

Medical Oncology involves using medications to cure or control cancer. Since medications travel throughout the body, they are called “systemic treatments” as they treat the whole body (or whole body system). They can attack a cancer cell no matter where it is in the body.

A medical oncologist prescribes and manages these medicines. Oftentimes, they also help coordinate care throughout a patient’s treatment course.

## Chemotherapy and Immunotherapy

Medicines to treat cancer may also be also known as:

- Chemotherapy (or “chemo”)
- Immunotherapy, also sometimes called “biotherapy”
- Anti-cancer drugs
- Anti-neoplastic agents

Many different drugs are used to treat breast cancer. The most common (in alphabetical order) are listed below. Please note that with clinical research there are continual additions to this list.

- Capecitabine (Xeloda)
- Carboplatin
- Cyclophosphamide (Cytosan)
- Docetaxel (Taxotere)
- Doxorubicin (Adriamycin)
- Epirubicin (Ellence)
- Everolimus (Afinitor)
- Gemcitabine (Gemzar)
- Lapatinib (Tykerb)
- Paclitaxel (Taxol)
- Pertuzumab (Perjeta)
- T-DM1 (ado-trastuzumab, Kadcyła)
- Trastuzumab (Herceptin)

Usually given in combination, these drugs target cancer cells that are growing or dividing.

## How they work

### Chemotherapy

Chemotherapy drugs work best on rapidly dividing cells. Since cancer cells divide rapidly, they are particularly vulnerable. Some normal cells also divide rapidly, including:

- Bone marrow, which produces red and white blood cells and platelets
- Hair follicles
- The lining of the mouth, throat, stomach, intestines and rectum

Fortunately normal cells have the ability to recover, while cancer cells do not. While the normal cells are recovering, you may experience some side effects. Most of these side effects can be prevented or lessened with drugs and other supportive measures.

### Immunotherapy

Immunotherapy is a type of cancer treatment that boosts the body’s natural defenses to fight cancer. Other types of biotherapy may target a specific trait of the cancer, such as a gene, to selectively kill cancer cells. These medicines may work in several ways:

- Stopping or slowing the growth of cancer cells.
- Stopping cancer from spreading to other parts of the body.
- Helping the immune system work better at destroying cancer cells.

One of the immunotherapies that your doctor may discuss with you is called monoclonal antibodies or a “targeted therapy”.

One example of this is trastuzumab (Herceptin) used to treat HER2 (or HER2/neu) positive breast cancers. HER2 positive means that there are either too many HER2 genes, higher levels of HER2 protein, or both. Approximately 25% of breast cancers are HER2 positive. Herceptin is considered a targeted therapy because it binds to HER2 receptors

and blocks the signals that normally tell the cells to grow. Because the signal is blocked, cancer cells either slow down or stop growing. Herceptin is commonly prescribed with chemotherapy for HER2 positive breast cancer. The outcome for women with this subtype of breast cancer has been improved by the addition of this targeted therapy.

Another agent that targets the HER2 receptor is pertuzumab (Perjeta). Like Herceptin, it binds to the HER2 receptor but in a different location of the receptor. Perjeta is given in combination with Herceptin and chemotherapy for a select group of patients with HER2 positive breast cancer both before surgery and for people with metastatic disease. For women with metastatic breast cancer that overproduces HER2 protein, they may also benefit from an oral targeted monoclonal antibody called lapatinib (Tykerb). Additional therapies that target specific cell features are currently under development.

Your medical oncologist will work with you to discuss the most appropriate medication for you.



## How and when they are given

Systemic therapy (or medicine that treats the whole body system) is usually given intravenously (through a vein) or orally (by mouth) and travels throughout the body. It may be given before surgery (neoadjuvant therapy) or after surgery (adjuvant therapy) to treat your cancer.

- Neoadjuvant therapy: given prior to surgery to shrink large breast tumors and make surgery easier. This may allow a woman to have a lumpectomy instead of a mastectomy. Neoadjuvant chemotherapy may also be used for women who have HER2 positive tumors.
- Adjuvant therapy: given after surgery to decrease the likelihood of relapse or recurrence. It is typically given if the cancer is large or if it appears aggressive or involves axillary lymph nodes.
- Ongoing therapy: If a patient has metastatic disease, systemic therapy may be used as a type of ongoing treatment.

