



## ***Managing Side Effects of Chemotherapy***

### ***Resource Guide***

There is always the possibility that chemotherapy may cause some side effects. Chemotherapy destroys rapidly dividing cells, such as cancer cells. Other “normal” cells in your body are also rapidly dividing such as those in your mouth, blood, intestinal tract, hair and nails. Many side effects occur because chemotherapy targets rapidly dividing cells, both normal and abnormal.

Not all chemotherapy drugs have the same side effects and the severity of those side effects is different with each person, drug and dose. Chemotherapy affects each person differently. If you do experience side effects it is important to know how to manage them and who to report them to.

This chemotherapy packet has been put together for your convenience. It has lots of helpful information, including specific content on many potential side effects. Please ask a member of your health care team if you have any questions or concerns.

Some of the side effects discussed in this packet include:

*Bone pain*

*Constipation*

*Diarrhea*

*Fatigue*

*Hair loss (alopecia)*

*Low blood counts*

*Mucositis (mouth sores)*

*Nail changes*

*Nausea/Vomiting*

*Neutropenia*

*Peripheral neuropathy (nerve damage)*

*Poor appetite*

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## ***Bone Pain Related to Cancer Treatments***

Pain is referred to as the 5<sup>th</sup> vital sign. Temperature, pulse, respiration and blood pressure are considered the first four. A nurse may ask you to rate your pain at each visit. It is important to notify a member of the treatment team if you are experiencing any of the following:

- Pain that is new.
- Pain not well controlled with present medications.
- Pain interfering with your daily activities such as working, house cleaning, cooking, childcare.

Bone pain can be a common side effect of certain medications such as:

- Blood cell stimulators like Neulasta<sup>®</sup> (pegfilgrastim), Neupogen<sup>®</sup> (filgrastim) and Leukine<sup>®</sup> (sargramostim).
- Taxanes like Taxol<sup>®</sup> (paclitaxel), Taxotere<sup>®</sup> (docetaxel), and Jevtana<sup>®</sup> (cabazitaxel).
- Bisphosphonates like Zometa<sup>®</sup> (zoledronic acid) or Reclast<sup>®</sup> (zoledronic acid).

The bone pain usually starts about 1-2 days after getting the medication. There are certain other medications or interventions your doctor may suggest to help lessen the pain. These recommendations may include:

### **If you are taking a Blood Cell Stimulator:**

- Claritin<sup>®</sup> (loratadine) 10mg, take 1 the day prior to injection, take 1 the day of the injection, and 1 a day for 4 days after the injection (6 days total). Take **only if your doctor says it is okay** and only as directed.
- NSAIDs such as ibuprofen, naproxen (These are anti-inflammatories; they help to decrease inflammation which then reduces your pain). Take **only if your doctor says it is okay** and only as directed.

### **If you are taking a Taxane:**

- Avoid or stop activities that cause or increase pain.
- Apply Ice/Heat to affected areas (unless contraindicated)
- **If okay with your doctor** you may try some over the counter medications such as:
  - NSAIDS (ibuprofen, naproxen)
  - Tylenol<sup>®</sup> (acetaminophen)
- Prescribed opioids

### **If you are taking a Bisphosphonate:**

- Tylenol<sup>®</sup> (acetaminophen). **Take only if your doctor says it is okay** and only as directed.
  - **NSAIDs are not recommended** because they are metabolized (processed) in the kidneys and the kidneys are already working hard to metabolize the Bisphosphates.

- Drink lots of fluids (non-caffeine liquids) to help flush the drugs out of the kidneys.

You can control and manage your pain. We can work together to help you reach a pain goal, making you more comfortable.

***Call the doctor for:***

Any questions or concerns you may have.

If pain is severe, gets worse, or does not go away.

If you need a refill on prescribed pain medication.

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## **Constipation**

### *Hints for avoiding and managing constipation*

Constipation occurs when bowel movements are less frequent than usual, hard, and/or difficult to pass. The following information was developed to help you manage constipation.

#### ***What are some symptoms of constipation?***

- Hard or lumpy stools that are difficult to pass
- Abdominal pain
- Bloating
- Nausea or vomiting (constipation is a common cause of nausea)
- Frequent watery stools
- Feeling of not completely emptying rectum

#### ***What are some causes of constipation?***

- Certain chemotherapy drugs.
- Certain medications, especially opioids (narcotic pain medications).
- Not having enough fluids, fiber, or roughage in your diet.
- Lack of exercise and/or activity.
- Pressure on the bowel from tumors or fluid in the abdomen.

