

# Understanding Chemotherapy

*Information for Patients  
and Their Loved Ones*

Richard J. Cardosi, MD  
Logan Blankenship, MD

Comprehensive Care for Women  
with Gynecologic Cancer



**Richard J. Cardosi, MD**  
**Logan Blankenship, MD**



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COMPREHENSIVE CARE FOR WOMEN WITH GYNECOLOGIC CANCER

Dear Patient:

We are truly honored that you are allowing us to participate in your cancer care. We recognize that this is a very difficult and emotional time, but we sincerely hope that the information provided in this booklet and the compassionate care you receive through our office will ease some of your anxiety and foster a sincere sense of hope. After reviewing this information, you and your loved ones should gain a better understanding of chemotherapy and what to expect along your journey.

Since no two people experience chemotherapy exactly the same and different drugs are used for different cancers, this booklet will not address every possible emotion that you may experience or every possible side effect of your treatment. This information is meant to serve as only a guide. Some additional literature specific to your individual chemotherapy drug(s) will also be given to you in the office, and we will of course remain available during and after your treatment to assist you with any cancer related needs that may arise.

Throughout your course, we are confident that your loved ones will remain supportive, optimistic, and encouraging. Our office will also strive to be a partner in your treatment and not just a provider by keeping your quality of life in mind while providing you with the highest caliber state-of-the-art care.

Again, thank you so much for your trust in permitting us to be involved in your care. We genuinely hope you will find the relationship with our office rewarding.

*Richard Cardosi, MD*

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*Logan Blankenship, MD*

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*It is entirely normal to have questions, concerns, and mixed feelings about receiving chemotherapy. We hope that providing you and your loved ones with an improved understanding of chemotherapy will lessen your anxiety and resolve your concerns.*

*Having accurate information about your treatment may prevent or minimize some of the side effects of chemotherapy as well.*

*We sincerely hope that you find this information helpful but also want you to know that we are always available for you.*



## Overview

Chemotherapy is the use of medication to treat a disease or illness, and most people associate chemotherapy with the treatment of cancer. There are many different cancer-fighting drugs available, and not all cancers are treated the same. You may require surgery or need radiation in addition to your chemotherapy. Unlike surgery which only removes certain structures or tumors, and unlike radiation which only destroys cancer cells specifically where the radiation is aimed (e.g. the pelvis), chemotherapy works throughout your body. This means that chemotherapy can destroy cancer cells that may have spread, or metastasized, outside the original tumor location. You may receive a

single drug or a combination of drugs, but research and previous clinical trials help us determine which chemotherapy drug(s) are best for you and your particular set of circumstances.

Our body is made up of billions of cells, each with a specific function. Under normal and healthy circumstances, all of these cells work together to carry out the every day functions of our body. Unfortunately some of these normal cells can change to abnormal cells and become a cancer. Cancer cells do not work properly in the body and grow out of control causing harm to or a crowding out of the normal cells. The cancer cells can also break away and spread, or metastasize, to other parts of the body where they continue to grow out of control. Chemotherapy is used to fight against and kill these cancer cells.

Chemotherapy works best against fast growing cells. Since cancer cells grow faster than our normal cells, the chemotherapy targets the cancer cells more specifically. However, our normal cells are also affected by chemotherapy. Our normal cells are fortunately better than the cancer cells at repairing the damage caused by chemotherapy. These factors help explain why we develop side effects from chemotherapy but are able to recover, and yet the cancer cells are still destroyed.

## How is chemotherapy given?

Chemotherapy is available as oral formulations (pills), injections (shots), intravenous infusions (via a port or vein in your arm or hand), or as an injection into a space (e.g. into the abdominal cavity or spinal canal). Intravenous infusions are most often used for the treatment of gynecologic cancers, but we do utilize intraperitoneal (infusions into the abdomen) and oral formulations on occasion as well. Most patients find a mediport beneficial and convenient for intravenous chemotherapy, and an intraperitoneal port is required for intraperitoneal chemotherapy (both of these devices require a minor surgery for placement).