Systemic therapy is given in cycles which include alternating treatment periods and rest periods. This gives normal cells a chance to recover but does not give cancer cells enough time to multiply. Each treatment may take a few hours, depending on the type of drugs used and the length of time it takes to administer each drug. Treatments may be repeated every one to three weeks, and may last four to six months or longer, depending on your treatment plan.

## Side effects of Chemotherapy and Immunotherapies

Different people have different reactions to the same systemic therapy treatments. If you undergo systemic therapy, you usually will not know how you will react or what side effects you will experience until a few days after your first systemic therapy session. Listen to your body, pay attention to what you are feeling and always report these symptoms to your doctor or nurse. Your initial experience will help you prepare for and cope better with future treatments.

Chemotherapy side effects can range from minor to life-threatening conditions depending on the chemotherapy drug used, the dosage and a person's overall health. Medical professionals must tell you about all the potential side effects of any treatment they prescribe before you give your consent.

Most side effects involve suppression of the bone marrow, hair loss, and temporary inflammation of the lining of the mouth, throat, stomach, intestines and rectum.

Suppressed bone marrow, or low blood counts, result in low production of white blood cells, platelets and red blood cells.

- White blood cells are the “soldiers” of the body. When there are too few white blood cells (neutropenia), your immune system may not be able to fight infection as well as it does normally.
- Red blood cells deliver oxygen to the body and carry away carbon dioxide from the tissues. A low red blood cell count (anemia) may make you feel weak and tired.
- Platelets help blood to clot when you get a cut or there is a leak in a blood vessel. If your platelet count is low (thrombocytopenia), you may be at risk for bleeding or bruising.

Other common chemotherapy side effects include fatigue, nausea and vomiting, diarrhea and mucositis (sore mouth and throat). These side effects are discussed in detail later in this section.

Common immunotherapy side effects include fever, chills, body aches, nausea/vomiting, loss of appetite and fatigue.

## Vascular Access Devices

*(Includes Ports and PICC lines)*

Most systemic breast cancer drugs and blood product transfusions are given intravenously every few weeks. Frequent blood tests are needed before, during, and after chemotherapy and immunotherapy. Because of the frequent use of the veins for testing and treatment, patients may benefit from placement of an IV access device (VAD) to facilitate blood draws and intravenous infusions.

VAD devices are small, flexible tubes or catheters that are inserted into a vein or blood vessel with the tip of the catheter in the large vein above the heart, called the superior vena cava (SVC). This is why VADs are sometimes referred to as “central venous access devices” or “central lines”. They can remain in place for weeks, months or even years. Depending on the type of VADs they may be inserted by a doctor or by trained nurses in a special procedure room, operating room, or at the bedside.

There are several types of VADs, but the two VADs that are commonly used for breast cancer treatments are:

- Implantable port (usually called a “port”)
- Peripherally inserted central catheters (PICCs).

Your doctor will recommend a specific type for you based on your preference, how long and how often you need it, and how much care you will be able to give it.



## Ports

Implantable ports consist of a catheter attached to a small reservoir. Port placement is done under local anesthesia by surgeons in an operating room or special procedure room. With a small incision on the skin of the upper chest, the port is placed completely under the skin with the catheter tip ending into the SVC. There is no segment of catheter showing outside the skin; just a slight raised area of the skin due to the raised center of the port's reservoir which is called the "septum". The septum is made of a self-sealing rubber material where a special needle is inserted to deliver the medication into the blood stream.

Initially, ports will need to be bandaged until the incision is completely healed. After that, a dressing is used when you are receiving chemo/immunotherapy. Ports need flushing before and after use and monthly when not in use. Ports are designed to stay in for longer periods of time.

## PICC Lines

PICC lines are usually inserted by a trained registered nurse in a special procedure room or at the bedside using ultrasound. PICC catheters are long, very thin, soft, and flexible. Using local anesthesia, PICCs are inserted into a large vein of the arm through a needle and then advanced or "threaded" through the vein to the SVC.

Once in position, the needle is removed, leaving just a small section of the catheter exposed on the arm and taped in place. PICCs can last for months with proper care.

## Safety and Maintenance of Your VAD

To keep VADs functioning well, they need flushing, cleaning and, for PICC lines, dressing changes. Flushing or irrigation is necessary to keep the catheter free from blood clots. All types of VADs need flushing before and after each use and regularly when not in use.

