



Guide to Systemic Cancer Treatment

To Our Patients and Family Caregivers,

We understand that all aspects of cancer treatment can be scary. Chemotherapy, immunotherapy and many other cancer treatments can lead to a variety of side effects. These treatments may kill healthy cells along with the cancer cells, which is what causes most unwanted side effects.

The most common side effects of chemo, for example, occur in areas where healthy cells rapidly divide. This includes blood cells, hair follicles, skin cells, and cells in the reproductive and digestive tracts.

The kind of side effects and how severe they are will depend on the type of treatment and how your body reacts. Every patient's reaction to these medications is a little bit different.

Fortunately, you do not have to be miserable during your treatment. We can often provide some relief from most side effects with supportive treatments. We value your quality of life. Your cancer care team will monitor and track the balance and side effects to ensure you continue to have good quality of life while we treat your cancer.

This guide outlines some common side effects of cancer treatments. If you are experiencing something not discussed in this guide, or have questions about the recommendations within, talk to your care team. We have included a chart at the back of the guide to help you and your family track when and how severely you are experiencing side effects to your treatment.

Sincerely,
Your Ochsner Cancer Care Team

Table of Contents

Introduction to Systemic Cancer Treatment	1
Infusion Suite Locations.....	2
Infusion Suite Guidelines.....	4
Frequently Asked Questions About Systemic Therapy.....	6
How is Systemic Cancer Therapy Given?	10
Side Effects Guide	13
Fatigue.....	13
Bone Marrow Suppression.....	13
Low White Blood Cell (WBC) Counts/Neutropenia.....	14
Low Red Blood Cell (RBC) Counts/Anemia.....	15
Low Platelet Counts/Thrombocytopenia.....	15
Hair Loss.....	16
Nausea and Vomiting.....	17
Constipation.....	19
Diarrhea.....	20
Dehydration.....	21
Lack of Appetite/Anorexia.....	22
Central Nervous System Problems.....	22
Mouth, Gum, and Throat Problems.....	23
Skin Reactions/Changes.....	24
Sexuality.....	25
“Chemo Brain”	26
Emotional Side Effects/Stress.....	26
Blood Clots.....	27
Flu-like Syndrome.....	28
Pain.....	31
Dizziness.....	33
Hearing Loss.....	34
Tinnitus.....	35
Conjunctivitis.....	36
Dry Eye Syndrome.....	37
Light Sensitivity.....	38
Watery Eyes.....	38
Special Considerations	
Medical History	39
Immunizations.....	39
Alcohol Use and Chemotherapy.....	39
3 Steps Toward Preventing Infections During Chemotherapy	41
Chemotherapy Care Companion	42
Sexual Activity During Cancer Treatment.....	43
Women.....	43
Men.....	46
Symptom Tracker	49
Notes	54

Introduction To Systemic Cancer Treatments

Every patient's cancer journey is different. For many, the number of appointments, procedures and terms can seem overwhelming. This guide explains some of the standard cancer treatments in use at Ochsner today.

To simplify this, let's start with an explanation. Some cancer cells have the potential to travel throughout the body. To make sure we reach any that have moved beyond their original site, we use special treatments that can do the same thing. We call these systemic treatments. They use the bloodstream as their super-highway. That way they can affect nearly all the systems, or areas, of the body. Chemotherapy, immunotherapy and targeted therapies are all types of systemic treatments. You may also hear them referred to as systemic therapies. Whether the treatment consists of pills, infusions, or injections, it can be hard to feel ready for what's to come.

We hope this guide helps you feel better prepared for the journey. We are always here to help you with any questions or concerns about your systemic cancer treatment. We encourage you or your family members to talk to your doctor, nurse navigator and social worker. They can help you learn more about your treatment before it begins.

It is important to us that you know what to expect before your first treatment. We can help you find resources that may make this process easier. We can also help you cope with any side effects.

Sections in this guide

- **Infusion suites around the region:** Sometimes we can schedule your chemotherapy treatments closer to home. Let your oncologist know if you would like to explore this option.
- **Infusion suite guidelines:** Infusion sites often have rules that help keep patients and visitors safe. Please review these guidelines and ask any questions before your first treatment.
- **Frequently asked questions about systemic therapy:** This section answers common questions patients have about their treatment. If a question you have is not listed, feel free to ask your care team.
- **Systemic therapy methods:** As treatments change and grow, the ways a patient can receive a drug changes too. We briefly discuss each of the methods in this section.
- **Side effects guide:** This comprehensive guide outlines common side effects related to cancer treatment. It also recommends ways to monitor or cope with them.
- **3 steps toward preventing infections:** Infection is a common concern during chemotherapy. There are many simple ways to help protect yourself or your loved ones from infection.
- **Chemotherapy Care Companion:** This is a free program for patients on chemotherapy. It enables you to monitor your health from home and alert your physician immediately to any significant changes.
- **Sexual activity during treatment:** During cancer treatment, you may need to take extra precautions with sexual activity. Some kinds of sexual activity may even be restricted. This section outlines how men and women can safely participate in sexual activity during cancer treatment.
- **Symptom tracker:** While you undergo systemic therapy, it's important to let your provider know about any symptoms. You can use this tracker to record your symptoms between appointments.

Infusion Suite Locations

We offer a variety of infusion services as cancer treatment options.

At our convenient locations, our staff strives to make the infusion experience as comfortable as possible for our patients.



1. Ochsner Medical Center
The Gayle and Tom Benson Cancer Center
1515 River Road
Jefferson, LA 70121
504-842-3910
M-F, 7am - 7pm | Sat, 8am - 2pm

2. Ochsner Baptist – A Campus of Ochsner Medical Center Ochsner Health Center – Baptist Napoleon Medical Plaza
2820 Napoleon Ave., Suite 210
New Orleans, LA 70115
(Located behind outpatient pharmacy)
504-842-9914
M-F, 8am - 4:30pm

3. Ochsner Health Center – Kenner
200 West Esplanade Ave., Suite 200
Kenner, LA 70065
504-464-8615
M-F, 8am - 4:30pm

4. St. Tammany Cancer Center – A Campus of Ochsner Medical Center
900 Ochsner Blvd., 3rd Floor
Covington, LA 70433
985-249-2383
M-F, 8am - 6:30pm

5. Slidell Memorial Hospital
Regional Cancer Center
1120 Robert Blvd.
Slidell, LA 70458
985-280-2902
M-F, 7am - 5pm

6. Ochsner Medical Center – West Bank Campus
2500 Belle Chase Hwy., 2nd Floor
Gretna, LA 70056
504-207-2727
M-F, 8am - 4:30pm | Sat by appt (if staff available)

7. Leonard J. Chabert Medical Center
1978 Industrial Blvd., 4th Floor
Houma, LA 70363
985-873-2729
M-Th, 7am - 5:30pm | Fri, 7am - 3:30pm

8. Ochsner Medical Center – Hancock
149 Drinkwater Rd., 1st Floor
Bay St. Louis, MS 39520
228-467-3946
M-F, 8am - 4:30pm

9. Terrebonne General Medical Center
8166 W Main St., 2nd Floor
Houma, LA 70360
985-857-8093
M-F, 8am - 4:30pm

10. Ochsner Medical Complex – The Grove
10310 The Grove Blvd.
Baton Rouge, LA 70836
225-761-5409
M-F, 8am - 5pm

11. Ochsner Cancer Center – Baton Rouge
17050 Medical Center Dr., 1st Floor
Baton Rouge, LA 70816
225-761-5410
M-F, 8am - 5pm

12. Ochsner Lafayette General Medical Center
Ochsner Cancer Center of Acadiana
1211 Coolidge Blvd., Suite 100
Lafayette, LA 70503
337-289-8400
M-F, 8am - 5pm

13. Ochsner CHRISTUS Health Center – Lake Area
4150 Nelson Rd., Building G, Suite 2
Lake Charles, LA 70605
337-656-7872
M-F, 8am - 5pm

14. St. Charles Parish Hospital
1057 Paul Maillard Rd., Suite A-1250
Luling, LA 70070
985-785-5644
M-F, 7am - 3:30pm

15. Ochsner LSU Health Shreveport – Feist-Weiller Cancer Center
1501 Kings Hwy.
Shreveport, LA 71103
318-813-1000
M-F, 8am - 4pm

Infusion Suite Guidelines

The following guidelines are in place to create a relaxing and peaceful environment for all while ensuring patient safety and infection control. Feel free to speak up if something doesn't seem right. Just ask a member of our staff.

We do not deny or limit visitation based on race, color, national origin, ethnicity, religion, gender, gender identity, sexual orientation/preference, disability or financial ability to pay.

1. The Infusion Center acknowledges a patient's right to designate who their visitors should be and to limit their own visits. This is consistent with state and federal law. **Each patient may choose who can or cannot visit them during their treatment. Every patient also has a right to change their mind at any time.**
2. **Appointments are made based on chair availability.** If you are early or late for an appointment you may wait longer. Our staff will make every effort to accommodate you. Specific chair or nurse requests cannot be guaranteed.
3. **All Ochsner facilities are smoke free.** The use of tobacco or tobacco products, including e-cigarettes, is not permitted.
4. For the respect and privacy of all patients, **visitors must remain at the patient's chairside** during treatment.
5. **Visitors should not enter the treatment area if sick.** Visitors with any of these symptoms or conditions should stay home until they are well:
 - fever
 - cough
 - runny nose
 - signs of a flu or cold
 - recent exposure to a contagious illness



The Gayle and Tom Benson Cancer Center Infusion Suite

6. Please understand that **any changes to your chemo plan or medication requires insurance authorization.** This may cause your treatment appointment to be rescheduled.
7. **Only one visitor per patient is allowed** during treatment appointments due to space constraints. Visitors may be asked to have a seat in the waiting room until a treatment and/or procedure has been completed, or if an emergency occurs in the department.

Please be advised that security may be notified if a safety risk for a patient or staff is identified and a visitor refuses to leave the treatment area.
8. **Infants and children under 18 years old are not allowed** to be present during treatment appointments.
9. Chips, cookies, juices, and soup are available **for patients only.**
10. For patients whose treatments last several hours, **we recommend bringing a lunch or additional snacks.** Alcohol is prohibited.
11. **Visitors may bring food for a patient and themselves** from home. They may also buy food from our Southport Café or Bistro '42 cafeteria. Vending machines are located on the first floor of the Benson Cancer Center.
12. Help keep our treatment environment comfortable. **Be mindful of noise levels** while in the Chemotherapy Infusion Suite. **Please place cellphones on vibrate and avoid using the speaker feature.**
13. It's a good idea to **bring books, puzzles, magazines or portable music (with earphones)** to help pass the time. For those with laptops or tablets, our infusion area offers free wireless Internet access.

Please keep in mind that each center has their own infusion guidelines. We recommend asking for a copy before your treatment to ensure you understand them. Things like visitor policies and private rooms may vary a bit from site-to-site.

Thank you for your cooperation in following these safety guidelines.



Visiting patients is a privilege. Infusion Center staff may restrict visiting rights to ensure all patients remain safe during treatment.

Visitors failing to follow our safety guidelines may be asked to leave the Infusion Center and could be escorted off the property by security. In addition, these visitors may lose visiting privileges.

Legal requirements may cause us to limit or restrict visits to patients.

Frequently Asked Questions About Systemic Therapy

1. What is systemic therapy?

Systemic therapy refers to treatment in which the drugs travel throughout the whole body. This is done to reach cancer cells that may have spread, or metastasized, to other areas. We combine systemic therapy with other types of treatment such as surgery or radiation. Sometimes we use a combination of multiple types of systemic therapy to attack the cancer in many ways at the same time.

2. How do different types of systemic therapy work?

Chemotherapy (chemo) is a systemic therapy. In chemo, specialized drugs target and disrupt different phases of the cell life cycle. This slows or stops cancer cell growth. Most chemotherapy drugs act on rapidly reproducing cells. Cancer cells are rapidly reproducing cells.

Some healthy cells in your body also reproduce quickly. These include those that line the digestive tract or cause hair growth. That is why chemotherapy can cause nausea, vomiting, hair loss, and other side effects. The good news is that, in many cases, the side effects get better or go away after chemotherapy is over. Refer to the “Side Effects Guide” on page 11 for more information.

With **targeted therapies**, a specific characteristic of the cancer is used against it. A specific marker on the cancer cell surface or a pathway the cell may use to grow and thrive is changed or blocked. This destroys the cancer cell. Sometimes, some of our normal bodily processes also use the same pathways or markers, so they are also damaged or blocked. This may cause side effects while taking the treatment.

With **immunotherapies**, our body’s own immune system is coached on how to kill the cancer cell. Sometimes this also causes our own immune system to attack healthy organs and tissues, leading to side effects.

3. Why is treatment given in cycles?

There must be a balance between destroying the cancer cells and sparing the normal cells. Systemic therapy is sometimes spaced out with rest periods between treatments. This lets normal cells recover before the next cycle begins.

4. Why can’t my appointments all occur on one day?

In some locations we practice “decoupling” chemo appointments. That means you may have your labs and see your provider the day before you receive your treatment.

