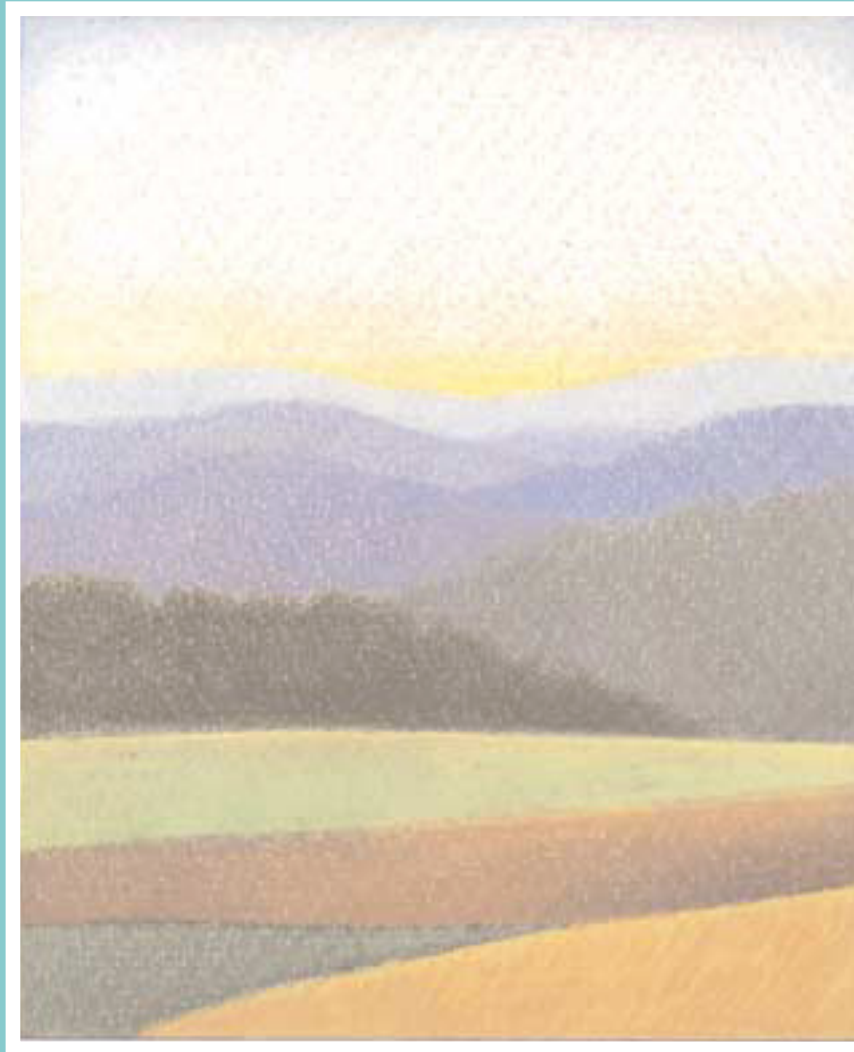


# Chemotherapy and You

A GUIDE TO SELF-HELP  
DURING CANCER TREATMENT



NATIONAL INSTITUTES OF HEALTH  
National Cancer Institute

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DURING CANCER TREATMENT**



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
National Institutes of Health

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This booklet is for patients who are receiving chemotherapy for **cancer**. It describes what to expect during chemotherapy and what you can do to take care of yourself during and after treatment. What can you do? Eat the right foods to build up your strength. Stay away from people who have colds or the flu. Get the rest you need and pace yourself. Talk about your feelings to deal with any sadness, anger, or fear you may have. Work as a team with your health care providers. Knowing how to help yourself can make you feel more in control. These are just a few of the ways that you can help yourself and begin to feel in control again.

This booklet is designed to help you become an informed partner in your care, but it is only a guide. Self-help can never take the place of professional health care. Ask your doctor and nurse any questions you may have about chemotherapy. Also don't hesitate to tell them about any side effects you may have. They want and need to know.

The table of contents identifies all the topics discussed in *Chemotherapy and You*. A glossary at the back of this booklet explains many terms you may hear during chemotherapy. Many of the words defined in the glossary are printed in bold the first time they are used in the text.

# Understanding Chemotherapy

## What Is Chemotherapy?

**Chemotherapy** is the treatment of cancer with drugs that can destroy cancer cells. These drugs often are called "anticancer" drugs.

## How Does Chemotherapy Work?

Normal cells grow and die in a controlled way. When cancer occurs, cells in the body that are not normal keep dividing and forming more cells without control. Anticancer drugs destroy cancer cells by stopping them from growing or multiplying. Healthy cells can also be harmed, especially those that divide quickly. Harm to healthy cells is what causes side effects. These cells usually repair themselves after chemotherapy.

Because some drugs work better together than alone, often two or more drugs are given at the same time. This is called **combination chemotherapy**.

Other types of drugs may be used to treat your cancer. These may include certain drugs that can block the effect of your body's **hormones**. Or doctors may use **biological therapy**, which is treatment with substances that boost the body's own immune system against cancer. Your body usually makes these substances in small amounts to fight cancer and other diseases. These substances can be made in the laboratory and given to patients to destroy cancer cells or change the way the body reacts to a **tumor**. They may also help the body repair or make new cells destroyed by chemotherapy.

## What Can Chemotherapy Do?

Depending on the type of cancer and how advanced it is, chemotherapy can be used for different goals:

- **To cure the cancer.** Cancer is considered cured when the patient remains free of evidence of cancer cells.
- **To control the cancer.** This is done by keeping the cancer from spreading; slowing the cancer's growth; and killing cancer cells that may have spread to other parts of the body from the original tumor.
- **To relieve symptoms that the cancer may cause.** Relieving symptoms such as pain can help patients live more comfortably.

## Is Chemotherapy Used With Other Treatments?

Sometimes chemotherapy is the only treatment a patient receives. More often, however, chemotherapy is used in addition to surgery, **radiation therapy**, and/or biological therapy to:

- Shrink a tumor before surgery or radiation therapy. This is called neo-adjuvant therapy.
- Help destroy any cancer cells that may remain after surgery and/or radiation therapy. This is called **adjuvant chemotherapy**.
- Make radiation therapy and biological therapy work better.
- Help destroy cancer if it recurs or has spread to other parts of the body from the original tumor.

## Which Drugs Are Given?

Some chemotherapy drugs are used for many different types of cancer, while others might be used for just one or two types of cancer. Your doctor recommends a treatment plan based on:

- What kind of cancer you have.
- What part of the body the cancer is found.
- The effect of cancer on your normal body functions.
- Your general health.



## What About Clinical Trials?

Clinical trials, also called cancer treatment studies or research studies, test new treatments in people with cancer. Clinical trials test many types of treatments such as new drugs, new approaches to surgery or radiation therapy, new combinations of treatments, or new methods such as gene therapy. The goal of this research is to find better ways to treat cancer and help cancer patients. There are different types of clinical trials, called Phase I, Phase II, and Phase III trials. Each is one of the final stages of a long and careful cancer research process. If your doctor does not suggest you take part in a clinical trial, you may want to ask about clinical trials as a treatment choice for you.

## Possible benefits of clinical trials include:

- Clinical trials offer high-quality cancer care.
- If a new treatment approach is proven to work and you are taking it, you may be among the first to benefit.
- By looking at the pros and cons of clinical trials and other treatment choices, you are taking an active role in a decision that affects your life.
- You have the chance to help others and improve cancer treatment.

## Possible drawbacks:

- New treatments under study are not always better than, or even as good as, standard treatment.
- Even if a new treatment has benefits, it may not work for you.
- In a study, if you are randomly assigned to have standard treatment instead of the new treatment being tested, it may not be as effective as the new approach.
- Health insurance and managed care providers do not always cover all patient care costs in a study.

Before deciding to join a clinical trial you will want to ask important questions such as: What are the possible short- and long-term risks, side effects, and benefits to me? How could the study affect my daily life? Will I have to pay for any treatment, tests, or other charges?

The National Cancer Institute's (NCI) booklet *Taking Part in Clinical Trials: What Cancer Patients Need to Know* lists questions you may want to ask your doctor and helps answer many of the questions you may have about clinical trials. It also informs you about your rights and protections. For example, you are free to leave a study at any time. You may order the booklet by calling NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237). You can also look on the Internet at <http://cancergov/clinicaltrials>.

## Questions To Ask Your Doctor

### About Chemotherapy

- Why do I need chemotherapy?
- What are the benefits of chemotherapy?
- What are the risks of chemotherapy?
- Are there any other possible treatment methods for my type of cancer?
- What is the standard care for my type of cancer?
- Are there any clinical trials for my type of cancer?

### About Your Treatment

- How many treatments will I be given?
- What drug or drugs will I be taking?
- How will the drugs be given?
- Where will I get my treatment?
- How long will each treatment last?

### About Side Effects

- What are the possible side effects of the chemotherapy?  
When are side effects likely to occur?
- What side effects are more likely to be related to my type of cancer?
- Are there any side effects that I should report right away?
- What can I do to relieve the side effects?