#### ***What can I do to help avoid constipation?***

- **Follow your doctor's instructions** for taking stool softeners and/or laxatives.
- Drink plenty of fluids throughout the day or as directed by your doctor.
  - Warm fluids may be helpful in stimulating your bowel (warm tea or warm juice).
- Stay as active as you can. Do as much walking or exercising as you can tolerate.
- Allow enough time each day for bowel movements and respond immediately to the “urge to go.”
- Skipping a dose or not taking your stool softener may result in serious constipation.
  - It is easier to prevent constipation than to treat it after it happens.

#### ***If you are taking opioids (narcotic pain medications).....***

**It is important you follow the recommendations of your healthcare team for the use of a laxative, stool softener, or any bowel management program. The information below is not intended to replace your doctor's instructions.**

- If you are taking opioids (narcotic pain medications), your doctor may instruct you to take a laxative. Opioids slow the bowel. Laxatives will help speed it up again. It puts the “push” back into the bowel the opioid has slowed down. It stimulates muscle movement in the intestines. Take with a full glass of water. Follow the instructions on the packaging for dosing.

- **Never** use bulk forming laxatives such as Metamucil® for constipation caused by opioids. The bowel wall is sensitive to stretch. Normally, bulk in the diet stimulates the bowel and it undergoes a wave or contraction along the bowel wall, pushing the contents onwards. Movement of the bowel wall is slowed by opioids and will not respond to bulk laxatives. Metamucil® causes bulk and may possibly cause a bowel blockage if you are taking opioids.
- A common cause of nausea and vomiting while taking opioids is constipation. **Prevent constipation, nausea, and vomiting by taking your laxative and/or stool softener regularly.** Speak with your doctor about which laxative and/or stool softener is right for you and your dosing schedule.

### ***When to call your doctor***

- You go **three** days without a stool.
- Your stool becomes difficult to pass, even with a stool softener or laxative.
- Your stool becomes watery or loose.
- You have severe cramps and/or abdominal pain.
- If you experience nausea and vomiting along with constipation.
- You notice a decrease in the usual amount of stool.

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## ***Hints to Help with Diarrhea***

The following information has been developed to help you to manage diarrhea.

### ***Why is diarrhea management important?***

Diarrhea is the frequent passage of soft or liquid stools. It can cause you to lose fluids with each bowel movement. This loss of fluids is called dehydration. It can also cause loss of important electrolytes such as sodium and potassium.

Signs that you may be dehydrated and need more fluids include:

- dry mouth
- dry skin
- feeling more thirsty than normal
- urine that is dark yellow in color
- less frequent urination than usual
- a weight loss of several pounds in just a day or two

### ***Hints to help:***

- Drink plenty of liquids throughout the day – at least ½ cup (4 oz.) every hour during the day. You should be drinking about 8-10 glasses of fluid a day unless told otherwise.
- Liquids at room temperature might be easier to tolerate.
- Eat small frequent meals.
- Drink and eat high-sodium foods, such as broths, soups, sports drinks, crackers, and pretzels.
  - Many sports drinks (like Gatorade®) can help replace electrolytes lost through diarrhea.
- Drink and eat high-potassium foods, such as fruit juices and nectars, potatoes and bananas.
- A good choice of foods to eat when you have diarrhea is called the **BRAT** diet.  
B= bananas R= rice A= applesauce T= toast
- Lying down may help reduce intestinal contractions that move food through the bowel.
- Do not drink fluids with a straw as this can increase gas. Let soda stand until the fizz has lessened to prevent gas and bloating.
- Do not eat greasy, fried, or spicy foods.
- Avoid high fiber foods such as nuts, raw fruits and vegetables, bread, and cereals and crackers made with whole grain and bran.
- Avoid alcoholic beverages and coffee as these can make diarrhea worse.
- Some people with diarrhea may begin to have trouble digesting milk. If this is a problem for you, try switching to milk and milk products that have the lactose removed. Lactaid® and Dairy-Ease® are examples of two of these products.
- Limit sugar-free gums and candies made with sorbitol, xylitol or mannitol. These can cause diarrhea, gas and bloating.

**Your doctor may prescribe an anti-diarrheal medication. Make sure you take it as directed.**

**Your anti-diarrheal medication**

**Name:** \_\_\_\_\_

**How often:** \_\_\_\_\_

**Dose:** \_\_\_\_\_

***Call your doctor if:***

- You have diarrhea that lasts more than 2 days.
- You have a fever of 100.5°F or above.
- Your abdomen becomes swollen.
- You notice blood in your stool.
- You lose 2 or more pounds in 1 to 2 days.