Chemotherapy is either given in the office setting or in the hospital. When an office setting is appropriate, your chemotherapy will be given in the infusion center at the Cancer & Research Center (white building located across the parking lot from our office). Depending on the drugs used, your chemotherapy infusion may take only a few minutes or last several hours. An over-night infusion pump is also sometimes used to continue a chemotherapy infusion at home as some drugs require a prolonged infusion time (this prevents the inconvenience and expense of hospitalization for prolonged infusions). A family member or friend may certainly accompany you during your treatments, and we in fact encourage such.

You may only have to receive an infusion once every three to four weeks, or treatment may be given weekly. Some regimens require several treatments in one week but then no further infusions for another three to four weeks. The total number of treatments required will depend on your cancer type. Of course, treatment type, location, timing, and duration may change depending on how your cancer responds to the chemotherapy. Prior to each cycle, you will be seen in the office for an examination and review of your



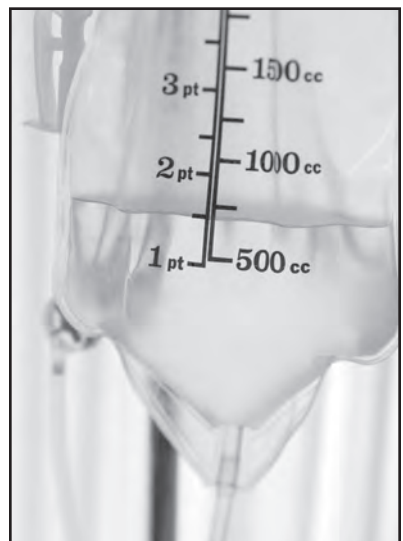
medical history with special attention to any areas of concern or side effects that you may be experiencing from your chemotherapy. Some weekly treatment regimens will only require a monthly exam while others require a weekly visit; your doctor will discuss your specific situation when the initial treatment plan is outlined.





Laboratory studies will be needed prior to each infusion to be sure your body has recovered to an appropriate level prior to administering your next cycle of chemotherapy. We typically request that these labs be drawn a day or two in advance so that the results will be available at your visit and minimize your wait time. Knowing the results of your lab work at your visit will also allow your doctor to discuss these results with you in person and explain any treatment changes that may be required because of the laboratory findings.

In essence, every chemotherapy regimen is tailored to each individual and their particular cancer. We strive to minimize the need for hospitalization by doing as much as possible in the office setting. The particulars of your treatment with regards to location, timing, and number of cycles will be reviewed with you in detail by your doctor. You will also be given additional detailed literature regarding the exact chemotherapy drug(s) that you will be receiving, which will explain how the drug works and what specific side effects are likely to be encountered.



## What about side effects?

Although chemotherapy targets faster growing cells, chemotherapy drugs affect both normal cells and cancer cells. The damage to normal cells can cause side effects; however most normal cells can repair injury caused by chemotherapy or replace themselves if destroyed by chemotherapy. Obviously not all chemotherapy drugs cause side effects or the same set of side effects, and not all patients are affected to the same degree. That is, people receiving similar treatments may experience different side effects. Common side effects are listed below along with suggestions on how you can prevent or minimize these side effects.

**Bone marrow suppression** is a common side effect to most chemotherapy drugs. Bone marrow is the soft core of tissue found in the center of your large bones. The bone marrow is responsible for making three types of cells: red blood cells, which carry oxygen throughout the body; white blood cells, which fight infection and are part of your immune system; and platelets, which help your blood clot to stop bleeding when injured. Chemotherapy interferes with your bone marrow's ability to make these cells, and your blood counts fall to a level below normal. After a period of time (that differs for each chemotherapy drug), your blood counts reach their lowest value, called a nadir, and then begin to return to normal.



- *Anemia* is the result of not enough red blood cells and may cause fatigue, chest pain, palpitations (fast heart rate), shortness of breath, or dizziness.
- *Neutropenia* results when your white blood cell count goes too low, and this will put you at an increased risk for infection.
- *Thrombocytopenia* is the term for too low of a platelet count. This can lead to excessive bruising or bleeding after only minor injury such as brushing your teeth or blowing your nose. You may also see blood in your urine, dark tar-like stools, or small red spots under the skin (petechiae).