### About Contacting Medical Staff

- How do I contact a health professional after hours, and when should I call?

### Hints for Talking with Your Doctor

These tips might help you keep track of the information you learn during visits with your doctor:

- Bring a friend or family member to sit with you while you talk with your doctor. This person can help you understand what your doctor says during your visit and help refresh your memory afterward.
- Ask your doctor for printed information that is available on your cancer and treatment.
- You, or the person who goes with you, may want to take notes during your appointment.
- Ask your doctor to slow down when you need more time to write.
- You may want to ask if you can use a tape recorder during your visit. Take notes from the tape after the visit is finished. That way, you can review your conversation later as many times as you wish.

# What Can I Expect During Chemotherapy?

Some people with cancer want to know every detail about their condition and their treatment. Others prefer only general information. The choice of how much information to seek is yours, but there are questions that every person getting chemotherapy should ask.

This list is just a start. Always feel free to ask your doctor, nurse, and pharmacist as many questions as you want. If you do not understand their answers, keep asking until you do. Remember, there is no such thing as a "stupid" question, especially about cancer or your treatment. To make sure you get all the answers you want, you may find it helpful to draw up a list of questions before each doctor's appointment. Some people keep a "running list" and jot down each new question as it occurs to them.

## Where Will I Get Chemotherapy?

Chemotherapy can be given in many different places: at home, a doctor's office, a clinic, a hospital's outpatient department, or as an "inpatient" in a hospital. The choice of where you get chemotherapy depends on which drug or drugs you are getting, your insurance, and sometimes your own and your doctor's wishes. Most patients receive their treatment as an "outpatient" and are not hospitalized. Sometimes, a patient starting chemotherapy may need to stay at the hospital for a short time so that the medicine's effects can be watched closely and any needed changes can be made.

## How Often and For How Long Will I Get Chemotherapy?

How often and how long you get chemotherapy depends on:

- The kind of cancer you have.
- The goals of the treatment.
- The drugs that are used.
- How your body responds to them.

You may get treatment every day, every week, or every month. Chemotherapy is often given in cycles that include treatment periods alternated with rest periods. Rest periods give your body a chance to build healthy new cells and regain its strength. Ask your health care provider to tell you how long and how often you may expect to get treatment.

Sticking with your treatment schedule is very important for the drugs to work right. Schedules may need to be changed for holidays and other reasons. If you miss a treatment session or skip a dose of the drug, contact your doctor.

Sometimes, your doctor may need to delay a treatment based on the results of certain blood tests. (See the sections on Fatigue, Infection, and Anemia.) Your doctor will let you know what to do during this time and when to start your treatment again.

## How Is Chemotherapy Given?

Chemotherapy can be given in several different ways: **intravenously** (through a vein), by mouth, through an **injection** (shot), or applied on the skin.

### ■ By vein (intravenous, or IV, treatment)

Chemotherapy is most often given intravenously (IV), through a vein. Usually a thin needle is inserted into a vein on the hand or lower arm at the beginning of each treatment session and is removed at the end of the session. If you feel a coolness, burning,



or other unusual sensation in the area of the needle stick when the IV is started, tell your doctor or nurse. Also report any pain, burning, skin redness, swelling, or discomfort that occurs during or after an IV treatment.

Chemotherapy can also be delivered by IV through catheters, ports, and pumps.

**Catheters.** A catheter is a soft, thin, flexible tube that is placed in a large vein in the body and remains there as long as it is needed. Patients who need to have many IV treatments often have a catheter, so a needle does not have to be used each time. Drugs can be given and blood samples can be drawn through this catheter. Sometimes the catheter is attached to a **port** — a small round plastic or metal disc placed under the skin. The port can be used for as long as it is needed. A pump, which is used to control how fast the drug goes into a catheter or port, is sometimes used. There are two types of pumps. An external pump remains outside the body. Most are portable; they allow a person to move around while the pump is being used. An internal pump is placed inside the body during surgery, usually right under the skin. Pumps contain a small storage area for the drug and allow people to go about their normal activities. Catheters, ports, and pumps cause no pain if they are properly placed and cared for, although a person is aware they are there.

Catheters are usually placed in a large vein, most commonly to your chest, called a **central venous catheter**. A peripherally inserted central catheter (PICC) is inserted into a vein in the arm. Catheters can also be placed in an artery or other locations in your body, such as:

- **Intrathecal (IT) catheter.** Delivers drugs into the spinal fluid.
- **Intracavitary (IC) catheter.** Placed in the abdomen, pelvis, or chest.



■ **By mouth (orally).**

The drug is given in pill, capsule, or liquid form. You swallow the drug, just as you do many other medicines.

■ **By injection.**

A needle and syringe are used to give the drug in one of several ways:

- **Intramuscularly, or IM.** (Into a muscle)
- **Subcutaneously, or SQ or SC.** (Under the skin)
- **Intralesionally, or IL.** (Directly into a cancerous area in the skin)

■ **Topically.**

The drug is applied on the surface of the skin.

## How Will I Feel During Chemotherapy?

Most people receiving chemotherapy find that they tire easily, but many feel well enough to continue to lead active lives. Each person and treatment is different, so it is not always possible to tell exactly how you will react. Your general state of health, the type and extent of cancer you have, and the kind of drugs you are receiving can all affect how well you feel.

You may want to have someone available to drive you to and from treatment if, for example, you are taking medicine for nausea or vomiting that could make you tired. You may also feel especially tired from the chemotherapy as early as one day after a treatment and for several days. It may help to schedule your treatment when you can take off the day of and the day after your treatment. If you have young children, you may want to schedule the treatment when you have someone to help at home the day of and at least the day after your treatment. Ask your doctor when your greatest fatigue or other side effects are likely to occur.

Most people can continue working while receiving chemotherapy. However, you may need to change your work schedule for a while if your chemotherapy makes you feel very tired or have other side effects. Talk with your employer about your needs and wishes. You may be able to agree on a part-time schedule, find an area for a short nap during the day, or perhaps you can do some of your work at home.

Under Federal and state laws, some employers may be required to let you work a flexible schedule to meet your treatment needs. To find out about your on-the-job protections, check with a social worker, or your congressional or state representative. NCI's publication *Facing Forward: A Guide for Cancer Survivors* also has information on work-related concerns.

## Can I Take Other Medicines While I Am Getting Chemotherapy?

Some medicines may interfere or react with the effects of your chemotherapy. Give your doctor a list of all the medicines you take before you start treatment. Include:

- the name of each drug
- the dosage
- the reason you take it
- how often you take it

Remember to tell your doctor about all over-the-counter remedies, including vitamins, laxatives, medicines for allergies, indigestion, and colds, aspirin, ibuprofen, or other pain relievers, and any mineral or herbal supplements. Your doctor can tell you if you should stop taking any of these remedies before you start chemotherapy. After your treatments begin, be sure to check with your doctor before taking any new medicines or stopping the ones you are already taking.

## How Will I Know If My Chemotherapy Is Working?

Your doctor and nurse will use several ways to see how well your treatments are working. You may have physical exams and tests often. Always feel free to ask your doctor about the test results and what they show about your progress.

Tests and exams can tell a lot about how chemotherapy is working; however, side effects tell very little. Sometimes people think that if they have no side effects, the drugs are not working, or, if they do have side effects, the drugs are working well. But side effects vary so much from person to person, and from drug to drug, that side effects are not a sign of whether the treatment is working or not.

## Questions To Ask About Side Effects

- What are the short-term side effects that may occur?
- What are the long-term side effects that may occur?
- How serious are the side effects likely to be?
- How long will the side effects last?
- What can I do to relieve or lessen the side effects?
- When should I call the doctor or nurse about side effects?
- What can I do to feel better emotionally while trying to cope with the side effects?

# Coping With Side Effects

## What Causes Side Effects?

Because cancer cells may grow and divide more rapidly than normal cells, many anticancer drugs are made to kill growing cells. But certain normal, healthy cells also multiply quickly, and chemotherapy can affect these cells, too. This damage to normal cells causes side effects. The fast-growing, normal cells most likely to be affected are blood cells forming in the **bone marrow** and cells in the digestive tract (mouth, stomach, intestines, esophagus), reproductive system (sexual organs), and hair follicles. Some anticancer drugs may affect cells of vital organs, such as the heart, kidney, bladder, lungs, and nervous system.

You may have none of these side effects or just a few. The kinds of side effects you have and how severe they are, depend on the type and dose of chemotherapy you get and how your body reacts. Before starting chemotherapy, your doctor will discuss the side effects that you are most likely to get with the drugs you will be receiving. Before starting the treatment, you will be asked to sign a consent form. You should be given all the facts about treatment including the drugs you will be given and their side effects before you sign the consent form.