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## ***Hints to Help with Cancer Related Fatigue***

The following information has been developed to give you some hints on coping with your fatigue.

### ***What is cancer-related fatigue?***

Cancer-related fatigue is a feeling of tiredness, often much worse than the tiredness healthy people feel. It may not go away with sleep and can occur when you are not doing anything. It can appear suddenly and is often overwhelming.

### ***Symptoms of fatigue***

- Physical, emotional and/or mental exhaustion.
- Your body, especially your arms and legs, may feel heavy.
- You may have less of a desire to do normal activities, like eating or shopping.
- You may find it hard to concentrate or think clearly.
- Some words often used to describe fatigue include weakness, a lack of energy, sleepiness, drowsiness, confusion, impatience, worn-out, pooped, low energy with a strong desire to stop and rest or lie down and sleep.
- Some have described fatigue as ‘I don’t feel like myself’ or feeling drained after activities like cooking or bathing.

### ***Causes of fatigue***

- Fatigue is one of the most common symptoms for people with cancer.
- Treatments such as surgery, radiation therapy, chemotherapy and their side effects.
- Patients who have nausea and vomiting may not eat enough to keep up their energy levels.
- Anemia or low red blood cells, is a common side effect of cancer treatment that is known to cause fatigue. Your doctor will check your blood counts and may order treatment if the counts are low.
- Problems like sleep disruption, stress, not eating or drinking enough may make fatigue worse
- Emotional stress, coping with anxiety, conflict, sadness, traveling to and from treatments and even tension among loved ones require extra energy, which can add to the feeling of fatigue.
- Changes in your routine such as sleeping, eating, and working patterns may change and affect your level of energy.

### ***To help avoid or lessen fatigue***

Fatigue can vary among persons with cancer. Here are some tips to help you cope with fatigue:

- Plan rest breaks into your day. Take short naps or breaks, rather than one, long rest period. Don’t overdo it with rest and sleep. Too much rest can decrease your energy level.
- Eat as well as you can.
- Drink plenty of fluids.
- Pace yourself and stay as active as you can. Do regular light exercise such as short walks if possible.



- Try easier and shorter versions of activities you enjoy.
- Try less strenuous activities such as listening to music or reading.
- Keep a diary of how you feel each day. This can help you plan your daily activities.
- Share your feelings with others such as in a support group. This can help ease the burden of fatigue and can help you learn hints from talking about your situation.
- Save your energy for the most important things. Spread your activities throughout the day. Do not force yourself to do more than you can manage.
- Store items you will use a lot within easy reach and close by to reduce trips.
- Allow others to do some things that you usually do. Mowing the lawn, food shopping, helping with meals, and running errands are good examples.
- Become aware of what helps you to feel less tired and make those activities a priority for you.
- Use proper body mechanics. When sitting, use well-supporting chairs; adjust work heights when possible to avoid bending over; bend at hips and knees, not at back; and carry several smaller loads or use a cart.
- Limit overhead work by using long handled tools, storing items lower, and asking for help.
- Avoid extremes of temperature, smoke or noxious fumes, and long, hot showers or baths.
- Wear a terry cloth bathrobe to dry off after bathing instead of a towel.
- Learn techniques to help you relax.

### ***Call your doctor if you***

- Get dizzy
- Feel a loss of balance when walking, getting out of bed or up from a chair
- Fall or hurt yourself
- Have a problem waking up
- Have a problem catching your breath
- Have a sudden increase in fatigue
- Have been too tired to get out of bed for the past 24 hours
- Feel confused or cannot think clearly
- Feel your fatigue has worsened

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## ***Hair loss***

One potential side effect from chemotherapy is hair loss, also called alopecia. This can be distressing for both men and women. Here are some important points to remember:

- Not all chemotherapy causes hair loss.
- The amount can vary from just thinning to total hair loss.
- Hair loss can occur all over the body (scalp, eyelashes, eyebrows, pubic hair).
- It can happen suddenly or gradually.
- Your scalp may feel tender.
- It usually happens about 2-4 weeks after your first chemotherapy treatment.
- Your hair will grow back. It usually takes about 2-6 months once treatment stops. Your hair may initially grow back with a different texture or color.
- Some health insurances will cover the cost of a wig. Ask your doctor to write a prescription for “hair prosthesis.”