If something doesn’t look right with your labs or your treatment needs to be changed, decoupling gives your care team time to modify the schedule if needed. This means you’re less likely to have an extended wait between your provider appointment and your infusion appointment due to lab or clinic delays. While it may seem inconvenient, decoupling actually reduces the time you spend in clinic each cycle.

5. How is systemic therapy given?

The most common way we give systemic therapy is **intravenously (or by IV)**. This means the drug is given through a vein. A thin needle is inserted into a vein on your hand or lower arm at the start of the treatment session and is removed at the end.

Medication can also be delivered by IV through catheters, ports, and pumps. A catheter is a soft, thin, flexible tube that is placed in a large vein in the body. Sometimes the catheter is attached to a port, which is a small round plastic or metal disk placed under the skin. A pump may be used to control how fast the drugs go into the catheter or port.

Systemic therapy may also be given:

- **Orally** – in pill, capsule, or liquid which is swallowed
- **By injection** – a needle or syringe injects the drug into the muscle or under the skin

Refer to the “How is Chemotherapy Given?” section on page 9 for more information.

Chemotherapy needs to be prepared, or mixed, by a pharmacist. Most often this is done the day of your treatment. We often don’t request your treatment from the pharmacist until you are seated in the infusion chair and we have taken your vital signs. This way we don’t waste any precious medication.

Please keep this in mind when planning your visit. It may take longer than you expect.

6. Is systemic therapy transferred through bodily fluids?

Chemotherapy drugs may be transmitted through bodily fluids. It takes about 48 hours for your body to break down or get rid of most chemo drugs. During this time, a small amount of the chemo comes out in your urine, stool, and vomit. You can help keep others in your home safe from exposure during and after treatment. Follow these guidelines:

- **If you are using a bedpan for body wastes or a container for vomiting, be careful not to splash or spill the contents.** Empty them into the toilet carefully. If the bedpan or container used for vomit is not disposable, rinse it with dishwashing or laundry detergent and water, then put the rinse water in the toilet. Flush the toilet with the lid down.
- Any sink or basin used for vomiting should be **rinsed with dishwashing or laundry detergent** and water.
- **Wash clothing or bed linens that have bodily wastes on them separately and as soon as possible.** Use laundry detergent and hot water. If you are unable to wash them immediately, place them in a sealed plastic bag until they can be washed.

7. Can I have sex during systemic therapy?

If you are having sex during chemotherapy treatment, you may wish to use barrier protection, such as condoms or dental dams (for oral sex), since some chemo chemicals can be found in semen or vaginal fluid.

Some types of cancer treatments can lead to changes in the lining of the vagina. This may make injuries to the vagina more likely during vaginal intercourse. If your treatment reduces the levels of certain blood cells, your doctor may recommend you avoid sexual intercourse until your blood cell counts rise to safe levels.

Note for all patients of childbearing age: Some systemic therapies may increase the risk of birth defects if a pregnancy occurs during or just after treatment.

8. How should I protect myself if I'm caring for someone receiving systemic therapy?

If your loved one is undergoing a chemotherapy treatment, always wear rubber or disposable waterproof gloves when cleaning or handling containers that are used for body waste. Always wash your hands with soap and water after you take the gloves off. **If you get body waste or chemotherapy on your skin, wash the area with soap and water for five minutes.** Watch the skin for the next seven days. If there is any redness or irritation, contact your doctor.

If your eyes are splashed by body waste or by chemotherapy chemicals, wash the eye with water or eye wash (artificial tears) for 15 minutes. Contact your doctor immediately for further instructions.

Some oral chemo medications require extra precautions. This may mean wearing gloves and washing your hands before and after handling the medication. Sometimes it's best to pour the pill straight into a cup instead of your hand or the counter.

Make sure any home chemo medications are stored according to the directions. Keep them out of reach of children and pets.

9. Is systemic therapy painful?

Most people find that cancer treatment is not painful. However, some people find that the side effects of certain cancer drugs can be physically and emotionally challenging. Be honest with your physician about any side effects you experience. There may be ways to combat them and help improve your quality of life during treatment. Refer to the "Side Effects Guide" on page 11 to find out more about common side effects of systemic therapy.

10. How can I make my cancer treatment more successful?

The best thing you can do during treatment is take good care of your body. The best ways to do this are:

- **Eat properly** to maintain your strength. Our oncologic nutritionist can help you make the right decisions about your diet. As your doctor for a referral if you think this may help.
- **Avoid anyone who is sick**, even if it is only a cold. The drugs used in chemotherapy need to be very powerful to kill the cancer cells. This can be very hard on your immune system. During chemo you are more likely to become ill and get sicker from germs that may make others only mildly ill. Refer to the "3 Steps Toward Preventing Infections During Chemotherapy" section on page 39 for more information. Whenever you are unsure about a symptom or exposure, don't hesitate to ask!
- **Get a lot of rest** and avoid excessive activity.
- **Talk** to your friends or family about what you are feeling. Sometimes it is easier to talk to someone who is not close to you. Support groups can offer a place to talk freely among those who share the same concerns as you.
- **Keep your care team informed.** Let them know if you are not feeling well or experiencing side effects. There are many things that can be done to help relieve pain, nausea and other symptoms.

11. Will my insurance cover my systemic therapy?

Before we administer cancer-fighting drugs, it is common to perform what is called a pre-authorization with your insurance. This will ensure that we do not start a drug that your insurance will not pay for.

Biosimilars are substitute medications. Their structure and function are very close to a biologic medication, such as immunotherapy. There are no significant differences in the effects of the original biologic and its biosimilar medication.

Sometimes insurance companies require that we use biosimilars to reduce costs. Your doctor must approve this use. It can be a good way to help ensure the financial burden of your treatment remains manageable.

We also have financial counselors who can help you understand the costs of your treatment. They can explain the financial support that may be available. Ask your doctor, navigator or social worker if you can speak to a financial counselor before you start your treatment.


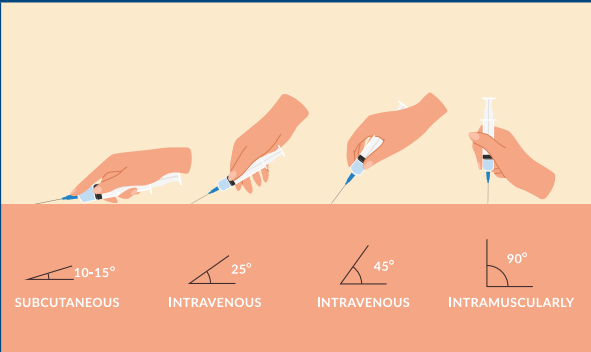
Write down any other questions you want to ask at your next appointment:

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How is Systemic Cancer Therapy Given?

Cancer treatments can be given in a variety of ways or devices. The type of device depends on the type of drugs you are receiving, your physician’s preference, and the condition of your veins.

This section covers common methods of chemotherapy. Remember to write down any questions you may have and bring them to your next appointment.

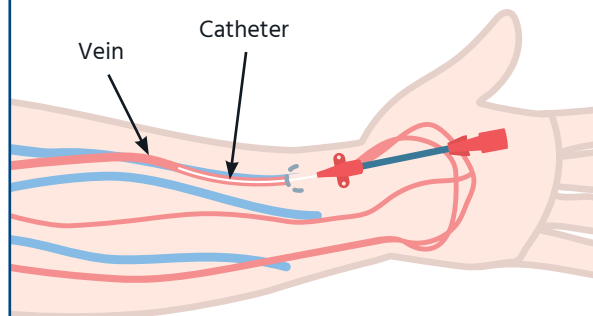
Pills	
<p>Some cancer medications are given in pill form. You will either take them every day or in a series of days with breaks in between.</p> <p>These medications can cause side effects or require additional monitoring or precautions.</p> <p>Some types of chemotherapy pills should not be crushed or split. You may need to be extra careful with these at home.</p> <p>Be sure to follow all instructions for their use. If you have extra pills after your treatment is complete, they must be disposed of according to the instructions.</p> <p>Talk to your doctor, navigator or clinical pharmacist about these guidelines before starting an oral chemo medication.</p>	
Injections	
<p>Chemo and other cancer treatments can be given by injection, or shots. These are given in one of several ways: into the fat (subcutaneous), under the skin (intradermal), into a vein (intravenous), or into the muscle (intramuscular).</p> <p>You may also receive some supportive medications this way, such as medications to boost your blood cells. These may be given before or after your cancer treatment.</p>	

Peripheral Intravenous (IV) Catheter

A short catheter placed in the arm delivers chemotherapy directly into the veins. This is the only method that is fully removed after every treatment.

Peripheral IVs cannot be used if the chemotherapy is a vesicant, or a type of chemotherapy that damages tissues. It also cannot be used in patients who have weak or difficult veins in their arms.

Sometimes, even if you have healthy veins in the beginning of your treatment, repeated chemotherapy sessions can cause the veins to weaken. In this case, your provider may switch to another method.

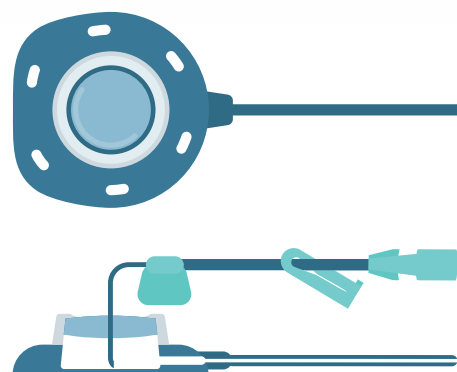
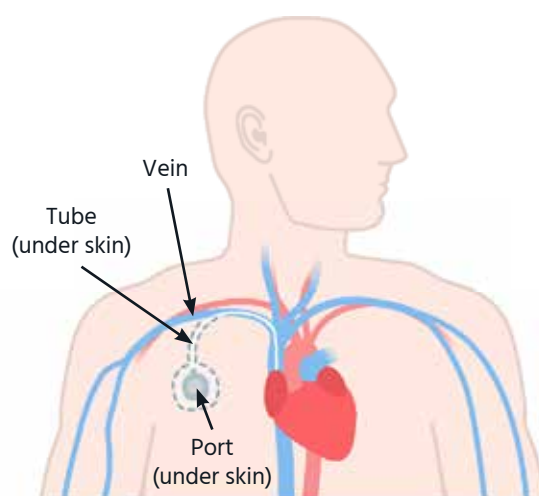


Mediport

The mediport, also known as a “port-a-cath” or “port”, is a small disc inserted under the skin. It attaches to an internal catheter that leads right to the main vein that enters the heart. A needle is inserted into the disc under the skin. Ports can be used to give IV fluids, give chemotherapy, or draw blood. The needle used to access the port is removed after each treatment session is completed. The port itself can remain in the body for years if needed, and only requires occasional flushing when not in use. When you do not have a needle in the port, the disc is fully covered by the skin. Therefore, you don’t have to worry about getting it wet or caught on anything.

Accessing the port, or inserting the needle into the disc, is a sterile procedure. This means the nurse will clean the area well and wear a mask to prevent any contaminants from getting near the site. The nurse may also ask you to turn your head away from the port when inserting the needle so that you don’t breathe on the area. It’s best to wear loose clothing that you can lift out of the way of your port.

Your physician may write a prescription for **Emla Cream**, a type of numbing cream that can be applied before your port is accessed. Talk to your oncologist about this before your first treatment. That way you can have some on hand the first time your port is used.

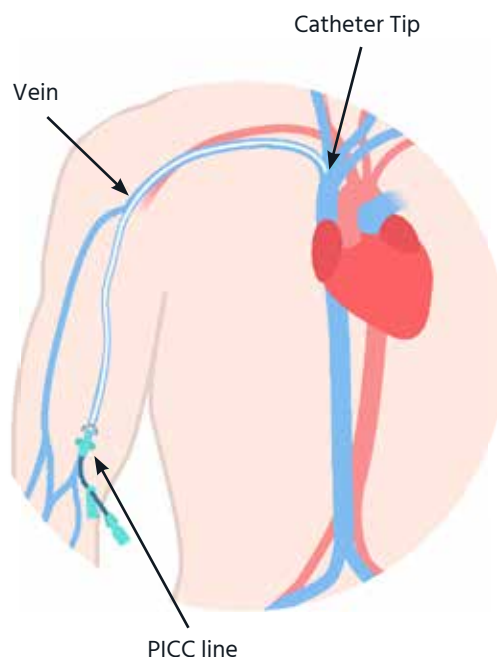


Peripherally Inserted Central Catheter (PICC)

A PICC line is a catheter inserted into a vein in the upper arm and has a long tube that travels to a major vein near the heart. Similar to the Port, a PICC can be used for IV fluids, blood draws, or chemotherapy. The major difference is that no needle needs to be inserted into a PICC line. They can be left in place for months at a time, and can have more than one catheter coming out of it. This allows for more than one thing to be administered at a time, such as fluids and chemotherapy.

Since PICC lines are not under the skin like Ports, you need to protect them from water or dirt. It is important to cover the PICC line when you shower. Avoid activities that require overuse of your arm or excessive sweating. The PICC needs to be covered with a special dressing which should be firmly stuck to the skin.