## How Long Do Side Effects Last?

Normal cells usually recover when chemotherapy is over, so most side effects gradually go away after treatment ends, and the healthy cells have a chance to grow normally. The time it takes to get over side effects depends on many things, including your overall health and the kind of chemotherapy you have been taking.

Most people have no serious long-term problems from chemotherapy. However, on some occasions, chemotherapy can cause permanent changes or damage to the heart, lungs, nerves, kidneys, reproductive or other organs. And certain types of chemotherapy may have delayed effects, such as a second cancer,



that show up many years later. Ask your doctor about the chances of any serious, long-term effects that can result from the treatment you are receiving (but remember to balance your concerns with the immediate threat of your cancer).

Great progress has been made in preventing and treating some of chemotherapy's common as well as rare serious side effects. Many new drugs and treatment methods destroy cancer more effectively while doing less harm to the body's healthy cells.

The side effects of chemotherapy can be unpleasant, but they must be measured against the treatment's ability to destroy cancer. Medicines can help prevent some side effects such as nausea. Sometimes people receiving chemotherapy become discouraged about the length of time their treatment is taking or the side effects they are having. If that happens to you, talk to your doctor or nurse. They may be able to suggest ways to make side effects easier to deal with or reduce them.

Below you will find suggestions for dealing with some of the more common side effects of chemotherapy.

### *Fatigue*

Fatigue, feeling tired and lacking energy, is the most common symptom reported by cancer patients. The exact cause is not always known. It can be due to your disease, chemotherapy, radiation, surgery, low blood counts, lack of sleep, pain, stress, poor appetite, along with many other factors.

Fatigue from cancer feels different from fatigue of everyday life. Fatigue caused by chemotherapy can appear suddenly. Patients with cancer have described it as a total lack of energy and have used words such as worn out, drained, and wiped out to describe their fatigue. And rest does not always relieve it. Not everyone feels the same kind of fatigue. You may not feel tired while someone else does or your fatigue may not last as long as someone else's does. It can last days, weeks, or months. But severe fatigue does go away gradually as the tumor responds to treatment.

## How can I cope with fatigue?

- Plan your day so that you have time to rest.
- Take short naps or breaks, rather than one long rest period.
- Save your energy for the most important things.
- Try easier or shorter versions of activities you enjoy.
- Take short walks or do light exercise if possible. You may find this helps with fatigue.
- Talk to your health care provider about ways to save your energy and treat your fatigue.
- Try activities such as meditation, prayer, yoga, guided imagery, visualization, etc. (See the section “Complementary Therapies.”) You may find that these help with fatigue.
- Eat as well as you can and drink plenty of fluids. Eat small amounts at a time, if that is helpful.
- Join a support group. Sharing your feelings with others can ease the burden of fatigue. You can learn how others deal with their fatigue. Your health care provider can put you in touch with a support group in your area.
- Limit the amount of caffeine and alcohol you drink.
- Allow others to do some things for you that you usually do.
- Keep a diary of how you feel each day. This will help you plan your daily activities.
- Report any changes in energy level to your doctor or nurse.

## Nausea and Vomiting

Many patients fear that they will have nausea and vomiting while receiving chemotherapy. But new drugs have made these side effects far less common and, when they do occur, much less severe. These powerful **antiemetic** or antinausea drugs can prevent or lessen nausea and vomiting in most patients. Different drugs work for different people, and you may need more than one drug to get relief. Do not give up. Continue to work with your doctor and nurse to find the drug or drugs that work best for you. Also, be sure to tell your doctor or nurse if you are very nauseated or have vomited for more than a day, or if your vomiting is so bad that you cannot keep liquids down.

### What can I do if I have nausea and vomiting?

- Drink liquids at least an hour before or after mealtime, instead of with your meals. Drink frequently and drink small amounts.
- Eat and drink slowly.
- Eat small meals throughout the day, instead of one, two, or three large meals.
- Eat foods cold or at room temperature so you won't be bothered by strong smells.
- Chew your food well for easier digestion.
- If nausea is a problem in the morning, try eating dry foods like cereal, toast, or crackers before getting up. (Do not try this if you have mouth or throat sores or are troubled by a lack of saliva.)
- Drink cool, clear, unsweetened fruit juices, such as apple or grape juice or light-colored sodas such as ginger ale that have lost their fizz and do not have caffeine.

- Suck on mints, or tart candies. (Do not use tart candies if you have mouth or throat sores.)
- Prepare and freeze meals in advance for days when you do not feel like cooking.
- Wear loose-fitting clothes.
- Breathe deeply and slowly when you feel nauseated.
- Distract yourself by chatting with friends or family members, listening to music, or watching a movie or TV show.
- Use relaxation techniques. (See the section “Complementary Therapies.”)
- Try to avoid odors that bother you, such as cooking smells, smoke, or perfume.
- Avoid sweet, fried, or fatty foods.
- Rest but do not lie flat for at least 2 hours after you finish a meal.
- Avoid eating for at least a few hours before treatment if nausea usually occurs during chemotherapy.
- Eat a light meal before treatment.

## Pain

Chemotherapy drugs can cause some side effects that are painful. The drugs can damage nerves, leading to burning, numbness, tingling or shooting pain, most often in the fingers or toes. Some drugs can also cause mouth sores, headaches, muscle pains, and stomach pains.

Not everyone with cancer or who receives chemotherapy experiences pain from the disease or its treatment. But if you do, it can be relieved. The first step to take is to talk with your doctor, nurse, and pharmacist about your pain. They need to know as many details about your pain as possible. You may want to

describe your pain to your family and friends. They can help you talk to your caregivers about your pain, especially if you are too tired or in too much pain to talk to them yourself.

You need to tell your doctor, nurse, and pharmacist and family or friends:

- Where you feel pain.
- What it feels like — sharp, dull, throbbing, steady.
- How strong the pain feels.
- How long it lasts.
- What eases the pain, what makes the pain worse.
- What medicines you are taking for the pain and how much relief you get from them.

Using a pain scale is helpful in describing how much pain you are feeling. Try to assign a number from 0 to 10 to your pain level. If you have no pain, use a 0. As the numbers get higher, they stand for pain that is getting worse. A 10 means the pain is as bad as it can be. You may wish to use your own pain scale using numbers from 0 to 5 or even 0 to 100. Be sure to let others know what pain scale you are using and use the same scale each time, for example, “My pain is 7 on a scale of 0 to 10.”

The goal of pain control is to prevent pain that can be prevented, and treat the pain that can't. To do this:

- If you have persistent or chronic pain, take your pain medicine on a regular schedule (by the clock).
- Do not skip doses of your scheduled pain medicine. If you wait to take pain medicine until you feel pain, it is harder to control.
- Try using relaxation exercises at the same time you take medicine for the pain. This may help to lessen tension, reduce anxiety, and manage pain.

- Some people with chronic or persistent pain that is usually controlled by medicine can have breakthrough pain. This occurs when moderate to severe pain “breaks through” or is felt for a short time. If you experience this pain, use a short-acting medicine ordered by your doctor. Don’t wait for the pain to get worse. If you do, it may be harder to control.

There are many different medicines and methods available to control cancer pain. You should expect your doctor to seek all the information and resources necessary to make you as comfortable as possible. If you are in pain and your doctor has no further suggestions, ask to see a pain specialist or have your doctor consult with a pain specialist. A pain specialist may be an oncologist, anesthesiologist, neurologist, neurosurgeon, other doctor, nurse, or pharmacist.

## Hair Loss

Hair loss (**alopecia**) is a common side effect of chemotherapy, but not all drugs cause hair loss. Your doctor can tell you if hair loss might occur with the drug or drugs you are taking. When hair loss does occur, the hair may become thinner or fall out entirely. Hair loss can occur on all parts of the body, including the head, face, arms and legs, underarms, and pubic area. The hair usually grows back after the treatments are over. Some people even start to get their hair back while they are still having treatments. Sometimes, hair may grow back a different color or texture.

Hair loss does not always happen right away. It may begin several weeks after the first treatment or after a few treatments. Many people say their head becomes sensitive before losing hair. Hair may fall out gradually or in clumps. Any hair that is still growing may become dull and dry.



## How can I care for my scalp and hair during chemotherapy?

- Use a mild shampoo.
- Use a soft hair brush.
- Use low heat when drying your hair.
- Have your hair cut short. A shorter style will make your hair look thicker and fuller. It also will make hair loss easier to manage if it occurs.
- Use a sun screen, sun block, hat, or scarf to protect your scalp from the sun if you lose hair on your head.
- Avoid brush rollers to set your hair.
- Avoid dying, perming, or relaxing your hair.

Some people who lose all or most of their hair choose to wear turbans, scarves, caps, wigs, or hair pieces. Others leave their head uncovered. Still others switch back and forth, depending on whether they are in public or at home with friends and family members. There are no “right” or “wrong” choices; do whatever feels comfortable for you.

