

Chemotherapy

Information for Patients and Families

*You Are an
Involved Partner
in Your Care*

It is normal to have questions, concerns, and mixed feelings about receiving chemotherapy. Understanding your treatment may lessen your anxiety and help you resolve your concerns.



UPMC
Cancer Centers

*If you have questions or concerns, call your doctor,
nurse, or other health care team member.*

DOCTOR: _____ **Phone:** _____

NURSE: _____ **Phone:** _____

OTHER: _____ **Phone:** _____

OTHER: _____ **Phone:** _____

OTHER: _____ **Phone:** _____

This booklet is about

CHEMOTHERAPY, *a cancer treatment.*

It is normal to have questions, concerns, and mixed feelings about receiving chemotherapy. Understanding your treatment may lessen your anxiety and help you resolve your concerns. Accurate information also can help you prepare for chemotherapy and may prevent or decrease some of its side effects. This booklet is meant to reinforce and add to, not replace, information provided by your doctors and nurses.

Your health care team may include doctors, nurses, social workers, pharmacists, psychologists, dietitians, clerks, laboratory personnel, and your loved ones. You, however, are the most important member of your health care team, and we invite you to be an involved partner in your treatment. We will work together to care for you and to give you the information you need.

Please read this booklet and share it with your family and friends. Your questions and concerns are important, so please discuss them with your doctor or nurse. Write your questions on page 25 of this booklet, and refer to them when you meet with your doctor or nurse. Also tell your doctor and nurse about any vitamins, over-the-counter medications, food supplements, and other alternative or complementary therapies that you are using to maintain health and/or treat your illness.

Some parts of this booklet may be more important to you than others. Your nurse can help you find the sections that best apply to your treatment.

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An **OVERVIEW**

What is chemotherapy?

Chemotherapy is the use of drugs or chemicals to treat an illness or disease. Most people associate chemotherapy with the treatment of cancer.

Many drugs are used to treat cancer. Not all cancers are treated with the same drugs or in the same way.

Research has helped determine the most effective drugs for different kinds of cancers. You may receive one drug or a combination of drugs. You may receive chemotherapy in addition to other treatments, such as surgery, radiation therapy, or biological therapy.

How does chemotherapy work?

Our bodies are made up of billions of cells, each with a special function. Some cells make up organs in the body, such as the heart, lungs, and kidneys. Other cells perform specific functions, such as fighting an infection or carrying oxygen to your tissues. In a healthy

body, these normal cells work together. However, normal cells sometimes change into abnormal, or cancer, cells. Cancer cells do not work properly to help the body. They grow out of control and harm or crowd normal cells. Cancer cells also can break away and travel to other parts of the body. When cancer cells move to other parts of the body, they are called metastatic cancer cells. Chemotherapy can be prescribed to help treat metastatic cancer or to try to prevent your cancer from metastasizing.

Chemotherapy destroys cells. It works best against fast-growing cells. Since cancer cells often grow faster than normal cells, chemotherapy targets them especially. When chemotherapy drugs go into the bloodstream, the blood carries the drugs to cancer cells throughout the body.



How is chemotherapy given?

Chemotherapy can be given in different ways:

- by mouth (orally)
- by shot (injection) into muscle or soft tissue
- by injection into a vein or artery
- by injection into a body space, such as the abdomen or space around the lungs
- by application directly onto the skin

Your doctor or nurse can explain how you will receive your chemotherapy.

Who gives chemotherapy?

Your doctor, usually a cancer specialist (called an oncologist or hematologist), will determine your treatment plan. An oncology nurse or, in some cases, your doctor will give you the chemotherapy drugs.



Where will I receive chemotherapy?

You may receive chemotherapy in a hospital, ambulatory care center, doctor's office, or at home. Where you receive chemotherapy depends on your treatment plan. Your doctor and nurse will explain where you will receive your chemotherapy.

How long will I receive chemotherapy?

The length of your chemotherapy treatment plan will depend on what kind of cancer you have and how it responds to the chemotherapy. In most cases, your doctor can give you a general idea of the planned length of treatment. This time period could change during treatment.

How long will each chemotherapy treatment last?

The length of each treatment depends on the drugs used and the specific type of treatment. The time also depends on whether you need blood drawn or other tests performed before your treatment. Your nurse can tell you how long your treatment sessions are expected to last.

Does chemotherapy cause side effects?

Chemotherapy drugs affect both normal cells and cancer cells. Although chemotherapy targets fast-growing cancer cells, it also can damage or destroy normal cells. This effect on normal cells can cause side effects. However, most normal cells can repair or replace themselves over time.

Not all chemotherapy drugs produce side effects, and side effects vary depending on the treatment used and the person receiving it. People receiving similar treatments can experience different side effects.

It is important that you know what side effects your treatment might cause. Side effects often can be prevented or decreased. This booklet describes the side effects common to many chemotherapy drugs. Your doctor or nurse will discuss the side effects of your treatment. Most of the common side effects that you can expect will be listed on the consent form. Your nurse can mark the side effects that may occur with your treatment on the table of contents at the beginning of this booklet.

Eating

It is important that you eat well during chemotherapy. Your body works best with the treatment when you follow a nutritious diet. Good eating also may decrease certain side effects.

A healthy, balanced diet helps keep you well nourished. Your doctor, nurse, and dietitian can help you develop a healthy diet plan. Many recipe booklets also are available. Your doctor or nurse will tell you about any foods you should avoid.



It is very important to drink more fluids in general and especially after certain chemotherapy treatments. If your doctor has limited your total fluid intake because of another condition, ask your doctor or nurse how much and which fluids are best for you. Water, juice, soups, ice cream, ice pops, soda, coffee, tea, milk, and gelatin are examples of fluids. If your fluids are not restricted, try to drink at least six 8-ounce glasses of fluids a day. It may be easier to sip fluids frequently throughout the day than to drink full glasses at one time. It is especially important to drink extra fluids if you cannot eat solid foods. In this case, try including milk, nutritional supplements (such as Ensure[®], Resource[®], Boost[®]), instant breakfast drinks, and fruit juices.