PICC lines must be flushed once a day. This is something you can do at home if needed. Ask your doctor about whether you will be expected to care for your PICC, or if a home health nurse will help you with it.

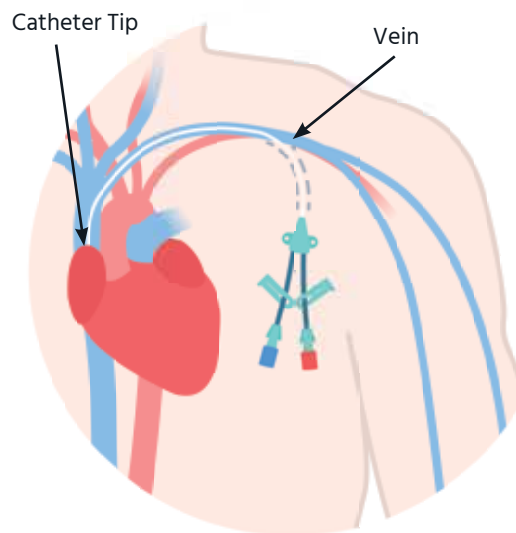


Tunneled Central Venous Catheter

A tunneled catheter is a thin tube that is placed under the skin and connects to a major vein. They can be placed in the chest, neck, groin, liver, or back.

Like the PICC line, no needle is needed to use it. Multiple catheters can come out of it. This allows for more than one infusion to be administered at the same time.

The tunneled catheter must be flushed every day when not in use. It requires a special dressing to help keep it clean and dry.



Side Effects Guide

Fatigue



Fatigue – feeling tired and lacking energy – is the most common symptom experienced by people receiving chemotherapy or radiation.

Fatigue from cancer treatment feels different from the fatigue of everyday life. Chemotherapy or radiation fatigue can appear suddenly. Some people describe it as a total lack of energy, feeling drained or wiped out. It may last days, weeks, or months. This fatigue usually goes away gradually as your body responds to treatment.

How to take care of yourself

- Plan time to rest throughout the day.
- Take several short naps or breaks, rather than one long one.
- Try easier or shorter versions of activities you enjoy.
- Take short walks or do light exercise (with your doctor's approval).
- Allow others to help you with daily responsibilities.
- Do the things that may give you energy, such as relaxing, listening to music, enjoying nature, or things that make you laugh.
- Eat well-balanced meals high in protein and calories. Avoid caffeine and alcohol.
- Focus on maintaining as normal a lifestyle as is possible. Do what you enjoy, but listen to your body – if you feel tired, rest.
- Increase your daily water intake to help with hydration.

Bone Marrow Suppression

Another common side effect of chemotherapy is bone marrow suppression, also known as myelosuppression. Bone marrow is the tissue inside of some bones which produces white blood cells, red blood cells, and platelets. Your sternum (breastbone), hip, femur (thigh), and humerus (upper arm) all contain bone marrow.

Because cells in the bone marrow grow and divide rapidly, they are vulnerable to the effects of chemotherapy and radiation. Blood cell counts do not drop immediately after starting chemotherapy. Chemo drugs do not kill cells already in the blood stream. Instead, chemotherapy drugs prevent bone marrow from forming new blood cells.

Each type of blood cell has an average life span. This has an impact on when each type of blood cell reaches its lowest levels, called the nadir. The average life spans are:

- White blood cells: 6 hours
- Red blood cells: 120 days
- Platelets: 10 days

Low White Blood Cell (WBC) Counts/Neutropenia

Blood normally has between 4,000 and 10,000 WBCs. The main function of white blood cells is to help the body fight infection. Sometimes your WBCs are measured by the “absolute neutrophil count” or ANC, which can help us predict how many white blood cells are being made in your body currently. Because white blood cells play such an important role in your health, your care team will monitor your WBC and ANC levels carefully. If your WBC count falls (called leukopenia or neutropenia), you will not automatically get an infection but you are at higher risk.



It is important to watch for these signs and symptoms of a possible infection.

- Fever greater than 100.4° F
- Shaking or chills
- Sore throat
- Shortness of breath
- A new cough
- Nasal congestion
- Burning sensation during urination
- Redness, swelling and warmth at site of an injury
- Diarrhea

How to reduce your risk of infection

- Wash your hands often during the day. Always wash them before you eat, after going to the bathroom and after touching animals. Keep hand sanitizer with you at all times in case you cannot wash your hands.
- Stay away from people who are sick with a cold, the flu or chicken pox.
- Try to avoid crowds.
- Stay away from children who have recently received “live virus” vaccines such as chicken pox or oral polio.
- Maintain good mouth care.
- Do not eat raw fish, seafood, meat or eggs.
- Clean cuts and scrapes right away and daily until healed.
- Report any signs of infection to your doctor immediately.
- No manicures/pedicures at a salon.
- Avoid eating at a buffet or salad bar.
- All dental visits should be cleared by your oncologist.

Treatment

Treating low WBC counts generally consists of prompting the body to make more blood cells or reducing the length of time your counts are low. Naturally occurring hormone-like substances help the bone marrow produce new blood cells. These growth factors can be made in a laboratory and are available as drugs. They are frequently given the day after you start chemotherapy and for up to two weeks.

The two growth factors that stimulate production of white blood cells are:

- Granulocyte-macrophage colony stimulating factor (GM-CSF) – this drug is called filgrastim (Neupogen®/Granix®)
- Granulocyte colony stimulating factor (GCSF) – this drug is called pefilgrastim (Neulasta™)

Biosimilar growth factors are drugs constructed to be very similar to other growth factors, but may be more readily available or cheaper than the other categories.. There are a variety of drugs in this category. They include:

- pegilgrastim-cbqv (Udenyca®)
- filgrastim-aafl (Nivestym)
- pegfilgrastim-jmdb (Fulphilia)
- filgrastim-sndz (Zarxio®)

You may be at higher risk of developing an infection when your WBC counts are low if you:

- Are receiving strong doses of chemotherapy and/or radiation
- Already have low white blood cell counts
- Have been diagnosed with conditions that affect their white blood cell count
- Are 70 years old or older

Low Red Blood Cell (RBC) Counts/Anemia

Blood normally has between 4 million and 6 million RBCs. Red blood cells carry oxygen to all parts of your body. A low level of red blood cells is called anemia. If your red blood cell count drops, you may experience:

- Fatigue
- Dizziness
- Feeling faint
- Shortness of breath
- Feeling as if your heart is “pounding” or beating very fast (heart palpitations)
- Chest pain
- Nausea and vomiting

How to take care of yourself

- Get plenty of rest: sleep more at night and take naps during the day.
- Limit your activities.
- Ask for help when you need it.
- Eat a diet rich in protein and iron. These foods help your body make red blood cells.
- When sitting, get up slowly.
- When lying down, sit first and then stand.

Treatment

Occasionally a patient will require a blood transfusion to improve their red blood cell count.

Low Platelet Counts/Thrombocytopenia

A low platelet count is called thrombocytopenia. The normal range for platelet counts is between 150,000 and 350,000. Platelets are the blood cells that help stop bleeding by making your blood clot. Signs that your platelet

count is low include the following:

- Easy bruising
- Heavy or longer menstrual periods
- Bleeding longer than usual after minor cuts or scrapes
- Bleeding gums or nose bleeds
- Developing large bruises (ecchymoses) and multiple small bruises (petechiae)

How to take care of yourself

- Avoid bruising or bumping yourself.
- Wear hard-soled shoes, gloves, or thick pants.
- Use sponge toothbrushes if you have problems with gum bleeding.
- Use an electric razor.
- Use a nail file instead of nail clippers to avoid cutting skin/nails too short.



Medications may affect clotting. It is important to avoid aspirin, aspirin-containing products, and aspirin-like products, unless instructed by your doctor.

Read all labels carefully. Ask your pharmacist if you have questions about the contents of any medications.

Treatment

Occasionally a platelet transfusion is required.

Hair Loss/Alopecia

Hair loss, or alopecia, is a common side effect of chemotherapy. It can also occur in the area treated with radiation. However, not all chemotherapy drugs or radiation cause hair loss. Talk with your doctor to see if your treatment may cause hair loss.

Hair loss usually occurs between 10 and 21 days after treatment. It may happen suddenly and in large amounts or hair may fall out gradually. Hair loss is temporary and hair should grow back after treatment is stopped.

How to take care of yourself

- 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 fuller and thicker.
- Use a sunscreen, sun block, hat, or scarf to protect your scalp from the sun.
- Avoid perming, dyeing, or relaxing your hair.
- Keep your head covered in the winter to prevent heat loss.

Treatment

Although not life-threatening, hair loss can be very upsetting. Many people buy a wig or hairpiece, or use hats or scarves, to cover their head.



If you buy a wig because of cancer treatment, it is a tax-deductible expense and may be covered in part by health insurance.

Cooling caps can be used in some situations to try and decrease chemotherapy's effect on hair follicles. There are multiple types of cooling caps to choose from. Not all are covered by insurance and may involve additional cost to the patient. If you are interested in information about cooling caps ask your provider or nurse navigator.

Nausea and Vomiting

Nausea and vomiting are common side effects of several chemotherapy drugs. It is rare with radiation unless the abdomen is treated. Both types of cancer treatment can irritate the lining of the stomach and the first section of the small intestine (duodenum). The irritation stimulates certain nerves that lead to the vomiting center of the brain. This results in nausea and vomiting.

Although every patient is different, certain drugs are more likely to cause vomiting than others. Nausea or vomiting are more likely if you receive chemotherapy and radiation to the abdomen during the same treatment regimen. Many things can influence the likelihood and severity of nausea and vomiting:

- Prior experience with motion sickness
- Previous bad experiences with nausea and vomiting
- Being young
- Heavy alcohol intake
- Women of menstrual age

How to take care of yourself

- Drink liquids at least one hour before or after meals, instead of with your meal.
- Try taking sips of 7-Up, ginger ale, fruit juice, tea, broth, tonic water, or bouillon. It is important that you continue to drink fluids to help prevent dehydration.
- Use the anti-nausea medication ordered by your doctor.
- Eat dry foods such as toast, dry cereals and crackers.
- Try simple foods: rice, scrambled eggs, noodles, toast, cream of wheat, bananas, applesauce, mashed potatoes, ice cream, custard, canned peaches, pears, apple juice or nectars.
- Avoid strong smelling foods.
- Avoid hot, spicy foods.
- Avoid sweet, fried, greasy, or fatty foods.
- Avoid highly acidic foods.
- Caffeine can lead to more severe dehydration. Drink caffeinated beverages sparingly if you are not drinking much.

- Eat and drink slowly.
- Eat several small meals throughout the day, instead of one, two, or three larger meals.
- Use relaxation techniques, acupuncture, or hypnosis to help control nausea and vomiting. If you would like to learn more about this, ask your nurse, doctor, or social worker.
- Breathe deeply and slowly when you feel nauseated.
- Rest, but do not lie flat for at least two hours after a meal.
- Try ginger tablets or ginger ale; ginger has been reported to reduce feelings of nausea.
- Some patients find essential oils or certain smells, such as peppermint, helpful to alleviate nausea.
- Wear loose-fitting clothes.

Nausea-producing chemotherapy drugs (*in high doses only)

- | | |
|---|---|
| • Asparaginase (Elspar [®] , Kidrolase [®]) | • Etoposide (Toposar [®] , VePesid [®] , Etopophos [®] , VP_16)* |
| • Carboplatin (Paraplatin [®]) | • Lomustine (Gleostine/CCNU) |
| • Carmustine (BiCNU [®]) | • Mechlorethamine (Mustargen [®] /Mustine) |
| • Cisplatin (Platinol [®] , Platinol [®] -AQ) | • Melphalan (Evomela [®] /Alkeran [®] /Pepaxto)* |
| • Cyclophosphamide (Cytoxan [®] /Neosar [®]) | • Methotrexate (Otrexup [™] , Rasuvo [®] , Rheumatrex [®] , Trexall [™] , MTX, Amethopterin)* |
| • Cytarabine (Cytosar-U [®] /Ara-C)* | • Plicamycin |
| • Dacarbazine (DTIC-Dome [®]) | • Procarbazine (Matulane [®]) |
| • Dactinomycin (Cosmegen [®]) | • Streptozocin (Zanosar [®]) |
| • Daunorubicin (Cerubidine [®]) | |
| • Doxorubicin (Adriamycin [®] /Rubex [®]) | |

Treatment

Anti-nauseants, also called anti-emetics, are given to help treat nausea and vomiting which may be caused by chemotherapy, radiation therapy, surgery, or other aspects of cancer and its treatment. Talk with your doctor to see if one or a combination of these medications is right for you. They will prescribe what is best.