### If you choose to cover your head:

- Get your wig or hairpiece before you lose a lot of hair. That way, you can match your current hair style and color. You may be able to buy a wig or hairpiece at a specialty shop just for cancer patients. Someone may even come to your home to help you. You also can buy a wig or hair piece through a catalog or by phone.
- You may also consider borrowing a wig or hairpiece, rather than buying one. Check with the nurse or social work department at your hospital about resources for free wigs in your community.
- Take your wig to your hairdresser or the shop where it was purchased for styling and cutting to frame your face.
- Some health insurance policies cover the cost of a hairpiece needed because of cancer treatment. It is also a tax-deductible expense. Be sure to check your policy and ask your doctor for a “prescription.”

Losing hair from your head, face, or body can be hard to accept. Feeling angry or depressed is common and perfectly all right. At the same time, keep in mind that it is a temporary side effect. Talking about your feelings can help. If possible, share your thoughts with someone who has had a similar experience.

### Anemia

Chemotherapy can reduce the bone marrow's ability to make red blood cells, which carry oxygen to all parts of your body. When there are too few red blood cells, body tissues do not get enough oxygen to do their work. This condition is called anemia. Anemia can make you feel short of breath, very weak, and tired. Call your doctor if you have any of these symptoms:

- Fatigue (feeling very weak and tired).
- Dizziness or feeling faint.

- Shortness of breath.

- Feeling as if your heart is “pounding” or beating very fast.

Your doctor will check your **blood cell count** often during your treatment. She or he may also prescribe a medicine that can boost the growth of your red blood cells. Discuss this with your doctor if you become anemic often. If your red count falls too low, you may need a blood transfusion or a medicine called erythropoietin to raise the number of red blood cells in your body.

### Things you can do if you are anemic (See the section “Fatigue”)

- Get plenty of rest. Sleep more at night and take naps during the day if you can.
- Limit your activities. Do only the things that are essential or most important to you.
- Ask for help when you need it. Ask family and friends to pitch in with things like child care, shopping, housework, or driving.
- Eat a well-balanced diet. (See the section “Eating Well During Chemotherapy.”)
- When sitting, get up slowly. When lying down, sit first and then stand. This will help prevent dizziness.

### Central Nervous System Problems

Chemotherapy can interfere with certain functions in your central nervous system (brain) causing tiredness, confusion, and depression. These feelings will go away once the chemotherapy dose is lowered or you finish chemotherapy. Call your doctor if these symptoms occur:



## Infection

Chemotherapy can make you more likely to get infections. This happens because most anticancer drugs affect the bone marrow, making it harder to make **white blood cells** (WBCs), the cells that fight many types of infections. Your doctor will check your blood cell count often while you are getting chemotherapy. There are medicines that help speed the recovery of white blood cells, shortening the time when the white blood count is very low. These medicines are called **colony stimulating factors** (CSF). Raising the white blood cell count greatly lowers the risk of serious infection.

Most infections come from bacteria normally found on your skin and in your mouth, intestines and genital tract. Sometimes, the cause of an infection may not be known. Even if you take extra care, you still may get an infection. But there are some things you can do.

### How can I help prevent infections?

- Wash your hands often during the day. Be sure to wash them before you eat, after you use the bathroom, and after touching animals.
- Clean your rectal area gently but thoroughly after each bowel movement. Ask your doctor or nurse for advice if the area becomes irritated or if you have hemorrhoids. Also, check with your doctor before using enemas or suppositories. (See the section “Constipation.”)
- Stay away from people who have illnesses you can catch, such as a cold, the flu, measles, or chicken pox.
- Try to avoid crowds. For example, go shopping or to the movies when the stores or theaters are least likely to be busy.
- Stay away from children who recently have received “live virus” vaccines such as chicken pox and oral polio, since they may be contagious to people with a low blood cell count. Call your doctor or local health department if you have any questions.

## Symptoms of Infection

### Call your doctor right away if you have any of these symptoms:

- Fever over 100° F or 38° C.
  - Chills, especially shaking chills.
  - Sweating.
  - Loose bowel movements.
  - Frequent urgency to urinate or a burning feeling when you urinate.
  - A severe cough or sore throat.
  - Unusual vaginal discharge or itching.
  - Redness, swelling, or tenderness, especially around a wound, sore, ostomy, pimple, rectal area or catheter site.
  - Sinus pain or pressure.
  - Earaches, headaches, or stiff neck.
  - Blisters on the lips or skin.
  - Mouth sores.
- 
- Do not cut or tear the cuticles of your nails.
  - Be careful not to cut or nick yourself when using scissors, needles, or knives.
  - Use an electric shaver instead of a razor to prevent breaks or cuts in your skin.

- Maintain good mouth care. (See the section “Mouth, Gum and Throat Problems.”)
- Do not squeeze or scratch pimples.
- Take a warm (not hot) bath, shower, or sponge bath every day. Pat your skin dry using a light touch. Do not rub too hard.
- Use lotion or oil to soften and heal your skin if it becomes dry and cracked.
- Clean cuts and scrapes right away and daily until healed with warm water, soap, and an antiseptic.
- Avoid contact with animal litter boxes and waste, bird cages, and fish tanks.
- Avoid standing water, for example, bird baths, flower vases, or humidifiers.
- Wear protective gloves when gardening or cleaning up after others, especially small children.
- Do not get any immunizations, such as flu or pneumonia shots, without checking with your doctor first.
- Do not eat raw fish, seafood, meat, or eggs.

Report any signs of infection to your doctor right away, even if it is in the middle of the night. This is especially important when your white blood cell count is low. If you have a fever, do not take aspirin, acetaminophen, or any other medicine to bring your temperature down without checking with your doctor first.



## Blood Clotting Problems

Anticancer drugs can affect the bone marrow's ability to make **platelets**, the blood cells that help stop bleeding by making your blood clot. If your blood does not have enough platelets, you may bleed or bruise more easily than usual, even without an injury.

### Call your doctor if you have any of these symptoms:

- unexpected bruising.
- small, red spots under the skin.
- reddish or pinkish urine.
- black or bloody bowel movements.
- bleeding from your gums or nose.
- vaginal bleeding that is new or lasts longer than a regular period.
- headaches or changes in vision.
- warm to hot feeling of an arm or leg.

Your doctor will check your platelet count often while you are having chemotherapy. If your platelet count falls too low, the doctor may give you a platelet transfusion to build up the count. There are also medicines called colony stimulating factors that help increase your platelets.

## How to help prevent problems if your platelet count is low

- Check with your doctor or nurse before taking any vitamins, herbal remedies, including all over-the-counter medicines. Many of these products contain aspirin, which can affect platelets.
- Before drinking any alcoholic beverages, check with your doctor.
- Use a very soft toothbrush to clean your teeth.
- When cleaning your nose blow gently into a soft tissue.
- Take extra care not to cut or nick yourself when using scissors, needles, knives, or tools.
- Be careful not to burn yourself when ironing or cooking.
- Avoid contact sports and other activities that might result in injury.
- Ask your doctor if you should avoid sexual activity.
- Use an electric shaver instead of a razor.

## Mouth, Gum, and Throat Problems

Good oral care is important during cancer treatment. Some anticancer drugs can cause sores in the mouth and throat, a condition called **stomatitis** or **mucositis**. Anticancer drugs also can make these tissues dry and irritated or cause them to bleed. Patients who have not been eating well since beginning chemotherapy are more likely to get mouth sores.

In addition to being painful, mouth sores can become infected by the many germs that live in the mouth. Every step should be

taken to prevent infections, because they can be hard to fight during chemotherapy and can lead to serious problems.

### How can I keep my mouth, gums, and throat healthy?

- Talk to your doctor about seeing your dentist at least several weeks before you start chemotherapy. You may need to have your teeth cleaned and to take care of any problems such as cavities, gum abscesses, gum disease, or poorly fitting dentures. Ask your dentist to show you the best ways to brush and floss your teeth during chemotherapy. Chemotherapy can make you more likely to get cavities, so your dentist may suggest using a fluoride rinse or gel each day to help prevent decay.
- Brush your teeth and gums after every meal. Use a soft toothbrush and a gentle touch. Brushing too hard can damage soft mouth tissues. Ask your doctor, nurse, or dentist to suggest a special toothbrush and/or toothpaste if your gums are very sensitive. Rinse with warm salt water after meals and before bedtime.
- Rinse your toothbrush well after each use and store it in a dry place.
- Avoid mouthwashes that contain any amount of alcohol. Ask your doctor or nurse to suggest a mild or medicated mouthwash that you might use. For example, mouthwash with sodium bicarbonate (baking soda) is non-irritating.

If you develop sores in your mouth, tell your doctor or nurse. You may need medicine to treat the sores. If the sores are painful or keep you from eating, you can try these ideas:

### How can I cope with mouth sores?

- Ask your doctor if there is anything you can apply directly to the sores or to prescribe a medicine you can use to ease the pain.

