



A Guide to Chemotherapy

You've been told you have cancer. You've looked at your treatment options, and you and your doctor have agreed that chemotherapy is your best choice. Now you have questions about chemotherapy treatment.

The American Cancer Society knows that you may have concerns about chemotherapy, and we have answers to some of your questions. Remember that, along with reading about your treatment, you can also count on your cancer care team to answer your questions.

At the end of this document, you will find a glossary that defines some of the words and terms used by your cancer care team. You can use the glossary to help you better understand the talks you have with your cancer care team. Open and honest talks with them are the best way to understand what's going on with you, your body, and the cancer.

Learning about chemotherapy treatment

What is chemotherapy, and how does it work?

Chemotherapy is the use of medicines or drugs to treat a disease, such as cancer. Many times this treatment is just called chemo. Surgery and radiation therapy remove, kill, or damage cancer cells in a certain area, but chemo can work throughout the whole body. Chemo can kill cancer cells that have metastasized (meh-TAS-tuh-SIZED) or spread to parts of the body far away from the primary (original) tumor.

More than 100 chemo drugs are used in many combinations. A single chemo drug can be used to treat cancer, but often multiple drugs are used in a certain order or in certain combinations (called *combination chemotherapy*). Multiple drugs with different actions can work together to kill more cancer cells. This can also reduce the chance that the cancer may become resistant to any one chemo drug.

You and your doctor will decide what drug or combination of drugs you will get. Your doctor will choose the doses, how the drugs will be given, and how often and how long

you'll get treatment. All of these decisions will depend on the type of cancer, where it is, how big it is, and how it affects your normal body functions and overall health.

What is the goal of chemo?

Depending on the type of cancer, its stage (how far it has spread), and where you are in the treatment process, chemo can be used to:

- Cure the cancer.
- Keep the cancer from spreading.
- Slow the cancer's growth.
- Kill cancer cells that may have spread to other parts of the body.
- Relieve symptoms caused by cancer.

Your doctor will talk to you about the goal of your chemo before you start treatment.

Will chemo be my only treatment for cancer?

Sometimes chemo is the only treatment you need. More often, chemo is used along with surgery or radiation therapy or both. Here's why:

- Chemo may be used to shrink a tumor before surgery or radiation therapy.
- It may be used after surgery or radiation therapy to help kill any remaining cancer cells.
- It may be used with other treatments if your cancer comes back.

When chemo is given after surgery to kill any cancer cells that may still be present, it's called *adjuvant therapy*.

When chemo is used to shrink a tumor before surgery or radiation therapy, it's called *neoadjuvant therapy*.

A checklist of questions to ask your doctor or nurse

Before choosing chemo as a treatment option, you should understand the expected benefits, side effects, and risks. Consider asking your doctor or nurse these questions. It may help to write down questions to take with you to your next visit. Learn as much as you can about your treatment, and get an idea of the expected outcome.

- What's the goal of chemo for my cancer?

- What are the chances that the chemo will work?
- Are there other ways to reach the same goals?
- How will I know if the chemo is working?
- What will we do if this chemo doesn't work?
- What are the risks and side effects of the chemo I will be taking? How do these side effects compare with side effects of other treatments?
- How will I get the chemo, how often, and for how long?
- Where will I get chemo?
- What can I do to get ready for treatment and decrease the chance of side effects?
- Will I need to change my diet in any way? My activities? My work? Exercise? Sexual activities?
- Will I also need surgery, radiation, or both? If so, when and why? What results can I expect?
- If I have chemo after surgery or radiation, will it kill any remaining cancer cells? Could chemo be used alone?
- Can I take part in a clinical trial?
- How much will chemo cost? Will my health insurance cover it?
- If the insurance company asks for a second opinion, or if I would like to get one, can you suggest someone for me to see?

Here are some tips to help you remember your doctor's answers:

- Take notes during your visits. Don't feel shy about asking your doctor to slow down if you need more time to write. Ask questions if you don't understand something.
- If you can, record your visit so you won't miss anything. But first ask your doctor if it's OK to record your talks.
- Consider taking a friend or relative with you to help you understand what your doctor says during the visit, to take notes, and to help refresh your memory afterward.

You might want to look at our booklet called *After Diagnosis: A Guide for Patients and Families* for more ideas about the things you and your family may want to know.