Anti-nauseants given by prescription include:

- | | | |
|--|---|---|
| • Aprepitant (Emend [®] , Cinvanti) | • Granisetron (Kytril [®]) | • Ondansetron (Zofran [®]) |
| • Dexamethasone (Decadron [®]) | • Lorazepam (Ativan [®]) | • Palonosetron (Aloxi [®]) |
| • Dolasetron (Anzemet [®]) | • Metoclopramide (Octamide, Reglan [®]) | • Prochlorperazine (Compazine [®]) |
| • Dronabinol (Marinol [®]) | • Olanzapine (Zyprexa) | • Promethazine (Phenergan [®] , Anergan [®]) |

Anti-nausea drugs can be given by mouth, injection, or rectal suppository. Common side effects include:

- | | |
|---|------------------------------------|
| • Blurred vision, change in color vision, or difficulty seeing at night | • Diarrhea |
| • Fainting | • Drowsiness |
| • Loss of balance or dizziness | • Constipation |
| • Restlessness or need to keep moving | • Fever |
| • Shuffling walk | • Headache |
| • Stiffness of arms or legs | • Unusual tiredness or weakness |
| • Trembling and shaking of hands and fingers | • Upset stomach, vomiting, hiccups |

Constipation

Constipation is abnormally delayed or infrequent passage of stool (feces or bowel movement) that is usually dry or hardened.

Some people get constipated because they:

- Do not eat enough fruit and fiber
- Do not exercise or get enough activity
- Do not drink enough fluids



Most people should drink at least 8 glasses (64-80 ounces) of water or other non-alcoholic drinks per day.

Certain medical conditions and medications may cause constipation. This includes some chemotherapy drugs and many pain medications. There are many things patients can do to prevent or relieve constipation. Your doctor may also recommend medication.

There is no normal schedule for bowel movements. Frequent or infrequent should be determined based on your own normal schedule. For example, if you normally move your bowels once a day, infrequent may be defined as every 2nd or 3rd day. A consistent change, not a one-time occurrence, is considered constipation.

Other symptoms of constipation include hard, difficult to pass bowel movements. Often, a person will pass small marble-like pieces of stool, without feeling they have relieved themselves.

How to take care of yourself

- Eat foods high in fiber like fruits (pears, prunes), cereals, and vegetables.
- Drink 2-3 liters of nonalcoholic fluids (water, juices) each day unless you are told otherwise by your doctor.
- Exercise 20 to 30 minutes most days of the week, as tolerated and if okay with your doctor. You might find that walking for exercise is convenient and easy to do.
- If you have been prescribed a “bowel regimen,” make sure you follow it exactly.

Treatment

Your doctor may recommend one or more of the following medications to prevent or treat constipation. Talk with your doctor or nurse to see which would be best for you.

- Senna (Senokot®)
- Bisacodyl (Dulcolax®)
- Docusate sodium (Colace®)
- Polyethylene glycol (Miralax®)
- Magnesium citrate
- Magnesium hydroxide (Milk of Magnesia®)
- Lactulose (Chronulac®)

If you believe you show signs of chemotherapy-induced constipation, the following guidelines suggest when to call your doctor or health care provider.

- Pain in your stomach
- Fever
- You are unable to pass gas
- Nausea and/or vomiting along with your constipation
- If you have not had a bowel movement in 3 days despite following the recommendations of your care team
- If your stomach looks swollen and/or feels hard to the touch

Diarrhea

Diarrhea is the passage of frequent stool that is unformed or liquid in consistency. It can occur either through the body's natural opening (anus) or a diverted opening (ostomy). Diarrhea is a symptom, rather than a disease. It often occurs in response to another condition or treatment (such as chemotherapy or radiation). Other possible causes of diarrhea include:

- Radiation to abdomen or pelvis
- Anxiety or stress
- Surgery on the small or large bowel or pelvis
- Infection
- Antibiotics, antacids containing magnesium, anti-nausea medicines, laxatives, or stool softeners
- Lactose intolerance
- Irritable/inflammatory bowel syndrome
- Malnutrition

How to take care of yourself

Drink plenty of clear fluids (8-10 glasses per day) like Gatorade®, broth, Jello®, water, etc. Eat small amounts of soft, bland low-fiber foods frequently like banana, rice, noodles, white bread, skinned chicken, turkey or mild white fish. Limit foods and beverages with caffeine and beverages extremely hot or cold. Avoid foods such as:

- Greasy, fatty, or fried foods
- Raw vegetables or fruits
- Strong spices
- Whole grains breads and cereals, nuts, and popcorn
- Gas-forming foods & beverages (beans, cabbage, carbonated beverages)
- Lactose-containing products, supplements, or alcohol

Treatment

Your doctor may recommend one or more of the following medications to prevent or treat diarrhea. Talk with your doctor or nurse to see what is best for you. Please read the label to make sure you can take this medication.

- Loperamide (Imodium®)
- Diphenoxylate/Atropine (Lomotil®)
- Kaopectate®II caplets
- Maalox® anti-diarrheal caplets
- Pepto® Diarrhea Control (follow instructions on container)

Avoid herbal supplements (milk thistle, cayenne, ginseng, saw palmetto, and others). If you experience several diarrhea stools per day, notify your nurse or doctor so that prescriptions to control or alleviate diarrhea can be ordered.

If you have diarrhea, clean the skin around the anus gently with warm water and soft cloth, then dry gently and completely. You may apply a barrier cream (such as Desitin®) to irritated skin. Allow the irritated skin to be exposed to open air as much as possible.

If you suspect that chemotherapy treatments are causing diarrhea, call your care team if you have:

- Fever 100.4° F (38° C) or higher
- Moderate to severe abdominal cramping/pain/straining/bloating
- Dizziness
- Dark (concentrated) urine
- Dry mouth and skin
- Black stools or blood in stools
- Sudden rapid or irregular heart beat
- Frequent loose stools
- If dietary measures and medication do not decrease the diarrhea

Dehydration

Dehydration occurs when there is an imbalance of fluids inside the body. If left untreated or allowed to become severe it may need to be treated in the hospital. Adequate fluid intake is extremely important for patients undergoing cancer treatments. The symptoms of dehydration include:

- Dry mouth
- Little or no urine output
- Dark, colored urine
- Dry, loose or crinkled skin
- Confusion/disorientation
- Fatigue (may be first sign)

A lab test can reveal to what extent a person is dehydrated.

How to take care of yourself

- Drink three to four quarts of fluids per day. This can be clear fluids, popsicles, gelatin desserts, ice cubes, soups, flavored water, lemonade, juices, snowballs and sodas.
- Avoid alcohols, colas, coffee, and teas. These tend to add to dehydration.
- Manage nausea/vomiting and diarrhea to minimize the risk of dehydration.

Treatment

You will be given fluids to replace the fluids that were lost. You may also be given electrolytes to replace those lost due to dehydration. Your doctor will determine if this should be done in the clinic or the hospital.

Loss of Appetite/Anorexia

Many chemotherapy drugs cause a decrease or complete loss of appetite. Each person is different and there is no way to predict how chemotherapy will affect you. Appetite loss and weight loss can range from mild to severe and may lead to malnutrition, known as cachexia. The decrease in appetite is usually temporary. Your appetite should return after chemotherapy has stopped, but it may take several weeks.

Chemotherapy may also affect the way some foods taste and smell to you. This can add to your poor appetite and weight loss. Your taste and smell should return to normal several weeks after chemotherapy has ended.



In order for your body to fight the cancer and cope with chemotherapy, it is important that you get proper nutrition. If you are experiencing loss of appetite, talk with your health care provider. There are medications that can help.

How to take care of yourself

- Eat small, frequent meals throughout the course of the day, rather than one, two, or three large meals.
- Avoid drinking fluids with meals to prevent from feeling full.
- Avoid prepping, cooking, or cleaning food for other people when your appetite is low.
- Eat foods high in protein, such as eggs, peanut butter, nuts, dairy products, tuna, and beans.
- Make eating more pleasurable. Eat with friends in a relaxing environment.
- Some patients find metallic utensils can affect food taste. Using plastic utensils may help.
- Breakfast may be the most tolerable meal of the day. Try to include at least one-third of your calories in this meal.
- Monitor and record your weight weekly. Tell your doctor of any changes.

Treatment

You may be given medications to help stimulate your appetite. Some frequently used medications are Megace, Dexamethasone, and Marinol. Talk to your doctor about which ones are best for you.

Central Nervous System Problems

Some chemotherapy drugs may affect your central nervous system. These side effects may occur soon after chemotherapy or years later.

- | | |
|--------------------------|--|
| • Stiff neck | • Fever |
| • Headache | • Confusion |
| • Nausea and vomiting | • Depression |
| • Lethargy or sleepiness | • Numbness or tingling in hands or feet (neuropathy) |

Treatment

Central nervous system problems are usually addressed by managing the chief complaint or problem. There is not one specific treatment of choice for central nervous system problems. These kinds of symptoms may not be outwardly visible. It's important to describe them to your doctor and mention how severe they are.

Similar to cooling caps, cooling gloves and socks may help decrease or prevent the numbness and tingling that some patients experience. Ask your provider or nurse navigator for more information.

Mouth, Gum, and Throat Problems

Mucositis is the general term used to refer to inflammation of the lining of the mouth, throat, and esophagus. Some chemotherapy drugs may cause sores and inflammation in the mouth, known as stomatitis. Changes in the throat (pharyngitis) or esophagus (esophagitis) can also occur. Mucositis is a temporary side effect that may happen with chemotherapy or when radiation is given to the head and neck area. It usually improves within a few weeks after treatments end.

If you experience mucositis, please let your nurse or physician know. They can prescribe medication to minimize the discomfort.

How to take care of yourself

- See 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. Talk with your doctor before undergoing any dental procedure.
- Ask your dentist to show you the best ways to brush and floss your teeth during chemotherapy.
- Brush your teeth and gums after every meal. Use a soft toothbrush and a gentle touch. Brushing too hard can damage soft mouth tissues.
- Rinse with warm saltwater 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.
- If you develop sores in your mouth, tell your health care provider. You may need medication to treat these and prevent them in the future.
- Eat foods cold or at room temperature. Hot and warm foods may 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, casserole dishes, soups, stews, and puddings.
- Puree cooked foods in the blender to make them smoother and easier to eat or blend foods like casseroles, soups, and stews.
- Avoid irritating, acidic foods and juices such as tomato and citrus juice; spicy or salty foods; and rough or coarse foods such as raw vegetables, granola, popcorn, and toast.
- Avoid hard candies. They may irritate or scrape your mouth.
- If you are experiencing dry mouth, try increasing your non-alcoholic fluid intake to at least two liters per day.
- Avoid toothpaste and mouthwashes that contain alcohol because this can dry your mouth further.

- If you have sores in your mouth, use a soft bristle toothbrush.
- Rinse your mouth with a mixture of 1/2 to 1 teaspoon of baking soda or 1/2 to 1 teaspoon of salt in 8 ounces of water four to five times a day to help prevent mouth issues during chemo.

Treatment

Ask your doctor to prescribe or recommend a medicine to ease the pain. There are some medications you can apply directly to the sores.

- Check with your doctor if it is okay to use acetaminophen (Tylenol®) or Ibuprofen (Advil®, Bayer Select Ibuprofen®, Excedrin IB®, Haltran®, Midol IB®, Motrin®, Nuprin®) for the discomfort.
- Duke's Solution may also be ordered by your doctor to minimize the discomfort associated with mouth sores.

Skin Reactions/Changes

The skin is another area of the body that can show side effects of chemotherapy and radiation. Let your nurse or doctor know if you notice any redness, pain, swelling, or a sore area near the site of injection/treatment. These can occur during or after radiation or chemotherapy injections.

Modern radiation therapy may cause less damage to the skin than in earlier types of therapy. This is because most of the radiation dose is delivered below the surface of the skin. Your skin may still show an early response to treatments. The skin over the treatment area may become darker. This is because of the effect radiation has on the cells in the skin that produce pigment. After a month of treatment, some people receiving radiation may experience some extreme peeling and weeping (moist) areas. Let your doctor or nurse know if this happens.

Other side effects include itching, scaling skin, redness, peeling, or acne. As with radiation, some chemotherapy may cause darkening of the skin, nails, or the skin directly over the vein. The skin may feel hard, especially if surgery has also been done in the same area. Some people may experience difficulty with wounds healing in the area that was treated.

These skin changes will gradually fade when the therapy is finished. Discuss any changes you notice with your nurse or doctor. Call your doctor if the site of injection is painful, red, swollen, forming a blister, or if there is an open sore. Also, let your doctor know if you have eye soreness, hives, severe itching or a rash.

How to take care of yourself

- Keep your skin clean and dry.
- Bathe/shower daily.
- Moisturizing lotion with aloe vera, lanolin, or vitamin E may be helpful. If you are getting or have had radiation therapy, check with your doctor or nurse before using certain lotions.
- Do not use creams if they contain steroids, vitamin A, or other medications unless instructed by your doctor.
- Protect yourself from the sun's rays and avoid sun lamps. You may be more sensitive to these rays and get sunburned. Use a sunscreen of SPF 15 or greater.
- Eye drops may be ordered by your doctor. It is important that you use them as instructed.
- Check with your doctor before taking any over-the-counter eye medications.

Treatment

Depending on the condition of your skin, your doctor may order creams or special washes.

Sexuality

Sexuality is an intimate form of communication. It can involve touch, verbal expression, and other displays of affection. No treatment for cancer can destroy a person's sexuality. But physical or emotional changes connected to cancer treatment can alter how a person feels about their sexuality.