- Eat foods cold or at room temperature. Hot and warm foods can irritate a tender mouth and throat.
- Eat soft, soothing foods, such as ice cream, milkshakes, baby food, soft fruits (bananas and applesauce), mashed potatoes, cooked cereals, soft-boiled or scrambled eggs, yogurt, cottage cheese, macaroni and cheese, custards, puddings, and gelatin. You also can puree cooked foods in the blender to make them smoother and easier to eat.
- Avoid irritating, acidic foods and juices, such as tomato and citrus (orange, grapefruit, and lemon); spicy or salty foods; and rough or coarse foods such as raw vegetables, granola, popcorn, and toast.

### How can I cope with mouth dryness?

- Ask your doctor if you should use an artificial saliva product to moisten your mouth.
- Drink plenty of liquids.
- Ask your doctor if you can suck on ice chips, popsicles, or sugarless hard candy. You can also chew sugarless gum. (Sorbitol, a sugar substitute that is in many sugar-free foods, can cause diarrhea in many people. If diarrhea is a problem for you, check the labels of sugar-free foods before you buy them and limit your use of them.)
- Moisten dry foods with butter, margarine, gravy, sauces, or broth.
- Dunk crisp, dry foods in mild liquids.
- Eat soft and pureed foods.
- Use lip balm or petroleum jelly if your lips become dry.
- Carry a water bottle with you to sip from often.

## Diarrhea

When chemotherapy affects the cells lining the intestine, it can cause diarrhea (watery or loose stools). If you have diarrhea that continues for more than 24 hours, or if you have pain and cramping along with the diarrhea, call your doctor. In severe cases, the doctor may prescribe a medicine to control the diarrhea. If diarrhea persists, you may need intravenous (IV) fluids to replace the water and nutrients you have lost. Often these fluids are given as an outpatient and do not require hospitalization. Do not take any over-the-counter medicines for diarrhea without asking your doctor.

### How can I help control diarrhea?

- Drink plenty of fluids. This will help replace those you have lost through diarrhea. Mild, clear liquids, such as water, clear broth, sports drinks such as Gatorade, or ginger ale, are best. If these drinks make you more thirsty or nauseous, try diluting them with water. Drink slowly and make sure drinks are at room temperature. Let carbonated drinks lose their fizz before you drink them.
- Eat small amounts of food throughout the day instead of three large meals.
- Unless your doctor has told you otherwise, eat potassium-rich foods. Diarrhea can cause you to lose this important mineral. Bananas, oranges, potatoes, and peach and apricot nectars are good sources of potassium.
- Ask your doctor if you should try a clear liquid diet to give your bowels time to rest. A clear liquid diet does not provide all the nutrients you need, so do not follow one for more than 3 to 5 days.
- Eat low-fiber foods. Low-fiber foods include white bread, white rice or noodles, creamed cereals, ripe bananas, canned or cooked fruit without skins, cottage cheese, yogurt without seeds, eggs, mashed or baked potatoes without the skin, pureed vegetables, chicken, or turkey without the skin, and fish.

- Avoid high-fiber foods, which can lead to diarrhea and cramping. High-fiber foods include whole grain breads and cereals, raw vegetables, beans, nuts, seeds, popcorn, and fresh and dried fruit.
- Avoid hot or very cold liquids, which can make diarrhea worse.
- Avoid coffee, tea with caffeine, alcohol, and sweets. Stay away from fried, greasy, or highly spiced foods, too. They are irritating and can cause diarrhea and cramping.
- Avoid milk and milk products, including ice cream, if they make your diarrhea worse.

## Constipation

Some anticancer medicines, pain medicines, and other medicines can cause constipation. It can also occur if you are less active or if your diet lacks enough fluid or fiber. If you have not had a bowel movement for more than a day or two, call your doctor, who may suggest taking a laxative or stool softener. Do not take these measures without checking with your doctor, especially if your white blood cell count or platelets are low.

### What can I do about constipation?

- Drink plenty of fluids to help loosen the bowels. If you do not have mouth sores, try warm and hot fluids, including water, which work especially well.
- Check with your doctor to see if you can increase the fiber in your diet (there are certain kinds of cancer and certain side effects you may have for which a high-fiber diet is not recommended). High fiber foods include bran, whole-wheat breads and cereals, raw or cooked vegetables, fresh and dried fruit, nuts, and popcorn.
- Get some exercise every day. Go for a walk or you may want to try a more structured exercise program. Talk to your doctor about the amount and type of exercise that is right for you.

## *Nerve and Muscle Effects*

Sometimes anticancer drugs can cause problems with your body's nerves. One example of a condition affecting the nervous system is **peripheral neuropathy**, where you feel a tingling, burning, weakness, or numbness or pain in the hands and/or feet. Some drugs can also affect the muscles, making them weak, tired, or sore.

Sometimes, these nerve and muscle side effects, though annoying, may not be serious. In other cases, nerve and muscle symptoms may be serious and need medical attention. Be sure to report any nerve or muscle symptoms to your doctor. Most of the time, these symptoms will get better; however, it may take up to a year after your treatment ends.

### **Some nerve and muscle-related symptoms include:**

- tingling
- burning
- weakness or numbness in the hands and/or feet
- pain when walking
- weak, sore, tired or achy muscles
- loss of balance
- clumsiness
- difficulty picking up objects and buttoning clothing
- shaking or trembling
- walking problems
- jaw pain
- hearing loss
- stomach pain
- constipation

## *How can I cope with nerve and muscle problems?*

- If your fingers are numb, be very careful when grasping objects that are sharp, hot, or otherwise dangerous.
- If your sense of balance or muscle strength is affected, avoid falls by moving carefully, using handrails when going up or down stairs, and using bath mats in the bathtub or shower.
- Always wear shoes with rubber soles (if possible).
- Ask your doctor for pain medicine.

## *Effects on Skin and Nails*

You may have minor skin problems while you are having chemotherapy, such as redness, rashes, itching, peeling, dryness, acne, and increased sensitivity to the sun. Certain anticancer drugs, when given intravenously, may cause the skin all along the vein to darken, especially in people who have very dark skin. Some people use makeup to cover the area, but this can take a lot of time if several veins are affected. The darkened areas will fade a few months after treatment ends.

Your nails may also become darkened, yellow, brittle, or cracked. They also may develop vertical lines or bands.

While most of these problems are not serious and you can take care of them yourself, a few need immediate attention. Certain drugs given intravenously (IV) can cause serious and permanent tissue damage if they leak out of the vein. Tell your doctor or nurse right away if you feel any burning or pain when you are getting IV drugs. These symptoms do not always mean there is a problem, but they must always be checked at once. Don't hesitate to call your doctor about even the less serious symptoms.

Some symptoms may mean you are having an allergic reaction that may need to be treated at once. Call your doctor or nurse right away if:

- you develop sudden or severe itching.
- your skin breaks out in a rash or hives.
- you have wheezing or any other trouble breathing.

### How can I cope with skin and nail problems?

#### Acne

- Try to keep your face clean and dry.
- Ask your doctor or nurse if you can use over-the-counter medicated creams or soaps.

#### Itching and dryness

- Apply corn starch as you would a dusting powder.
- To help avoid dryness, take quick showers or sponge baths. Do not take long, hot baths. Use a moisturizing soap.
- Apply cream and lotion while your skin is still moist.
- Avoid perfume, cologne, or aftershave lotion that contains alcohol.
- Use a colloid oatmeal bath or diphenhydramine for generalized pruritis.

#### Nail problems

- You can buy nail-strengthening products in a drug store. Be aware that these products may bother your skin and nails.
- Protect your nails by wearing gloves when washing dishes, gardening, or doing other work around the house.

- Be sure to let your doctor know if you have redness, pain, or changes around the cuticles.

#### Sunlight sensitivity

- Avoid direct sunlight as much as possible, especially between 10 a.m. and 4 p.m. when the sun's rays are the strongest.
- Use a sun screen lotion with a skin protection factor (SPF) of 15 or higher to protect against sun damage. A product such as zinc oxide, sold over the counter, can block the sun's rays completely.
- Use a lip balm with a sun protection factor.
- Wear long-sleeve cotton shirts, pants and hats with a wide brim (particularly if you are having hair loss), to block the sun.
- Even people with dark skin need to protect themselves from the sun during chemotherapy.

#### Radiation Recall

Some people who have had radiation therapy develop "radiation recall" during their chemotherapy. During or shortly after certain anticancer drugs are given, the skin over an area that had received radiation turns red — a shade anywhere from light to very bright. The skin may blister and peel. This reaction may last hours or even days. Report radiation recall reactions to your doctor or nurse. You can soothe the itching and burning by:

- Placing a cool, wet compress over the affected area.
- Wearing soft, non-irritating fabrics. Women who have radiation for breast cancer following lumpectomy often find cotton bras the most comfortable.

## *Kidney and Bladder Effects*

Some anticancer drugs can irritate the bladder or cause temporary or permanent damage to the bladder or kidneys. If you are taking one or more of these drugs, your doctor may ask you to collect a 24-hour urine sample. A blood sample may also be obtained before you begin chemotherapy to check your kidney function. Some anticancer drugs cause the urine to change color (orange, red, green, or yellow) or take on a strong or medicine-like odor for 24-72 hours. Check with your doctor to see if the drugs you are taking may have any of these effects.

