

How Cancer is Treated

Patient Comments

"The day I found out I had cancer my life changed..."

"I was frightened... I'd heard so many bad things..."

"Am I going to die?"

"I have cancer... *now* what?"

Narrator

A diagnosis of cancer can raise questions... and fears. It can have a profound effect on a person.

Richard Theriault, DO

"...many react with fear, fear of pain and suffering. There's a threat to their integrity as a human being. There's this thought that you know in the past cancer meant I'm gonna die ... (But now) everything has changed. The death rate from cancer continues to go down. The likelihood of being restored to normal function continues to go up, and we have millions and millions of people who are survivors."

Narrator

When cancer is found, and a diagnosis is confirmed, a plan must be devised for treating it.

The goals of cancer treatment are:

- to cure it if possible, by removing all traces of it from the body
- to preserve or restore function lost to the disease, and
- where a complete cure isn't possible, to relieve symptoms and improve quality of life.

To these ends, many tools are brought to bear. The major ones used to treat cancers are *surgery, radiation and chemotherapy*. Other medicines and therapies are used as well. Many cancer patients will receive more than one kind of therapy during the course of their treatment. Let's see how they work and why they're used:

Surgery... an operation... is the oldest treatment for cancer... and it may come into play more than once for some patients. As a primary, curative treatment, its goal is to remove tumors.

Surgery is done in an operating room by a surgeon. The patient is usually under anesthesia. Sometimes surgery involves a stay in the hospital... other times it's done as an outpatient procedure.

When a cancer is removed surgically, the goal is to remove the *entire* tumor ... as well as a "margin" of healthy surrounding tissue. A pathologist will examine the removed tissue under a microscope, and will ensure that the margins are "clear" ...meaning that they do not contain any cancer cells. Sometimes this inspection done *during* the operation, and sometimes it's done later.

How Cancer is Treated

During the operation, the surgeon will also examine the tissues and organs... and the lymph nodes... near the tumor site for evidence of spread or invasion by the cancer... and will remove all obvious diseased tissues.

This exploration... a very important step in determining whether additional treatment will be needed... should ideally be performed by a surgical oncologist... a surgeon who is a cancer specialist.

Surgery plays other roles in cancer treatment as well. For example, *plastic* surgeons who specialize in cancer treatment are expert at restoring form and function...

Geoffrey Robb, MD

"Sometimes, in order to eradicate cancer, it may be necessary to remove an entire organ, but there are many new surgical techniques that help to avoid bodily deformity or loss of limb... and, of course, there is reconstruction to help restore normalcy. We certainly believe that restoration of function such as restoring a bladder for a patient or restoring the patient's outward appearance as in the reconstruction of a breast is a vitally important and critical part of treating cancer."

Narrator

Another primary cancer treatment is *radiation therapy*. Sometimes called radiotherapy, this treatment uses high-energy beams such as x-rays to destroy cancer cells.

Deborah Kuban, MD

"Tumors that don't have a great propensity to spread are those which radiation could target most effectively. Radiation can be given as the only modality. It can be used, for instance, instead of surgery in some patients. Very often patients have a choice of which treatment they would prefer. It can also be used in addition to other therapies; in addition to surgery perhaps, or chemotherapy, when cancer may be left behind, and we may need a second modality to help to eradicate the tumor.

Radiation can be delivered in several different ways. There's external, and there's internal or brachytherapy, where radiation can be put directly inside the tumor.

With the latest treatment techniques, we can very accurately target the tumor, so that we know exactly where the radiation is going. We would do a CT scan ahead of time, map out the tumor, determine how much radiation should be given, and at what angles, so we can deliver it very precisely to the exact tumor site."

Narrator

One of the newest developments is proton therapy, which is the most precise form of radiation treatment available.

How Cancer is Treated

Deborah Kuban, MD

".....protons can be programmed to deposit the vast majority of their energy at a certain depth, and then the radiation falls off very, very quickly within millimeters after that, so that the organs on the downside, or the structures on the downside of the tumor would not get much radiation at all."

Narrator

The third mainstay cancer treatment is *chemotherapy*. Although a number of drugs are used in cancer treatment, the term *chemotherapy* refers to drugs that kill cancer cells. It is the major treatment or part of treatment for many cancers. It *must* be used in situations where cancer cells are too small or too diffused throughout the system to be removed by surgery or radiation... such as cancers that have entered the blood and lymphatic system... and those that are spreading or metastasizing.

Alma Rodriguez, MD

"There are certain drugs that are very effective for some types of cancer that may not work so well for other cancers. So when patients talk about their treatment for their particular cancer...for someone with breast cancer, it may be very different than for someone who's being treated for pancreatic cancer or lymphoma or colon cancer. It may entail completely different drugs."

Narrator

Chemotherapy may involve one drug, or a combination of two or more drugs, depending on the type of cancer. Although some chemotherapy drugs are available as pills, and some others are given as injections, most chemotherapy is given intravenously... through a needle that is inserted into a vein. Typically the patient visits the clinic for treatments... the number of treatments and the schedule vary from patient to patient.

Bone marrow transplants and now the more common peripheral blood stem cell transplants are cancer treatments related to chemotherapy.