### ***Before hair loss occurs:***

- Discuss with your doctor or nurse your concerns about hair loss. You may want to speak with a social worker or attend a support group where you can discuss your feelings openly.
- Always wash your hair gently.
- You may want to cut your hair shorter.
- You may want to shave your head once the hair starts to fall out.
- You may want to buy a wig. If you do this while you still have your hair you can match it to your present hair color.

### ***Protect your head:***

- If you are out in the sun wear sunscreen or a hat.
- If you are out in the cold wear a hat or scarf.
- Keep a hat at your bedside in case your head gets cold at night.

It is not unusual to feel a sense of loss, or to feel distressed about losing your hair. These feelings are normal. Please do not hesitate to discuss these feelings or concerns with a member of your treatment team.

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## ***Low Blood Counts***

Your blood contains several different types of cells, each with a different job. Because all of these cells are made by your bone marrow, and because chemotherapy affects bone marrow, patients who receive chemotherapy are likely to have decreased blood counts at some point during their treatment.

### ***What types of blood cells do I have?***

You have three major types of blood cells. They are red blood cells, white blood cells, and platelets.

### ***What is each of their jobs?***

The main job of your **white blood cells** is to fight infection. When you have a low white blood cell count, you are at a higher risk for developing an infection.

The main job of your **red blood cells** is to carry oxygen to the tissues in your body. When you have a low red blood cell count, you are likely to experience fatigue.

The main job of your **platelets** is to help your blood clot. When you have a low platelet count, you will be at greater risk for bleeding.

### ***What should I do when I have low blood counts?***

When you are experiencing low blood counts, the precautions you need to take will depend on which blood count is low. Suggestions for things that you should do are listed below:

#### ***When your white blood cell count is low:***

- Practice good hand washing with soap and water or an alcohol-based hand rub. Wash your hands before eating and after using the toilet. If you have guests, ask them to wash their hands when they arrive.
- Stay away from people who are sick.
- Practice good personal hygiene by taking a daily sponge bath, tub bath, or shower.
- Brush your teeth gently twice a day.
- You may be asked to follow a special diet if your white blood cells are really low. If this is needed your nurse or doctor will tell you about it.
- Take your temperature at least twice a day. If you develop a fever of 100.5°F or higher **call your doctor right away.**
- Avoid crowds and construction sites.
- Avoid fresh cut flowers and gardening.
- Avoid changing baby diapers and cleaning up after pets.
- Avoid using over-the-counter pain or fever medications or enemas without first talking to your nurse or doctor.

***When your Platelet Count is Low:***

- Watch for signs of bleeding. This includes nosebleeds, blood in your urine, black bowel movements, tiny purplish spots on your skin, or easy bruising.
- Avoid strenuous exercise or activities with a high risk of getting hurt.
- Use an electric razor for shaving.
- Do not take aspirin or products that contain aspirin.
- Talk to your nurse or doctor before you use a stool softener.
- Wear gloves while working in the garden.
- Wear slippers or shoes when you get out of bed.
- Use a toothbrush with soft bristles.

***For Low Red Blood Cell Count:***

- Balance periods of activity with periods of rest.
- Eat a well-balanced diet.
- Move slowly from a sitting to a standing position to avoid becoming dizzy.

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## ***Mucositis***

Mucositis is a medical term used to describe inflammation and sores along the lining of the digestive tract from the lips to the anus. It is often a side effect of cancer treatment and can put you at risk for infection. The most common location for mucositis is the mouth, called oral mucositis.

Oral mucositis refers to inflammation and painful sores that occur in the mouth and throat. It interferes with your ability to eat, swallow, talk, or chew.

### ***Signs of mucositis***

Red and/or swollen mouth and gums

Sores in the mouth or on the gums and tongue

Pain in the mouth or throat

Difficulty swallowing or talking

Whitish patches in the mouth or on the tongue

Thick saliva in the mouth

### ***Hints to help with mucositis***

You may not be able to prevent mucositis, but you can help decrease it with a daily mouth care routine.

