.

Your port has three bumps on top of each septum. The port with one septum is also shaped like a triangle. These features help the nurse know that your port can be power injected.



Continued on next page

## Mediport (continued)



Your PowerPort® implanted port may be paired with a Groshong® port catheter. The Groshong® catheter is a rounded-tip silicone catheter that has a three-position valve near the tip. The valve of the Groshong® catheter allows fluids to flow in or out of the catheter, but remains closed when it is not being used.

### Access

Your doctor or nurse will use the port when they need to administer medicine and fluids or withdraw blood samples. To do this, they will access the port by placing a special needle, called a Huber needle, into the port. You may feel a mild pricking when they put the needle into the port. This sensation often gets milder over time. Ask your doctor or nurse what you should expect.

### Care

After your port is placed, your doctor will place a small bandage over the incision. For the first few days, you should avoid heavy exertion and follow any special guidance from your doctor or nurse to care for the small incision. The incision will not need any special care once it is healed – you can then resume normal activities.

## Things to Remember



- Take relaxation periods as needed, pace yourself, do not over-tire, normal activities as tolerated.
- Avoid crowds and people with colds or infections, including young children.
- Avoid sunlight. Use sunblock, sunglasses and a hat for protection. Seek shade when possible.
- Check your temperature with a thermometer if experiencing chills or flushing.
- Do not use suppositories or enemas without talking to your nurse or physician.
- Use a soft-bristle toothbrush and non-alcohol mouthwash.
- If you have been prescribed nausea medicine and are not getting relief, please call the office.

# Possible Side Effects of Chemotherapy

## Anemia

- Anemia happens when your body does not have enough red blood cells.
- This will make you feel tired and weak.
- Tips to fight anemia:
  - Get at least 8 hours of rest per day
  - Drink at least 64 ounces of water per day
  - Take short naps during the day if you feel tired

## Appetite Changes

- Food may begin to taste different or have a metallic or metal taste.
- Tips to help with appetite changes:
  - Eat small meals and snacks many times during the day
  - Try new foods/recipes
  - Eat foods high in calories and protein
  - Try drinking milkshakes, smoothies and soups
  - See attached nutrition packet from our dietician

## Constipation

- Constipation happens when you are having a bowel movement less often than you normally do.
- Tips to help constipation:
  - Drink plenty of water
  - Eat high-fiber foods
  - Take a stool softener like Colace, or a laxative like Senokot or Miralax

## Diarrhea

- Diarrhea is loose, watery stool that happens more than once.
- Tips to help diarrhea:
  - Take Imodium as directed on the box unless you received other directions from provider
  - Eat small, bland meals and snacks
  - Drink lots of clear fluids
  - Do not eat the following if you are having diarrhea: dairy products, spicy/greasy/fried foods, broccoli, cabbage, raw fruits and vegetables or caffeinated products

## Fatigue

- You will be tired, but the tiredness will be very different from your usual tiredness.
- Tips to help with fatigue:
  - Do activities you enjoy
  - Stay as active as you can

## Hair Loss

- Some chemotherapies will cause your hair to fall out.
- Tips to help with hair loss:
  - Keep your head covered with a scarf, wig or hat
  - Use a gentle shampoo/conditioner

## Mouth & Throat Changes

- You may develop ulcers in your mouth or on the side of your mouth.
- Tips to help prevent and treat mouth sores:
  - Use a soft toothbrush
  - Brush your teeth after eating and before bed
  - Mix the following together to swish and spit:
    - 1 cup warm water
    - 1/4 tsp. baking soda
    - 1/8 tsp. salt

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## Possible Side Effects of Chemotherapy (continued)

### Nausea & Vomiting

- Sometimes you may feel sick to your stomach but not vomit. If you feel sick to your stomach, take a nausea medication, following the instructions provided on the medication bottle.
- Medications for nausea:
  - Zofran (ondansetron) - Take 1 tablet every 8 hours as needed for nausea
  - Olanzapine - Take 1 tablet at bedtime as directed. **This med will cause drowsiness and is used for nighttime nausea.**

**The number of days you take this medication depends on the type of chemotherapy.**

### Nerve Changes

- Chemotherapy may cause numbness, tingling or a burning sensation in your hands, feet and toes.
- Tips to help with nerve changes:
  - Keep hands and feet warm