Chemotherapy can cause reproductive and sexual problems. Whether or not you experience this will depend on your age when treated, the dose and duration of the chemotherapy, and which chemotherapy drugs you receive.

Each person is different. You may experience one or two side effects or you may experience none. Don't feel embarrassed to talk with your provider about your concerns regarding sexual and reproductive side effects.

Some reproductive and sexual changes a **woman** may experience include the following:

- Temporary or permanent damage to the ovaries
- Disruption or stoppage of the menstrual cycle
- Symptoms of early menopause, such as hot flashes, vaginal dryness, and tightness during intercourse
- Irritation and dryness of the lining of the vagina
- Vaginal infections

Some reproductive and sexual changes a **man** may experience include the following:

- Decrease in sexual desire
- Difficulty getting and maintaining an erection
- Damage to sperm – talk with your doctor about freezing sperm prior to treatment

How to take care of yourself

See the "Sexual Activity During Cancer Treatment" section on page 41. It provides more information to help you understand the best way to ensure safe sex during your cancer treatment.

Treatment

Treatment is based on symptoms. Medications will be given for infection, dryness, or itching.

“Chemo Brain”

Sometimes chemotherapy patients report changes in their ability to concentrate, difficulty with attention spans and mental tasks, as well as memory loss. “Chemo Brain” is the term used to describe this.

Many factors can cause or effect “chemo brain.” These include low blood counts, aging, depression, menopause, and medications. Researchers are studying the fact that more patients are experiencing these symptoms when they receive certain chemotherapy drugs.

How to take care of yourself

- Avoid distractions.
- Practice tasks.
- Ask people to repeat information.
- Get organized and write things down. Use post-it notes, organizer, or journal.
- Exercise your memory. Do crossword puzzles or use rhymes to help memory.
- Manage stress.
- Get plenty of rest and sleep.
- Exercise when possible.
- Ask for help when needed.

Treatment

Treatment is based on the symptoms you experience. Sometimes waiting several days will cause the symptoms to clear themselves.

Emotional Side Effects/Stress

Cancer treatment can stir up many emotions for both the patients and their caregivers. It is important to recognize their existence. Emotions are very important and often go ignored. It is normal to feel many emotions, from shock to fear to anger. You are not alone in having these feelings.

Emotional effects can be from the cancer diagnosis, other life events (job, family changes or illness) and the physical side effects of chemotherapy. Certain medications and changes to treatment regimens may also have some emotional side effects.

You may experience some or all of these emotions during cancer treatment:

- | | |
|---------------|----------------|
| • Depression | • Irritability |
| • Stress | • Insomnia |
| • Anxiety | • Fear |
| • Mood swings | • Denial |



Talk to your doctor if you find that you are unable to perform day-to-day activities or if the physical effects of chemotherapy appear more severe than expected.

How to take care of yourself

Many people have also found it helpful to become involved in support groups of other people and families living with cancer. Most of these groups have local chapters. There are also many other local support services. Please talk with your nurse, social worker, or doctor if you wish to be contacted by a volunteer from one of these groups.

Treatment

Many patients have found relaxation therapy, guided imagery, acupuncture, or other methods of relieving tension helpful. Some find that hobbies help to relieve the stress of cancer and its treatment. Remember what has worked for you in the past to relieve stress and try those things again.

Your doctors, nurses, and social workers are here for you if you need someone to talk to. There are professional counselors available, too, if you feel you need more help in dealing with your disease and its treatment.

Blood Clots



All cancer patients are at risk of developing blood clots. Therefore, it is important to recognize the symptoms and seek prompt medical attention.

A blood clot is a normal response to injury. Although this response is normal, blood clots can become dangerous for cancer patients. It may block an artery or vein and interrupt the flow of blood. Certain conditions may make you at higher risk for blood clots, such as:

- Decreased mobility
- Catheters intentionally left inside the vein
- Chemotherapy
- History of deep vein thrombosis (DVT)
- Bone fractures
- Obesity
- Arteriosclerosis
- Birth control pills
- Smoking

Symptoms of blood clots are:

- Pain in the muscle near the blood clot
- Swelling, tenderness, and discoloration of the veins or a prominent vein
- Stroke-like symptoms (sudden numbness or weakness of the arm or leg, confusion, or difficulty speaking)
- Signs of heart attack (chest tightness and heaviness or cold sweat)
- Sudden shortness of breath, chest pain, or coughing up blood

If your doctor suspects a clot, there are several tests that can help diagnose the problem. An ultrasound, chest x-ray, lung scan, or venogram may be ordered for confirmation.

Treatment

You may be treated with drugs that prevent blood clotting (anticoagulants) such as Heparin, Coumadin or Lovenox. Sometimes Coumadin is prescribed for high-risk patients. Maintaining the proper amount of these drugs is important. Your care team will monitor your blood levels frequently to ensure you're receiving the proper dosage.

Flu-Like Syndrome

Flu-like syndrome is a side effect of many treatments used in cancer care. The exact process of how flu-like syndrome is caused is not fully understood. It is believed that when the body is exposed to certain medications these medications trigger normal inflammatory mechanisms of the immune system. This process is similar to the body's response when it is dealing with a "flu" virus.

- Fever (sudden onset, timing associated with the therapy causing the flu-like syndrome)
- Chills (often come before the fever, usually involve upper body first)
- Muscle/joint aches (myalgias/artralgias)
- Generalized aches and pains, accompanied by sensation of weakness (may or may not be relieved by rest)
- Headache (usually across the forehead, accompanied by sensitivity to light; may include blurred vision or other changes to sight)
- Poor appetite
- Nausea, vomiting
- Diarrhea
- Nasal stuffiness (runny nose – usually clear, watery and persistent)
- Cough (dry, hacking and persistent, rarely productive)
- Bone pain
- Fatigue (malaise) (accompanied by sense of apathy, lack of energy or motivation)

Treatment

Ask a member of your care team to explain the medications you will be taking to treat your cancer. Ask specific questions like what type of side effects you can expect and what will be done to prevent or control them. Because flu-like syndrome covers a range of different symptoms, we've divided up a few below. We've included ways to manage each specifically:

1. Fever from a temperature greater than 100.4° F

- Take a lukewarm (tepid) bath if flu-like syndrome causes a fever.
- Use cold or ice packs on your body. You may find it comforting to have a cool, moist wash cloth on your forehead or on the back of your neck.

- When you have a fever, you lose water and can become dehydrated. It is important to drink lots of (non-alcoholic and non-caffeinated) fluids during these times.
- Take medication to control symptoms of fever as recommended.
- Notify your nurse or doctor if you experience a fever greater than 100.4° F.
- Drugs that may be prescribed by your doctor for flu-like syndrome. Anti-pyretic (anti-fever) medications such as acetaminophen (Tylenol®) are used to treat fever related to flu-like syndrome.
- If you have a bleeding disorder, avoid non-steroidal anti-inflammatory (NSAID) drugs, as well as aspirin. These drugs may interfere with blood platelets.

2. Chills

- If flu-like syndrome causes the chills, put on some warm clothes, blankets or take a warm bath.
- If you like to use hot packs or heating pads, use caution to avoid burning your skin.
- Your doctor may prescribe a narcotic such as meperidine or hydromorphone to stop severe chills that may occur.

3. Muscle and/or joint aches

- Some patients find that applying heat or cold to the joints and muscles helps to relieve some discomfort.
- Rest when you feel achy and tired. Try to find a balance between rest and exercise.
- Some exercise can actually boost your energy levels. Ask your doctor if exercise is right for you during flu-like syndrome.
- Try relaxation techniques.

4. Headache

- Rest in a quiet, dimly lit room.
- Relaxing music may help soothe your headache.
- Place a cool cloth on the forehead.
- Headaches due to sinus congestion may be helped by warmth and steam.
- Headaches originating in the back of the head or neck may be related to muscle tension. Heat and/or massage may help.

5. Poor appetite

- See the “Loss of Appetite/Anorexia” section on page 20.

6. Taste changes

- If you are not eating much during flu-like syndrome because you have lost your sense of taste from chemotherapy, you may want to try adding different seasonings to your foods.
- If you have a bad taste in your mouth, try sucking on hard candies/mints or chewing gum.
- Keep your mouth clean by brushing at least two times per day and rinsing your mouth out with water between meals/snacks.
- If you are having trouble finding foods you enjoy, your doctor can order a consultation with a Registered Dietitian for you.

7. Nausea, vomiting

- See the “Nausea and Vomiting” section on page 15.

8. Diarrhea

- See the “Diarrhea” section on page 18.

9. Runny nose

- Use a vaporizer or a humidifier to moisten the air.
- Avoid dry air.
- Drink 2 to 3 liters of fluid every 24 hours, unless you were told to restrict your fluid intake.
- Eat healthy meals as much as possible.
- Staying well-hydrated will prevent congestion and help liquefy your secretions.

10. Cough

There are several drugs that your doctor may prescribed or recommend for cough:

- Antitussive – cough suppressant
- Benzonatate, codeine, and dextromethorphan – generic ingredients of various cough medications
- Expectorant – aids in coughing up phlegm or mucus
- Guaifenesin – a generic ingredient of various cough medications
- Decongestant/Alpha/Beta agonist – acts on certain receptors of the lining of the lungs and airways causing constriction and relaxation to help relieve congestion
- Pseudoephedrine – a generic ingredient of various cough medications
- Antihistamines



Flu-like symptoms, especially fevers, may represent a serious infection. It is important to seek medical attention if you:

- | | |
|--|--|
| • have a fever greater than 100.4° F that is new and not associated with the expected fever related to your medication | • feel increasing shortness of breath with minimal exertion |
| • develop Flu-like symptoms that are unusual, unexpected, or bothersome | • are unable to eat or drink for 24 hours or have signs of dehydration: tiredness, thirst, dry mouth, dark and decreased amount of urine, or dizziness |
| • have Nausea that interferes with your ability to eat and is not relieved by prescribed medication | • have 4-6 episodes or more of diarrhea in 24 hours |
| • vomit more than 4-5 times in 24 hours | • have pain that is not relieved by comfort measures or prescribed medications |
| • have Fatigue that limits your ability to care for yourself | • experience uncontrollable anxiety or nervousness |
| | • experience ongoing depression |

Pain

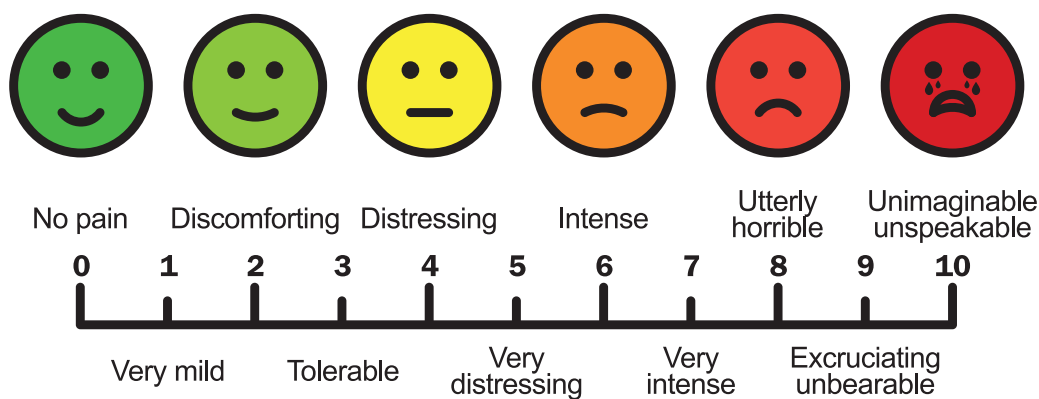
Chemotherapy drugs and radiation treatment can cause painful side effects. While the cancer treatments can often alleviate pain in some areas, they can also damage nerves. This happens most often in the fingers and toes. This may lead to burning, numbness, tingling, or shooting pain. Some drugs and radiation treatments also cause mouth sores, headaches, muscle sores, and stomach pains.



Not everyone who undergoes chemotherapy experiences pain so it is important to let your doctor know if you feel pain. There are many different medications and methods to help control pain.

Site pain is often associated with radiation treatments. Your radiation nurse and doctor can provide the necessary medications to keep you comfortable. To help your doctor determine how to best control your pain, keep track of the timing, location, and nature of your pain. Write down or notice what you have done to make it better or worse.

A pain scale [like the one below] can help describe how much pain you feel. Try to assign a number from 0 to 10. Zero means you feel no pain. As your pain increases, so will the number.



The goal of pain control is to prevent pain that can be prevented and control pain that can't be prevented. Talk with your doctor or nurse about what pain management will work best for you.

Treatment

To help manage pain, your doctor may recommend over-the-counter non-steroidal anti-inflammatory drugs, also called **NSAIDs**. Or he or she may prescribe corticosteroids or opioid pain medication.

