



A Patient's Guide to TrueBeam™ Radiotherapy Technology



VARIAN
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Introduction

When you have been diagnosed with cancer, it is important to discuss with your healthcare team all available treatment options. One possible option is radiotherapy. This guide will give you a brief overview of a radiotherapy treatment technology using an advanced system called TrueBeam. You should discuss with your healthcare team whether treatment with the TrueBeam™ system is right for you.

The TrueBeam system is a radiotherapy system that uses noninvasive tumor-destroying radiation to treat cancers throughout the body as it minimizes exposure to surrounding healthy tissue. Developed by Varian Medical Systems, a world leader in radiotherapy oncology solutions, this powerful technology is precise, accurate and fast. In fact, most treatments only take minutes a day. And the TrueBeam system's advanced imaging and treatment modes allow doctors to tailor treatments specifically to a particular cancer.

As you read this guide, we hope that you'll gain a better understanding of this powerful technology and how it may be able to help you. Again, your doctor will be your best resource going forward and will help determine if TrueBeam is right for you.



What Is Radiotherapy and How Does It Work?

Two out of three people with cancer undergo some form of radiotherapy as part of their treatment, according to the American Society for Radiation Oncology (ASTRO). The fact that radiotherapy has been around for many years speaks to both the effectiveness and safety of this treatment.

As technical as it is, the underlying idea of radiotherapy is really pretty simple: beams of radiation are used to destroy cancer cells. When you undergo a TrueBeam treatment, these beams damage cancerous cells while minimizing exposure to nearby healthy cells. When the very precise beams hit the cancerous cells, their ability to reproduce is compromised and they eventually die, causing the tumor to shrink. However, unlike cancer cells, normal cells have the ability to repair themselves.

TrueBeam performs many advanced forms of radiotherapy. These include intensity-modulated radiotherapy (IMRT) and image-guided radiotherapy (IGRT). IMRT is a treatment technique where doctors are able to customize your radiation dose by varying (or modulating) the amount of radiation that is sent to different parts of your tumor. IGRT uses advanced imaging so doctors and clinicians can visualize your tumor. This allows them to verify the exact position of the tumor and treat it precisely.

It is important to know that radiotherapy, including TrueBeam radiotherapy, is not appropriate for all types of cancer. Actual treatment times may vary. Typical radiation treatments are delivered once a day for a series of weeks. Serious side effects are treatment site specific and can include diarrhea, nausea, swelling at the treatment site, lymphedema and secondary cancer. Talk to your doctor about what you can expect from your treatment and to find out if treatment with the TrueBeam radiotherapy system is right for you.



What Is TrueBeam?

TrueBeam is an advanced radiotherapy system from Varian Medical Systems that delivers treatment with speed and accuracy.

TrueBeam synchronizes a beam system (that provides the beams of radiation for treatment) to an imaging system (that allows doctors to “see” the tumor they’re treating). It also has sophisticated respiratory monitoring systems that compensate for your breathing as it targets the tumor. Because treatment delivery is noninvasive, there is no incision or surgery with TrueBeam. The ability to deliver higher doses of radiation at great speed allows most treatments to be given in just minutes a day.

TrueBeam Is Truly Unique. Here Are Some of the Ways It Is Different.

Personalized treatments

- TrueBeam gives doctors the flexibility to customize treatments for an individual’s particular cancer, including some of the more complex cases in places like the head and neck, lungs, breast, abdomen and liver.
- TrueBeam can be used to deliver advanced forms of radiotherapy, and this gives your doctor the opportunity to tailor your treatment—to choose a method that is best for your particular case.

Fast, precise treatments

TrueBeam is finely engineered to be fast and precise with most treatments taking just minutes a day.

- In fact, even tumors that move (for example, those in the lungs) can be precisely targeted thanks to special tools that compensate for motion during a treatment.



- The imaging system on TrueBeam will let your doctor visualize, in real time, the tumor that is being treated. Additional functionality provides for the acquisition of a cone-beam CT, a form of CT, using 25% less X-ray dose than compared with earlier Varian image-guided technologies.
- As it works toward the goal of destroying the cancerous cells while minimizing exposure to healthy cells, TrueBeam uses very sophisticated technology to “see” your tumor and target it. In fact, TrueBeam’s precision is measured in submillimeters.
- Every tumor is different, and TrueBeam can shape the radiation beam to accurately match the size and form of just about any tumor regardless of its shape. It uses a device called a multileaf collimator that has 120 computer-controlled “leaves” or “fingers” that can move to create an aperture of different sizes and shapes. During treatment, this aperture changes to target the tumor and minimize exposure to the surrounding healthy tissue.

Built to address patient comfort

TrueBeam isn't just powerful and accurate. It was designed to enhance the patient experience.

- Fast, precise treatments can take just minutes a day—minimizing discomfort and interruptions to your daily life.
- The therapist operating the machine can be in constant contact with you. Continuous two-way audio and video with the therapist allows you to communicate easily throughout your treatment.
- TrueBeam runs smoothly and quietly. Advanced features allow music to be played during treatment, helping to enhance your comfort.

Yes, you are being treated with very powerful technology, but remember that you are also being treated by an experienced and caring group of medical professionals. These people put your care and comfort first, and TrueBeam's ease of use and smooth operation help them focus on what matters most—you.



TrueBeam Treatment

There are several steps to a radiotherapy treatment, including a TrueBeam treatment: tumor visualization, planning, treatment delivery and follow-up care.

Tumor Visualization

During this process, 3-D images are generated of your tumor. This allows your doctor to know the size, shape and location of the tumor. Knowing this, they can best determine the dose of radiation you'll need.

Planning

Once the specifics of the tumor are understood, a treatment plan is developed that specifies the correct dosage (in other words, how much radiation dose is delivered), where it is delivered and a schedule for treatment. Highly trained medical specialists will use sophisticated treatment planning software to develop a three-dimensional "picture" of the area of your tumor. They will then determine the amount of radiation the tumor should receive as well as from what angles.

Treatment

Treatment delivery is the implementation of the plan. A therapist will guide you into a treatment room and help position you on a treatment table. Just prior to treatment, you will be imaged so that the therapist can verify the tumor location. The therapist then leaves the room, and your treatment begins. The machine that creates the beam will rotate at various angles around you. The therapist who is running the treatment can be in constant contact with you. The process will most likely only take a few minutes. Sometimes the first TrueBeam treatment will take a little longer than your following treatments since there may be some additional setup that is required.

Follow-up Care

After your treatment, you'll undergo follow-up care with your doctor. During this time, he or she will monitor your progress. This is an opportunity to ask your doctor any questions, raise concerns about any side effects or inquire about your treatments and status of your health.