These treatments are used when very powerful doses of chemotherapy drugs are needed to eradicate certain cancers...doses that also eradicate *healthy* blood cells.

In the transplant process, the stem cells are collected from the patient's own blood before the chemotherapy begins, and injected back into the person afterward to become mature blood cells. Occasionally, cells from a blood or bone marrow *donor* are used.

Alma Rodriguez, MD

"Stem cell transplants are indicated only in certain kinds of cancers. And the approved indications today for this type of transplant or this type of treatment is for patients with hematologic or blood disorders...people with leukemias, or lymphomas or multiple myeloma, or who have loss of marrow function."

How Cancer is Treated

Narrator

In addition to chemotherapy, which works by eradicating cancer cells, medications that work in other ways may also be used in a patient's treatment. Immunotherapies are an example...

Alma Rodriguez, MD

"Immunotherapy is a very broad term, and it refers to a lot of different strategies that stimulate the patient's own immune system to fight the tumor or that in themselves are immune products that will enhance the body's immune response against the tumor."

Narrator

And since some tumors depend upon *hormones* to grow, certain drugs can be used to block their effect. An example is tamoxifen, which blocks estrogen receptors on the cells. It's used in cases where the hormone estrogen is suspected to cause breast cancers to grow.

Alma Rodriguez, MD

"So the tumor cell will then die because of its being blocked from estrogen stimulation. Essentially that's the concept behind many of the hormonal treatments...to block the stimulus of the hormone on the tumor."

Narrator

Usually, these drugs... immunotherapies, hormonal therapies, and others... are used *in concert* with...not instead of... traditional chemotherapy.

Through research, scientists are learning more about the inner workings of cancer cells... their genetic makeup, the way they behave, and some of the mechanisms that cause them to grow and spread.

This research is yielding new kinds of drugs... called targeted molecular therapies... that can specifically target cancer cells without harming normal cells... so they'll be more effective in treating—and perhaps even preventing—cancer... and will have fewer side effects.

Finally, there are a number of therapies that are used to *support* the mainstay cancer treatments. These include medications that prevent or relieve some of the symptoms of cancer or side effects of the treatments, such as anemia, nausea, fatigue, or pain. Patients should always discuss side effects and symptoms with their doctor, because most of them can be relieved.

In addition, "Complementary Therapies" are receiving more attention and use by cancer patients to enhance their quality of life. Unlike alternative therapies, complementary therapies are used in addition to standard treatment, and not instead of it. Some complementary therapies that many patients find helpful are...exercise, yoga, massage, meditation and hypnosis.

How Cancer is Treated

It's also important to say that often, patients hear about certain *herbs and supplements* that might be useful, and although some may be, others might actually be harmful, and interfere with cancer treatments... so it's important to check with the cancer care team before beginning any complementary therapies

In many situations, a *combination* of cancer treatments is necessary. Many breast cancers, for example, require surgery, radiation, AND chemotherapy. So, it's very important that a patient's care is coordinated by a multidisciplinary team working closely together.

Richard Theriault, DO

"The team approach puts together multiple individual specialties, so it might include a pathologist, a radiologist, a mammographer, a surgeon, a radiation oncologist, a medical oncologist...whoever is necessary to support that person going through the cancer experience.

It's like a road map. Everybody gets together. They make the map, and the patient, is a member of the road map team, and so they know where they're going, what they're doing and it gives them a lot more control about what's happening."

Narrator

Any cancer diagnosis should be confirmed by an oncologist... a cancer specialist... before beginning treatment. In fact, many health insurance plans *require* a second opinion before covering some treatment costs.

Many cancer patients are eager for information about treatment options and locating the best possible care, and as the field of cancer care continues to evolve and improve, and as scientists understand more about the biology of cancer, new and different treatments emerge that improve upon current standard treatments. Any time new treatments are developed, they must be proven safe and effective. This is done in carefully controlled *clinical trials*.

Richard Theriault, DO

"Clinical trials are very important, because everything we do now that works was in a clinical trial, and somebody at some point had the benefit of being in that, had the advantage of getting that treatment or whatever it was to make them better. And now it's become a standard."

Narrator

Clinical trials have provided new hope for some people whose cancer has not responded to traditional treatments. But they're not just for people who have failed on standard treatments... almost any patient who has cancer might be eligible for... and might benefit by receiving treatment in a clinical trial.

Today, improvements in all areas of cancer therapy are resulting in better treatments that are easier to tolerate. Cancer surgeons continue to invent new ways to spare or restore function ...

How Cancer is Treated

New radiation machines can target more precise locations without damaging healthy surrounding tissues...and new classes of drugs are being developed that can target some cells and leave others alone... resulting in more effective treatments with fewer side effects.

John Mendelsohn, MD, President, M.D. Anderson Cancer Center

"Here at M. D. Anderson, our life's work is to continue to find better, gentler therapies for cancer, and to share them with the world. Through decades and decades of research, cancer treatments have gotten so much more effective that we are now seeing many patients *cured* who once would have been considered beyond hope... and more and more millions of cancer patients who become cancer *survivors*."