- Don't wear shoes that are too small
- Let us know if this happens right away

### Sexual & Fertility Changes

- If you become pregnant or get someone pregnant while receiving chemotherapy, the baby may suffer from birth defects or a loss in pregnancy.
- Tips you should know:
  - Use a condom when you have sex
  - Let us know right away if you are pregnant, breastfeeding or if you get someone pregnant

### Swelling

- Chemotherapy may cause swelling of your hands, face, feet and legs. If this occurs, call us immediately.
- Tips to help with swelling:
  - Wear loose-fitting clothing
  - Wear special socks (TED hose)
  - Keep your feet up when resting

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## Chemotherapy Safety at Home

You are receiving chemotherapy to treat your cancer. Chemotherapy drugs are harmful. It is important to learn how to protect yourself when handling body fluids (urine, stool or vomit) after getting chemotherapy. Chemotherapy remains in your body for several days after your treatment. Your body removes the chemotherapy through your urine and bowels. Small amounts of chemotherapy also may be present in vomit.

### Body Waste

- You may use the toilet (septic tank or sewer) as you normally do. For 48 hours after receiving chemotherapy, flush 2 times with the lid closed. Wash your hands well with

soap and water, and wash your skin if urine, stool or vomit gets on it.

- Family members should use separate toilets from the patient for 48 hours after chemotherapy administration to avoid risk of contact with urine or stool. If this is not possible, patients should keep disinfecting sanitizing wipes in the bathroom to clean toilet seat, rim and handle after use. After toileting and cleaning, patients should wash hands with soap and water before touching other surfaces or items. At the end of 48 hours, the toilet and bathroom floor should be washed.

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## Chemotherapy Safety at Home (continued)

- If you do not have control of your bowels or bladder, use a plastic-backed pad, diaper or sheet to absorb body fluids. Change as soon as possible when dirty, wash skin with soap and water and use a moisture barrier cream. If you have a caregiver helping you, they should wear double gloves when emptying bedpans, urinals, vomit bags, changing pads or wet bed linen. It is best to use the toilet if you are able. If you have an ostomy and need help, your caregiver should wear double gloves when emptying or changing bags. Discard used ostomy supplies in a sealed plastic bag and place in trash.
- Pregnant women should not touch items wet with urine, stool or vomit of people that have received chemotherapy. If possible, pregnant women should use a separate bathroom during the 48 hours following chemotherapy administration. If not possible, clean surfaces such as toilet seat, handle, faucets and door handles with a wipe containing a bleach product before the patient exits the bathroom.
- If the toilet seat becomes wet with body fluids, clean it with soap and water. Caregivers should wear double gloves when cleaning.
- Men should sit on the toilet, if able, to prevent splashing of urine.

### Laundry

- Wash your clothing or linen normally, unless they become dirty or wet with body fluids. If that happens, handle the laundry carefully, trying not to touch the wet linen (use double disposable gloves if possible). Immediately place the dirty or wet items in the washer and wash in hot water, twice, separate from other laundry. Bleach may be used if safe for fabrics. If you do not have a washer, place soiled items in a plastic bag until they can be washed.

### Disposal of Used Gloves

- If gloves are used to clean urine, stool or vomit or to handle wet linen, remove them carefully, turning them inside out when removing, and place in a sealed plastic bag, place in the regular trash.

### Family Contact

- Eating together, enjoying favorite activities, hugging and kissing are all safe.

### Sexual Contact

- Ask your doctor or your nurse this question. It is possible that small amounts of chemotherapy may be present in vaginal fluid and semen for up to 48 hours after treatment. Special precautions may be necessary.

### If You Are Receiving Chemotherapy at Home

- If you have a spill or have any other urgent questions, you should call your infusion provider. These providers are available after hours.
- If chemo spills on your skin, wash it with soap and water immediately and contact your doctor. Clothes and linen wet with chemotherapy should be washed as described above in the Laundry section. Make sure you let your doctor know you have not received your full dose of chemotherapy, and follow their instructions.