Bone marrow suppression for the most part cannot be prevented.

Occasionally medications are required to minimize the degree of bone marrow suppression, but there are actions you can take to lessen problems you may experience from low blood counts.

- Wash your hands frequently, but especially before eating and after using the bathroom.



- Use a soft tooth brush and brush your teeth after each meal.
- Avoid close contact with people who have a cold, rash, or the flu; in most cases you can continue to participate in normal activities such as going to church, shopping, movies, sporting events, and other public places.
- Allow others to clean bird cages, cat litter boxes, fish tanks, and other pet areas.
- Wear gloves when working in the garden or yard and while washing dishes.
- Wash all foods well before cooking and cook all foods thoroughly, especially meat, fish, and eggs. Temperature recommendations can be obtained from your local meat market or grocery store.
- Always wear shoes; non-skid slippers and closed toe shoes are best.
- Keep fingernails and toenails clean.
- Try to avoid cuts and injuries by avoiding contact sports or other activities that may increase your likelihood of injury.
  - If you are cut, hold pressure until the bleeding has stopped. If the bleeding does not stop within a reasonable amount of time, you should proceed to the nearest emergency room.
  - Wash all cuts thoroughly and apply an antibiotic ointment (e.g. Neosporin or similar) daily, and keep the area covered with a clean dressing that is changed daily until the wound heals.
- Consider an electric razor to avoid razor cuts.
- Blow your nose gently one nostril at a time, keeping your mouth open.



One of the most severe consequences of bone marrow suppression can occur if your white blood cell count gets too low and you develop an infection. Therefore, if you



feel you are developing a common cold, urinary tract infection, or similar, contact the office during normal hours for assistance. Call the doctor immediately if you have a temperature of 100.5 °F or higher or severe shaking chills — even if in the middle of the night. Depending on your clinical circumstances, this febrile event may require hospital admission; but it will most certainly require an office evaluation and some blood work at a minimum.

Some of the blood work obtained prior to each chemotherapy cycle helps be sure your bone marrow has recovered adequately prior to the next treatment cycle. Occasionally, other medications are required to help your blood counts return to a safe level prior to your next chemotherapy cycle. An overview of these medications can be obtained from our office, and your doctor will review them in more detail if it becomes necessary for you to receive such.

***Changes in the digestive system*** can occur with chemotherapy. Your mouth, esophagus, stomach, small intestine, and large intestine may be affected. You may notice mouth sores, a change in appetite, different tastes or smells, a feeling of nausea with or without vomiting, diarrhea, or constipation. Which of these symptoms you experience will depend on the specific chemotherapy drug you receive. Our office will review with you what to expect, and most of these symptoms disappear after completing chemotherapy.

- Appetite changes are common among people taking chemotherapy. Eat what appeals to you, and consider smaller meals eaten more frequently. Keep high calorie/high protein snacks around such as peanut butter, hard boiled eggs, cheese, and yogurt. Drink nutrition supplements (Milk shakes, Carnation Instant Breakfast, Ensure, Boost, Glucerna, or equivalents) between meals to help maintain weight. Avoiding fried and greasy foods may be helpful at preventing bloating, nausea, and gas pains. Megavitamins and supplements are not required and, in fact, have been shown to interfere with the function of chemotherapy. A standard over the counter multivitamin (e.g. Centrum) is safe and is certainly adequate.



- *Mucositis* is sores/ulcers in the gastrointestinal tract. We most commonly see these in the mouth, and they can cause pain and difficulty eating or swallowing. This can be minimized with good oral hygiene including regular



tooth brushing with a soft nylon tooth brush. An oral rinse with a warm salt-water solution (1/2 teaspoon salt mixed with 8 ounces water) or a baking soda solution (1/2 teaspoon baking soda mixed with 8 ounces of water) after tooth brushing is helpful at preventing problems but is also a good start towards treatment if you begin to develop some mouth sores. Avoid mouth washes that contain alcohol. You should also avoid spicy, heavily seasoned food if oral mucositis develops. You may find soft foods such as casseroles or soups and cold/room temperature foods more tolerable during a mucositis outbreak. Prescription medication is available if the gargle solutions above and suggested dietary changes are not effective at resolving your symptoms.