Non-steroidal anti-inflammatory drugs (NSAIDs) are used to relieve pain and inflammation. You may experience pain and inflammation for a variety of reasons. Some examples include as bone pain from cancer that has spread to your bones or fluid buildup (edema) caused by tumors or radiation treatment. The following medications are NSAIDs:

- Ibuprofen (Advil®, Bayer Select Ibuprofen®, Excedrin IB®, Haltran®, Midol IB®, Motrin®, Nuprin®)
- Naproxen (Aleve®, Anaprox®, Naprelan®, Naprosyn®)

Common side effects of NSAIDs include:

- Stomach cramps, pain, or discomfort
- Dizziness, drowsiness, or lightheadedness
- Headache
- Heartburn, indigestion, nausea, or vomiting

Like NSAIDs, **corticosteroids** help to minimize inflammation and relieve pain from inflammation. Corticosteroids include the following:

- Dexamethasone (Cortastat, Decadrol, Decadron, Dexamethasone Intensol, Dexason, Hexadrol, Mymethasone, Primethasone)
- Prednisone (Deltasone®, Liquid Pred®, Meticorten®, Orasone®)

Common side effects of corticosteroids include:

- Increased appetite
- Indigestion
- Nervousness or restlessness
- Insomnia
- Irritability

Opioid analgesics act on the central nervous system to relieve pain.



Opioid analgesics can be very effective but they must be used carefully because of their side effects. Addiction is rare in patients who use these medications appropriately for pain control.

Your doctor will monitor you closely if you are going to take one of these drugs for a long time. Opioid analgesics include the following:

- Hydrocodone (Dilaudid®)
- Methadone (Dolophine, Methadose™)
- Morphine (Astramorph PF, Duramorph, Kadian, MS Contin, Rescudose, Roxanol)
- Oxycodone (Roxicodone, OxyContin®, Tylox®, Percodan®)
- Fentanyl transdermal patch (Duragesic®)

Acetaminophen is often combined with an opioid analgesic to provide better pain relief than either medicine used alone. In some cases, this means lower doses of each medicine are necessary to relieve pain. Acetaminophen-opioid combination drugs include the following:

- Acetaminophen with oxycodone (Percocet®)
- Acetaminophen with hydrocodone (Vicodin®, Norco®)
- Acetaminophen with propoxyphene (Darvon®)

The most common side effects of opioid analgesics include:

- Dizziness, light-headedness, or feeling faint
- Nausea or vomiting
- Drowsiness
- Constipation

Dizziness

Dizziness is a term used to describe when you feel “woozy” or “faint.” The word vertigo describes the feeling that the room is spinning around you or you are spinning. When people experience dizziness, it may be a sign that the balance mechanism in the inner ear is not working properly. Some dizziness and hearing loss are due to chemotherapy, medications, treatments, and diseases. Some causes of dizziness may include:

- Being dehydrated
- Low blood pressure, especially when you change positions (your provider may check your vital signs while lying down, sitting up, and standing, to help in determining this)
- Being depressed
- Breathing rapidly and deeply
- Inflammation of your inner ear, caused by infection

Certain tumors may cause dizziness, such as brain tumors or a tumor found in the auditory canal of the ear. The first sign of damage to the middle ear (ototoxicity), may be dizziness. Long term exposure to some drugs can also cause ototoxicity. Your risk of ototoxicity increases as the drug accumulates in your body. Some symptoms to look for:

- Most people notice dizziness when they change positions or move their heads.
- You might feel like the room is spinning around you, or that you are spinning.
- Nausea, ringing in the ears, and vomiting may be associated with dizziness.
- Severe vomiting over a long period of time may cause you to feel dizzy.

Dizziness may be a symptom or sign of a serious problem. Notify your doctor if you experience any of these symptoms:

- Any change in the pattern of dizziness you are experiencing
- Any loss of vision or hearing
- Symptoms becoming more severe and do not improve

How to take care of yourself

- Drink 2-3 liters of fluid per day to prevent dehydration. You may include fruit juices, water, non-caffeinated sodas and coffee, and non-alcoholic beverages.
- Change positions slowly to allow your body a chance to adapt. Lying down until the dizzy episode passes may be the best solution.
- For moderate dizziness walk slowly and often.
- If dizziness is severe, walk with assistance.

Dizziness may last a few days to a few months, depending on the cause. If your dizziness is a result of medications you have taken in the past, avoid these in the future, if possible.

Hearing Loss

There are many different causes of hearing loss. It may be associated with age, or result from certain treatments or medications. By the age of 75 many people have some sort of hearing loss. Most types are progressive and painless. Many other diseases may also cause hearing loss. Some common medications that may cause hearing loss include:

- Cisplatin chemotherapy (Platinol®, Platinol®-AQ)
- Diuretics or “water pills” such as furosemide (Lasix) in high doses
- Antibiotics, such as gentamycin, tobramycin (Tobrex®), or streptomycin

Ototoxicity (damage to the inner ear) is something that occurs after you have taken medications that have caused you to lose your hearing or feel dizzy. Some symptoms to look for:

- Sounds that seem muffled or not as loud
- Nausea, vomiting, dizziness or ringing in the ears (tinnitus)
- Changes to your hearing out of one or both ears



Hearing loss may be a symptom or sign of a serious problem. Tell your doctor if you experience any changes to your hearing. This will ensure they can determine the cause and treat it correctly.

How to take care of yourself

- Tell your provider if you notice any change in your hearing. This may include changes to hearing loss you’ve already experience.
- Tell your provider if you have any loss of vision, dizziness, or if your symptoms become more severe and do not improve.
- Tell people that you have trouble hearing – discuss ways for them to speak, so you can hear them more clearly.
- Tell others to speak slowly and clearly, not more loudly. Shouts create high-pitched sounds that can be harder to hear.
- Encourage others to use gestures, if you find it helpful.
- Many people have trouble hearing consonants. Ask others pronounce their words more slowly and clearly.
- If you do not understand someone who is speaking to you, ask him or her to clarify what is being said.
- If your hearing loss is caused by a buildup of wax, there are many over-the-counter ear drops available. Discuss these with your provider before using.
- With severe hearing loss, lip reading and sign language may be helpful.
- Depending on the cause of your hearing loss, hearing aids may improve your hearing. Most hearing aids use an amplifier to pick up sounds and make them clearer.

Tinnitus

Tinnitus is a word used to describe any ringing or abnormal sound in your ear or head. It may be on one side of your head or both. Some people may hear roaring, hissing, or humming sounds. This may interfere with your ability to rest or concentrate. You may be unable to sleep at night. Although the cause of tinnitus may be unknown, certain things can make your symptoms worse including:

- Anxiety
- Injury to your ears, head, or neck
- Certain kinds of tumors
- Infections in your ear or sinuses
- Wax or any foreign objects in your ear canal
- Certain diseases, such as Meniere's disease, heart disease (especially blocked arteries), and thyroid disease
- Heavy smoking
- Problems with your jaw

Ototoxicity is a word to describe damage to the ear. It may be due to a long-term exposure to certain drugs. It occurs as the drug accumulates in your body. It may also come from receiving high doses of the drug at one time, which can damage certain cells in your inner ear. Hearing loss resulting from medications may be irreversible. Tell your doctor if you experience any of these symptoms along with tinnitus:

- You feel like the room is spinning around you, or that you are spinning
- Severe dizziness, and the fear that you may fall down when you stand up
- Nausea and vomiting over a long period

How to take care of yourself

- Talk to your provider if you notice any change in the pattern of tinnitus.
- Tell your provider if you have any loss of vision or hearing, or if your symptoms become more severe and do not improve.
- If you have hearing loss with your tinnitus, hearing aids may help. Talk to a member of your care team.
- Stay well-hydrated. This means drinking 2-3 liters of fluids per day, including fruit juices, water, non-caffeinated sodas and coffee, and non-alcoholic beverages.
- Avoid alcohol and caffeine because they can cause dehydration.
- Carry a "sipper" cup with you at all times. Fill it with your favorite drinks.
- Stress, anxiety, and tiredness may cause tinnitus to worsen. If this happens, relaxation techniques may help.
- Use a quiet radio, television, or any low-level sound when you are trying to rest. This may help you to ignore the tinnitus and make it easier to sleep or relax.
- Tinnitus can also be related to jaw abnormalities. You may be referred to a specialist to correct the problem.
- If your tinnitus is a result of drugs or medicines that you have received in the past, avoid these if possible.
- Tell all of your providers about all of the medicines you are taking, including over-the-counter medications, vitamins, and herbal remedies. They can help you avoid drugs that may further damage your hearing.

- Change positions slowly if you have dizziness with your tinnitus. This gives your body a chance to adapt to the new position.
- For some people, lying down until the dizzy episode passes may be best.
- With moderate dizziness, walk slowly and often. If your dizziness is severe, walk with assistance.

Tinnitus may last a few days to a few months or it may never fully resolve. Follow all of your provider's instructions to ensure the best result.

Treatment

- Diuretics or "water pills" such as Diamox®
- Heart and blood pressure medications such as metoprolol (Lopressor®)
- Antibiotics such as gentamycin
- Anti-nausea medications such as promethazine (Phenergan®)
- Anti-malaria drugs, such as quinine (Qualaquin)
- High doses of salicylates (aspirin), if taken for long periods of time

Conjunctivitis

Some medications may contribute to the development of conjunctivitis, also known as "pink eye." These include capecitabine, carmustine, epirubicin, methotrexate, and oprelvekin. The name 'conjunctivitis' refers to the redness and inflammation that occurs around the conjunctiva. The conjunctiva is a clear, thin membrane that covers the white of the eye.

Conjunctivitis can be caused by allergies, viruses, or bacteria. It can also be an allergic reaction to makeup, cosmetics, contact lenses, or seasonal allergies. If you think you have conjunctivitis, talk to your provider. This will ensure you are treated correctly. Some symptoms to look for:

- Redness or swelling of the eyelids
- Scratchy, watery, or itchy eyes
- Pus or discharge from the eye
- Sensitivity to changes in light

How to take care of yourself

- **WASH YOUR HANDS OFTEN.** This is important no matter what has caused your conjunctivitis.
- Avoid contact with family members, or those with an impaired immune system.
- Avoid touching or rubbing your eyes. Touching your eyes may make the symptoms worse and cause further irritation. If you must touch your eyes, wash your hands before and after.
- Never share eye makeup or eye cosmetics with anyone. If you have bacterial conjunctivitis, discard or throw away your makeup.
- If you wear contact lenses, sanitize them carefully.
- Avoid wearing contact lenses while you have any kind of allergic, bacterial, or viral conjunctivitis.

- Do not share towels or sheets with anyone while eye problems continue.
- If only one eye is affected, use a separate towel or washcloth for each eye.
- If you have allergic conjunctivitis, avoid contact with whatever may have caused your allergic reaction.
- If you have bacterial conjunctivitis, gently wash your eyelids with a warm, clean, moist towel to remove pus and discharge.
- If you have viral conjunctivitis, your provider may suggest antihistamine pills or eye drops to relieve your symptoms. It will take time for the eye symptoms to resolve.
- Do not go swimming in public pools if you have conjunctivitis.

Treatment

- Most forms of viral conjunctivitis may go away on their own, with or without treatment. It can take 5 to 7 days for symptoms to resolve.
- Bacterial conjunctivitis may require antibiotic eye drops.
- Allergic conjunctivitis will resolve when the allergic substance causing the eye problems (false eyelashes, contact lenses, makeup) is removed.



Washing your hands often and avoiding touching your eyes are the most important things you can do to curb conjunctivitis.

Dry Eye Syndrome

Dry eye syndrome, or keratoconjunctivitis sicca, occurs when your eyes do not produce enough tears or, your eyes may produce excessive tearing. Dry eye syndrome may cause a lack of an important chemical to lubricate your eyes. This may make them feel dry.

Sometimes the cause of dry eye syndrome is unknown. Certain types of medications, diseases, aging, or the environment can contribute to dry eye syndrome. Some symptoms to look for:

- A dry or gritty feeling in your eye. You may feel like something is in your eye.
- Excessive watering of the eyes
- Itchy eyes

If you complain of itchy eyes, your provider may use fluorescein or rose bengal staining in the office to help diagnose the problem.

Treatment

Your healthcare provider may suggest that you use artificial tears or ointments to help alleviate dry eye symptoms. Talk to your provider first to ensure you are treated correctly.

Light Sensitivity (Photophobia)

Some medications may contribute to the development of photophobia. Photophobia is a word that describes the avoidance of light due to pain. Drugs such as cytarabine or fluorouracil can contribute to photophobia. Other common causes are injury to the cornea or inflammation of the uveal tract and surrounding muscles.

The cornea is the clear covering of the eye. The uveal tract contains many structures that ensure your eye functions properly. During exposure to light, your pupils (the dark areas in the middle of your eye) constrict or become smaller. Swelling of any of the eye structures may cause pain when your pupils constrict.

A number of other conditions or injuries can cause eye problems involving photophobia. Be sure to talk to your provider if you experience light sensitivity. This will ensure you are diagnosed and treated correctly. A symptom to look for:

- Pain when you change from a dark to a light area – like going outside during the daytime

How to take care of yourself

- Wear dark or colored glasses (similar to sunglasses) to decrease the amount of light that enters the eye.