Activity

Your treatment and its side effects may affect your work or recreational activities. Some people notice very little change, while others experience significant temporary or permanent changes. Many people can continue their jobs with little or no change during chemotherapy. However, if necessary, try to adjust your work schedule or adapt your job to your treatment. Everyone's experience with chemotherapy is different.

Your roles at home may change. You and your family may need to be flexible as each member takes on different responsibilities. These changes can be difficult and stressful. Families often find professional support or counseling helpful. Let your doctor or nurse know how you and your family are coping.

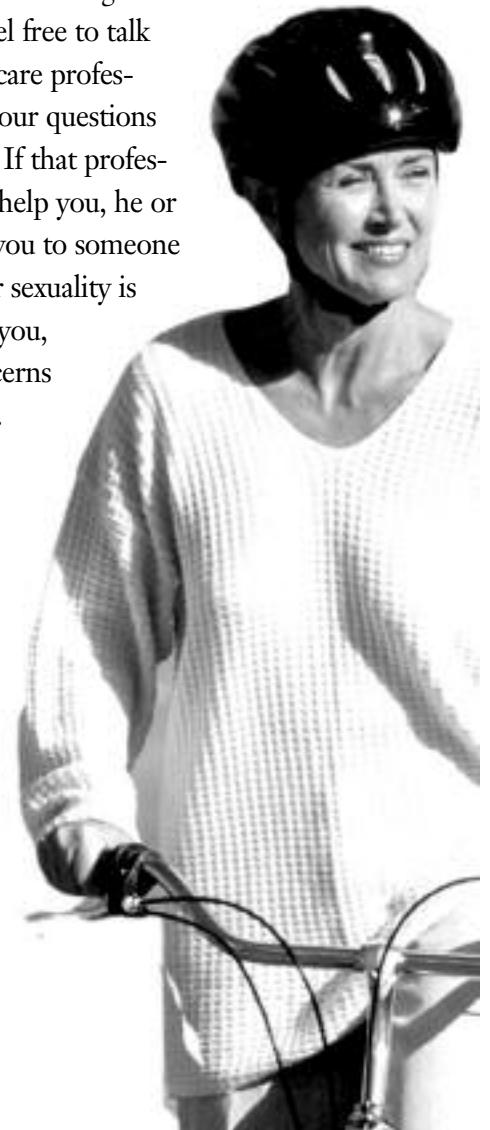
Exercise and recreation can be helpful during your treatment. Keeping physically active helps your body work with your treatment. Exercise reduces stress and can improve your emotional and mental state. If you feel tired, do gentle muscle stretches or movements. When you feel stronger, you can gradually increase your physical activity. Walk, swim, golf, and bike — do whatever you enjoy. Remember to pace yourself so that you do not become exhausted.

Alcohol use

Alcohol may irritate the gastrointestinal tract, cause dehydration, and decrease your ability to care for yourself. In addition, alcohol use may affect liver function. You should avoid drinking alcohol unless approved by your doctor.

Sexuality

Changes in your body and emotions may be related to your cancer treatment and can affect your sexuality. You may see yourself differently or act differently sexually. You may have concerns about how your sexual partner may react to you. These feelings are common among people receiving cancer treatment. Feel free to talk with a health care professional about your questions and concerns. If that professional cannot help you, he or she can refer you to someone who can. Your sexuality is a vital part of you, and your concerns are important.



Sleeping and relaxing

You may experience increased fatigue and problems sleeping and relaxing as a result of your treatment, the stress of having cancer, or a combination of factors. Your body needs sleep to repair itself and to be in the best condition to work with your treatment. These suggestions may help:

- Go to bed and wake up at fairly regular times. Do not take long daytime naps if they interfere with nighttime sleep.
- Establish a bedtime/naptime routine (reading, listening to quiet music, and taking a bath) that will calm you.
- Avoid caffeine (found in coffee, tea, cola, and chocolate) after 5 p.m.
- Tell your doctor or nurse when you cannot sleep.

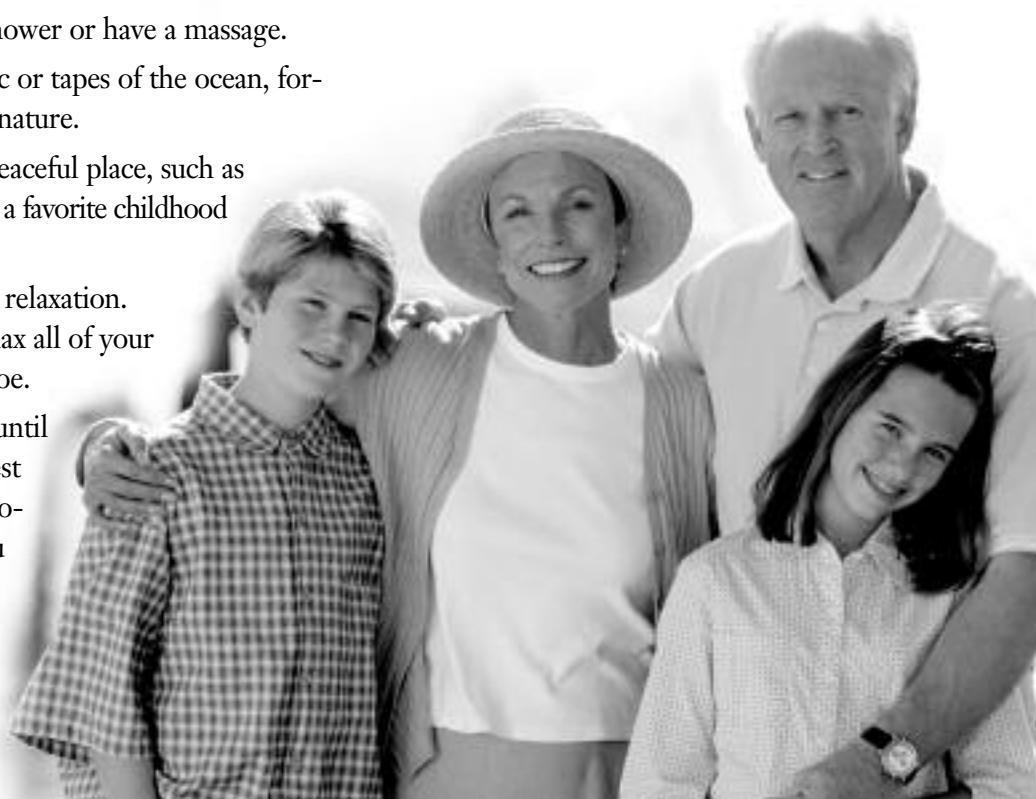
Relaxation is an important way to rest your mind and body. Learning to relax can help you sleep better. It can improve your mental outlook and help you cope with cancer and treatment. Try the following methods to help you relax:

