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PDF generated on July 26, 2016 from

<http://www.cancer.net/navigating-cancer-care/how-cancer-treated/chemotherapy/understanding-chemotherapy>

Understanding Chemotherapy [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 08/2015

Chemotherapy is the use of drugs to destroy cancer cells. It works by keeping the cancer cells from growing and dividing to make more cells. Because cancer cells usually grow and divide faster than healthy cells, chemotherapy destroys them more quickly than it destroys most healthy cells.

Since chemotherapy drugs are powerful, they cause damage to many growing cells, including some healthy cells. This damage causes the side effects of chemotherapy.

Different types of chemotherapy

Chemotherapy with these powerful drugs is called standard chemotherapy, traditional chemotherapy, or cytotoxic chemotherapy.

Several other types of drugs also treat cancer. Many of the newer drugs are called targeted drugs, because they damage cancer cells by blocking genes or proteins found in the cancer cells. Because these treatments work specifically on the cancer cells, they cause different side effects and usually damage healthy cells less. Other types of cancer therapy include hormones and drugs that work with your immune system to fight cancer. Learn more about [targeted therapy](#) [3] and [immunotherapy](#) [4].

How does chemotherapy treat cancer?

Doctors use chemotherapy in different ways at different times. These include:

- Before surgery or radiation therapy to shrink tumors—doctors call this neoadjuvant

chemotherapy.

- After surgery or radiation therapy to kill any remaining cancer cells—doctors call this adjuvant chemotherapy.
- As the only treatment—for example, to treat cancers of the blood or lymph system. These include leukemia and lymphoma.
- For cancer that comes back after treatment, called recurrent cancer
- For cancer that spreads to other parts of the body, called metastatic cancer

The goals of chemotherapy

Chemotherapy goals depend on the type of cancer and how far it has spread. Sometimes, the main goal is to get rid of all the cancer and keep it from coming back. If this is not possible, you might have chemotherapy to delay or slow down cancer growth.

When chemotherapy delays or slows cancer growth, there are also fewer symptoms caused by the cancer. Chemotherapy given with the goal of delaying cancer growth is sometimes called palliative chemotherapy.

Your chemotherapy plan

There are many cancer drugs available. A doctor who specializes in treating cancer with medication, called a medical oncologist, will prescribe your chemotherapy. You may get a combination of drugs, because this sometimes works better than one drug alone.

Your chemotherapy drugs, dose, and treatment schedule depends on many factors. These include:

- The type of cancer
- The tumor size, its location and if it has spread—doctors call this the stage of cancer.
- Your age and general health
- How well you can cope with certain side effects
- Any [other medical conditions](#) [5] you have
- Previous cancer treatments

Where is chemotherapy given?

You can get chemotherapy at a clinic, doctor's office, or the hospital. You might take the drugs at home with some types of treatment.

How long does chemotherapy take?

You might get chemotherapy for a specific time, such as 6 months or a year. Or you might get it as long as it works.

Side effects from many traditional chemotherapy drugs are too severe to give treatment every

day. Doctors usually give these drugs with breaks, so you have time to rest and recover before the next treatment. This lets your healthy cells heal.

For example, you might get a dose of chemotherapy on the first day and then have 3 weeks of recovery time before repeating the treatment. Each 3-week period is called a treatment cycle. Several cycles make up a course of chemotherapy. A course usually lasts 3 months or more.

Doctors treat some cancers with less recovery time between cycles. They call this a dose-dense schedule. It can make chemotherapy more effective against some cancers. But it also increases the risk of side effects. Talk with your doctor about the best schedule for you.

How is chemotherapy given?

Intravenous (IV) chemotherapy. Many traditional chemotherapy drugs require injection directly into a vein. Doctors call it intravenous or IV chemotherapy. Treatment takes a few minutes to a few hours.

Some IV drugs work better if you get them over a few days or weeks. You take them through a small pump you wear or carry. This is called continuous infusion chemotherapy.

Oral chemotherapy. You can take some traditional chemotherapy drugs by mouth. They can be in a pill, capsule, or liquid. You simply pick up your medication at the pharmacy and take it at home. Oral treatment for cancer is now more common, since many of the new drugs called targeted therapies work this way. Some of these drugs are given daily, and others are given less often. For example, a drug may be given daily for 4 weeks followed by a 2-week break.

Injected chemotherapy. You get chemotherapy as a shot, usually in a muscle, the fatty part of an arm or leg, or your belly.

Chemotherapy into an artery. An artery is a blood vessel that carries blood from your heart to another part of your body. Occasionally, chemotherapy drugs are injected into an artery that goes directly to the cancer. Doctors call this intra-arterial or IA chemotherapy.

Chemotherapy into the peritoneum or abdomen. For some cancers, medication might be placed directly in your abdomen. Abdomen is the medical term for your belly. This type of treatment works for cancers involving the peritoneum. The peritoneum covers the surface of the inside of the abdomen and surrounds the intestines, liver, and stomach. Ovarian cancer is one type of cancer that frequently spreads to the peritoneum.

Topical chemotherapy. You can take some chemotherapy drugs in a cream you put on your skin. You get your medication at the pharmacy and take it at home.

Other drug treatments for cancer

Traditional chemotherapy drugs are an important part of treatment for many cancers. The drugs

affect both cancer cells and healthy cells. But scientists have designed newer drugs that work more specifically to treat cancer. These treatments cause different side effects.

Doctors may use these newer cancer drugs alone. But they are usually given with traditional chemotherapy. Read below to learn more about these new cancer drugs.

Hormone therapy. These treatments change the amount of hormones in your body. Hormones are chemicals your body makes naturally. They help control the activity of certain cells or organs. Doctors use hormone therapy because hormone levels control several types of cancers. This includes some [breast](#) [6] and [prostate](#) [7] cancers.

Targeted therapy. These treatments target and disable genes or proteins found in cancer cells that the cancer cells need to grow. They are not often found in healthy cells. Targeted therapy causes different side effects from traditional chemotherapy.

Immunotherapy. This type of treatment helps your body's natural defenses fight the cancer. Your body's natural defense system is called the immune system, so the treatment is called immunotherapy. Major recent improvements have been made in immunotherapy. This type of treatment will play an increasingly important role in cancer treatment in the future.

More Information

[How Cancer is Treated](#) [8]

Additional Resources

[National Cancer Institute: Chemotherapy](#) [9]

[Chemocare.com: What is Chemotherapy?](#) [10]

Links

[1] <http://www.cancer.net/navigating-cancer-care/how-cancer-treated/chemotherapy/understanding-chemotherapy>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24729>

[4] <http://www.cancer.net/node/24726>

[5] <http://www.cancer.net/node/31461>

[6] <http://www.cancer.net/node/18626>

[7] <http://www.cancer.net/node/19569>

[8] <http://www.cancer.net/node/25071>

[9] <http://www.cancer.gov/about-cancer/treatment/types/chemotherapy>

[10] <http://chemocare.com/chemotherapy/what-is-chemotherapy/default.aspx>