- Visit your dentist for a check-up before you start chemotherapy.
- Examine your mouth daily.
  - Open your mouth as far as you can and look at your tongue, your gums, the lining of your mouth and the back of your throat.
  - Look for redness, swelling, sores, bleeding and color changes (for example, white, gray, brown).
- Rinse your mouth (swish and spit) before and after meals and at bedtime with normal saline (salt water) or a non-alcohol mouthwash.
  - Do this four or more times every day.
  - Plain old salt water is the best and least expensive mouth rinse. It helps to remove food pieces and keeps your mouth moist and clean. Mix  $\frac{1}{4}$  teaspoon salt with one cup of water. You can also add  $\frac{1}{4}$  teaspoon baking soda to this mixture.
- Use a soft-bristle toothbrush. If the brush causes pain or bleeding, toothettes may be used. Rinse your toothbrush after each use with running water or a non-alcohol mouthwash for 30 seconds. Stand upright to dry. Replace your toothbrush regularly.
- While you are in the hospital, replace your toothbrush every week. Change your toothbrush 48 hours after chemotherapy completed.
- Use non-abrasive toothpaste. Use a pea-sized amount. Avoid toothpastes with whiteners.
- Keep your lips moist with a water-based moisturizer.
- If you normally floss, STOP when your platelets are below 50,000.
- Do not use lemon or glycerin swabs.

### ***Diet and mucositis***

- Drink mild, cool, or warm fluids as often as you can.
- Try to eat soft foods high in protein and vitamins.
- Avoid hot or spicy foods.
- Avoid acidic foods, such as, citrus fruits and tomatoes.
- Avoid alcohol and carbonated drinks.
- Avoid hard, sharp, or coarse foods (crusty bread, chips, and crackers).
- Do not smoke cigarettes, cigars or pipes. Do not use smokeless tobacco (chewing tobacco, snuff).

### ***If you have mouth sores***

- Eat popsicles and icy slushes, watermelon, canned pears or peaches.
- Stick with soft bland foods, such as, ice cream, cream soups, pudding, eggnog, milkshakes, eggs, or buttermilk.
- Puree food in a blender to make it easier to swallow.
- Ask your nurse or dietitian for a copy of “**Diet Guidelines for Sore Mouth and Throat**” for a more complete list of foods and suggestions.

### ***If you wear dentures***

- Remove your dentures after meals and at bedtime and clean them with a soft toothbrush.
- If your dentures are loose, they can hurt your mouth and gums and should not be worn.
- Stop wearing your dentures if mouth sores develop.

### ***Call your doctor if***

- Your mouth sores become painful and interfere with swallowing
- You cannot eat or drink because of pain
- White or yellow patches develop in your mouth
- Your temperature is 100.5°F or higher

**Please speak to your healthcare team if you have any questions or concerns about mucositis.**

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## ***Nail Changes during Chemotherapy***

Chemotherapy may cause changes to your fingernails and toenails. Some changes may be cosmetic. Other changes may lead to more serious problems such as infection. Fingernails are affected more than toenails. Most nail changes are temporary. Nails will usually get back to normal in about 6 months (but can take longer) after finishing treatment. Some of the most common nail changes during chemotherapy are:

- Horizontal or vertical lines, ridges or small indentations.
- Nails that may look bruised or discolored.
- Nails that lift off the nail bed. In rare cases some nails could fall off.
- Cuticles and surrounding skin may become dry, cracked, swollen, and red or inflamed looking.
- Nails and surrounding area becomes tender.
- The texture of the nails may change.

### ***To Avoid Infection:***

- Keep fingernails and toenails clean and trimmed.
- Avoid artificial nails and professional manicures.
- Do not cut cuticles. Massage cuticle cream into the nail to prevent drying, splitting, and hangnails.
- Do not bite your nails or pull or tear at cuticles or hang nails.
- Apply products such as Bag Balm<sup>®</sup>, Eucerin<sup>®</sup>, Udderly Smooth<sup>®</sup>, etc. around nails to moisturize them.
- Limit the time your hands are in water. Wear protective gloves for washing dishes, housekeeping, and gardening.
- Some doctors may recommend Vinegar soaks. If your doctor says it is okay soak the affected fingers or toes in a 1:1 solution of **white** vinegar and water for 15 minutes daily.
- Wear loose, comfortable shoes.

### ***When to Call?***

#### **With any break in skin there is the potential for infection.**

- Let your healthcare team know if you begin to experience any fingernail or toenail changes during chemotherapy.
- Between clinic visits, call with any signs or symptoms of nail infection, such as:
  - increased nail pain
  - redness or swelling (especially around the cuticle)
  - fever or chills
  - drainage of any kind from around your nails

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## ***Hints to Help with Nausea and Vomiting***

### ***What causes nausea and vomiting?***

Nausea and vomiting can be caused by certain medications, motion, anxiety, dehydration, certain odors, radiation, chemotherapy, or the cancer itself. Those people who have nausea and vomiting due to chemotherapy or radiation treatment will be glad to know there are a variety of ways to relieve these side effects through diet, medicines and relaxation methods.