Always drink plenty of fluids to ensure good urine flow and help prevent problems. This is very important if you are taking drugs that affect the kidney and bladder. Water, juice, soft drinks, broth, ice cream, soup, popsicles, and gelatin are all considered fluids.

### **Tell your doctor if you have any of these symptoms:**

- Pain or burning when you urinate (pass your water).
- Frequent urination.
- Not being able to urinate.
- A feeling that you must urinate right away ("urgency").
- Reddish or bloody urine.
- Fever.
- Chills, especially shaking chills.

## *Flu-Like Symptoms*

Some people feel as though they have the flu for a few hours to a few days after chemotherapy. This may be especially true if you are receiving chemotherapy in combination with biological therapy. Flu-like symptoms--muscle and joint aches, headache, tiredness, nausea, slight fever (usually <100°F), chills, and poor appetite--may last from 1 to 3 days. An infection or the cancer itself can also cause these symptoms. Check with your doctor if you have flu-like symptoms.

## *Fluid Retention*

Your body may retain fluid when you are having chemotherapy. This may be due to hormonal changes from your therapy, to the drugs themselves, or to your cancer. Check with your doctor or nurse if you notice swelling or puffiness in your face, hands, feet, or abdomen. You may need to avoid table salt and foods that have a lot of salt. If the problem is severe, your doctor may prescribe a **diuretic**, medicine to help your body get rid of excess fluids.

## *Effects on Sexual Organs*

Chemotherapy may--but does not always--affect sexual organs (testis in men, vagina and ovaries in women) and functioning in both men and women. The side effects that might occur depend on the drugs used and the person's age and general health.

### **Men**

Chemotherapy drugs may lower the number of sperm cells and reduce their ability to move. These changes can result in infertility, which may be temporary or permanent. Infertility affects a man's ability to father a child, but not a man's ability to have sexual intercourse. Other possible effects of these drugs are problems with getting or keeping an erection and damage to the **chromosomes**, which could lead to birth defects.



## What You Can Do:

- Before starting treatment, talk to your doctor about the possibility of sperm banking — a procedure that freezes sperm for future use — if infertility may be a problem. Ask about the cost of sperm banking.
- Use birth control with your partner during treatment. Ask your doctor how long you need to use birth control.
- Use a condom during sexual intercourse for the first 48 hours after the last dose of chemotherapy because some of the chemotherapy may end up in the sperm.
- Ask your doctor if the chemotherapy will likely affect your ability to father a child. If so, will the effects be temporary or permanent?

## Women

**Effects on the ovaries.** Anticancer drugs can affect the ovaries and reduce the amount of hormones they produce. Some women find that their menstrual periods become irregular or stop completely while having chemotherapy. Related side effects may be temporary or permanent.

- **Infertility.** Damage to the ovaries may result in infertility, the inability to become pregnant. The infertility can be either temporary or permanent. Whether infertility occurs, and how long it lasts, depends on many factors, including the type of drug, the dosage given, and the woman's age.
- **Menopause.** A woman's age and the drugs and dosages used will determine whether she experiences menopause while on chemotherapy. Chemotherapy may also cause menopause-like symptoms such as hot flashes and dry vaginal tissues. These tissue changes can make intercourse uncomfortable and can make a woman more prone to bladder and/or vaginal infections. Any infection should be treated right away. (See "Infection.") Menopause may be temporary or permanent.

## Help for hot flashes:

- Dress in layers.
- Avoid caffeine and alcohol.
- Exercise.
- Try meditation or other relaxation methods.

## Relieving vaginal symptoms and preventing infection:

- Use a water or mineral oil-based vaginal lubricant at the time of intercourse.
- There are products that can be used to stop vaginal dryness. Ask your pharmacist about vaginal gels that can be applied to the vagina.
- Avoid using petroleum jelly, which is difficult for the body to get rid of and increases the risk of infection.
- Wear cotton underwear and pantyhose with a ventilated cotton lining.
- Avoid wearing tight slacks or shorts.
- Ask your doctor about prescribing a vaginal cream or suppository to reduce the chances of infection.
- Ask your doctor about using a vaginal dilator if painful intercourse continues.

**Pregnancy.** Although pregnancy may be possible during chemotherapy, it still is not advisable because some anticancer drugs may cause birth defects. Doctors advise women of child-bearing age, from the teens through the end of menopause, to use some method of birth control throughout their treatment, such as condoms, spermicidal agents, diaphragms or birth control pills. Birth control pills may not be appropriate for some women, such as those with breast cancer. Ask your doctor about these contraceptive options.

If a woman is pregnant when her cancer is discovered, it may be possible to delay chemotherapy until after the baby is born. For a woman who needs treatment sooner, the possible effects of chemotherapy on the fetus need to be evaluated.

## *Feelings About Sexuality*

Sexual feelings and attitudes vary among people during chemotherapy. Some people find that they feel closer than ever to their partners and have an increased desire for sexual activity. Others experience little or no change in their sexual desire and energy level. Still others find that their sexual interest declines because of the physical and emotional stresses of having cancer and getting chemotherapy. These stresses may include:

- worries about changes in appearance.
- anxiety about health, family, or finances.
- side effects of treatment, including fatigue, and hormonal changes.

A partner's concerns or fears also can affect the sexual relationship. Some may worry that physical intimacy will harm the person who has cancer. Others may fear that they might "catch" the cancer or be affected by the drugs. Both you and your partner should feel free to discuss sexual concerns with your doctor, nurse, social worker, or other counselor who can give you the information and the reassurance you need.

You and your partner also should try to share your feelings with each other. If talking to each other about sex, cancer, or both, is hard, you may want to speak to a counselor who can help you talk more openly. People who can help include psychiatrists, psychologists, social workers, marriage counselors, sex therapists, and members of the clergy.

If you were comfortable with and enjoyed sexual relations before starting chemotherapy, chances are you will still find pleasure in physical intimacy during your treatment. You may discover, however, that intimacy changes during treatment. Hugging, touching, holding, and cuddling may become more important, while sexual intercourse may become less important. Remember that what was true before you started chemotherapy remains true now: There is no one "right" way to express your sexuality. You and your partner should decide together what gives both of you pleasure.



## Eating Well During Chemotherapy

It is very important to eat well while you are getting chemotherapy. Eating well during chemotherapy means choosing a balanced diet that contains all the nutrients the body needs. Eating well also means having a diet high enough in calories to keep your weight up and high enough in protein to rebuild tissues that cancer treatment may harm. People who eat well can cope with side effects and fight infection better. Also, their bodies can rebuild healthy tissues faster.

### *What If I Don't Feel Like Eating?*

On some days you may feel you just cannot eat. You can lose your appetite if you feel depressed or tired. (See “Getting the Support You Need” for advice). Or, side effects such as nausea or mouth and throat problems may make it difficult or painful to eat (see “Mouth, Gum, and Throat Problems” for helpful hints). In some cases, if you cannot eat for a long period of time, your doctor may recommend that you be given nutrition intravenously until you are able to eat again.

When a poor appetite is the problem, try these suggestions:

- Eat frequent, small meals or snacks whenever you want, perhaps four to six times a day. You do not have to eat three regular meals each day.
- Keep snacks within easy reach, so you can have something whenever you feel like it.
- Even if you do not want to eat solid foods, try to drink beverages during the day. Juice, soup, and other fluids like these can give you important calories and nutrients.
- Vary your diet by trying new foods and recipes.

- When possible, take a walk before meals; this may make you feel hungrier.
- Try changing your mealtime routine. For example, eat in a different location.
- Eat with friends or family members. When eating alone, listen to the radio or watch TV.
- Ask your doctor or nurse about nutrition supplements.
- Speak with your dietician about your specific nutrition needs.

The National Cancer Institute's booklet, *Eating Hints for Cancer Patients: Before, During & After Treatment* provides more tips about how to make eating easier and more enjoyable. It also gives many ideas about how to eat well and get extra protein and calories during cancer treatment. For a free copy of this booklet, ask your nurse or call the Cancer Information Service at 1-800-4-CANCER (1-800-422-6237).

### Can I Drink Alcoholic Beverages?

Small amounts of alcohol can help you relax and increase your appetite. On the other hand, alcohol may interfere with how some drugs work and/or worsen their side effects. For this reason, some people must drink less alcohol or avoid alcohol completely during chemotherapy. Ask your doctor if and how much beer, wine, or other alcoholic beverages you can drink during treatment.

### Can I Take Extra Vitamins and Minerals?

You can usually get all the vitamins and minerals you need by eating a healthy diet. Talk to your doctor, nurse, registered dietician, or a pharmacist before taking any vitamin or mineral supplements. Too much of some vitamins and minerals can be just as dangerous as too little. Find out what is recommended for you.