### References

*Safe Handling of Hazardous Drugs*, e-book 2018 third edition, (Polovich, Martha & Olsen, MiKaela)

## Understanding Complete Blood Count (CBC) Tests

### ■ What is a complete blood count?

A complete blood count (CBC) is a common blood test that evaluates the number of white blood cells (WBCs), red blood cells (RBCs), and platelets in the blood. CBC results can be used to help diagnose some types of blood cancer, find out if a cancer has spread to the bone marrow, see how a person's body is reacting to cancer treatment, and diagnose other, noncancerous conditions.

### ■ What is a white blood cell count?

A WBC count, also called a leukocyte count, measures the number of WBCs in a sample of blood. WBCs protect the body from infection by attacking harmful bacteria, viruses, and other foreign materials in the body. In addition, some WBCs attack cancer cells. Some cancer treatments, mainly chemotherapy, may lower your body's WBC count. Cancers that affect the blood and bone marrow, such as leukemia, lymphoma, and multiple myeloma, may also lower the count.

### ■ What is a white blood cell differential?

A WBC differential is a test that measures the number of each type of WBC. There are 5 major types of WBCs: neutrophils, lymphocytes, monocytes, eosinophils, and basophils. Each type of WBC plays a different role in fighting infection. People with some types of cancer may have higher or lower than normal numbers of lymphocytes or monocytes. In addition, cancers that affect the blood and bone marrow and some types of cancer treatment may lower the WBC count and absolute neutrophil count (ANC). These conditions may raise a person's risk for neutropenia, which increases the chances of developing an infection.

### ■ What is a red blood cell count?

RBCs, also called erythrocytes, carry oxygen throughout the body. An RBC count, also called an erythrocyte count, measures the amount of RBCs in a sample of blood and is often used to diagnose anemia, which is an abnormally low level of RBCs. There are several ways to measure RBCs. One common measure is the level of hemoglobin (Hgb), an iron-containing protein in RBCs that carries oxygen. A value called the hematocrit (Hct) shows the percentage of your blood that is made up of RBCs. Some cancer treatments, mainly chemotherapy and radiation therapy, may lower your RBC count.

### ■ What is a platelet count?

Platelets, also called thrombocytes, stop bleeding by helping the blood clot and plugging damaged blood vessels. A platelet count measures the number of platelets in a sample of blood. Cancers that affect the blood and bone marrow and some types of cancer treatment, such as chemotherapy and radiation therapy, may lower the number of platelets. This condition is called thrombocytopenia, and it can increase the risk of serious bleeding or bruising.



# Cardiac Care During Treatment

Some IV and oral medications can cause increased risk for heart problems.

Your providers will screen you for these potential problems, and you may be asked to have additional testing as needed to screen for heart conditions or see a cardiac specialist.

Examples of heart-related concerns can be:

- High blood pressure
- Irregular heart rate
- Risk for elevated cholesterol

- Heart failure, or the heart not functioning as it should
- Blood clots
- Heart attack
- Stroke

Examples of these medications include:

- IV Medications – Herceptin, Perjeta, Doxorubicin, Immunotherapy
- Oral Medications – Anastrozole, Letrozole, Tamoxifen

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# Neutropenia & Risk for Infection

## What You Need to Know

### What Is Neutropenia?

Neutropenia, pronounced noo-troh-PEE-nee-uh, is a decrease in the number of white blood cells. These cells are the body's main defense against infection. Neutropenia is common after receiving chemotherapy and increases your risk for infections.

### Why Does Chemotherapy Cause Neutropenia?

These cancer-fighting drugs work by killing fast-growing cells in the body – both good and bad. These drugs kill cancer cells as well as healthy white blood cells.

### How Do I Know if I Have Neutropenia?

Your doctor or nurse will tell you. Because neutropenia is common after receiving chemotherapy, your doctor may draw some blood to look for neutropenia.

### When Will I Be Most Likely To Have Neutropenia?

Neutropenia often occurs between 7 and 12 days after you receive chemotherapy. This period can be different depending upon the chemotherapy you get. Your doctor or nurse will let you know exactly when your white blood cell count is likely to be at its lowest. You should carefully watch for signs and symptoms of infection during this time.

### How Can I Prevent Neutropenia?

There is not much you can do to prevent neutropenia from occurring, but you can decrease your risk for getting an infection while your white blood cell count is low.