### ***What can you eat if you are nauseated?***

- Take your prescribed anti-nausea medicine 30 to 60 minutes before you eat.
- If you have nausea and vomiting after your chemotherapy treatment, try taking your anti-nausea medicine the night before your treatment and keep taking it through the first 48 hours after treatment. Do this even if you do not feel nauseated.
- Try eating dry, salty foods like plain toast or crackers.
- Use a clear liquid diet to reduce the feeling of nausea. Liquids such as apple juice, cranberry juice, lemonade, fruitades, broth, Gatorade<sup>®</sup>, gingerale, 7-Up<sup>®</sup>, popsicles, gelatin, tea, or cola are usually well tolerated. Sip liquids slowly. If cold liquids or carbonation bothers you, drink at room temperature or when soda is flat (no fizz).
- Eat smaller portions of food that are low in fat since they are easiest to digest and move through the stomach faster. If you are eating smaller portions, be sure to eat more often to keep up with your calorie and protein needs.
- Avoid foods that are fried, fatty, or very spicy.
- Do not eat your favorite foods at times when you are likely to be nauseated or vomit. Patients often become “turned off” by some of their favorite foods if they eat them during periods of nausea and vomiting, such as right after chemotherapy.
- Do not lie flat for at least two hours after eating; however, it may be helpful to rest after eating. If you do, sit upright. When reclining, make sure your head is at least four inches higher than your feet. You may want to put four-inch blocks under the head of your bed.
- Sometimes loose clothing or fresh air can help. Take slow deep breaths and exhale slowly. Repeat two more times.
- Try sour foods such as lemons, sour pickles, sour hard candy, or lemon sherbet to relieve the feeling of nausea. Rinsing your mouth with a mixture of lemon juice and water may also be helpful.

### ***If the smell of food makes you nauseated:***

- Let someone else do the cooking. Sit in another room or take a walk while the food is being cooked.
- Do not prepare fried foods or strong smelling foods when nauseated. Fried or greasy foods seem to be the worst offenders along with cabbage, broccoli, and egg products.



- Use prepared foods from the freezer that can be warmed at a low temperature, or have a meal that doesn't need to be cooked.
- Eat foods at room temperature or cooler. Examples of cold temperature foods are chef salads, sandwiches, Carnation Instant Breakfast®, and yogurt with fruit.

***During periods of vomiting:***

1. Start with liquids first.
2. **If you are vomiting, do not try to eat.** Drink or sip cool liquids such as iced tea, water, tonic water, club soda, Sprite®, sports drinks, etc. It is important to drink to replace lost fluids.
3. Suck on popsicles, hard candies, suckers, candy sticks, or candy canes.
4. As you feel better try broth, Jell-O®, juices, sherbet, or fruit ice.

When liquids stay down, try dry toast, crackers, pretzels, hot cereal, or baked potatoes. If these foods do not cause problems, try milk on cereal, mild fruits and vegetables, custards and puddings. Gradually add foods, one at a time, to see which are the best tolerated.

***Call your doctor if:***

- You are unable to drink fluids.
- Your nausea lasts for more than 1 or 2 days, or it is not controlled by your anti-nausea medicines.
- You lose 2 or more pounds in 1 to 2 days.
- You have more than 3 episodes of vomiting in a 24 hour period.
- Your vomit looks like coffee grounds.
- You do not have the need to urinate as often as usual and your urine looks dark yellow.

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## **Neutropenia**

### ***What is Neutropenia?***

Due to treatment, such as, chemotherapy or radiation therapy, your white blood cell count may drop. White blood cells are fragile and at risk for dropping to low levels. This is called Neutropenia. This will interfere with the ability of your body to fight infection. **When you have a low white blood cell count, you are at a higher risk of developing an infection.**

### ***What can I do to protect myself?***

You must follow special precautions if your white blood cell counts drop to low levels. When your white blood cell count is low:

- **Practice good hand washing** with soap and water. Rub the entire surface of your hands together for 15 seconds being careful to include your fingers, nails, and palms. Rinse well under running water. Dry your hands with a clean towel.
- You may use an alcohol-based gel. Rub all surfaces of your hands together until dry.
- Wash your hands before eating and after using the toilet. If you have guests, ask them to wash their hands when they arrive.
- **Stay away from adults and children who are ill.**
- Practice good personal hygiene by taking a daily sponge bath, tub bath, or shower.
- Brush your teeth gently twice a day.
- Avoid crowds.
- Avoid construction sites.
- Wear a mask when out in public places. The Duckbill Surgical Mask is the best at protecting you from infection, but you can wear a standard surgical mask that can be purchased over-the-counter. Once your counts are no longer low, you do not need to wear a mask.