Watery Eyes

Some medications such as capecitabine, cytarabine, doxorubicin, and fluorouracil may contribute to the development of watery eyes. Watering of the eyes, or excessive tearing (called epiphora), occurs when tears spill out of your eyes, even when you are not crying. This is sometimes a result of a blockage in the eye's drainage system. It can also happen if you are producing too many tears.

Cancer-related drugs are not the only cause for watery eyes. Eye problems that lead to watery eyes, such as eye irritation, may be caused by many things, including:

- Allergies – such as pollen, dust, or pet dander
- Infections – such as conjunctivitis
- Air in the environment – such as pollution or smoke
- Foreign objects – such as sand or dust

A symptom of eye problems to look for is excessive tearing, even when you are not crying. Many times, the tearing is painless.

How to take care of yourself

- Sinus infections may cause a blockage in your eye's drainage system. Talk to your provider if you think you are developing a sinus infection. If you are prescribed oral antibiotics, be sure to take all of them and follow the instructions.
- If you have any type of eye infection, use warm compresses to help your eye drain.
- If you have tearing because of allergies or irritants in the air, try to eliminate them from your work or home environment.
- An air cleaner may be necessary.

Treatment

- If you are prone to trauma, which may contribute to this condition (such as dust), wear safety goggles.
- Protect your eyes from light by wearing dark or colored glasses.

Special Considerations

Medical History

It is important for your doctor to know your whole medical history before starting chemotherapy. Be sure to tell your provider if you already have:

- Hearing loss
- Trouble urinating
- Diabetes
- Heart disease
- A history of ulcers
- Allergies to medications
- Frequent urinary tract infections
- A history of a stroke or TIAs (transient ischemic attacks)
- A history of depression or anxiety
- A history of blood clots in your legs or lungs
- Problems with your lungs (asthma, emphysema)

Immunizations

Some cancers and treatments decrease your body's ability to fight infection. You may need vaccines to help prevent infections. These may include vaccines against the flu (influenza virus), COVID, or bacteria that cause pneumonia, Haemophilus B infections, and meningococcal disease. Talk to your doctor about what vaccines you should get.

Do not come in close contact with children who have received the oral polio vaccine for one month after they have received it. The oral polio vaccine contains a live virus. This increases your chances of becoming infected with the virus and developing polio. If children that you come in close contact with need polio vaccines, they should receive the injectable polio vaccine.

Alcohol Use and Chemotherapy

Alcohol increases the risk of cancers of the mouth, pharynx, larynx, esophagus, liver, and breast. People who drink alcohol should limit their intake to no more than 2 drinks per day for men and 1 drink per day for women. A drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80 proof distilled spirits (liquor). Regular consumption of even a few drinks per week is associated with an increased risk of breast cancer in women.

Can I drink alcohol while I am having chemotherapy?

Whether you drink alcohol during your course of chemotherapy will partly depend on the particular drugs you are taking. Alcohol can interfere with the way some chemotherapy drugs work. Your care team will be able to give you specific advice about whether drinking alcohol is safe for you.

Excessive drinking is not a good idea, no matter what kind of chemotherapy you receive.



Some drugs have a specific reaction with alcohol, like Procarbazine and lomustine. If you are on either of these, you must talk to your doctor or chemotherapy nurse about what you shouldn't eat and drink.

A change in taste is another possible side effect of some chemotherapy drugs. So food and drink may not taste the same. This will return to normal once the treatment has finished. People who used to enjoy alcohol may not enjoy having a drink while on treatment anyway. Some people also develop a sore mouth while having chemotherapy. You may find that alcohol stings, particularly spirits.

What problems could occur if I drink alcohol while I am having chemotherapy?

- Lack of appetite
- Anxiety
- Electrolyte imbalance
- Central nervous system toxicities
- Dehydration
- Heartburn
- Liver problems
- Mouth sores
- Sexual problems

Generally, having the odd glass of wine or beer is not going to affect you while on chemotherapy. In fact, it may help you relax a bit during this difficult time. Just check with your doctor first to make sure it is all right. Drinking a large glass of water before and after alcohol can help you avoid dehydration.

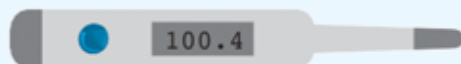
If you were used to drinking a lot and find it very difficult to cut down, you may want to discuss this with your doctor.

3 STEPS TOWARD PREVENTING INFECTIONS DURING CHEMOTHERAPY

If you develop a fever during your chemotherapy treatment it is a medical emergency. Fever may be the only sign that you have an infection, and an infection during chemotherapy can be life threatening.

1 Watch Out for Fever

Take your temperature any time you feel warm, flushed, chilled or not well.



If you get a temperature of 100.4°F (38°C) or higher, call your doctor immediately, even if it is the middle of the night. DO NOT wait until the office re-opens before you call.

You should also:

- Keep a working thermometer in a convenient location and know how to use it.
- If you have to go to the emergency room, it's important that you tell the person checking you in that you are a cancer patient undergoing chemotherapy and should be seen quickly.
- Keep your doctor's phone numbers with you at all times.

2 Clean Your Hands



Keeping your hands clean is important in preventing infections and don't be afraid to ask people to clean their hands, too.

This should include you, all members of your household, your doctors, nurses and anyone that comes around you. If soap and water are not available, it's o.k. to use an alcohol-based hand sanitizer.

Clean your hands:

- Before, during, and after cooking food
- Before you eat
- After going to the bathroom
- After changing diapers or helping a child to use the bathroom
- After touching trash
- After touching your pet or cleaning up after your pet
- After blowing your nose, coughing, or sneezing
- Before and after treating a cut or wound or caring for your catheter, port or other access device

3 Know the Signs and Symptoms of an Infection



During your chemotherapy treatment, your body will not be able to fight off infections like it used to. Infection during chemotherapy can be very serious.

Call your doctor immediately if you notice any of the following signs and symptoms of an infection:

- Fever (this is sometimes the only sign of an infection)
- Chills and sweats
- Change in cough or new cough
- Sore throat or new mouth sore
- Shortness of breath
- Nasal congestion
- Stiff neck
- Burning or pain with urination
- Unusual vaginal discharge or irritation
- Increased urination
- Redness, soreness, or swelling in any area, including surgical wounds and ports
- Diarrhea
- Vomiting
- Pain in the abdomen or rectum
- New onset of pain
- Changes in skin or mental status

Find out from your doctor when your white blood cell count is likely to be the lowest since this is when you're most at risk for infection (also called nadir).

EMERGENCY NUMBER CARD

1. Treat a temperature of 100.4°F or higher as an emergency, even if it's after hours.

2. Call your doctor immediately if you get a fever:

Doctor's Daytime Phone #: _____

Doctor's After-Hours Phone #: _____

3. If you go to the ER, tell them right away that you have cancer and are undergoing chemotherapy so you can be seen quickly.

www.PreventCancerInfections.org



Write the number(s) to call in an emergency here:

Doctor's daytime number: _____

Doctor's after-hours number: _____



PreventCancerInfections.org



Cut out the emergency number card. Fill in your doctor's information. Carry this card with you at all times.

This program was made possible through a CDC Foundation partnership with, and funding from, Amgen. As part of the partnership, the CDC Foundation considered oncology expertise provided by Amgen.

Chemotherapy Care Companion

Your treatment team is excited to offer you this innovative health monitoring program as part of your oncology treatment. We aim to provide the best healthcare possible and to empower you to participate in your care. We hope this leads to a better cancer treatment experience through proactive monitoring and engagement.

What Is It?

The Chemotherapy Care Companion program helps Ochsner's oncology patients monitor or observe their vital signs and alert their care team immediately of any issues related to receiving therapy.

Who Qualifies?

You must be planning to start or currently receiving an IV treatment plan and have a smart phone.

What's Included?

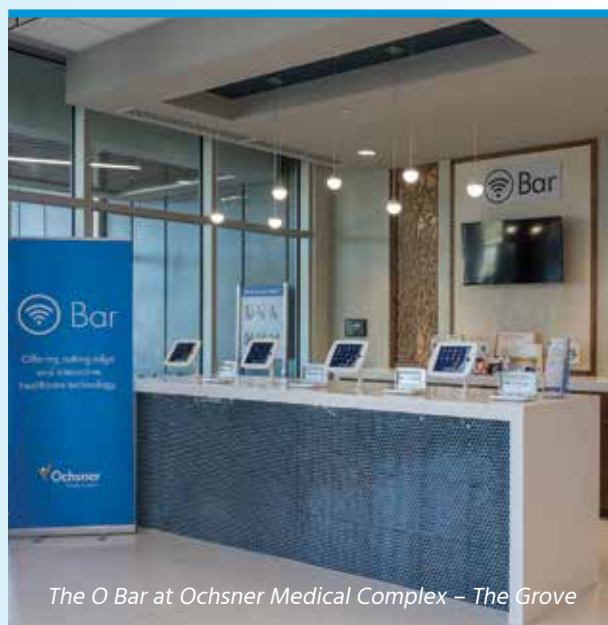
When you enroll, you will receive an iHealth digital thermometer, digital scale and digital blood pressure monitor. There is no cost to you. Donations help us cover the costs.

What's Required?

Once enrolled and set up, you will be assigned a series of tasks. Each day you will complete a questionnaire. You will also enter your weight, AM/PM blood pressure and heart rate reading. Your vital signs are compared to preset data ranges. Your provider's staff receives an alert if the data is outside the acceptable limits of these ranges. This may be an early indicator of potential side effects that will need intervention.

What's Next?

1. You will receive a MyOchsner message with a link to the program consent. Click the link to review and agree.
2. Pick up your iHealth devices from an O Bar location:
 - **The Gayle and Tom Benson Cancer Center**
1516 Jefferson Highway, New Orleans, LA 70121
504-703-1154
 - **Ochsner Health Center - O'Neal**
16777 Medical Center Dr., Plaza I, Baton Rouge, LA 70816
225-412-5080
 - **St. Tammany Cancer Center**
900 Ochsner Blvd., Covington, LA 70433
985-338-5003
 - **Ambulatory Care Center LSU Shreveport**
1606 Kings Highway, Shreveport, LA 71103
318-626-0003
3. Start submitting your vital signs.



The O Bar at Ochsner Medical Complex – The Grove

+ If you have any concerns or questions, please let your treatment team know.

Sexual Activity During Cancer Treatment

Information for Women

This information provides guidance for women on sexual activity during cancer treatment.

1. Use Birth Control to Prevent Pregnancy

If you become pregnant with an egg that has been damaged by exposure to radiation, chemotherapy, or other anticancer medications, you are at risk for having a miscarriage or for your fetus having birth defects. Becoming pregnant can also prevent you from receiving the best diagnostic tests and treatments for your cancer, as these may harm a fetus.

If there is any chance you could become pregnant, use birth control (contraception) throughout your treatment. Do not rely on your partner withdrawing before ejaculation (“pulling out”) or avoiding sex during fertile times of your menstrual cycle (the “rhythm method”). These methods are not effective in preventing pregnancy.

It is important to pick a birth control method that is effective and fits your lifestyle. Make an appointment with the healthcare provider who manages your gynecologic care and speak with him or her to choose an option that is best for you. No matter what method you choose, use birth control as instructed or you may become pregnant. If you have any problems with your birth control, talk with your provider to find another option.

The following forms of birth control do not contain hormones and are safe for most women.

Diaphragm	Copper intrauterine device (IUD)
<p>A diaphragm is a small reusable rubber or silicone cup that you cover with spermicide and place inside your vagina each time you have sex. You insert the diaphragm 1 to 6 hours before vaginal sex. Keep it in place for at least 6 hours after you have sex, then remove and clean it.</p> <p>Do not leave the diaphragm in your vagina for more than 24 hours because this can cause an infection. Your provider will determine what size you need.</p>	<p>This is a small, T-shaped device your provider places inside your uterus. It can stay in place for 10 years or be removed earlier. Copper IUDs may cause heavier blood flow during your monthly periods, so check with your oncologist to see if this is safe for you.</p>
Condoms (used by a male partner)	Surgical sterilization
<p>Condoms can prevent pregnancy and protect you from sexually transmitted infections (STIs), including HIV. If this is your only form of birth control, have your partner use a condom each time you have vaginal sex.</p>	<p>There are a number of surgical methods that provide permanent sterilization if you are certain you don’t want any (more) children. One is a tubal ligation (having your “tubes tied”). Another is the placement of a device in your fallopian tubes to block them.</p>

These following forms of birth control contain hormones, either a combination of estrogen and progestin, or progestin alone. Hormonal birth control is very effective in preventing pregnancy, but does not protect against STIs, including HIV.

Some medical conditions make it unsafe to use hormonal birth control, so they are not right for everyone. Women who should not take hormonal birth control include those with a hormone-sensitive tumor, a personal or family history of blood clots, a history of migraines with aura, impaired liver function, and those who are 35 years of age or older and smoke. There are other medical conditions that also make it unsafe to use hormonal birth control, so talk to your oncologist and HCP to see if this method is right for you and which type is best.