- Take a warm bath or shower or have a massage.
- Listen to calming music or tapes of the ocean, forest, or other sounds of nature.
- Imagine yourself in a peaceful place, such as a vacation spot, or relive a favorite childhood memory.
- Try progressive muscle relaxation. Gradually tense and relax all of your muscles from head to toe.
- Try different methods until you find what works best for you. Health care professionals can teach you muscle relaxation and mental imagery techniques and can suggest relaxing tapes.

With any activity — at work, at home, or at play — set priorities. Do what is most important to you when you have the most energy. Focus on what you still can do rather than what you cannot do. This attitude may encourage you and help you adapt your lifestyle as needed.

To family and friends. Remember that chemotherapy brings changes to your loved one's life. These changes may directly affect you.

- Avoid nagging about food. Instead, offer small portions of favorite foods and assist with food preparation.
- Allow for rest and relaxation.
- When your loved one feels well, join him or her in exercise or recreation.
- Do not be afraid to touch your loved one. Your actions say a lot.
- Do enjoyable activities together. Encourage activities that take thoughts away from cancer and chemotherapy.



Bone marrow depression

Bone marrow is the soft core of tissue in your large bones. Your bone marrow normally makes three types of blood cells: red blood cells (RBCs), which carry oxygen throughout your body; white blood cells (WBCs or leukocytes), which fight infection and are part of your immune system; and platelets, which help your blood to clot to stop bleeding.

Many chemotherapy drugs decrease the bone marrow's ability to make blood cells. When your body does not make enough new blood cells, your blood counts (the number of cells in your blood) become lower than usual. This drop in your blood counts is called "bone marrow depression."

You will have blood drawn to measure your red blood cell, white blood cell, and platelet counts. You may have blood tests taken before receiving chemotherapy or at other times during therapy.

Depending on which drugs are used in your chemotherapy, you may experience bone marrow depression between your chemotherapy treatments. When your blood cell counts are low, you may feel more tired than usual, and you may be more prone to infection and/or bleeding.

How long the bone marrow depression will last also depends on which drugs are used. For example, some drugs cause blood cell counts to decrease seven to 14 days after the drugs are given and to stay low for one to two weeks. Your doctor or nurse can tell you when to expect your blood counts to change. Blood counts usually return to normal before the next treatment. There are some drugs available that your doctor may prescribe to help maintain or restore blood counts. However, these drugs are not appropriate for all patients. Be sure to discuss your questions and concerns with your doctor.

Bone marrow depression usually cannot be prevented. However, you can take action to prevent or lessen problems caused by low blood cell counts. These problems may include infection, bleeding, and fatigue.



Infection

When your white blood cell counts decrease, your chance of developing an infection increases. To avoid infection, take the following precautions.

- Wash your hands before eating or brushing your teeth. Always wash your hands after using the bathroom.
- Avoid close contact with people who have a cold, the flu, cold sores, or other infections. In most cases, you may still go shopping, to movies or sporting events, and other public places.
- Follow your doctor's advice about when to have a flu shot. You should avoid babies, children, or adults who have received live vaccinations within six to eight weeks. Live vaccinations include chicken pox, measles, mumps, rubella, and smallpox. Less common vaccinations needed for foreign travel should be discussed with your oncologist. You are at high risk for contracting the virus if exposed to even a small amount of live vaccine. In many cases, scheduled vaccines can be postponed. If this is not possible, we will help you make alternative plans to avoid exposure.
- Clean your mouth after every meal and at bedtime. Brush your teeth with a soft bristle toothbrush. Look for sores or white patches in your mouth or on your lips, and tell your doctor or nurse if you find any changes.
- Wear dentures that fit properly. Dentures that fit poorly may irritate your mouth.
- Women should avoid douching, which may irritate the skin and the genital area.
- Do not use enemas unless the doctor says you may.
- After each bowel movement, clean the rectal area gently but thoroughly. (Women always should wipe from front to back.) If irritation occurs or if hemorrhoids are a problem, ask your doctor or nurse for advice.
- Do not clean birdcages, cat litter boxes, or fish tanks. Ask your doctor or nurse if you should limit close contact with pets or other animals.
- Ask your doctor or nurse if you need to avoid gardening when your blood counts are low.
- Eat foods high in protein and vitamin C. If you are losing weight, increase your calorie intake.
- Cook all foods thoroughly, especially meat, fish, and eggs.
- Avoid cutting or burning yourself.
- Use oven mitts when handling hot pots and pans.
- Wear gloves while working in the garden or doing the dishes.
- Always wear shoes.
- Moisturize your skin with skin creams such as lanolin.
- Soften cuticles with hand lotion instead of cutting them.

- Keep your fingernails and toenails clean.
- Do not squeeze or scratch pimples or blemishes.
- Use an electric shaver instead of a razor.
- If you cut or scrape your skin, wash the area with soap and water. Cover the area with a clean bandage if needed and change the bandage daily until the area heals. Tell your doctor or nurse if redness develops.