### ***How do I take my temperature?***

**Fever is usually the first sign of infection.** Please follow the guidelines below:

- Take your temperature at least twice a day.
- You should take your temperature in the morning when you awaken and in the evening between 4:00 p.m. and 8:00 p.m.
- Take your temperature at any time you feel feverish or develop shaking chills.
- Close your mouth as best you can so air does not “cool down” the results on the thermometer.
- Do not take your temperature after drinking liquids. Wait 30 minutes.
- A fever of 100.5°F or greater needs to be **reported immediately to your nurse or doctor.**

### ***When should I call my doctor?***

If you experience any of the following symptoms, call your nurse or doctor immediately:

- Fever of 100.5°F or greater.
- Shaking chills with or without a fever.
- Runny nose, flu-like symptoms, cough, or sore throat.
- Burning or pain when urinating (passing water).
- Any redness, tenderness, or drainage from wound, incision, IV site, or port site.
- Any warm, reddened, swollen, or painful area.
- Any new symptoms such as pain, diarrhea, nausea, or vomiting.
- Your physician will decide if you need to drive to the nearest Emergency Department or if you need to return to Moffitt for evaluation.

### ***Do I need to follow a special diet?***

When your white blood cell count is low, you will follow a special diet known as a **Neutropenic Diet**.

- Ask your nurse for a copy of Moffitt's patient education tool "*Diet Guidelines for Patients with Decreased Immunity.*"
- You may eat fresh fruits and vegetables as long as they are not bruised, aged or brown. They must be washed for 30-60 seconds under running water before preparing and eating them. This includes thick-skinned fruits that are peeled before eaten, like bananas and oranges.
- Wash hands and surfaces before all food preparation and eating.
- Separate uncooked foods, such as raw chicken, from cooked foods so that you do not contaminate.
- Cook all meat, fish, and poultry to correct temperatures.
- Store foods at proper temperatures.

***If you have further questions about a Neutropenic Diet, ask to speak to a dietitian to learn more.***

### ***References:***

Diet Guidelines for Patients with Decreased Immunity: Moffitt patient education tool

Hand washing: <http://www.cdc.gov/handwashing>

Neutropenia: <http://www.cdc.gov/cancer/preventinfections/pdf/neutropenia.pdf>

Duckbill Surgical Mask: search "Duckbill Surgical Mask" for multiple online resources for purchase

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## ***Chemotherapy Induced Peripheral Neuropathy***

***Chemotherapy Induced Peripheral Neuropathy*** is any injury, inflammation, or a loss of function of peripheral nerves (nerves that send messages to and from your brain) caused by chemotherapy. It affects the following nerves: motor nerves (control muscle) and sensory or autonomic nerves (control heart rate, body temperature, and breathing). Peripheral neuropathy can start with mild symptoms and may gradually get worse as treatment continues. It affects 30 to 40 per cent of patients undergoing chemotherapy.

### ***Signs and Symptoms***

Report the following signs and symptoms to your health care team as soon as you, or your caregiver, notice them:

- Change in sensation: feeling of heaviness, burning, pins and needles
- Increased sensitivity: touch or pressure may feel uncomfortable or painful
- Pain: mild or severe, may be a sharp or burning sensation
- Numbness: loss of feeling or sensitivity in the area
- Muscle weakness: muscles may lose strength if they are not being stimulated by a nerve
- Difficulty with balance or coordination
- Sensitivity to cold in the hands and feet (sometimes progressing to the arms and legs)

### ***Prevention and Treatment***

It is important to follow your prescribed treatment plan for prevention and treatment of chemotherapy induced peripheral neuropathy. Early recognition is important. There are different medications that can be used to treat this. Pain can often be helped with medication, but numbness may not respond to treatment. Please talk to your doctor to determine a treatment plan that is right for you.

### ***Intervention***

- Keep safe at home by removing throw rugs, clearing walkways of clutter, using skid free shower and bathroom mats, and using a cane or walker if your balance is unsteady.
- Inspect your feet daily for blisters or sores that could lead to infection and notify your health care team if you see any.
- Prevent injury to your hands and feet by using a thermometer to check the temperature of your shower or bath. It should be below 120° F.
- Dangle legs for a few minutes before getting out of bed to prevent dizziness.
- Be sure to drink plenty of fluids and include fiber in your diet.
- Remember, early recognition and reporting of signs and symptoms of peripheral neuropathy may prevent your symptoms from getting worse.