To help prevent or treat complications that can arise from having a VAD, it is important that you report the following symptoms or any unusual sensation that you are feeling immediately to your health care provider:

- Shortness of breath, light headedness, fainting, or discomfort on your chest within hours after the catheter has been inserted.
- Swelling, redness, heat, pain or tenderness along the vein in the upper arm and around the VAD
- Swelling of the hand, arm, and neck on the side of the catheter insertion
- Leaking of fluid or pain around the VAD with injection or infusion
- Fever, chills, back pain, general malaise
- Inability to flush or draw blood from the VAD

## Hormone or Endocrine Therapy

Medical oncologists prescribe hormone or endocrine therapy for people with estrogen positive and/or progesterone positive breast cancer.

Estrogen is primarily produced in the ovaries of premenopausal women. In post-menopausal women, the ovaries stop making estrogen but small glands above the kidneys, called adrenal glands, produce hormones (androgens) that are converted to estrogen by an enzyme (aromatase) found in muscle and fat cells.

In premenopausal women, hormone therapy blocks the estrogen signals in the cancer cell and stops cell growth. Sometimes a hormone therapy is used to stop the ovaries from producing estrogen, putting a woman in a medicine-induced menopause.

In post-menopausal women, hormone therapy prevents the hormone made by the adrenal gland from being turned into estrogen.

Endocrine therapies commonly used to treat hormone receptor-positive breast cancer include:

- Selective Estrogen Receptor Modulators (SERM's) and Estrogen Receptor Downregulators (ERD's) attach to or occupy the estrogen receptors in the cancer cell, blocking estrogen's ability to stimulate cell growth. SERM's/ERD's are commonly used to treat premenopausal women, women with DCIS and women at high risk of developing breast cancer. Common drugs in this category are:
  - Tamoxifen (Nolvadex)
  - Fulvestrant (Faslodex)
- Aromatase Inhibitors (AI's) prevent the conversion of the hormones produced by the adrenal glands in post-menopausal women to active estrogen, thereby reducing the estrogen available to the cancer cells. AI's are commonly used to treat postmenopausal women. Common drugs in this category are:
  - Anastrozole (Arimidex)
  - Letrozole (Femara)
  - Exemestane (Aromasin)
- Luteinizing Hormone-Releasing Hormones (LHRH's) are medications that shut down the ovaries, stopping them from producing estrogen, so there is less estrogen to encourage the cancer cells to grow. LHRH's are given to premenopausal women and create a medicine-induced menopause. They may be combined with tamoxifen or an AI to further reduce the amount of estrogen available to the cancer. Common drugs in this category are:
  - Leuprolide (Lupron)
  - Goserelin (Zoladex)
  - Triptorelin (Trelstar)

## Side Effects of Hormone or Endocrine Therapy

The side effects you may experience depend upon the type of hormone or endocrine therapy you are receiving. Some of the more common side effects of each class of hormone or endocrine therapy are:

SERM's (tamoxifen, fulvestrant) most common side effects include hot flashes, night sweats, vaginal discharge, mood changes, edema or swelling and menstrual irregularity. Although infrequent, SERM's can cause clots to form in the veins in your legs or other areas of your body and can rarely cause endometrial cancer (a cancer of the lining of the uterus). If you develop swelling or pain in your leg, shortness of breath, chest pain, numbness or tingling or abnormal vaginal bleeding you should contact your doctor immediately.

AI's (anastrozole, letrozole and exemestane) most common side effects include hot flushes, joint pain, mood changes, and edema or swelling. AI's can also cause osteoporosis, so your doctor may order a bone density test to monitor your bone strength.

LHRH's (leuprolide, goserelin, triptorelin) most common side effects include hot flashes, mood swings, loss of libido (sex drive) and osteoporosis. Goserelin may also cause vaginal dryness, breast swelling/tenderness, weight gain, headaches and bone pain.

## Other Treatments

### Biphosphonates

Biphosphonates are a class of drugs that are prescribed to reduce bone loss. They can be used to treat bone loss in postmenopausal women on hormone blockers. They are also used intravenously to treat women whose breast cancer has spread to bone to reduce the risk of fracture and to reduce pain.

## Systemic Therapy Side Effects and Self-Care Tips

Before undergoing systemic therapy (i.e. chemotherapy or immunotherapy, hormonal therapy), your medical oncologist will explain what to expect from your treatment, including possible side effects of the drugs.

The following information could help prevent or lessen any side effects you may experience. You may need to experiment to see which ones work best for you, or you might find something else that can help you deal with the side effects.