### References

National Center for Chronic Disease Prevention and Health Promotion, Division of Cancer Prevention and Control, made possible by a CDC Foundation partnership with Amgen

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### Signs & Symptoms of Infection

For patients with neutropenia, even a minor infection can quickly become serious. Call your doctor right away if you have:

- Fever that is 100.4°F (38°C) or higher for more than 1 hour, or a one-time temperature of 101°F or higher
- Chills and sweats
- Change in cough or new cough
- Sore throat or new mouth sore
- Shortness of breath
- Nasal congestion
- Stiff neck
- Burning or pain with urination
- Unusual vaginal discharge or irritation
- Increased urination
- Redness, soreness or swelling in any area, including surgical wounds and ports
- Diarrhea
- Vomiting
- Pain in the abdomen or rectum
- New onset of pain
- Changes in skin, urination or mental status

### Preventing Infection

In addition to receiving treatment from your doctor, the following suggestions can help prevent infections:

- Clean your hands frequently
- Try to avoid crowded places and contact with people who are sick

- Do not share food, drink cups, utensils or other personal items, such as toothbrushes
- Shower or bathe daily and use an unscented lotion to prevent your skin from becoming dry and cracked
- Cook meat and eggs all the way through to kill any germs
- Carefully wash raw fruits and vegetables
- Protect your skin from direct contact with pet bodily waste (urine or feces) by wearing vinyl or household cleaning gloves when cleaning up after your pet. Wash your hands immediately afterwards
- Use gloves for gardening
- Clean your teeth and gums with a soft toothbrush, and if your doctor or nurse recommends one, use a mouthwash to prevent mouth sores
- Try and keep all your household surfaces clean
- Get the seasonal flu shot as soon as it is available

### COVID Precautions

- Get vaccinated and boosted
- Wear a mask indoors
- Stay away from people with sickness

Ask your medical oncology team for the latest updates in COVID guidelines.

## Side Effects of Immunotherapy

### ■ What is immunotherapy?

Immunotherapy is a treatment that helps your body's immune system fight cancer. The immune system is your body's natural defense system. There are several types of immunotherapy that work in different ways, such as immune checkpoint inhibitors and chimeric antigen receptor (CAR) T-cell therapy. These medicines are also called "biologics."

You can have immunotherapy by itself or with other cancer treatments. Immunotherapy is given in a doctor's office or in the hospital, usually through a vein (intravenously or IV). Your cancer care team will closely monitor your health during and after this type of treatment.



### ■ What side effects can immunotherapy cause?

The most common side effects depend on which kind of immunotherapy you are receiving. Always let your cancer care team know when you experience a new or worsening medical problem during immunotherapy, even if those symptoms are not listed on this fact sheet.

Side effects depend on the medication, your dose and treatment schedule, cancer type, general health, and other factors. Immunotherapy side effects may happen during treatment, after some time following each treatment, or months or years after treatment ends. They may include:

- **Skin and hair changes.** Rashes, blisters, swelling, itching, dry skin, and/or sensitivity to the sun. You might also notice hair loss or extra hair growth.
- **Flu-like symptoms.** Fever, chills, headache, weakness, fatigue, nausea, and/or vomiting. Your body might feel achy, like you have the flu. Immunotherapy can also cause muscle and joint pain.
- **Hormone changes.** For example, immunotherapy might affect your thyroid gland. If it cannot make enough thyroid hormone, you might gain weight and feel very tired. Your doctor may monitor your hormone levels during treatment, depending on what type of immunotherapy you receive.
- **Syndromes related to CAR T-cell therapy.** CAR T-cell therapy may cause syndromes that affect multiple parts of the body. They include syndromes called CRS, ICANS, HLH, B-cell aplasia, and DIC.

### ■ Can these side effects be treated?

Your health care team can help you prevent or relieve many side effects. This is an important part of your overall cancer treatment. Before immunotherapy begins, ask your health care team what side effects are likely. **During treatment, let them know about any new, different, or worsening health problems as soon as possible.** This includes problems that you may not think are serious or caused by immunotherapy. It is easier for your health care team to effectively treat a side effect when the problem first appears and can prevent it from becoming severe.

Some side effects are serious and need treatment right away. If you need medical care at an emergency room or other place not familiar with your cancer treatment, be sure to tell them that you are receiving immunotherapy for cancer.