**If you have any questions or concerns, please contact a member of your healthcare team.**

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## ***Hints to Help with Poor Appetite***

Losing your appetite or your desire to eat is a common side effect of cancer and cancer therapy. Poor nutrition can contribute to weight loss, weakness, and fatigue. Eating well during your cancer treatment and recovery is an important part of taking care of you. The following tips may help you:

### ***Timing:***

- Eat five or six small meals and snacks each day, instead of three larger meals. Try to eat a little something every 2 to 3 hours, even if you do not feel hungry.
- Eat more when you feel hungry. Many people have the best appetite in the morning. If this is the best meal for you, then eat a high calorie breakfast.
- Eat breakfast-type foods at any meal. Eggs, pancakes, and cereal are easy to eat and are great any time of the day.
- Eat leftovers or nutritious snacks in the afternoon and early evening to round off your day.
- Plan ahead. Ask family and friends to help you with cooking and shopping. Make a list and stock your kitchen with easy-to-eat and favorite foods.

### ***Set the Mood:***

Make eating more enjoyable by setting the table with pretty dishes and flowers. It might help to play your favorite music or watch television while eating. Eating with friends and family can sometimes increase the amount of food eaten at that meal.

Choose a variety of foods at each meal. Different textures, bright or contrasting colors, and any bold flavors (herbs, spices, and sauces) can stimulate your appetite and increase the appeal of your meals.

### ***What to Choose?***

- Try to choose foods that have the most calories and protein in a small portion. See the list on the following pages.
- Liquid nutritional supplements, such as Boost Plus<sup>®</sup> or Ensure Plus<sup>®</sup> provide a nutritious snack and can be taken along when away from home.
- Try milkshakes, floats, or smoothies for an energy-dense option that is easy to drink.
- Some shakes have 430 calories in just 12 ounces. Ask to receive the *Moffitt Milkshake Recipes* for more ideas.
- Avoid low calorie beverages such as, tea, water, and “zero-calorie” diet drinks.
- Avoid high-volume, low calorie foods such as, raw fruits and vegetables.

### ***Other Ideas:***

- Physical activity can help increase your appetite. With your doctor’s permission and guidance, be as physically active as possible.
- Symptoms such as constipation, nausea, or pain may decrease your appetite. Your doctor can help with medication management to help relieve symptoms you may be experiencing.
- Appetite stimulants are sometimes useful for helping improve food intake. Ask your doctor if you could benefit from an appetite stimulant.

<b>High Protein Foods</b>	
Milk Products	Try cheese on toast or with crackers. Add grated cheddar cheese or sour cream to baked potatoes, vegetables, soups, noodles, meat, and fruit. Use milk for cooking in place of water for cereal and cream soups. Include cream sauces on vegetables and pasta. Add powdered milk to cream soups, cereals, and mashed potatoes. Add yogurt or cottage cheese to favorite fruits or blended smoothies.
Eggs	Keep hard-cooked eggs in the refrigerator. Chop and add to salads, casseroles, soups and vegetables, or make a quick egg salad. All eggs should be well cooked to avoid the risk of harmful bacteria.
Meat, poultry and fish	Add leftover cooked meats, poultry, or fish to soups, casseroles, salads and omelets. Make dip by mixing diced or shredded meat or poultry with sour cream and spices.
Beans, legumes, nuts and seeds	Sprinkle nuts on desserts such as fruit, ice cream, pudding and custard. Also serve on vegetables, salads and pasta. Spread peanut butter on toast or fruit. Blend peanut butter in a smoothie or shake. Add cooked beans, lentils, or peas to soups, casseroles, salads, or vegetable dishes.
<b>High Calorie Foods</b>	
Butter and margarine	Stir melted butter or margarine into soups, hot cereals and casseroles. Melt over potatoes, rice, pasta, and cooked vegetables. Spread on bread for sandwiches before spreading sandwich condiments, fillings or peanut butter.
Milk products	Add whipping cream or half-and-half to desserts, pancakes, waffles, fruit and hot chocolate or fold into soups and casseroles. Add sour cream to baked potatoes and vegetables.
Salad dressings	Use regular, not low-fat or diet, mayonnaise and salad dressing on sandwiches and in dips with vegetables and fruit.
Sweets	Spread jam, jelly and honey on bread products and crackers. Add to fruit and ice cream and as a topping over cake. Drink fruit nectars and juices.

Content written by Nutrition Department. Produced by the Patient Education Department.

Reviewed by Patient & Family Advisors.

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