## Getting the Support You Need

Chemotherapy, like cancer, can bring major changes to a person's life. While it can help cure your cancer, it can sometimes affect overall health, cause stress, disrupt day-to-day schedules, and strain personal relationships. It is no wonder, then, that some people feel tearful, anxious, angry, or depressed at some point during their chemotherapy.

These emotions can be perfectly normal, but they can also be disturbing. Fortunately, there are ways to deal with these emotional side effects, just as there are ways to cope with the physical side effects of chemotherapy.

### How Can I Get Support?

You can draw on many sources of support. Here are some of the most important:

**Doctors, nurses, and other health professionals.** If you have questions or worries about your cancer treatment, talk with members of your health care team. Tell them if you are feeling anxious or depressed, or if you are experiencing other emotional or physical changes.

**Counseling professionals.** There are many kinds of counselors who can help you express, understand, and cope with your feelings. If you are depressed, you should consider seeking professional help. Feeling hopeless, worthless, guilty, or that life is not worth living are signs of depression. Depending on your preferences and needs, you may want to talk with a psychiatrist, psychologist, social worker, sex therapist, or member of the clergy. There are also medicines that can be used to treat depression. Many cancer centers have "psycho-oncology" programs with psychiatrists, psychologists, and social workers trained to work with cancer patients. Your doctor, nurse, or social worker may be able to suggest who to contact.



**Friends and family members.** Talking with friends or family members can help you feel a lot better. Often, they can comfort and reassure you in ways that no one else can. However, you may need to help them help you. At a time when you might expect that others will rush to your aid, you may have to make the first move.

**Asking friends and family for help.** Many people do not understand cancer, and may withdraw from you because they are afraid of your illness and not know what to do to help you. Others may worry that they will upset you by saying "the wrong thing." You can help by being open in talking with others about your illness, your treatment, your needs, and your feelings. By talking openly, you can correct mistaken ideas about cancer. You can also let people know that there is no single "right" thing to

say, as long as their caring comes through loud and clear. Once people know they can talk with you honestly, they may be more willing and able to open up and lend their support. Accepting help may be hard. When you allow others to help, you make them feel less helpless. In a sense, you are helping others deal with your illness.

The National Cancer Institute's booklet, *Taking Time*, offers useful advice to help cancer patients, their families and friends communicate with one another. For a free copy of this booklet, ask your nurse or call the Cancer Information Service at 1-800-4-CANCER (1-800-422-6237).

**Support groups.** Support groups are made up of people who are going or have gone through the same kinds of experiences as you. Many people with cancer find they can share thoughts and feelings with group members that they do not feel comfortable sharing with anyone else. Support groups also can serve as an important source of practical information about living with cancer. Some studies suggest that not only can support groups help with how you are feeling emotionally, but may also help you recover physically from your cancer.

Support can also be found in one-to-one programs that put you in touch with another person very similar to you in age, sex, type of cancer, and so forth. In some programs, this person comes to visit you. In others, a "hotline" puts you in touch with someone you can talk with on the telephone. Later, you may want to help others who are going through the same experience you did.

Sources for information about support programs, counseling advice, financial assistance, transportation to and from treatment, and information about cancer include neighborhood organizations, local health care providers, and your hospital, clinic, or medical center where you are being treated. At public libraries and patient libraries at hospitals, a librarian can help you find books and articles through a literature search. The National Cancer Institute's Cancer Information Service (1-800-4-CANCER) is also an excellent source of information and publications.

## *How Can I Make My Daily Life More Enjoyable?*

- Share your feelings with friends and family.
- Watch funny movies.
- Help someone else.
- Listen to music.
- Try new hobbies and learn new skills.
- Exercise, if you can.
- Do things that interest you.

## *Complementary Therapies*

Many people with cancer are exploring complementary therapies. These methods focus on the mind, body, and spirit. They do not take the place of medical therapies, but add to them. They can reduce stress, lessen side effects from cancer and cancer treatments, and enhance well-being. And they can help you feel more in control; it is something you can do for yourself.

A few of the therapies available are described here. Many more therapies exist such as art therapy, humor, journaling, reiki, music therapy, pet therapy and others. You may want to check with your doctor before using these techniques, especially if you have lung problems. A social worker, psychologist, or nurse may be able to help you with these therapies. You may also want to read books, listen to audiotapes, and watch videotapes about these techniques.

### *Biofeedback*

With training in biofeedback, you can control body functions such as heart rate, blood pressure, and muscle tension. A machine will sense when your body shows signs of tension and lets you know in some way such as making a sound or flashing a light. The machine also gives you feedback when you relax your body. Eventually, you can control your relaxation responses without having to depend on feedback from the machine. Your doctor, nurse, or social worker can refer you to someone trained in teaching biofeedback.

### *Distraction*

Distraction is the use of an activity to take your mind off your worries or discomforts. Talking with friends or relatives, watching TV, listening to the radio, reading, going to the movies, or working with your hands by doing needlework or puzzles, building models, or painting are all ways to distract yourself. Many cancer centers

now have music or creative art therapists who can be very helpful to you while you are getting treatment for your cancer. Ask your nurse or social work department about possible resources in your area.

## *Hypnosis*

Hypnosis puts you in a deeply-relaxed state that can help reduce discomfort and anxiety. You can be hypnotized by a qualified person, or you can learn how to hypnotize yourself. If you are interested in learning more, ask your doctor, nurse, or social worker to refer you to someone trained in the technique.

## *Imagery*

Imagery is a way of daydreaming that uses all your senses. It is usually done with your eyes closed. To begin, breathe slowly and feel yourself relax. Imagine a ball of healing energy-- perhaps a white light--forming somewhere in your body. When you can "see" the ball of energy, imagine that as you breathe in you can blow the ball to any part of the body where you feel pain, tension, or discomfort such as nausea. When you breathe out, picture the air moving the ball away from your body, taking with it any painful or uncomfortable feelings. (Be sure to breathe naturally; do not blow.) Continue to picture the ball moving toward you and away from you each time you breathe in and out. You may see the ball getting bigger and bigger as it takes away more and more tension and discomfort. To end the imagery, count slowly to three, breathe in deeply, open your eyes, and say to yourself, "I feel alert and relaxed."

## *Massage Therapy*

The idea that touch can heal is an old one. The first written records of massage date back 3,000 years ago to China. Massage therapy involves touch and different methods of stroking and kneading the muscles of the body. A licensed massage therapist should do the therapy. Talk to your doctor before beginning this therapy.

## *Meditation and Prayer*

Meditation is a relaxation technique that allows you to focus your energy and your thoughts on something very specific. This is especially helpful when your mind and body are stressed from cancer treatment. For example, you may want to repeat a word (over and over), or look at an object, such as a picture. Another form of meditation is allowing your thoughts, feelings, and images to flow through your mind. For patients who believe in a higher spiritual power, prayer can provide strength, comfort and inspiration throughout the cancer experience. Whether you pray alone, with family and friends, or as a member of a religious community, prayer may help. A member of the clergy or your spiritual advisor can help you incorporate prayer into your daily life.

## *Muscle Tension and Release*

Lie down in a quiet room. Take a slow, deep breath. As you breathe in, tense a particular muscle or group of muscles. For example, you can squeeze your eyes shut, frown, clench your teeth, make a fist, or stiffen your arms or legs. Hold your breath and keep your muscles tense for a second or two. Then breathe out, release the tension, and let your body relax completely. Repeat the process with another muscle or muscle group.

You also can try a variation of this method, called "progressive relaxation." Start with the toes of one foot and, working upward, progressively tense and relax all the muscles of one leg. Next, do the same with the other leg. Then tense and relax the rest of the muscle groups in your body, including those in your scalp. Remember to hold your breath while tensing your muscles and to breathe out when releasing the tension.

## *Physical Exercise*

Exercise can help lessen pain, strengthen weak muscles, restore balance, and decrease depression and fatigue. After getting approval from your doctor, you may want to begin by walking 5-10 minutes twice a day and later increasing your activity.

## Rhythmic Breathing

Get in a comfortable position and relax all your muscles. If you keep your eyes open, focus on a distant object. If you close your eyes, imagine a peaceful scene or simply clear your mind and focus on your breathing.

Breathe in and out slowly and comfortably through your nose. If you like, you can keep the rhythm steady by saying to yourself, "In, one two; out, one two." Feel yourself relax and go limp each time you breathe out.

You can do this technique for just a few seconds or for up to 10 minutes. End your rhythmic breathing by counting slowly and silently to three.

## Visualization

Visualization is similar to imagery. With visualization, you create an inner picture that represents your fight against cancer. Some people getting chemotherapy use images of rockets blasting away their cancer cells or of knights in armor battling their cancer cells. Others create an image of their white blood cells or their drugs attacking the cancer cells.

## Yoga

All you need is a quiet, comfortable place and some time each day to practice breathing, stretching, and meditation. To learn about yoga you may want to take a class and review books, audio-tapes, or videotapes on yoga. Ask your social worker, psychologist, or psychiatrist about yoga classes in your area.