### ■ What care is needed after immunotherapy ends?

It is important to continue getting care for side effects after immunotherapy ends. Many side effects will go away when you finish treatment. But some effects can last beyond the treatment period. Other effects may appear months or years later. Your health care team can help you watch for and manage late or long-term side effects. This includes problems with fertility. Work with your doctor to create a survivorship care plan after you finish treatment with immunotherapy. This is an important tool to help watch for additional side effects in the future.

**ASCO ANSWERS** is a collection of oncologist-approved patient education materials developed by the American Society of Clinical Oncology (ASCO) for people with cancer and their caregivers.

## Side Effects of Immunotherapy (continued)

### Possible Side Effects of Immunotherapy Medication

Any one of these could be a sign of a serious problem. Contact your doctor if you experience a side effect of immunotherapy.

- Headaches
- Blood in urine or dark urine
- Muscle and joint pain
- Cough
- Breathing problems
- Bleeding or bruising easily
- Sweating more
- Feeling faint, passing out
- Contusion
- Difficulty concentrating
- Rash, itching, blisters
- Weakness
- Yellow skin or eyes
- Trouble walking
- Numbness or tingling
- Fast heartbeat
- More sensitive to light
- Stiff neck
- Weight loss or gain
- Cold hands and feet
- Changes in vision
- Eye changes, such as dryness or redness
- Diarrhea
- Constipation
- Swollen lymph nodes
- Hair loss or extra growth
- Seizures
- Swelling

## Nutrition / Hydration / Oral Care

### Nutrition

Nutrition and food are important factors in health and recovery. People living with cancer may have different nutrition goals and challenges depending on their age, type of disease, treatment and other medical conditions. Good nutrition also helps the body replace blood cells and healthy tissues that are damaged because of cancer treatment. Side effects can be either short-term or long-term. Some side effects happen during treatment, while others may occur after treatment ends. Nutrition-related side effects may include nausea, diarrhea, constipation, decreased appetite and fatigue. Medication, lifestyle changes, exercise and good nutrition can help manage these symptoms.

Eating a variety of foods is the best method to make sure you get all the nutrients that the body needs. A healthy diet includes:

- A variety of protein foods, including lean meat, poultry, seafood, eggs, legumes and nuts

- A variety of vegetables and fruits
- Grains, half of which should be whole grains
- Dairy, including milk, yogurt, cheese and/or fortified soy beverages
- Healthy fats/oils such as olive and canola

Certain foods may cause a bad reaction with some of the drugs that are used to treat cancer. Members of your health care team will tell you which foods and beverages to avoid.

### Weight Stability

Maintaining your weight helps you tolerate treatments better and maintain your muscles and strength. Patients who eat well and keep or achieve a healthy weight usually manage treatment-related side effects better.

Eating a variety of foods is the best method to ensure intake of all the nutrients that a body requires. A healthy eating pattern includes a combination of many food groups as well as adequate calories to maintain a healthy body weight.

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### Hydration

Getting enough fluids throughout the day is important for taking care of your kidneys and avoiding dehydration. Your fluid needs may change based on your weight and activity level.

- Try to drink 8 cups (2 quarts) of clear and decaffeinated liquids (water, broth, ginger ale, electrolyte replacement beverages). Try to drink throughout the day rather than just when you feel thirsty
- Caffeinated beverages are okay in moderation
- Signs of dehydration include feeling dizzy, quick heartbeat, headache, dry lips and constipation

### Oral Care

The mouth is the first stop for turning food into fuel, so it's important to maintain a healthy mouth and teeth.

- Talk to your oncology health care team before visiting the dentist or having dental work done. You may need to take special precautions or postpone your visit
- Brush with a soft toothbrush and fluoride toothpaste at least 2 times a day
- Rinse your mouth several times a day with a mild salt solution (1 cup warm water, 1/4 tsp. salt) or non-alcohol mouthwash
- You can also use a baking soda/salt mouth rinse
  - o Mix the following together to swish and spit:
    - 1 cup warm water
    - 1/4 tsp. baking soda
    - 1/8 tsp. salt

### Vitamin/Mineral/Herbal Supplements

All vitamin/mineral supplements should be approved by your doctor before you take them!