Depending on your type of treatment, your blood counts may decrease at a different rate than other cancer patients with whom you may talk. If your blood counts are expected to decrease more quickly or more slowly, you will receive additional instructions about diet, medications, and activity.

Detecting and managing infection. Many infections that develop in people who have low white blood cell counts are caused by bacteria normally found on or in their bodies. If not treated, some infections can become very serious. The earlier an infection is found and treated, the less likely it will develop into a serious problem.

A fever is often the first and only sign of infection. It may occur with or without chills. Take your temperature as advised by your doctor or nurse and whenever you do not feel well. Your doctor or nurse should tell you what fever to report. If you have a fever or chills, call your doctor or nurse immediately — even if it is in the middle of the night. Always call immediately if your temperature reaches 100.5 F (38 C) or higher (or as instructed by your doctor).

Do not take Tylenol®, aspirin, ibuprofen, or any other over-the-counter medications without your doctor's advice. These medicines can hide important signs of infection.

If you have any of the symptoms of infection listed to the right, or if you experience a change in any other medical condition, take your temperature. Keep yourself warm and drink plenty of fluids. Call your doctor or nurse or go to your local emergency room immediately.

Symptoms of infection include:

- fever (temperature above normal; especially if 100.5 F [38 C] or higher)
- chills
- shortness of breath or difficulty breathing
- chest pain or tightness
- stiff neck or pain in the neck when moving
- sore throat or other cold symptoms lasting more than 48 hours
- a new cough or a change in an old cough
- unusual weakness, fatigue, or dizziness
- tenderness, ulcers, or white patches in your mouth
- nausea and vomiting lasting more than 12 hours
- diarrhea
- rectal tenderness or discharge
- vaginal tenderness or discharge
- difficulty urinating
- abdominal pain
- any new or unusual pain
- red, swollen, or tender areas of skin (pus may not form if your white blood cell count is low)

Call immediately if your temperature reaches 100.5 F or 38 C



Bleeding

When your platelet count is low, you may notice that you bruise more easily than usual. You also may develop small red dots (called “petechiae”) under your skin that may look like a rash. Petechiae are a possible side effect of chemotherapy, and you should tell your doctor or nurse if they occur.

When your platelet count is low, it is very important that you prevent minor cuts and injuries. Look at your surroundings and remove anything that blocks your way or that you could trip over, such as throw rugs. You also should take the following precautions:

- Use non-skid slippers and shoes.
- Avoid contact sports and other activities that might result in injury.
- Wear heavy gloves when digging in the garden or working near plants with thorns.
- Be very careful when using knives or tools.
- Be very careful not to burn yourself, especially when ironing or cooking. Use a pad or gloves to handle hot pots and pans.
- Use a soft toothbrush. Check with your nurse or doctor before using dental floss.
- If you must blow your nose, blow one nostril at a time very gently, keeping your mouth open.
- Use an electric shaver instead of a razor.
- Do not take aspirin or products that contain aspirin unless your doctor says you may. Your pharmacist can tell you which products contain aspirin.
- After needles are used to take blood samples or to give medicine, press a piece of gauze or cotton firmly over the injection site for at least five minutes.

Detecting and managing bleeding. Your nurse or doctor can tell you when your platelet count will be low.

During this time, contact your doctor if you notice any of the following signs and symptoms of bleeding:

- red spots under the skin (petechiae)
- bleeding gums
- easy bruising
- headaches
- vision changes
- uncontrolled nosebleeds
- bright red blood in urine or stool
- dark, tar-like stool
- abdominal pain or swelling
- unusual bleeding anywhere else in your body

If you cut yourself, press a clean bandage, gauze, or cloth directly on the area until the bleeding stops. If you have a nosebleed, apply pressure to your nose and place an ice pack on the back of your neck until the bleeding stops. Call your doctor if the bleeding continues for more than 30 minutes.

Anemia

When your red blood cell count is low, your body tissues may not get enough oxygen to work properly. This condition is called anemia, and its major symptom is extreme fatigue. Other signs of anemia include:

- dizziness
- shortness of breath
- headaches
- ringing in the ears
- chest pain
- fast heartbeats (palpitations)

Report these symptoms to your nurse or doctor. In managing anemia, the goal is to save energy. Ways to save energy are discussed in the section on fatigue beginning on Pages 17 and 18 of this booklet.

Effects on the digestive system

As chemotherapy destroys the cancer cells, it also may affect other cells and tissues in your body. The tissues in your digestive tract, which includes the mouth, esophagus (food pipe), stomach, and small and large intestines, may be affected. During and following chemotherapy, you may notice mouth sores, a sore throat, a change in your appetite, different tastes or smells, or a feeling of nausea. You also may have some vomiting, diarrhea, or constipation. What you experience will depend on the type and amount of chemotherapy you receive. Your doctors and nurses will do what is possible to limit these effects. They will try to make you as comfortable as possible during and after treatments. Most of these effects will disappear after you complete your chemotherapy.

It is important to know how to work around these side effects and still be able to eat. Try to eat well while you are receiving chemotherapy. Food helps maintain your strength and helps your body cope with the therapy.

Loss of appetite

Many people with cancer lose their appetite. Feeling full after eating small amounts and losing interest in food are common. Weight loss often is thought to be normal among people with cancer, but it does not need to happen. Eating more foods that appeal to you and getting the most out of what you eat is important. Here are some ideas that other people have tried and found helpful.

- Eat small meals more often.
- Keep high-calorie, high-protein snacks available. Snacks like cheese, peanut butter, hard-boiled eggs, and yogurt provide plenty of calories and protein.
- Avoid fried foods, heavy gravies, or rich sauces.
- Between meals, drink nutritious liquids, such as juices, milk shakes, instant breakfast drinks, and hot chocolate, rather than water, coffee, or tea.
- Take a short walk before meals. Exercising may increase your appetite.
- Add extra margarine, mayonnaise, or whipped cream to food. Each tablespoon adds an extra 50 to 140 calories.
- Make mealtime a treat — set a nice table and eat with family or friends.
- Try to drink this high-calorie milk shake between meals or before bedtime (see next page).