### Self-care Tips

Unless your doctor tells you differently, it is important to drink extra fluids while you are undergoing systemic therapy. Try to empty your bladder often.

- While you are undergoing treatment and after you stop treatment, do not have any immunizations or vaccinations without your doctor's approval. The annual flu vaccine is usually recommended.
- Regular doctor visits are very important. Your doctor needs to check your progress to make sure that the systemic therapy is working properly and to check for unwanted side effects. Your doctor will recommend a follow up visit schedule for you.



## Blood Cell Counts

Chemotherapy often affects one's blood cell counts. Your doctor's office will give you routine progress reports on your blood cell counts. You can also get this information on My Health Online.

## White Blood Cells

White blood cells (WBC) are cells that defend the body against infection. If your WBC count is low (a condition known as neutropenia) due to chemotherapy, your risk of developing an infection may increase. An infection can occur anywhere in your body or be caused by organisms normally found in your body or the environment. Your doctor may delay your treatment or decrease the dose of your chemo drugs if your white blood cell count is low.

Report to your doctor immediately if you have:

- **Fever of 100.5 or greater, unless their office instructs you differently**
- **Chills with or without fever**
- **Sweating, especially at night**
- **Earaches**
- **A severe cough or sore throat**
- **Mouth sores or ulcers, cold sores or fever blisters**
- **Infected hangnail or skin around toenails, including any redness, tenderness and /or swelling**
- **Rashes or redness, swelling or sores on the skin**

*To prevent infection:*

- Check your oral temperature whenever you feel you have a fever or have shaking chills
- Wash your hands throughout the day, especially before eating, and after using the bathroom
- Avoid people who have contagious illnesses, such as chicken pox or flu
- Do not tear or cut your nail cuticles. Use cuticle cream and push them back
- If you do cut or scratch your skin, clean the area at once with water and soap and call your doctor if you show any sign of infection, such as swelling, redness, tenderness and/or fever
- Brush your teeth with a soft toothbrush after meals or rinse your mouth after you eat
- Lubricate your lips frequently and use lotions/creams on your skin to prevent dryness
- Wash and cook all foods well
- Avoid handling fresh or dried flowers
- Avoid constipation. Ask your doctor for advice about stool softeners and/or laxatives if you experience problems. Avoid using enemas or suppositories unless instructed by your doctor
- After each bowel movement or urination, wipe yourself from front to back. If there is irritation, or if hemorrhoids are a problem, ask your doctor for advice
- Check with your doctor first before having elective dental work or surgery
- Avoid cleaning pet litter boxes
- Avoid diaper changes of children who have had recent immunizations
- Use gloves while gardening or washing dishes

## Platelets

Platelets are blood cells that help in clotting to prevent bleeding. If your platelet count is very low, you may bleed or bruise more easily than usual.

### *To prevent bleeding*

- Do not give yourself an enema. Ask your doctor for a stool softener and/or laxative if you are constipated
- Do not take any medication, not even aspirin or aspirin-free pain relievers, without first checking with your doctor or nurse
- Discuss alcoholic drinks with your doctor
- Continue good oral hygiene, use a soft bristled toothbrush to clean your mouth, and floss gently
- Clean your nose by blowing gently
- Be extra careful when using knives or other sharp objects
- Use an electric razor when shaving
- Be very careful not to burn yourself, especially when ironing or cooking. Use a padded glove when you reach into the oven
- Avoid contact sports and other activities that might result in injury
- Wear heavy gloves for digging in the garden or working near plants with thorns
- Do not have any elective dental work or surgeries without checking with your doctor first
- Discuss sexual intercourse with your doctor

## Red Blood Cells

Red blood cells (RBC) carry oxygen to the tissues in your body. When the red blood cell count is low (a condition known as anemia), your body tissues may be low in oxygen as well. Over time, you may become very tired physically and mentally.

### *To help anemia*

- Get plenty of rest; conserve your energy
- Try sleeping more at night and taking a short nap during the day
- Limit and prioritize your daily activities. Accept offers or ask family and friends to help you do your shopping, cooking or housework
- Try to eat a balanced diet, even when you are tired
- If you don't have help cooking your meals, use ready to eat foods. Double your recipes on days that you have energy to cook; place them in small containers and freeze them. You may want to contact "Meals on Wheels" about delivering food to you.