- *Nausea and vomiting* are fortunately much less common than they were in the past with chemotherapy. Nausea and vomiting may develop immediately or may not develop for several days following chemotherapy. You will be given medications to help prevent nausea with each chemotherapy infusion. You will also receive prescriptions for anti-nausea medications. Some of these are taken regularly (whether or not you have symptoms) while others are taken only if symptoms develop. Our office will review your prescriptions and directions for how to take each medication. Some additional suggestions to minimize nausea and vomiting are listed below:
  - Eat small, frequent meals.
  - Eat bland foods such as toast, crackers, and applesauce.
  - Avoid alcohol.
  - Choose room temperature foods.
  - Sip small amounts of liquids throughout the day instead of large amounts at one time.

If you are unable to tolerate a liquid diet for more than 24 hours, you should call your doctor—even if on the weekend. Also, if you take the prescribed medicines and follow the above recommendations but still have problems with nausea and/or vomiting, please call the office but be prepared to answer the following questions so that we can provide you with the most helpful suggestions and/or additional medications.

- When did the nausea and vomiting start?
  - What makes the nausea and vomiting worse?
  - What makes the nausea and vomiting better?
  - How long has the nausea and vomiting been present?
- 
- Diarrhea may be caused by chemotherapy (often related to mucositis of the intestinal tract) or due to other factors such as radiation treatments or gastroenteritis. Patients have found that eating low fiber foods high in protein (apples without peeling, applesauce, bananas, avocados, eggs, pasta, potatoes, non-fried meat/fish, low fat milk, cooked vegetables, pudding) may reduce the amount of diarrhea while maintaining adequate nutrition; consider avoiding the dairy products if diarrhea is severe. Nutmeg can be sprinkled on foods as well to slow down your digestive system. You should also stay well hydrated by drinking at least 6-8 glasses of fluid daily. Since diarrhea can lead to a loss of potassium, you should eat foods rich in potassium (bananas, avocados, oranges, potatoes).  
Avoid alcohol, caffeine, whole grains breads, nuts/seeds, and gas forming foods (cabbage, broccoli, onions, raw vegetables) as these can irritate your digestive system and may lead to cramping. You can try some over the counter anti-diarrhea medications if needed. If diarrhea persists for more than 2 days, please call the office for assistance.



- *Constipation* can be caused by many medications including chemotherapy. High fiber foods (bran, fresh or dried fruit, fruit juices, raw vegetables, fiber supplements) pass through your digestive system faster and help regulate your bowels. Plenty of fluids and exercise are also necessary to keep your bowel movements regular, so drink at least 6-8 glasses of fluid and take short walks daily. Hot beverages, regularly scheduled meals, and going to the bathroom as soon as you have the urge are also helpful at preventing constipation. Over the counter stool softeners and non-stimulant laxatives (e.g. Miralax) are also very effective when taken regularly. The office can also provide you with additional more detailed literature on the prevention and management of constipation if needed.



**Hair loss** (alopecia) may result from chemotherapy. Not all chemotherapy causes hair loss, and different chemotherapies cause different degrees of hair loss. Hair loss may also be sudden or gradual. Since this side effect is very noticeable to those around you, it is not

unusual to be very upset about hair loss. Fortunately, your hair will typically grow back after completing chemotherapy. It may grow back as a different color or texture.

There are no proven methods to prevent hair loss. You may find that getting a shorter hair cut/style prior to beginning treatment will cause your hair loss to be less noticeable to others. Also, wigs, scarves, hats, and turbans can be used to disguise hair loss. Many insurance carriers will cover the cost of a wig, and we will gladly give you a prescription for a “hair prosthesis” if this is the case with your health insurance. The costs of a wig may also be tax deductible as a “medical expense,” but you should confirm this with your tax advisor. The American Cancer Society may also be able to provide some assistance in obtaining wigs and coping with hair loss.