MILK SHAKE

8 ounces (1 cup) whole milk

1 package of Carnation Instant Breakfast®

1 1/2 cups of ice cream

Pour the milk and instant breakfast mix into a blender. Mix with a spoon to dissolve the powder. Add ice cream. Blend.

Pour into a large cup.

Weight gain

Some people have a larger appetite and gain weight while they receive chemotherapy. Some drugs, like steroids or other hormones, produce this change. Do not try to lose weight during treatment, but do try to keep your weight stable.

If you notice a gradual increase in your weight and a larger-than-normal appetite, these ideas may help you stabilize your weight:

- Snack on fresh fruit and vegetables.
- Use low-fat or skim milk and low-fat dairy products.
- Cut down on margarine and butter.
- Avoid fried foods or foods with heavy cream or cheese sauces.
- Include some activity, such as walking, in your daily schedule.
- Have a glass of water before meals.
- To help avoid a second helping, serve yourself a portion of food and put leftovers away before you eat.

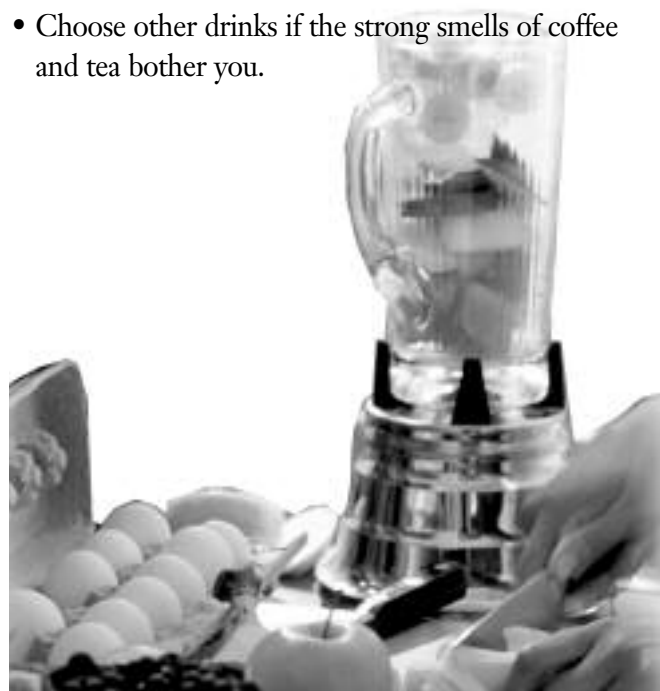
Although gradual weight gain may be expected, call your doctor if your weight increases unexpectedly or if you notice swelling.

Changes in taste and smell

People who receive certain chemotherapy drugs sometimes notice a bitter, metallic taste in their mouths. Foods that once tasted good may taste different or have no taste at all. Some people say that smells become

much stronger, even overpowering. The smell of food may decrease your appetite. The following ideas may help food taste better and improve your appetite:

- Soak red meats in wine, marinade, soy sauce, or fruit juice before cooking. These liquids will decrease the bitter aftertaste left by the meat.
- Instead of red meat, eat more chicken, turkey, eggs, custards, milk shakes, and cheese dishes.
- Eat more foods that are at room temperature or that are cold, like sandwiches, salads, and cheese. Cold decreases strange or bothersome smells.
- Try using different spices and seasonings to improve the taste of food. Try basil, tarragon, mint, or rosemary.
- Suck on hard candies, drink more liquids, or eat fruits between meals to remove unpleasant tastes from your mouth.
- Take good care of your mouth. Ask your nurse about mouth care.
- If you take nutritional supplements, try mixing them with fruit or juice to improve their taste. Drink them with a straw if the smell bothers you.
- Let someone else cook for you. Stay out of the kitchen when food is being cooked.
- Choose other drinks if the strong smells of coffee and tea bother you.



Sore mouth and throat

During chemotherapy, your mouth or throat may feel raw and become sore or very dry. You may notice red areas, white patches, or sores in your mouth or throat. The following suggestions may help decrease the pain and help you continue to eat well:

- Eat soft foods. Casseroles, soups, and soufflés are easy to swallow. Make foods easier to swallow by adding gravies or sauces or using extra mayonnaise, syrups, or cream.
- Avoid spicy, heavily seasoned, or citrus foods. These foods may irritate your mouth or throat.
- Try more foods that are cold or at room temperature. They may feel better on a sore mouth or throat.
- If your mouth is dry, chew sugar-free gum or suck on hard candy or ice chips.
- Tell your doctor or nurse about white patches in your mouth.
- Tell your doctor or nurse about sore areas in your mouth, and ask about a pain reliever.
- Take care of your mouth. Ask your nurse for mouth care instructions.

Nausea and vomiting

Some chemotherapy drugs can cause nausea or an upset stomach. You may feel a sense of uneasiness in your stomach or in the back of your throat, which can be followed by vomiting. You also may feel weak. There are many ways you and your doctor or nurse can lessen or control these symptoms. Your doctor may prescribe medication for your nausea, and you should tell your doctor or nurse about the things you do to decrease your nausea. Take note of any patterns you notice about your nausea. It is helpful if you can answer these questions for your doctor or nurse:

- When did the nausea and/or vomiting start?
- What made it worse?
- What made it better?
- How long did it last?