- We are cautious because some studies have shown that high doses of certain vitamins/minerals/herbs can potentially hinder the effectiveness of your treatment

- Most oncologists are okay with fiber, vitamin D, calcium and regular multivitamins, but be sure to let them know as soon as possible
- Remember, if an herb or supplement sounds too good to be true, then it usually is

### Food Safety for Immune-Compromised Patients

Chemotherapy, radiation therapy and stem cell transplants can weaken the immune system. This makes it harder for your body to protect itself from foodborne illness, also called food poisoning. Foodborne illness is caused by eating food with harmful bacteria, fungus, parasites or viruses. Safe steps in food handling, cooking and storage are important for preventing foodborne illness.

#### Clean

- Wash hands and surfaces that may touch food often.
- Frequent cleaning throughout the kitchen can help prevent the spread of bacteria
  - Wash hands in warm, soapy water for at least 20 seconds before and after handling food and after using the bathroom, handling trash, touching pets or changing diapers. Don't forget to scrub fingernails and backs of your hands
  - Wash dishes, knives, cutting boards, utensils and countertops with hot, soapy water before and after contact with each food item. Be careful, some "antibacterial" wipes or cleaners are not meant for food preparation surfaces since they contain harsher chemicals
  - Consider using paper towels to clean up kitchen surfaces rather than clothes or dishrags. If using cloth towels, wash them often in the hot cycle of the washing machine
  - Carefully wash fresh fruits and vegetables under running tap water, including those with skins and rinds, before peeling, cutting or

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## 4 STEPS TO FOOD SAFETY



CLEAN



SEPARATE



COOK



CHILL

Learn about four steps to prevent food poisoning at home. [cdc.gov/foodsafety/keep-food-safe.html](https://www.cdc.gov/foodsafety/keep-food-safe.html)

eating them. Never use bleach or laundry soap to wash fresh fruits or vegetables. You may rinse/soak soft produce with a mild white vinegar and water solution (½ cup white vinegar mixed with 4 cups water)

- Clean lids of canned or jarred goods before opening
- Keep the microwave clean, as food debris can grow bacteria

### Separate

Avoid cross-contamination.

- Keep raw and cooked foods separate. Do not reuse any utensils, cutting boards, plates or dishes once they have been touched by raw meat/seafood/poultry or raw eggs. Never put cooked food on a plate that previously held raw meat/seafood/poultry. Be sure to wash utensils and cutting boards with hot, soapy water prior to reuse
- Keep raw meat/poultry/seafood away from ready-to-eat foods in your grocery cart, grocery bags and refrigerator
- Don't reuse marinades on raw foods unless brought to a boil before using

### Cook

Cook food to safe temperatures.

- Foods are properly cooked when they reach a high enough internal temperature to kill the harmful bacteria that causes foodborne illness. Remember: color is not a reliable sign that foods are cooked to the correct temperature
- Safe cooking temperatures (when measured with a food thermometer):
  - o Steaks, roasts or chops of beef, pork, veal, lamb – >145°F (with 3 minutes rest time)
  - o Fish – over 145°F
  - o Ground beef, pork, veal, lab – over 160°F
  - o Egg dishes – over 160°F (or until yolk and white are hard)
  - o Poultry (turkey, chicken, duck) – over 165°F
  - o Leftovers or casseroles – over 165°F
  - o Hot dogs, luncheon meats, bologna, other deli meats – over steaming hot or 165°F

### Chill/Store

Refrigerate promptly.

- Cold temperatures slow the growth of harmful bacteria. Bacteria spreads the

Continued on next page

## Nutrition / Hydration / Oral Care (continued)

fastest at temperatures between 40°F-140°F, therefore keeping the refrigerator below 40°F will prevent bacteria from growing

- Chill leftover and takeout foods within 2 hours
- Never let raw meat, poultry, eggs, cooked foods or fresh-cut produce sit at room temperature more than 2 hours before putting in the refrigerator or freezer. If the temperature outside is above 90°F, then decrease that time to 1 hour
- Portion out large amounts of leftovers into shallow or single-serve containers for faster cooling
- Never defrost foods at room temperature. Food can be defrosted in the refrigerator, under cold running water, or in the microwave. Food should be cooked immediately if defrosted under running water or the microwave