Report to your doctor immediately if you:

- Get dizzy or light-headed often
- Have headache or are unable to concentrate
- Tire easily
- Are getting weaker and unable to do everyday activities
- Have shortness of breath
- Have a pounding heart

- Drink plenty of fluids
- Continue to do things you enjoy. Walk if able, at your own pace, for at least 30 minutes each day.
- Move slowly to avoid getting dizzy. For example, when you wake up, instead of getting out of bed quickly, sit on the side of the bed for a while before standing. If you still feel dizzy, talk to your physician or nurse about what you should do.
- If you experience shortness of breath, breathe through your nose and exhale slowly with your lips pursed.



## Fatigue

Fatigue is loss of energy that persists despite adequate rest and sleep. The feeling is disproportionate to or unrelated to activity. It can be mild, moderate or severe. Many things can cause fatigue, including:

- Anemia
- Cancer treatment
- Coexisting medical conditions, such as high blood pressure (hypertension), diabetes or thyroid disorders
- Depression
- Electrolyte imbalance/dehydration
- Immobility or lack of exercise
- Infection/fever
- Insomnia or not sleeping well at night
- Menopause
- Pain
- Poor nutrition
- Stress
- Surgery

### *Protective and Preventive Measures*

- Be reassured that fatigue related to your cancer treatments is common
- Simplify your work or activities by breaking them down into smaller steps
- Plan your activities for times when you have energy. Pace your activities and include rest breaks in your plan
- Always check first with your doctor about exercise. If it is okay with your doctor, exercise for several short periods, rather than one long period. The duration of exercise is based on your normal level of activity. Walking at least half an hour a day is generally recommended, unless your doctor says otherwise.
- Practice energy conservation by alternating activities with short, frequent rests
- Relaxation, meditation, biofeedback and massage therapy may help
- Prioritize your activities by doing the things that are important or essential and decrease or eliminate activities that are not essential
- Limit alcohol and caffeine intake
- Eat a high protein, high calorie diet and maintain good hydration by drinking plenty of fluids
- If you do not have help cooking your meals, use ready to eat foods. Double your recipes on days that you have energy to cook. Place them in small containers and freeze them. You may want to contact “Meals on Wheels” about delivering food to you.
- Try to establish good sleeping habits at night and only take short naps during the day.
- Keep room temperatures moderate, not too hot or cold.
- Tell your doctor if your energy level is preventing you from completing your activities of daily living (ADL) or activities that you normally enjoy.



## Nausea and Vomiting

Many of the systemic drugs used for breast cancer may cause nausea and vomiting (N&V) due to the effect of chemotherapy and immunotherapy on the stomach. The severity of this side effect depends on the type and dose of drugs used. If the drugs prescribed are known to cause moderate to severe N&V, your doctor may order anti-nausea (or “antiemetic”) drugs before you start taking them. You may also receive a prescription for anti-nausea medication to take for a few days following treatment whether or not you feel nauseous.

Sometimes women experience nausea even before receiving chemotherapy or immunotherapy. This type of nausea is called “anticipatory nausea,” which is usually associated with anxiety.

### *Protective and preventive measures*

- Use anti-nausea medication prior to chemo and continue through the entire anticipated duration of N&V. There are many anti-nausea medications available. Ask your doctor which ones would be good for you. Let your doctor know if the medications do not work for you.
- Rinse your mouth often to reduce the metallic taste you may experience.
- Take anti-nausea medicine before meals.
- Helpful therapies might include counseling and relaxation techniques. Breathe deeply and slowly if you start to feel nauseous.
- Environmental changes.
- Choose a calm and comfortable area to rest, especially after meals. Avoid lying flat for at least one hour after a meal.
- Minimize distinctive odors, including perfumes, room deodorizers and disinfectants (strong smells can trigger nausea).
- “Aromatherapy” can be helpful for some people (see Integrative Therapy chapter).

## Dietary Interventions

- Eat small frequent meals. Eat light meals before chemo/immuno therapy. Eat before you get hungry. An empty stomach will make N&V worse.
- Suck on mints or hard candy during chemotherapy.
- Try using ginger either as a tea ( fresh or candied) or in broth
- Avoid concentrated sweets (cakes, cookies), fried, fatty, spicy and highly salty foods.
- Eat rice, bread, potatoes, hot cereals, puddings and other carbohydrate foods as they are more easily digested.
- Get adequate fluid intake to prevent dehydration: clear liquids or broth, unsweetened fruit juices, or light-colored sodas that have lost their fizz, such as ginger ale.