Some people have found the following suggestions to be helpful in decreasing nausea and vomiting:

- Eat small, frequent meals instead of three large meals a day.
- Eat bland foods such as toast, crackers, ginger ale, and applesauce.
- Choose foods and drinks that are at room temperature.
- Sip liquids throughout the day instead of drinking large amounts at one time.
- Before your treatment, eat foods that are easy to digest. Some people are more comfortable when they do not eat before treatment.
- If cooking smells cause nausea, have someone cook for you, arrange for Meals on Wheels, or buy prepared frozen meals.
- Breathe through your mouth, and try to slow down your breathing if you begin to feel nauseous.
- Avoid acidic, spicy, or sweet foods that do not appeal to you.
- Avoid alcoholic beverages.
- Avoid unpleasant odors.
- Wear a ReliefBand® as prescribed by your doctor.

Diarrhea

Some chemotherapy drugs may cause diarrhea. Diarrhea also can result from other factors related to the treatment, such as stress, nutritional supplements, or abdominal radiation therapy. People have found the following suggestions helpful in reducing diarrhea:

- Eat low-fiber foods that are high in protein and calories. Examples of these foods are apples without peels, applesauce, avocados, bananas, white bread, crackers, cottage cheese, eggs, pasta (macaroni, spaghetti, and noodles), potatoes (baked, boiled, or mashed), cooked cereal (Cream of Wheat®), meat (roasted, baked, or broiled beef, fish, or chicken), milk (low-fat), pudding or custard, rice, and cooked vegetables (especially asparagus, beets, carrots, peas, squash, beans, and spinach).

- Drink six to eight cups of fluid each day unless your doctor or nurse tells you not to.
- Add a small amount of nutmeg to foods to slow down the movement of your digestive system.
- If you have severe diarrhea, switch to a liquid diet including beverages such as Gatorade®, ginger ale, and lemon-lime drinks (avoid milk products or use Lactaid® milk).
- Eat foods rich in potassium. Diarrhea causes the body to lose potassium. Foods rich in potassium include avocados, peaches, bananas, potatoes, and oranges.
- Avoid foods that can irritate your digestive tract or lead to cramping. These include alcoholic beverages, beverages and foods that contain caffeine (coffee, chocolate, tea, and some soft drinks), whole-grain breads and cereals, fresh and dried fruits, fried foods, gas-forming foods (broccoli, cabbage, and onions), nuts and seeds, popcorn, raw vegetables, and spices such as garlic, curry, pepper, and chili powder.
- Avoid extremely cold or hot foods. They can increase diarrhea.
- Report severe diarrhea to your doctor or nurse.

Constipation

Some chemotherapy drugs can cause constipation. Other drugs, such as antidepressants, muscle relaxants, and narcotics, also can cause constipation. The following suggestions may help prevent or relieve constipation:

- Eat foods high in fiber. Fiber causes food to pass through your digestive tract faster and helps regulate your bowels. High-fiber foods include bran, fresh or dried fruit, fruit juices, and raw vegetables.
- Drink extra fluids when eating high-fiber foods.
- Try fiber supplements (Metamucil®).
- Drink hot beverages.
- Establish a regular schedule for meals.
- Try activities such as walking to promote a bowel movement.
- Go to the bathroom as soon as you have the urge to have a bowel movement.
- Ask your doctor or nurse about the use of laxatives or stool softeners.

Fatigue and weakness

You may feel more tired than usual during your chemotherapy. Fatigue can have many causes. Cancer treatment, loss of appetite, lack of exercise, and the cancer itself are all possible causes of fatigue. The fatigue experienced by a person with cancer is different from fatigue of everyday life. Cancer treatment-related fatigue can appear suddenly. It can be overwhelming. It may not always be relieved by rest. It can last after treatment is completed. Cancer treatment-related fatigue can affect many aspects of a person's life. It may affect an individual's mood or emotions. It may also affect a person's ability to do usual activities. Fatigue can make it hard to concentrate. The following suggestions may help you feel less tired:





- Eat a balanced diet that includes foods with protein, iron, and vitamins. If you are losing weight, eat foods high in calories.
- Maintain your normal lifestyle as much as possible, but learn to pace your activities.
- Rest and relax when you feel tired.
- Do what is most important to you when you have energy. Do not use your energy for unimportant activities.
- Let others help, especially with routine household tasks.
- Develop a consistent sleep pattern.
- Drink six to eight cups of fluid a day to help rid your body of waste products, unless your doctor or nurse tells you not to.
- Ask your doctor if you should take iron pills, vitamins, or supplements.

To family and friends. Offer encouragement without pushing or pampering. Try to maintain a balance.

- When your loved one feels well, encourage normal activities.
- When your loved one is tired, remind him or her that fatigue is usually temporary and may be caused by the treatment. Allow time for rest and relaxation.

- Offer help, especially with routine household tasks.
- If help is available from community or religious groups, encourage your loved one to use these resources.

Hair loss (alopecia)

Not all chemotherapy results in hair loss. Chemotherapy can cause a different amount of hair loss in different people. Hair loss may happen suddenly or gradually. If you lose hair, you may lose it from your head, face, armpits, pubic area, chest, and/or legs.

It is normal to feel upset about losing hair. Hair loss is a side effect that can be very noticeable. However, your hair will grow back after you complete your chemotherapy. When it grows back, it may be a slightly different color or texture.

If hair loss is a possibility for you, you may find the following suggestions helpful:

- Wash with a mild shampoo every few days.
- Pat your hair or scalp dry — do not rub.
- Do not give your hair a permanent or coloring.
- Limit your use of hair spray, electric curlers, blow dryers, and curling irons.
- Continue to treat your hair gently as it grows back.

- Consider getting a shorter haircut early in your treatment to make hair loss less noticeable. It may help to discuss your chemotherapy treatment schedule with your hair stylist.
- Consider using turbans, scarves, and hats to conceal hair loss.
- If you plan to use a wig or toupee, buy it early in your treatment. It is easier to match your hair color and style before hair loss begins. Your health insurance may cover the cost of a wig. Ask your doctor or nurse for a prescription for a “scalp prosthesis.” Wig costs may be tax-deductible as medical expenses. In some areas, the American Cancer Society provides assistance in obtaining wigs.