### At the Grocery Store

- Check the “Use By” or “Sell By” dates and only use products that have not reached their expiration date
- Don’t buy leaky, bulging, dented or broken cans/jars. Avoid torn or damaged boxes or packaging
- Buy refrigerated eggs that are without cracks
- Fresh-ground meats/poultry/seafood should be cooked or frozen with 2 days; beef, veal, lamb or pork should be cooked or frozen within 3-5 days
- Buy only pasteurized milk, soft cheeses made with pasteurized milk and pasteurized juices
- Do not buy pre-cut fruits or vegetables, as there is no way to be sure they were properly handled
- Do not purchase foods from shared bins in the grocery store

- Wash reusable grocery bags regularly by wiping down with disinfectant wipes. If using cloth wipes, wash on the hot cycle with sanitizer, bleach or bleach alternative

### Eating Out

- Avoid raw fruits and vegetables when dining out. This includes cut lemons for your water. Prepare these items at home where you can wash them well and prepare safely
- Avoid buffets, salad bars, delicatessens, potlucks or sidewalk vendors. Avoid any restaurant where food sits out for long periods of time such as Subway, Chipotle, Mod Pizza, Cici’s Pizza, etc.
- Do not use public self-serve condiments, including salsa, catsup/ketchup, mustard, etc. Ask for single-serve packets

### Foods Associated with Foodborne Illness

- Raw seafood dishes such as sushi, sashimi, ceviche or Caesar salad dressing
- Dippy, poached or “sunny-side-up” eggs or anything made with raw unpasteurized eggs, such as Hollandaise sauce or homemade eggnog or ice cream
- Unpasteurized beverages such as raw milk or cold-pressed juice (unless prepared by you at home)
- Soft mold-ripened cheeses such as Brie, Camembert, Roquefort, Stilton, Gorgonzola, or Blue cheese. You may be able to find pasteurized versions of these – check the label
- Raw sprouts such as alfalfa or mini-sprouts
- Raw nuts such as raw almonds, pecans, etc. If it says “steam-treated” on the label, then that is acceptable
- Raw honey
- Frozen drinks, soft-serve ice cream or frozen yogurt from bulk machines
- Raw cookie dough or cake batter

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## Nutrition / Hydration / Oral Care (continued)

You may be referred to a registered dietitian. They can develop an individualized eating plan to meet your needs, help you manage changes in appetite and weight and help with side effects of treatment.

### References

National Institutes of Health.  
Foodborne Infections.  
[ncbi.nlm.nih.gov/pmc/articles/PMC2603155/](https://ncbi.nlm.nih.gov/pmc/articles/PMC2603155/)



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Centers for Disease Control and Prevention. Oral Health.  
[cdc.gov/oralhealth/index.html](https://cdc.gov/oralhealth/index.html)



National Cancer Institute. Eating Hints: Before, During, and After Cancer Treatment.  
[cancer.gov/publications/patient-education/eating-hints](https://cancer.gov/publications/patient-education/eating-hints)



National Institutes of Health: Office of Dietary Supplements. Dietary Supplement Fact Sheets.  
[ods.od.nih.gov/factsheets/list-all/](https://ods.od.nih.gov/factsheets/list-all/)



United States Department of Agriculture: Food Safety and Inspection Service. Safe Food Handling and Preparation.  
[fsis.usda.gov/food-safety/safe-food-handling-and-preparation](https://fsis.usda.gov/food-safety/safe-food-handling-and-preparation)



Eatright.org from the Academy of Nutrition and Dietetics. Safe Food Shopping Guide.  
[eatright.org/homefoodsafety/multimedia/infographics/safe-food-shopping-guide-infographic](https://eatright.org/homefoodsafety/multimedia/infographics/safe-food-shopping-guide-infographic)



### Resources

**The Academy of Nutrition and Dietetics (AND)**  
[eatright.org](https://eatright.org)



**American Institute for Cancer Research (AICR)**  
[aicr.org](https://aicr.org)



**MyPlate**  
[choosemyplate.gov](https://choosemyplate.gov)



**Cook for Your Life**  
[cookforyourlife.org](https://cookforyourlife.org)



**FoodSafety.gov**  
[foodsafety.gov](https://foodsafety.gov)



**The Leukemia & Lymphoma Society (LLS)**  
[LLS.org/booklets](https://LLS.org/booklets)





# Notes



[wellspan.org](http://wellspan.org)