# Paying for Chemotherapy

The cost of chemotherapy varies with the kinds and doses of drugs used, how long and how often they are given, and whether you get them at home, in a clinic or office, or in the hospital. Most health insurance policies cover at least part of the cost of many kinds of chemotherapy. There are also organizations who will help with the cost of chemotherapy and with transportation costs. Ask your nurse or social worker about these organizations. Finding the answers to the questions below will help avoid problems in receiving payment later on.

## What Questions Should I Be Able to Answer About My Insurance?

- What are the benefits of my insurance plan?
  - What cancer treatments/care does it cover?
  - Do I have a primary care provider? Can I use only certain "preferred providers" under my plan?
  - Am I entitled to a yearly checkup or does my plan only cover office visits when I am sick?
  - What are the benefits if I go outside of my health plan to obtain care?
- What are the rules of my insurance plan?
  - Do I need a referral from a primary care provider?
  - Do I need a written referral form?
  - Do I need to get approval from my health plan (pre-certification) before seeing a specialist, obtaining treatment, tests, and medical equipment or physical therapy services or going to the emergency room or a hospital?



- Does my lab work, including blood work, or pap smear need to go to a special lab?
- Do I have to pay a certain amount (co-pay) at the time of my visit?
- Do I have an amount that I must pay for medical expenses (annual deductible) before the insurance pays for services?
- Do I have a lifetime or annual limit on how much is covered for medical expenses?
- Is there a special pharmacy where I need to get my medications?
- Are all tests and procedures covered both as an in-patient and out-patient?

### Getting Maximum Coverage of Clinical Trials Costs

Many clinical trials (treatment studies) offer some part of care free of charge. But some insurers will not cover certain costs when a new treatment is under study. Your doctor can work with you to try to help you. If you are taking part in or considering a clinical trial:

- Ask your doctor about other patients in the trial. Have their insurers paid for their care? Have there been any consistent problems?
- Talk to your doctor about the paperwork he or she submits to your insurer. Often the way the doctor describes a treatment can help or hurt your chances of insurance coverage.
- Find out what is in your policy. Check to see if there is a specific exclusion for “experimental treatment.”

### Getting the Most From Your Insurance

- Get a copy of your insurance policies before treatment and find out exactly what your coverage includes.
- Keep careful records of all your covered expenses and claims.
- File claims for all covered costs.
- Get help in filing a claim if you need it. If friends or family cannot help you, ask a social worker for help. Private companies and some community organizations offer insurance-filing aid.
- If your claim is turned down, file again and inquire about the reasons. Ask your doctor to explain to the company why the services meet the requirements for coverage under your policy. If you are turned down again, find out if the company has an appeals process.

Many insurance companies handle new treatments on a case-by-case basis, rather than having a blanket policy. You can always ask about their coverage of specific therapies. However, some patients say that their questions may have hurt their chances for coverage by raising a red flag. A call from your nurse or social worker to your insurance company about specific coverage may be helpful.

In some states, Medicaid (which makes health care services available for people with financial need) may help pay for certain treatments. Contact the office that handles social services in your city or county to find out whether you are eligible for Medicaid and whether your chemotherapy is a covered expense.

For more information on paying for chemotherapy, call the Cancer Information Service at 1-800-4-CANCER (1-800-422-6237) for the booklet *Facing Forward: A Guide for Cancer Survivors*.

# National Cancer Institute Information Resources

You may want more information for yourself, your family, and your doctor. The following National Cancer Institute (NCI) services are available to help you.

## Telephone...

### CANCER INFORMATION SERVICE (CIS)

Provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information specialists translate the latest scientific information into understandable language and respond in English, Spanish, or on TTY equipment.

**Toll-free:** 1-800-4-CANCER (1-800-422-6237)

**TTY:** 1-800-332-8615

## Internet...

<http://cancer.gov>

NCI's primary Web Site; contains information about the Institute and its programs, cancer information and clinical trials

## Fax...

### CANCERFAX®

Includes NCI information about cancer treatment, screening, prevention, and supportive care. To obtain a list of contents, dial 301-402-5874 from a fax machine hand set and follow the recorded instructions

## Other Booklets

Single copies of National Cancer Institute printed materials, including the booklets listed below, are available from the Cancer Information Service free of charge by calling 1-800-4-CANCER. Also, many NCI publications may be viewed or ordered at <http://cancer.gov/publications>

- *Advanced Cancer: Living Each Day*
- *Eating Hints For Cancer Patients: Before, During & After Cancer Treatment*
- *Facing Forward Series: Life After Cancer Treatment*
- *Questions and Answers About Pain Control* (also available from the American Cancer Society)
- *Radiation Therapy and You: A Guide to Self-Help During Treatment*
- *Taking Time: Support for People With Cancer and the People Who Care About Them*
- *Taking Part in Clinical Trials: What Cancer Patients Need to Know*
- *What You Need To Know About Cancer.* (A series of booklets about different types of cancer.)
- *Understanding Cancer Pain*

# Glossary

This glossary reviews the meaning of some words used in *Chemotherapy and You*. It also explains some words related to chemotherapy that are not mentioned in this document but that you may hear from your doctor or nurse.

**Adjuvant chemotherapy:** Anticancer drugs or hormones given after surgery and/or radiation to help prevent the cancer from coming back.

**Alopecia:** Hair loss.

**Anemia:** Having too few red blood cells. Symptoms of anemia include feeling tired, weak, and short of breath.

**Antiemetic:** A medicine that prevents or controls nausea and vomiting.

**Biological therapy:** Treatment to stimulate or restore the ability of the immune system to fight infection and disease. Also called immunotherapy.

**Blood cell count:** The number of red blood cells, white blood cells, and platelets in a sample of blood. This is also called complete blood count (CBC).

**Bone marrow:** The inner, spongy tissue of bones where blood cells are made.

**Cancer:** A general term for more than 100 diseases in which abnormal cells grow out of control; a malignant tumor.

**Catheter:** A thin, flexible tube through which fluids enter or leave the body.

**Central venous catheter:** A special thin, flexible tube placed in a large vein. It remains there for as long as it is needed to deliver and withdraw fluids.

**Chemotherapy:** The use of drugs to treat cancer.

**Chromosomes:** Threadlike bodies found in the nucleus, or center part, of a cell that carry DNA, the information of heredity.

**Clinical trials:** Studies that test new medical treatments. Clinical trials are conducted with volunteers and concentrate on one of the following aspects of cancer: preventing cancer, treating cancer, or improving the quality of life of patients with cancer.

**Colony-stimulating factors:** Substances that stimulate the production of blood cells. Treatment with colony-stimulating factors (CSF) can help the blood-forming tissue recover from the effects of chemotherapy and radiation therapy. These include granulocyte colony-stimulating factors (G-CSF) and granulocyte-macrophage colony-stimulating factors (GM-CSF).

**Combination chemotherapy:** The use of more than one drug to treat cancer.

**Diuretics:** Drugs that help the body get rid of excess water and salt.

**Gastrointestinal:** The digestive tract, which includes the mouth, esophagus, stomach, and intestines.

**Hormones:** Substances produced by the endocrine glands of the body. Hormones are released directly into the bloodstream and have a specific effect on cells and organs in the body, stimulating or turning off their growth.

**Infusion:** Slow and/or prolonged intravenous delivery of a drug or fluids.

**Injection:** Using a syringe and needle to push fluids or drugs into the body; often called a "shot."

**Intra-arterial (IA):** Into an artery.

**Intracavitary (IC):** Into a cavity or space, specifically the abdomen, pelvis, or the chest.

**Intralesional (IL):** Into the cancerous area in the skin.

**Intramuscular (IM):** Into a muscle.

**Intrathecal (IT):** Into the spinal fluid.

**Intravenous (IV):** Into a vein.

**Malignant:** Used to describe a cancerous tumor.

**Mucositis:** See stomatitis.

**Palliative care:** Treatment to relieve, rather than cure, symptoms caused by cancer. Palliative care can help people live more comfortably.

**Peripheral neuropathy:** A condition of the nervous system that usually begins in the hands and/or feet with symptoms of numbness, tingling, burning and/or weakness. Can be caused by certain anticancer drugs.

**Per os (PO):** By mouth; orally.

**Platelets:** Blood cells that help stop bleeding.

**Port:** A small plastic or metal container surgically placed under the skin and attached to a central venous catheter inside the body. Blood and fluids can enter or leave the body through the port using a special needle.

**Radiation therapy:** Cancer treatment with radiation (high-energy rays).

**Red blood cells:** Cells that supply oxygen to tissues throughout the body.

**Remission:** The partial or complete disappearance of signs and symptoms of cancer.

**Stomatitis:** Sores on the lining of the mouth.

**Subcutaneous (SQ or SC):** Under the skin.

**Tumor:** An abnormal growth of cells or tissues. Tumors may be benign (noncancerous) or malignant (cancerous).

**White blood cells (WBC's):** The blood cells that fight infection.







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