- Sip beverages slowly between meals to avoid bloating.
- If N&V occur in the morning, eat dry foods like toast, crackers or pretzels before getting out of bed.
- If you experience taste changes and N&V avoid your favorite foods. It may make it so you won't want to eat them in the future.
- Avoid food with strong smells.
- Dieting during cancer treatment is not recommended.

*See the Wellness and Integrative Therapies sections of this binder for more information about diet and nutrition.*

## Mouth Sores (Mucositis)

Mucositis (mouth sores, also known as stomatitis) refers to inflammation and sores of the mucosa (lining) of the mouth. They are caused by the effects of chemo drugs (especially methotrexate, doxorubicin and fluorouracil) on rapidly dividing mucosa cells found from the mouth to the anus (gastrointestinal tract) and by suppression of the bone marrow (myelosuppression), which decreases blood cell production. Oral mucositis occurs within two to five days after chemo and can last up to two weeks or longer. You may not be able to prevent mucositis, but you can help lessen the symptoms and prevent secondary infection in your mouth by using good oral hygiene and frequent baking soda or salt mouth rinses. Talk to your doctor about your mucositis. Your doctor may order prescription mouth rinses if necessary.

### Signs and symptoms of oral mucositis

- Burning sensation
- Sensitivity to hot and cold foods
- Sensitivity to salty and spicy foods
- Intolerance of citrus fruits
- Mild redness (erythema) or swelling (edema)
- Sensation of dryness

Mucositis can cause pain, difficulty eating and swallowing, and increased risk of infection because of open sores in the mucosa. Let your doctor or nurse know if you have any of the following:

- Red, shiny or swollen mouth and/or gums
- Blood in your mouth
- Sores, white patches or pus in your mouth (including gums and tongue)
- Soreness or pain in your mouth or throat
- Burning, pain or a feeling of dryness while eating
- Your saliva is thicker or you have mucus

## Protective and preventive measures

- Treat dental problems before starting chemo.
- If you wear dentures, use them only when eating.
- Stop smoking. Smoke will make your mouth drier and more irritated.
- Check your mouth daily and tell your doctor if you have any of the signs and symptoms of significant oral mucositis. Make sure to look under dentures.
- Keep your lips moist with lip balm or other moisturizers to prevent dryness and cracking.
- Keep your mouth clean and moist to prevent secondary infections. Use a soft toothbrush and rinse your mouth frequently with one teaspoon of salt and/or baking soda in a glass of water. You may use a sponge swab if there is too much pain or bleeding. Avoid commercial mouthwashes since their alcohol content can be irritating and drying.
- Over the counter products like Biotene® may help with dry mouth.
- Avoid using lemon glycerine swabs to clean mouth because of their drying effect.
- Your doctor may prescribe some medications called “magic mouthwashes” that temporarily relieve mouth pain. He or she may also recommend topical medicine or pain relievers that you apply directly to mouth sores.

### *Nutritional support for mucositis*

- You may need to change your diet if the mucositis is severe.
- Take small bites and chew slowly.
- Eat foods that require a minimum of chewing (i.e., food chopped or cut into small pieces, blended or pureed foods, casseroles and soups) and are easy to swallow, such as bananas, applesauce, mashed potatoes, custards, scrambled eggs, etc.
- Avoid eating citrus fruits, tomato products, spicy or salty foods, and dry and hard foods, especially those with rough surfaces.
- Add sauce or gravy, or dip foods in beverages to make food softer and easier to swallow.
- Cold foods may be more soothing. Try ice cream, popsicles, jello, cottage cheese, yogurt, pudding, etc.
- If you cannot eat solid foods because of severe mucositis, use nutritional supplements (such as canned liquid supplements or milkshakes).
- Drink plenty of fluids to keep your mouth moist. Avoid caffeinated coffee, tea and alcohol.



## Diarrhea

Diarrhea is frequent bowel movements of soft, mushy or watery stools. It can be caused by the effects of chemo/immuno therapy on the lining of the bowel. It can also be caused by medications, certain foods, or possibly an infection.

### *Protective and preventive measures*

- Tell your doctor or nurse if you have fever, excessive thirst, dizziness, palpitations, rectal spasms, abdominal cramps, watery stool, bloody stool, or diarrhea that will not go away despite treatment.
- Eat foods that are lactose-free (lactose is the simple sugar found in milk and milk products), low-fat, and low-residue (foods that do not contain high fiber or roughage).
- Your physician may recommend a change in the medications you take.
- If your diarrhea is bad, do not eat or drink for a few hours to allow the gut to rest. When you feel better, try drinking clear liquids, such as clear broth and beverages, then go to a bland diet such as the BRAT diet mentioned next.