- Birth control pill. These pills are taken once a day. Skipping a day or more may increase your chance of becoming pregnant.
- Injectable contraception (like Depo-Provera®). This is a shot your provider gives you every 12 weeks.
- Implantable contraception (Nexplanon®). This is a small rod your provider implants under the skin of your arm. It can stay in place for 3 years or be removed earlier.
- Intrauterine device (Kyleena®, Mirena®, Skyla®). This is a small, T-shaped device your provider places inside your uterus. It releases the hormone progestin. The Skyla® IUD can stay in place for 3 years. The Mirena® IUD (Plan B®) can stay in place for 5 years. Both can be removed earlier.

If you are getting chemotherapy or radiation directed to an area near your ovaries, continue to use birth control for at least 1 year after your treatment has ended. This allows time for damaged eggs to clear from your body. If you plan to have children after your treatment, ask your doctor when it is safe for you to start trying. Depending on your situation, your doctor may recommend you wait more or less time.

Some treatments may affect your fertility (the ability to become pregnant with a biological child). If you have questions about this, ask your doctor or nurse.

2. Protect Yourself from Infection

If you or your partner have sex with multiple partners, you are at risk for sexually transmitted infections (STIs), including HIV, if you do not use barrier protection. In addition, certain cancer treatments can cause low blood cell counts for long periods of time, which may increase your risk of infection. Your doctor or nurse will tell you if this is a concern for you.

To prevent infection:

- Wash your hands and genitals before and after having vaginal, oral, or anal sex.
- To protect yourself from STIs (including HIV), consider using a condom each time you have vaginal, oral, or anal sex throughout your treatment, even if you are using another form of birth control.
- Your partner can use a condom, or you can use a female condom. The female condom is a polyurethane pouch placed inside your vagina before sex. Do not use a male and female condom at the same time. Female condoms are not an effective form of birth control, so you should not rely on them to prevent pregnancy.
- If you use sex toys, wash them with hot soapy water every time you use them.
- If you are expected to have very low blood cell counts for a long period of time, your doctor or nurse may advise you to use a barrier device during sex (condoms or dental dams). See the section “Use Barrier Devices” on page 43 for more information.

- In some situations, you may even be advised to avoid sex that involves penetration or contact with mucous membranes while your blood counts are low. This includes vaginal, oral, and anal sex or inserting fingers, vibrators, or sex toys into your vagina or anus.
- Hugging, cuddling, gentle touching, and kissing skin are other ways you can be intimate with your partner during this time.
- Chemotherapy and radiation to the pelvis may cause your vagina to become dry and irritated. This may cause pain during vaginal sex and lead to infection. If you have vaginal discomfort, use a condom with a water-based lubricant or abstain from vaginal sex until the tissues heal. Ask your nurse for information on vaginal moisturizers and lubricants to help with vaginal dryness.
- Some women develop vaginal yeast infections during treatment, especially if they are taking steroids or antibiotics. Symptoms include vaginal itching, irritation, and white and lumpy discharge (like cottage cheese). If you think you have a yeast infection, avoid sexual activity and call your doctor or nurse.

If you have had a transplant, you are at increased risk of infection for many months after your treatment. Until your doctor tells you that your immune system has recovered:

- Use a latex condom each time you have vaginal, oral, or anal sex.
- Use a condom or dental dam any time your partner's saliva, vaginal secretions, or semen could enter your mouth. See the section "Use Barrier Devices" below for more information.
- Do not perform any sexual activity that could expose your mouth to feces.

3. Avoid Exposing Your Partner to Chemotherapy and Other Anticancer Medications

We do not know how much anticancer medication gets into a woman's vaginal fluids or if this poses any risk to a sexual partner. If this is a concern for you or your partner, consider using a barrier device whenever your partner may have contact with your vaginal fluids.

4. Use Barrier Devices

Use a condom for vaginal or anal sex and a dental dam when you are receiving oral sex.

Condoms:

- You can buy condoms at any drug store. We recommend latex condoms, but if you or your partner is allergic to latex, use polyurethane condoms. Spermicides do not provide any added protection.
- You can use lubricated condoms or use a separate water- or silicone-based lubricant.



Before you use a condom, check the expiration date on the wrapper. Expired condoms are more likely to break.

To use a condom correctly, have your male partner follow these instructions:

- Be careful when opening and handling the condom. Do not use your teeth, scissors, or other sharp objects to open the wrapper. Do not use the condom if it is torn, brittle, or stiff.
- Wait until your penis becomes firm before putting on the condom.

- While pinching the tip of the condom, unroll it over your penis as far as it will go. The extra space at the tip is needed to collect your semen.
- Smooth out any air bubbles – they can cause the condom to break.
- After you have ejaculated, but before your penis becomes soft, hold the base of the condom (where the ring is) and carefully pull your penis out of your partner so that nothing spills.
- Carefully slide off the condom and throw it in the trash.

A condom can tear if it is too tight or it can fall off if it is too loose. If this happens while you are having vaginal sex, and you are of childbearing age, consider emergency contraception if you are not using another form of birth control. Emergency contraception includes levonorgestrel (Plan B®), also known as the “morning-after pill.”

Dental dams:

A dental dam is a thin, rectangular sheet of latex or silicone that covers the genitals of a woman receiving oral sex. You can buy these online or make one out of a condom.

- If you want to make a dental dam out of a condom, you may want to avoid those with a spermicide or lubricant, as the taste may be unpleasant. Cut off the tip and cut down the side of the tube to make a sheet.
- To use a dental dam, hold the sheet over your vulva or anus while your partner is giving you oral sex.

If you have any additional questions, speak with your doctor or nurse. If you have any concerns about how to follow these suggestions based on your religious observances, we advise you to speak with your religious leader.

Information for Men

This information provides guidance for men on sexual activity during cancer treatment.

1. Use Birth Control to Prevent Pregnancy

If a woman becomes pregnant from sperm damaged by exposure to radiation, chemotherapy, or other anticancer medications, she is at risk of having a miscarriage or the fetus is at risk for having birth defects. If your partner is a female who could become pregnant, use birth control (contraception) throughout your cancer treatment. Do not rely on withdrawing before ejaculation (“pulling out”) or avoiding sex during fertile times of her menstrual cycle (the “rhythm method”). These are not effective in preventing pregnancy.

There are different types of birth control you can consider.

- If you have only 1 female partner, ask her to see the healthcare provider (HCP) who manages her gynecologic care to help her select a method of birth control that is best for her. Examples include birth control pills, intrauterine devices (IUDs), and diaphragms.
- If your partner chooses not to use birth control, or if you have more than 1 female partner, use a condom each time you have sex. Condoms not only prevent pregnancy, but they also protect you from sexually transmitted infections (STIs), including HIV.
- If a condom breaks or falls off while you are having vaginal sex, your female partner may want to consider taking emergency contraception if she is not using another form of birth control. Emergency contraception includes levonorgestrel (Plan B®), also known as the “morning-after pill.”

After treatment ends, and if you are getting chemotherapy, other anticancer medication, or radiation directed to an area near your testes, continue to use birth control for at least 1 year after your treatment has ended. This allows time for damaged sperm to clear from your body. If you plan to have children after treatment, ask your doctor when it is safe for you to start trying. Depending on your situation, your doctor may recommend you wait more or less time.

Some treatments may affect your fertility (the ability to have a biologic child). If you have questions about this, ask your doctor or nurse.

2. Protect Yourself from Infection

If you or your partner have sex with multiple partners, you are at risk for sexually transmitted infections (STIs), including HIV, if you do not use barrier protection. In addition, certain cancer treatments can cause low blood cell counts for long periods of time which may increase your risk of infection. Your doctor or nurse will tell you if this is a concern for you.

To prevent infection:

- Wash your hands and genitals before and after having vaginal, oral, or anal sex.
- To protect yourself from STIs (including HIV), consider using a condom each time you have vaginal, oral, or anal sex throughout your treatment.
- If you use sex toys, wash them with hot soapy water every time you use them.
- If you are expected to have very low blood cell counts for a long period of time, your doctor or nurse may advise you to use a barrier device during sex – condoms or dental dams.
- In some situations, you may even be advised to avoid sex that involves penetration or contact with mucous membranes while your blood counts are low. This includes vaginal, oral, and anal sex or inserting fingers, vibrators, or sex toys into your anus.
- Hugging, cuddling, gentle touching, and kissing skin are other ways you can be intimate with your partner during this time.
- Some men develop yeast infections under the foreskin of the penis during treatment, especially if they are taking steroids or antibiotics. Symptoms include itching, irritation, and discharge from the penis. If you suspect you have a yeast infection, avoid sex and call your doctor or nurse.

If you have had a transplant, you are at increased risk of infection for many months after your treatment. Until your doctor tells you that your immune system has recovered.

- Use a latex condom each time you have vaginal, oral, or anal sex.
- Use a barrier device (condoms or dental dams) any time your partner's saliva, vaginal secretions, or semen could enter your mouth.
- Do not perform any sexual activity that could expose your mouth to feces.

3. Avoid Exposing Your Partner to Chemotherapy and Other Anticancer Medications

We do not know how much anticancer medication gets into a man's semen or if this poses any risk to a sexual partner. If this is a concern for you or your partner, consider using a condom whenever your semen could enter your partner's vagina, mouth, or anus. This will prevent your partner, regardless of his or her age or sex, from being exposed to any medication that may be in your semen.

We don't know how long these medications may be in semen, but you could use a condom each day you have chemotherapy and for 1 week afterward.

If your partner is pregnant during your treatment, consider using a condom each time you have vaginal sex. We don't know if the medications in your semen would pose any risk to the fetus, but scientific studies on animals suggest this is possible.

4. Use Barrier Devices

Use a condom for vaginal or anal sex and a dental dam when you are receiving oral sex.

Condoms:

You can buy condoms at any drug store. We recommend latex condoms, but if you or your partner is allergic to latex, use polyurethane condoms. Spermicides do not provide any added protection. You can use lubricated condoms or use a separate water- or silicone-based lubricant.



Before you use a condom, check the expiration date on the wrapper. Expired condoms are more likely to break.

To use a condom correctly, follow these instructions:

- Be careful when opening and handling the condom. Do not use your teeth, scissors, or other sharp objects to open the wrapper. Do not use the condom if it is torn, brittle, or stiff.
- Wait until your penis becomes firm before putting on the condom.
- While pinching the tip of the condom, unroll it over your penis as far as it will go. The extra space at the tip is needed to collect your semen.
- Smooth out any air bubbles – they can cause the condom to break.
- After you have ejaculated, but before your penis becomes soft, hold the base of the condom (where the ring is) and carefully pull your penis out of your partner so that nothing spills.
- Carefully slide off the condom and throw it in the trash.

Dental dams:

A dental dam is a thin, rectangular sheet of latex or silicone that covers the genitals of a woman receiving oral sex. You can buy these online or make one out of a condom.

- If you want to make a dental dam out of a condom, you may want to avoid those with a spermicide or lubricant, as the taste may be unpleasant. Cut off the tip and cut down the side of the tube to make a sheet.
- To use a dental dam, have your female partner hold the sheet over her vulva or anus while you are giving her oral sex.

If you have any additional questions, speak with your doctor or nurse. If you have any concerns about how to follow these suggestions based on your religious observances, we advise you to speak with your religious leader.

Symptom Tracker

Use this list to record details and dates of any symptoms you experience. An example tracker is provided below that you can copy or use as a guide to create your own tracker. Bring this information to your next appointment or treatment session.

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<input type="checkbox"/> bone pain	_____
<input type="checkbox"/> chest pain	_____
<input type="checkbox"/> constipation/diarrhea	_____
<input type="checkbox"/> cough	_____
<input type="checkbox"/> dizziness	_____
<input type="checkbox"/> fever or chills	_____
<input type="checkbox"/> headaches	_____
<input type="checkbox"/> heart palpitations	_____
<input type="checkbox"/> hot flashes	_____
<input type="checkbox"/> indigestion	_____
<input type="checkbox"/> leg swelling	_____
<input type="checkbox"/> low energy	_____
<input type="checkbox"/> nausea/vomiting	_____
<input type="checkbox"/> new lumps or redness on chest	_____
<input type="checkbox"/> numbness or tingling	_____
<input type="checkbox"/> sexual difficulties	_____
<input type="checkbox"/> shortness of breath	_____
<input type="checkbox"/> sleeping difficulties	_____
<input type="checkbox"/> urinary burning/urgency/frequency	_____
<input type="checkbox"/> vision problems	_____
<input type="checkbox"/> unusual pain	_____
<input type="checkbox"/> other: _____	_____

Some side effects are fleeting and minor, but others may be a sign of serious problems. Don't try to determine the difference yourself. **Tell your doctor right away** if you suffer from:

- fever of 100.4°f or greater for 1 hour
 - bleeding or unexplained bruising
 - a rash or allergic reaction
 - intense chills
- unusual, intense headaches
 - shortness of breath or trouble breathing
 - long-lasting diarrhea or vomiting
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Notes

This section contains Notes pages to help you organize your thoughts. This way all your information related to this experience/diagnosis can be kept in one place, including the things you write down on your own.

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Notes

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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Notes

[illegible]

Notes

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings present.

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