Should I get a second opinion?

One way to find out if a suggested treatment is the best one for you is to get the opinion of at least one other doctor before starting treatment. Your doctor should not mind if you get a second opinion. In fact, some insurance companies require you to get one. Often, the results of any tests you have already had can be sent to the second doctor, so you won't have to repeat them.

Find out if your insurance company covers second opinions before you get one.

Where will I get chemo?

The place you get your treatment depends on which chemo drugs you're getting, the drug doses, your hospital's policies, your insurance coverage, what you prefer, and what your doctor recommends.

You may be treated with chemo:

- At home
- In your doctor's office
- In a clinic
- In a hospital's outpatient department
- In a hospital

Some of these settings may have private treatment rooms, while others treat many patients together in one large room. Talk to your doctor or nurse ahead of time so you know what to expect your first day.

How often will I need to get chemo, and how long will it last?

How often you get chemo and how long your treatment lasts depend on the kind of cancer you have, the goals of the treatment, the drugs being used, and how your body responds to them.

You may get treatments daily, weekly, or monthly, but they are usually given in on-and-off cycles. This means, for example, that you may get chemo the first 2 weeks and then have a week off, making it a 3-week cycle that will start over again after the week off. The break allows your body to build healthy new cells and regain its strength.

Many people wonder how long the actual drugs stay in their body and how they're removed. Most chemo drugs are broken down by your kidneys and liver and then are removed from your body through your urine or stool. The time it takes your body to get

rid of the drugs depends on many things, including the type of chemo you get, other medicines you take, your age, and how well your kidneys and liver work. Your doctor will tell you if you need to take any special precautions because of the drugs you are getting. (See “How can I protect myself and those I live with while I am getting chemo?” in the section called “Chemo safety” for general safety tips to follow at home.)

If your cancer comes back, chemo may be used again. This time, you may be given different drugs to relieve symptoms or to slow the cancer’s growth or spread. Side effects may be different, depending on the drugs, the doses, and how they’re given.

How will the chemo be given to me?

Into a vein

Most chemo drugs are put right into your bloodstream through a tiny, soft, plastic tube called a *catheter*. A needle is used to put the catheter into a vein in your forearm or hand; then the needle is taken out, leaving the catheter behind. This is called *intravenous* (IN-truh-VEEN-us) or IV treatment. Intravenous drugs are given in these ways:

- The drugs can be given quickly through the catheter right from a syringe over a few minutes. This is called an IV push.
- An IV infusion can last from 30 minutes to a few hours. A mixed drug solution flows from a plastic bag through tubing that’s attached to the catheter. The flow is often controlled by a machine called an IV pump.
- Continuous infusions are sometimes needed and can last from 1 to 7 days. These are always controlled by electronic IV pumps.

The needles and catheters can scar and damage veins with ongoing chemo. Another option is the central venous catheter (CVC). The CVC is a bigger catheter that’s put into a large vein in the chest or upper arm. It stays in as long as you’re getting treatment so you won’t need to be stuck with a needle each time. With a CVC, IV medicines can be given more easily. Blood can also be drawn from CVCs.

Many different kinds of CVCs are available. Some are soft tubes that stick out of the skin and require no needles. Another type is a port, which is like a small drum with a thin tube going into the vein. Ports are permanently placed under the skin of the chest or arm during surgery. Special needles are then stuck through the skin into the port to use it.

Many people talk about CVC options with their doctor even before starting treatment. Some find out during treatment that they need a CVC because their hand and arm veins are not going to last to complete the planned chemo. Your doctor can help you decide if you need a CVC and the right type of CVC for you.