Effects on skin

Some chemotherapy drugs can make your skin more susceptible to sunburn. The following suggestions may help to protect your skin:

- Avoid direct sunlight between 10 a.m. and 4 p.m.
- Apply sunscreen routinely to exposed skin whenever you are outdoors for more than 10 minutes during summer or winter. A PABA-free sunscreen with a minimum sun protection factor (SPF) of 15 should be used.



- Do not use tanning booths or sun lamps.
- Wear a hat and lightweight clothing to protect your skin when you are outdoors.

Some chemotherapy drugs may cause skin rashes or darkening of your skin or nails. Tell your doctor or nurse if you notice any changes.

Some chemotherapy drugs may damage your skin and other tissues if the drug leaks out of your vein during drug administration. If you receive your chemotherapy through a vein, it is important to tell your nurse immediately if you feel any discomfort when the drug is being injected.

Effects on sexuality and reproduction

Radiation, surgery, or the drugs used during cancer treatment may affect sexual and reproductive function. Although many drugs do not affect your sexual ability or desire for sex, stress related to your illness and treatment may make you feel more tired than usual.

When your blood counts are low, you are at greater risk for infection and/or bleeding problems. Your doctor may advise against certain sexual activities (vaginal and anal intercourse, oral sex) at these times.

Women. Women receiving chemotherapy may notice changes in their menstrual cycle. Your period may stop during treatment, or you may have irregular or less frequent periods, or a heavier or lighter menstrual flow than usual. Despite these changes, you still can become pregnant.

Because a woman’s cancer treatment may pose risks to her unborn child, birth control is strongly recommended during your treatment. Because some types of birth control should not be used with certain cancers, talk to your doctor or nurse before you start treatment about methods you may want to use. The use of condoms is also recommended for 3 days or 7 days after therapy to protect your partner from exposure to chemotherapy in your body fluids. The number of days that you should

follow precautions depends upon the drug(s) you received. Your nurse will give you specific instructions. If you are pregnant, or think you may be pregnant, tell your doctor immediately.

Some women may notice less vaginal lubrication during treatment. Lubricants can help if dryness occurs. Women near menopausal age may experience hot flashes or early menopause. Tell your doctor if you notice these changes.

Temporary or permanent infertility (inability to become pregnant) can result from chemotherapy. This change depends on many things, such as the drugs used, the amount of each drug, the length of your treatment, and your age. Ask your doctor if your chemotherapy is expected to affect your fertility.

Men. It is unlikely that the treatment will affect your ability to have an erection and sexual intercourse. Temporary or permanent infertility (inability to make a woman pregnant) can result from chemotherapy. During treatment, you may experience a decrease in sperm count and sperm mobility. These changes depend on many things, such as the drug used, the amount of each drug, the length of your treatment, and your age. Before your treatment begins, ask your doctor whether your chemotherapy is expected to affect your fertility. You may want to consider sperm banking (having sperm stored for artificial insemination at a future date) before starting treatment.

A man's cancer treatment may pose risks to a child conceived during or some time after his treatment. You may want to talk to your doctor before you begin therapy about sperm banking. Also talk with your doctor or nurse about birth control methods you may want to use. The use of condoms is recommended for 3 days or 7 days after therapy to protect your partner from exposure to chemotherapy drug(s) in your body fluids. The number of days that you should follow precautions depends upon the drug(s) you received. Your nurse will give you specific instructions.

Women and men. You may want to ask these questions before you begin treatment:

- What changes in sexual or reproductive function will I experience during treatment?
- What forms of birth control are recommended for me?
- What are the risks of temporary or permanent infertility with my treatment?
- Are there any restrictions on sexual activity during treatment?

Other side effects

Some chemotherapy drugs may cause less common side effects not discussed in this booklet. Your doctor and nurse will help prepare you for all specific side effects of your treatment. They will explain how to manage these possible effects.

What about the future?

Some effects of treatment may be long-term or permanent. Discuss the possibility of long-term effects with your doctor. Continue to see your doctor at regular intervals after you complete chemotherapy. Tell your doctor if you notice any unusual signs or symptoms at any time after treatment.

Instructions for **SAFE HANDLING**

of Chemotherapy Waste Materials

The chemotherapy drug usually remains in the body for either 3 days or 7 days after treatment, depending upon the drug you received. Your nurse will tell you how long you should follow these precautions. It is excreted in the urine, stool, vomit, semen, and vaginal secretions during this time. It is necessary to take precautions during this time, whether you receive the medication in the clinic or hospital or take it at home.

Skin. If urine, stool, or vomit come in contact with your hands or other body parts, wash the area immediately with soap and water. If caretakers have contact with your body wastes, they should wear latex gloves.

Toilet. Flush the toilet immediately. If you have young children or pets in the home that may have contact with the toilet, flush the toilet twice.

Bedpan, urinal, or emesis basin. The caretaker should wear latex gloves when handling the container. After each use, empty and rinse the container well with water. At least once a day, put on latex gloves and wash the item with soap and water. Discard the gloves after each use, and then wash your hands with soap and water.

Diapers. If you need them, wear disposable diapers and/or use disposable bed pads. Caretakers should wear latex gloves when changing diapers or pads. For sanitary reasons and containment of odor, it is recommended that you “double bag” the waste by placing the soiled diapers or pads in a tied plastic bag or zip-lock bag, and then place this bag in a tied plastic trash bag. Discard the bag in the trash.

Linens and clothing. Wash linens that are soiled with urine, stool, or emesis as soon as possible. If you cannot wash them immediately, place them in a plastic bag and discard the bag in the trash after the linens are washed. The linens should be washed separately from your other linen, but it is not necessary to change your type of laundry powder or usual way of washing. Soiled linens should be washed a second time. They may be washed with other linens for the second washing. Unsoiled linens can be washed in the usual manner.