### *Foods to eat*

- BRAT diet (Bananas, rice, apple sauce or peeled apples, and toast without butter)
- Foods containing pectin (bananas, avocados, asparagus tips, beets)
- Foods rich in sodium and potassium (minerals lost due to diarrhea), such as peeled apricots; bananas; peach and apricot nectar; broccoli; skinless baked, boiled or mashed potatoes; meat; mushrooms; cottage cheese (lactose-free variety)
- Liquids: drink at least 1/2 oz per pound of your body weight (generally 1.5 to 3 quarts/liters) a day. Try peach nectar, bouillon and sports drinks, cranberry juice, grape juice, ginger tea, gelatin, non-carbonated or lightly carbonated drinks
- Try adding nutmeg to foods to reduce over-activity of the gut or small bowel



### *Foods to avoid*

- Gluten (a wheat protein)
- Milk and milk products, except for:
  - Buttermilk and yogurt may be tolerable because the lactobacillus in buttermilk and yogurt alters the lactose.
  - Processed cheese may be tolerable because the lactose is removed when the whey is separated from the cheese curd.
  - Canned supplements, such as Ensure, are lactose free and may be used.
- Stimulating or irritating foods (spicy foods, coffee, tea, chocolate, alcohol)
- High fiber foods because of gas formation (prune and orange juice, nuts, whole grain, beans, popcorn, pickles, relishes, peas, cauliflower, broccoli, and cabbage)
- Raw vegetables and the skins, seeds and stringy fibers of vegetables and unpeeled fruits
- High fat foods

### *Antidiarrheals*

There are many anti-diarrhea medications that can be bought over the counter or with a doctor's prescription. If one medication does not work for you, let your doctor know.

### *Drugs to avoid*

- Bulk laxatives (such as Metamucil) may enhance gastrointestinal activity and contribute to more severe diarrhea. However, sometimes doctors may recommend a little bit of Metamucil to help form stools
- Stool softeners or laxatives
- Herbs

## Skin Care

- Prevent skin irritation or breakdown on your rectal area by applying A&D ointment, Aquaphor, or other products on your clean skin to prevent the stool from sticking.
- Proctitis is an inflammation of the rectum/anus. Symptoms include mucousy rectal discharge, rectal pain and rectal bleeding. If you develop proctitis, your doctor may order rectal cream, hemorrhoidal preparations with hydrocortisone, or the use of sitz baths.
- Keep your perineal area (area between your rectum and vagina) clean and dry.

## Heartburn

Heartburn is the burning or pressure sensation along the esophagus, a part of the body where food passes from the mouth to the stomach, and in the upper part of the stomach. It is usually caused by the reflux of stomach acid into the esophagus. This can also result in irritation of the esophagus. At times, this can feel like nausea.

### *Protective and preventive measures*

- Eat small, frequent meals
- Avoid lying down but do walk around after eating. Wait for at least 2-3 hours before lying down
- Reduce your intake of tea, coffee, chocolate, sodas and alcohol
- Avoid spicy, acidic, fried and fatty foods
- Stop smoking
- Avoid exercising immediately after eating
- Use at least 2 pillows to elevate your head when lying down
- Take antacid as directed on the bottle or by your doctor to relieve heartburn.

### *Medications*

If your symptoms are not getting better, or it is a recurring problem, your doctor may prescribe another medication to help.

## Constipation

Constipation means not moving your bowels as often as you normally do, being unable to move your bowels, or needing to push harder to move your bowels.

Constipation may be caused by some chemo/ immunotherapy drugs, pain medications, anti-nausea medications, calcium and calcium containing medications, some antidepressants, and antispasmodic or medicine for stopping abdominal cramps. Other causes are from not drinking enough fluid, not eating enough foods containing fiber or being inactive.

### *Protective and preventive measures*

- Drink plenty of liquids such as water, prune juice, warm juices, hot water with lemon juice and decaffeinated teas. Drink at least 1/2 oz per pound of your body weight. For example, if your weight is 140 lbs, drink about 70 oz of liquids.
- Try to move your bowel regularly at the same time each day to develop a regular bowel habit
- Over the counter Senokot or senna taken as directed maybe helpful
- If eating high fiber diet is not contraindicated, eat wheat bran, wheat germ, whole-grain bread and cereals, fruits (with skin on, fresh or dried) and vegetables, popcorn and dried beans and peas such as lentils, split peas, and kidney, garbanzo and lima beans. Make sure you are also drinking plenty of fluids with the fiber.
- Try to participate in regular, daily exercise. Check with your doctor if you have a limit as to what kind of exercises you should not be doing.
- If you are taking medications that can cause constipation, consider taking a stool softener.