Other routes

Depending on the drugs and where the cancer is, chemo also may be given in one or more of these ways:

- **Orally or PO** – This means by mouth. You swallow the chemo as a pill, capsule, or liquid – just as you do other medicines. This is usually more convenient because the chemo can often be taken at home. If you take chemo drugs by mouth, it's very important to take the exact dosage, at the right time, for as long as you're supposed to do so. For more information, please see *Oral Chemotherapy: What You Need to Know*.
- **Intrathecal or IT** – The chemo is put into the spinal canal and goes into the fluid that surrounds your brain and spinal cord. This fluid is called the cerebrospinal fluid or CSF. Chemo put into the CSF is carried throughout the brain and spinal cord. You may either have a needle put right into your spine to quickly give the drug, or a long-term catheter and port can be put under the skin on your head during surgery. This port is called an Ommaya reservoir. The Ommaya is a small drum-like device that has a small tube attached to it. The tube goes into the CSF in a cavity of your brain. The Ommaya stays in place under your scalp until treatment is done.
- **Intra-arterial** – The chemo drug is put right into an artery to treat a single area (such as the liver, an arm, or leg). This method helps limit the effect the drug has on other parts of the body and is called *regional chemo*.
- **Intracavitary** – Chemo drugs may be given through a catheter into the abdominal cavity (the space around the bowels and other organs in the belly; this is called *intraperitoneal chemo*) or chest cavity (the space around the lungs and other organs in the chest).
- **Intramuscular or IM** – The drug is put in through a needle into a muscle (as an injection or shot).
- **Intralesional** – A needle is used to put the drug right into a tumor in the skin, under the skin, or in an internal organ.
- **Topical** – The drug is put right on an area of cancer on the skin as a cream, gel, or ointment.

Does chemo hurt?

You already know how it feels to take a pill or rub medicine on your skin. And you've probably felt the brief discomfort of a shot before. IV medicines should not hurt after the first needle stick to put in the catheter. If you feel pain, burning, coolness, or anything unusual while you are getting chemo, tell your doctor or nurse right away.

What are clinical trials?

Clinical trials are carefully designed research studies that test promising new cancer treatments. You may want to talk to your doctor about this option. Patients who take part in research studies will be the first to benefit from these treatments. The study results will also help other patients. In a clinical trial, you get either standard treatment or a new treatment that's thought to be as good as – or maybe better than – the standard treatment. Studies are never done to see if you would recover from cancer without treatment at all. As with any other medical care, you are free to withdraw from a clinical trial at any time and seek other treatment options.

To learn more about clinical trials:

- Call us for a free copy of *Clinical Trials: What You Need to Know*, or read it on our website.
- The American Cancer Society offers a Clinical Trials Matching Service to help you find clinical trials that might be right for you. The service is available by telephone from 7:30 a.m. until 7 p.m. CT Monday through Friday at 1-800-303-5691, or you can visit www.cancer.org/clinicaltrials to fill out a screening questionnaire anytime.
- The National Cancer Institute (NCI) can also give you a list of clinical trials that might be right for you. Visit the NCI's website at www.cancer.gov, or call 1-800-422-6237.

Can I take other medicines while I'm getting chemo?

Some medicines may alter the effects of your chemo. To be sure that your treatment works as well as it can, tell your doctor or nurse about any and all prescription and non-prescription medicines, vitamins, herbs, and supplements you are taking.

- Make a list with the name of each drug, the dose, how often you take it, who prescribed it, and the reason you take it.
- Be sure to include the things you may not think of as medicines, even those you take every now and then. This includes aspirin, herbal and dietary supplements, vitamins, minerals, and all over-the-counter medicines.

Share this list with all of your doctors. Your cancer doctor (oncologist) will tell you if you should stop taking any of these medicines before starting chemo. After your treatments start, check with your oncologist before taking any new medicines or supplements and before stopping any you already take.

How will I know if the chemo is working?

Your cancer care team will check how well your treatments are working by doing certain tests. This may include physical exams, blood tests, bone marrow biopsies, scans, and x-rays. Ask your doctor about the test results and what they show about your progress. You may have side effects, but these side effects do not tell you whether treatment is working.

How do I give my permission for chemo treatment?

You'll be asked to give your written permission to get chemo based on your understanding of the drugs your doctor recommends. Know the answers to all of these questions before you sign the consent form.

- Which chemo drugs will I be given?
- How will the drugs be given to me?
- How often will I need to get chemo?
- How long will my treatments last?
- What side effects could I have?
- How likely is it that this treatment will work?

The specifics of the consent form may vary from state to state, but the form usually states that your doctor has explained your condition to you, how the chemo could benefit you, the risks of treatment, and the other options available to you. Your signature on the form means that you've gotten this information and you are willing to be treated with chemo. This process is called giving informed consent.

Chemo safety

Can I be around my family and friends while I'm getting chemo?