Ostomy care. Caretakers should wear latex gloves when emptying or changing the appliance. For sanitary reasons, soiled supplies are discarded by “double bagging.” Place the waste first into a plastic tied bag or zip-lock bag, and then put this bag into another plastic bag and discard it in the trash.xx

Pregnant Women. Pregnant women helping patients should avoid coming in contact with the patients’ urine, stool, vomit, or semen during treatment and for the first 3 days or 7 days after each chemotherapy treatment.

Administering **CHEMOTHERAPY** *at Home*

If you are receiving chemotherapy at home, you must take precautions to avoid unnecessary exposure to you and your family from the drug.

Storing medications. Keep all medications in a safe place away from children and pets. Follow the instructions on the medication label for storage. If medicines are to be refrigerated, do not place them on the shelf nearest the freezer. It is best to place them in a zip-lock bag in the crisper bin. Do not keep the medications in your bathroom because the high humidity can cause changes in the drugs.

Medicine taken by mouth. Wash your hands after handling your pills. Caretakers should not touch the pills with bare hands and should wear latex gloves. If you are taking the medication more than one day, take it at approximately the same time each day. If you do not take all of your pills, return them to the doctor's office on your next visit.

Injectable medication. Prepare the medication while wearing latex gloves to avoid skin irritation if you have sensitive skin. If you are replacing a cassette/cartridge in a pump, discard the old cassette and tubing and alcohol wipes into the plastic container marked "chemotherapy waste." Needles and syringes must also be placed in the plastic chemotherapy sharps container. Alcohol wipes, dressings, and other medical supplies that come in contact with chemotherapy are discarded in a plastic bag.

Removal of chemotherapy materials. The infusion company that supplied your injectable chemotherapy will provide you with containers or bags for materials that came in contact with your chemotherapy. Call the company when they are 2/3 full.

Drug spills. To clean up spills, wear two pairs of latex gloves, and wear eyeglasses or other inexpensive protective eye wear. Absorb the spill with absorbent paper towels. Wash the area three times with soap and water, and dispose of all materials in the plastic chemotherapy waste container.

If any of the drug is spilled on bed linens or clothing, wash the soiled items as soon as possible. If you cannot wash them immediately, place them in a plastic bag. When you take the items out of the bag to wash them, throw the bag in the chemotherapy waste container. The soiled items should be washed separately from your other laundry. You do not need to change your type of laundry powder or your usual way of washing. The soiled items should be washed twice before using them again. They may be washed with other things for the second washing.

If any of the drug splashes in someone's eye, flush the eye with water for 15 minutes. Call the doctor who prescribed the drug immediately. If at all possible, have someone call the doctor while the eye is being flushed. Tell the doctor what has happened and ask for further instructions.

Creams or pastes. This type of medication is applied directly on the skin. Do not handle the chemotherapy cream or paste with your bare hands. Wear latex gloves and wash your hands with soap and water after you remove the gloves. Discard any chemotherapy waste in the plastic chemotherapy container. If you do not have a container, place the waste in a zip-lock bag, and take it to your doctor's office when you return for your visit.

Women who are pregnant or breast-feeding should avoid handling chemotherapy drugs or cleaning up spills.

Thoughts and **FEELINGS**

No two people experience cancer and chemotherapy in the same way. What is normal for you may be very different from what is normal for someone else. No one can tell you how you should feel or think.

Only you know what is right for you.

It is common to feel emotional ups and downs. Sometimes you may feel angry, afraid, or depressed. At other times you may feel hopeful, peaceful, or confident. People with cancer often have sudden mood changes — crying one minute and laughing the next.

Whatever you feel now or later is OK. Allow yourself to have these mood swings.

Expressing your thoughts and feelings can help you recognize and cope with them. Private emotional expression — crying alone, praying, screaming into a pillow, laughing aloud in the shower, sitting alone quietly, writing in a journal — may be helpful. Some people find that talking with others helps them cope with their emotions. Once you express and understand your feelings, you may be able to accept them. Accepting your feelings helps improve your emotional well-being.

Sometimes it is difficult to handle your thoughts and feelings. The following ideas may help you:



- Talk with someone you trust — a friend, family member, health care professional, or spiritual counselor. Let them know when you feel like talking and when you just want someone to be with you.
- Keep a journal or diary to help you sort through your thoughts and feelings.
- Consider joining a support group. Different types of groups are available. Many people benefit from sharing with others in similar situations. Ask your nurse or social worker about local support groups, or call the UPMC Cancer Centers Cancer Information and Referral Service (412-647-2811) for more information.
- Try creative outlets such as drawing, making crafts, or playing a musical instrument. Such activities may help you express feelings without talking.
- Try to keep things in perspective. Allow yourself to feel sad or angry when you need to, but also focus on the people and things that make you forget about cancer.
- Try different ways to keep an emotional balance. Stay open to various methods of coping. You may need to change your approach at different times.
- Consider professional counseling for yourself and your family. A competent and caring professional can guide you through change and stress.

To family and friends. Do not judge your loved one's feelings. Accept how he or she feels. Be available to listen. Be hopeful and encouraging, but allow your loved one to have negative emotions. Expressing negative as well as positive feelings helps your loved one reach a healthy balance.

Consider talking with a professional to help sort out your emotions.

You are an involved partner in your care

It is common to have different concerns or questions at different times during your treatment. Keep this booklet and refer to it for help. Write your questions on the next page and refer to them when you talk with your doctor or nurse. Some people find it helpful to write down the details of their treatment in a treatment diary, journal, or calendar.

If you have any questions or need more information, please ask. Remember that health professionals, family, and friends can help during this time. Together, we can help you find the best ways to cope with your chemotherapy treatment.

UPMC Cancer Centers

Information for Patients

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UPMC Cancer Centers works in tandem with the University of Pittsburgh Cancer Institute, the region's only National Cancer Institute-designated Comprehensive Cancer Center.



The University of Pittsburgh Cancer Institute (UPCI) is a National Cancer Institute-designated Comprehensive Cancer Center. For information about cancer, call the UPCI Cancer Information and Referral Service, toll-free, at 412-647-2811.