**Fatigue** is when you feel more tired than usual. This is experienced by many patients taking chemotherapy, but fatigue may also be due to loss of appetite, lack of exercise, or the cancer itself. Cancer/chemotherapy fatigue is different than the fatigue that others may experience in every day life. Cancer related fatigue may appear suddenly and be overwhelming. It is not always relieved by rest, and it may last until treatment is completed. Fatigue can obviously affect your mood and emotions and certainly interfere with your ability to perform your normal every day activities. Fatigue can also make prolonged periods of concentration difficult, and it may be necessary to decrease your home or professional work load during chemotherapy. You may find the following helpful at minimizing fatigue.



- Continue to participate in your normal activities as much as possible.
- Eat a well balanced diet and exercise regularly. Even short walks daily are beneficial.
- Rest and relax when you feel tired, and develop a consistent sleep pattern/schedule.
- Prioritize what is truly important to you and accomplish those tasks when you have energy.
- Allow others to help you, especially with routine household activities.

Anemia (low red blood cell count) can also lead to fatigue. We will be monitoring your blood counts throughout your treatment course and will communicate the significance of these results with you as it relates to your fatigue. Occasionally, other medications to help build up your red blood cell count or a blood transfusion may be recommended.

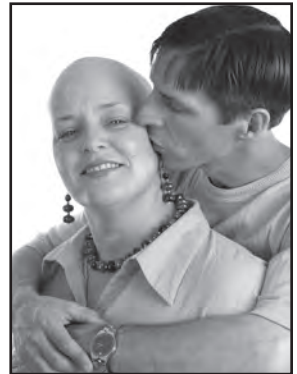
The potential for fatigue often causes one to wonder about whether you can continue to work while taking chemotherapy. Many people can continue working during chemotherapy, but this depends entirely on how well you tolerate the treatments and the type of work you do. If you wish to continue working, you will likely need to adjust your schedule and/or duties to coincide with how you feel. In essence, working while on chemotherapy is not strictly prohibited but will likely require some schedule adjustments and an understanding employer. We will be glad to assist you with your job circumstances in whatever way possible.



***Skin changes*** may occur as a result of chemotherapy. Some chemotherapies can cause a rash or a darkening of your skin or nails. Some chemotherapies may make you more susceptible to sunburn. Be sure to use sun screen (minimum sun protection factor [SPF] of 15) liberally on sun exposed areas and try to limit time in direct sunlight. You may also find hats and long-sleeved light weight clothing to be of benefit at protecting you from sunburn. You should avoid the use of tanning beds while taking chemotherapy.

***Sexuality and fertility*** can also be altered by cancer treatment. Surgery, radiation, and chemotherapy can all affect your fertility or ability to have children in the future. Your doctor will discuss these issues with you as applicable. Specifically, chemotherapy can pose significant risk to an unborn child, so it is extremely important that women of reproductive age still capable of becoming pregnant use a reliable form of contraception or be abstinent during chemotherapy. If you are pregnant or become pregnant during therapy, you should notify your doctor immediately.

Most chemotherapy drugs do not directly affect your ability to have sex; however, the associated fatigue and emotional stress can decrease your desire to be sexually active. Women may also experience changes to the menstrual cycle and vaginal dryness or irritation. Menstrual irregularities should be discussed with your doctor at your next office visit. Over the counter vaginal lubricants (e.g. Astroglide) and moisturizers (e.g. Replens) can be used to lessen some of these vaginal symptoms and potentially make sex more comfortable.



***Other side effects*** not discussed above include changes to your heart, lungs, nervous system, and the risk of developing secondary cancers among others. These types of side effects are very unique to certain drugs and will be reviewed with you as appropriate by your doctor. Our office will prepare you for all possible side effects due to your particular chemotherapy prior to your first cycle of treatment. We will also recommend ways to minimize and manage side effects. You will be given additional information that is specific to the particular drug(s) you will be receiving as well.