### *Medications*

If your constipation does not improve, your doctor may recommend a stool softener and a laxative regimen. There are many types of medications for constipation but your doctor will help you find the best option for you.

## Hair Loss (Alopecia)

Hair loss is temporary. It usually starts between ten days to a few weeks after chemotherapy and will start to re-grow in about six to eight weeks after chemotherapy is completed. The degree of hair loss can be minimal, moderate or severe. It depends on the type of chemo drug used and the dose and duration of the therapy. Hair loss may not be limited to the scalp. It can affect the eyebrows, eyelashes and other body hair. Your hair may come back a different color and texture.



### *Helpful hints to cope before, during and after hair loss*

- Remember that your hair will grow back.
- Be gentle with your hair. Use mild shampoo and a soft hairbrush.
- Avoid using electric curlers, curling irons or hair dryers.
- Avoid dyeing your hair or getting a “perm” as these may hasten hair loss and irritate the scalp.
- Before you start losing your hair, consider having it cut short. This will help you get used to the new look and can make hair loss less emotionally difficult.
- Start wearing a turban, especially at night, a week after starting chemo to catch falling hair. This will help prevent the sight of hair on your pillow, blankets or pajamas.
- Hair may fall out in clumps and can leave “patches” on your head. Some women choose to clip their hair short with hair clippers to avoid the patchy look.

## Wigs and Head Coverings

- Before starting, or immediately after the first dose of chemo, consider buying and wearing a wig so that you, your family and friends can get used to your new look. Purchasing a wig prior to hair loss will also make it easier to match your own hair color and style. Wigs can be made of human hair or synthetic materials. Human hair wigs are expensive. Synthetic wigs are less expensive and easy to care for.
- Free wigs may be available through the American Cancer Society, local organizations or hospitals.
- Some women may not tolerate wigs because they find them uncomfortable or “just not their style.” Other head coverings are available, such as turbans, hats, scarves or hairpieces. You can use hair accessories to make your hat or turban more stylish or attractive.
- The American Cancer Society offers a free program, “Look Good...Feel Better,” for patients who are currently, or will be, receiving active cancer treatment that may cause changes to their skin or hair. Certified cosmetologists teach the program. They show women how to take care of their skin, how to apply makeup, and how to choose and fit wigs, turbans and hats. The

*American Cancer Society can be reached at 1-800-ACS-2345.*

- Keep your scalp covered and use sunscreen to prevent sunburn. Use mild shampoo to clean the scalp and apply soothing emollients or lotions to prevent itchiness and dryness.
- When hair starts to return, it may have a different color or texture compared to your “old” hair. The new hair may be curly.

## Cold Caps

At the time of this binder creation, there is some disagreement about the use and effectiveness of cold caps. Some insurances do not cover them. You will need to talk with your medical team about using them.

Cold caps and scalp cooling systems work by narrowing the blood vessels beneath the skin of the scalp, reducing the amount of chemotherapy medicine that reaches the hair follicles. With less chemotherapy medicine in the follicles, the hair may be less likely to fall out. The cold also decreases the activity of the hair follicles, which slows down cell division and makes the follicles less affected by the chemotherapy medicine.

The most common side effects include headaches, neck and shoulder discomfort, chills and scalp pain.

## Early Menopause and Fertility

Chemotherapy may induce early menopause, either temporarily or permanently, depending on your age and the type of treatments given. If you wish to consider having children following your treatment ask your medical oncologist about a referral to a fertility specialist that has expertise in treating women undergoing cancer treatments before starting treatments.

Menopausal symptoms may include hot flashes, vaginal dryness or thinning of the vaginal wall, painful intercourse, decreased libido (sex drive), mood changes and sleep problems. Menopausal women are also at risk for developing osteoporosis or bone loss. These symptoms are discussed in greater detail in the “Healthy Living” section of this notebook.

The information in this section will help you plan and prepare for your treatment. However, it is not meant to replace the individual attention, advice, and treatment plan of your oncologist and medical team.