Very few treatments do require you to avoid close contact with loved ones for a short amount of time. If this is something you'll have to do, your doctor will tell you about it when going over treatment options.

Most chemo drugs make you less able to fight infection. It's very important that you stay away from anyone who is sick. The best way to prevent infection is by washing your hands often, especially before touching your face, nose, mouth, or eyes. Ask your family

and friends to do the same when they are with you. For more information, see the section called “Increased chance of bruising, bleeding, infection, and anemia after chemo.”

For more information on being at home with family and friends during treatment, please see *Helping Children When a Family Member Has Cancer: Dealing With Treatment and Caring for the Patient With Cancer at Home: A Guide for Patients and Families*. They can be read online, or call us to have free copies sent to you.

How can I protect myself and those I live with while I’m getting chemo?

There are many things you can do during and after chemo to keep yourself and your loved ones from being affected by the chemo drugs while your body is getting rid of them. It takes about 48 hours for your body to break down and/or get rid of most chemo drugs.

Most of the waste comes out in your body fluids – urine, stool, tears, and vomit. The drugs are also in your blood. When chemo drugs get outside your body, they can harm or irritate skin – yours or even other people’s. Keep in mind that this means toilets can be a hazard for children and pets, and it’s important to be careful. Talk to your doctor about these and any other precautions you should follow.

During – and for 48 hours after – chemo:

- Flush the toilet twice after you use it. Put the lid down before flushing to avoid splashing. If possible, you may want to use a separate toilet during this time. If this is not possible, wear gloves to clean the toilet seat after each use.
- Both men and women should sit on the toilet to use it. This cuts down on splashing.
- Always wash your hands with warm water and soap after using the toilet. Dry your hands with paper towels and throw them away.
- If you vomit into the toilet, clean off all splashes and flush twice. If you vomit into a bucket or basin, carefully empty it into the toilet without splashing the contents and flush twice. Wash out the bucket with hot, soapy water and rinse it, emptying the wash and rinse water into the toilet, then flushing it. Dry the bucket with paper towels and throw them away.
- Caregivers should wear 2 pairs of throw-away gloves if they need to touch any of your body fluids. (These can be bought in most drug stores.) They should always wash their hands with warm water and soap afterward – even if they had gloves on.
- If a caregiver does come in contact with any of your body fluids, they should wash the area very well with warm water and soap. It’s not likely to cause any harm, but try to take extra care to avoid this. At your next visit, let your doctor know this happened.

Being exposed often may lead to problems, and extra care should be taken to avoid this.

- Any clothes or sheets that have body fluids on them should be washed in your washing machine – not by hand. Wash them in warm water with regular laundry detergent. Do not wash them with other clothes. If they cannot be washed right away, seal them in a plastic bag.
- If using throw-away adult diapers, underwear, or sanitary pads, seal them in 2 plastic bags and throw them away with your regular trash.

Will I be able to work during chemo treatment?

Whether you can continue work, school, and other activities depends on your treatment and how it affects you. For some treatments, you may need to stay in a hospital for a week or more, but many people are able to keep working during treatment. You might be able to schedule your treatments late in the day or right before the weekend so that they interfere with work as little as possible.

If chemo makes you tired, try to adjust your work schedule for a while. You may be able to arrange a part-time schedule or work from home. If you get health insurance from your employer, you'll want to keep your job during treatment. Federal and state laws may require some employers to allow you to work a flexible schedule during your treatment.

To find out more about keeping your health insurance and your rights as an employee, call your local American Cancer Society office or our toll-free number. You can also find out about employment-related rights by contacting your congressional or state representatives.

Chemo side effects

What causes side effects?

Cancer cells tend to grow fast, and chemo drugs kill fast-growing cells. But because these drugs travel throughout the body, they can affect normal, healthy cells that are fast-growing, too. Damage to healthy cells causes side effects. Side effects are not always as bad as you might expect, but many people worry about this part of cancer treatment.

The normal cells most likely to be damaged by chemo are blood-forming cells in the bone marrow; hair follicles; and cells in the mouth, digestive tract, and reproductive system. Some chemo drugs can damage cells in the heart, kidneys, bladder, lungs, and nervous system. In some cases, medicines can be given with the chemo to help protect the body's normal cells.