## What else should I know?

No two people experience cancer or chemotherapy the same way. What is normal for you may be very different from what your friends or family may have experienced themselves or witnessed in others receiving chemotherapy. Nobody can tell you how you should think or feel. Only you know what is right for you, and our office hopes to support you during all aspects of your treatment by being as compassionate as possible and keeping quality of life in mind but also doing our best to provide you the highest quality, state of the art, and up to date medical care.

Do not be surprised if you experience emotional ups and downs. At times, you may be angry, afraid, or depressed, while at other times you will be hopeful and confident. People with cancer often have sudden mood changes with crying one minute followed by laughing the next. Do not struggle with these mood swings; however you feel now or later is perfectly normal.



Many women also wonder about nutritional supplements, mega-vitamins, herbs, and other forms of alternative therapies as a way to fight their cancer. There is certainly some very interesting research going on in these areas. However, some of these products can change the way chemotherapy works or even decrease its effectiveness. These alternative therapies may also interfere with your body's normal metabolism and elimination of chemotherapy. For these reasons, we suggest that you do your best to maintain a healthy balanced diet while receiving chemotherapy and avoid such supplements. A general one-a-day type vitamin (e.g. Centrum) is perfectly acceptable for most patients, but please be sure our office is aware of all over-the-counter and prescription drugs that you are taking.



We are not opposed to complimentary alternative medications or therapies, but we do not want them to interfere with your chemotherapy treatment or worsen your potential side effects. Once you complete your chemotherapy, we will gladly discuss the available clinical data on any of these products and provide you with an opinion on their potential value.

Expressing your thoughts and feelings can help you and your family recognize and cope with them. You may need to express these feelings in private, in prayer, or with family and friends — everyone is different. Accepting your feelings helps improve your emotional well-being, which helps you and your doctor achieve the most in your fight against cancer. You may find the following ideas helpful.

- Talk with people you trust — family, friends, church member, healthcare provider, etc.
- Keep a journal or diary of your journey through cancer treatment.
- Consider joining a support group.
- Register with the American Cancer Society.
- Utilize other creative outlets such as music, art, sports, crafts, etc.
- Try to keep things in perspective. Allow yourself to be sad or angry when appropriate but try and focus on other important things in your life that make you happy and cause you to “forget” about your cancer.
- Don't hesitate to consider professional counseling for yourself and your family.



Your family and friends should not judge your feelings. They should accept how you feel and be available to listen, so be sure that those closest to you have reviewed this booklet along with you. Our office and your loved ones will of course remain hopeful and encouraging, but we will also recognize the validity of negative emotions that are encountered.

We sincerely want you to be an involved partner with us in your fight against cancer. This information should provide you and your loved ones with some insight into what to expect during your journey through chemotherapy, but obviously it cannot be all-inclusive since every patient is unique. Please contact the office with any questions or concerns that arise or if you need more information.



### **When should I call the office or my doctor?**

- Shaking chills or fever of 100.5 °F or higher
- Severe diarrhea or constipation not responding to recommendations in this booklet
- Bloody urine or bowel movements
- Nausea and vomiting that prevents you from tolerating a liquid diet
- Unusual bleeding or bruising
- Rash or other allergic reactions
- Burning or pain during urination
- Chest pain or shortness of breath
- Dizziness or feeling faint
- Painful mouth or throat that makes it difficult to eat or drink
- Sore throat that lasts longer than 2-3 days



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*QUESTIONS FOR MY DOCTOR*

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## Gynecologic Oncology



*As specialists in gynecologic cancer, we strive to provide our patients with the latest advancements in the field using modern technology and research, the highest level of expert and compassionate care, and the most comprehensive host of services from consultation to in-office chemotherapy to complex surgical efforts, including robotic surgery.*

*Our practice is designed with your convenience and efficiency of care in mind. Housed in Watson Clinic's Bella Vista Building, we can assure that every necessary resource – including on-site laboratory, radiology and EKG services, and an in-house pharmacy – will be well within the patient's reach, allowing for a greater continuity of care and eliminating the need for multiple visits. Additional services like wheelchair assistance make patient visits even more comfortable and welcoming.*

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