

A PATIENT'S GUIDE

TRUEBEAM[®] TECHNOLOGY

For Radiotherapy and
Radiosurgery

trueBEAM

 **Holy Cross**
Hospital
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Comprehensive Cancer Center



TRUEBEAM RADIOTHERAPY: HOW DOES IT WORK?

When you have been diagnosed with cancer, it is important to discuss all treatment options with your doctor.

Two possible options may be radiotherapy or radiosurgery, treatment procedures that can be delivered by the TrueBeam® radiotherapy system, advanced technology that is powerful and precise.

This guide will give you a brief overview of how TrueBeam works to treat cancer, its many advantages, and the different types of treatments it can deliver. You'll also learn what to expect during a TrueBeam treatment.

In the U.S., 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 used as a part of cancer treatment regimens for many years speaks to its effectiveness as cancer-fighting tool.

You should ask your doctor if treatment with the TrueBeam system is right for you.



The TrueBeam system enables your clinical team to treat your cancer without surgery, using powerful, state-of-the-art radiotherapy individualized for your condition.

Developed by Varian Medical Systems, the world leader in radiotherapy oncology solutions, TrueBeam uses high-energy X-rays — or in some cases, streams of electrons — to destroy cancer cells. When you undergo a TrueBeam treatment, the treatment beam damages cancerous cells while minimizing the exposure of nearby healthy tissues and organs.

When the very precise beam hits the cancerous cells, their ability to reproduce is compromised and they eventually die, causing the tumor to shrink.

TRUEBEAM IS USED IN 8 OF THE TOP 10 U.S. CANCER HOSPITALS*

*As rated in US News & World Report's 2016-17 "Best Hospitals for Cancer"



ADVANTAGES OF TRUEBEAM TREATMENT

NONINVASIVE - There are no incisions or surgery with TrueBeam and no post-surgery recovery period.

FAST - The ability to deliver higher doses of radiation faster means most treatments can be given in just minutes a day. The TrueBeam system's sophisticated imaging system helps your clinical team visualize the tumor in real time — 60% faster, using 25% less X-ray dose than with previous Varian technology.

PRECISE - Because doctors can “see” the tumor they're treating in real time, they can target it with pinpoint precision. Even tumors that move when you breathe — those in the lungs, for example — can be targeted precisely thanks to special tools that compensate for motion during a treatment.

VERSATILE - TrueBeam can be used to deliver advanced radiotherapy or radiosurgery, giving doctors the flexibility to use whatever protocol is appropriate for your specific cancer. Because of its versatility, TrueBeam gives us options to treat cancers in challenging places like the head and neck, lungs, breast, abdomen and liver.

INDIVIDUALIZED - Every tumor is different, and TrueBeam can shape the radiation beam to match the size and form of most tumors accurately, regardless of their shape. It uses a device called a multileaf collimator that has 120 computer-controlled “leaves” or “fingers” which move to create apertures of different shapes and sizes. This shapes the treatment beam to match precisely the size and form of the tumor from any given treatment angle, while minimizing exposure of the surrounding healthy tissue.

COMFORTABLE - A closed-circuit television system enables your radiation therapist to watch you during treatment, and two-way audio lets you talk with the therapist. TrueBeam runs so quietly, you can even listen to music during treatment to help you relax.

TYPES OF TRUEBEAM TREATMENTS

Thanks to its flexible design, TrueBeam can deliver many advanced forms of radiotherapy and radiosurgery. Although actual treatment times may vary, typical radiotherapy treatments are delivered once a day for several weeks, with each session taking only a few minutes. Typical radiosurgery treatments (SRS and SBRT) are delivered in only one to five treatments.

Treatments that can be performed by TrueBeam include:

- **IMRT (Intensity-Modulated Radiotherapy)** – A technique during which doctors vary (or modulate) the amount of radiation that is sent to different parts of your tumor, while shaping the beam to match precisely the shape, size, and position of the tumor.



TREATING CANCER WITH TRUEBEAM, STEP BY STEP

- **IGRT (Image-Guided Radiotherapy)** – Uses advanced imaging that allows the clinical team to visualize and verify the exact position of your tumor – both prior to and during your treatment.
- **SRS (Stereotactic Radiosurgery)**
– A faster treatment protocol that uses more powerful beams to treat tumors in the brain over only one to five sessions. Please note: although the term “radiosurgery” is used, SRS is completely noninvasive – no incisions are necessary.
- **SBRT (Stereotactic Body Radiotherapy)** – A technique similar to SRS, used to treat tumors elsewhere in the body.
- **VMAT (Volumetric-Modulated Arc Therapy), i.e. RapidArc®** – Enables treatments that once took ten to thirty minutes to be delivered in as little as two minutes or less.
- **Gated treatment, including Gated RapidArc** – Monitors your breathing and turns the beam on only when your tumor is in the optimal position for treatment.

Although your treatment process may vary, the following should give you a good idea of what to expect.

TUMOR VISUALIZATION

During this step, detailed 3D images are generated of your tumor, enabling your doctor to know its exact size, shape, and location in your body. With this information, your doctor can best determine the dose of radiation you'll need and how to deliver it most effectively.





TREATMENT PLANNING

Using the 3D images of the tumor as their guide, your treatment team will develop a detailed treatment plan that specifies the amount of radiation the tumor should receive, from what angles, and a schedule for treatment.

TREATMENT DELIVERY

You'll enter the treatment room, where the radiation therapist (RT) will help position you on the treatment table. Just prior to treatment, images will be taken so that the RT can verify the tumor's exact size and location to see if they've changed since the first images were created and make any necessary adjustments. The RT then leaves the room, and treatment begins.

The radiation is delivered by a machine called a linear accelerator (or linac for short), that will rotate around you as it projects the beam. Closed-circuit television and two-way audio enable the therapist to stay in constant contact with you. The process will probably take only a few minutes, although sometimes the first treatment takes a little longer because additional setup is needed.

FOLLOW-UP CARE

After your treatment, you'll see your doctor for follow-up care. During this time, he or she will monitor your progress. This is an opportunity to ask your doctor any questions about your treatments, the status of your health, and any side effects you may be having.

TALK TO YOUR DOCTOR

This brochure is intended as a general guide to TrueBeam. It does not replace a full discussion with your doctor and healthcare team. It is important to know that radiotherapy, including TrueBeam radiotherapy, is not appropriate for all types of cancer.

Actual treatment times may vary. Typical treatments are delivered once a day for a series of weeks.

SIDE EFFECTS

Serious side effects are treatment site specific and can include diarrhea, nausea, swelling at the treatment site, lymphedema, pneumonitis (inflammation of lung tissue) and secondary cancer.

Talk to your doctor about what you can expect from your treatment and to find out if treatment with the TrueBeam system is right for you.



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Varian Medical Systems is a world-leading manufacturer of radiation oncology systems used by healthcare professionals for treating cancer. Its integrated medical systems include linear accelerators, accessories and software for planning and delivering the most sophisticated radiotherapy treatments available.

For further information on TrueBeam, visit **www.varian.com/truebeam**