

**Thomas & Claire Brodesser, Jr. Cancer Center  
Cape Regional Medical Center**

**Varian TrueBeam System**  
*Frequently Asked Questions*

**What is the Varian TrueBeam system?**

The TrueBeam™ system is an advanced radiotherapy system from Varian Medical Systems. It was engineered from the ground up to deliver more powerful cancer treatments with pinpoint accuracy and precision. It uniquely integrates advanced imaging and motion management technologies within a sophisticated new architecture that makes it possible to deliver treatments more quickly while monitoring and compensating for tumor motion, opening the door to new possibilities for the treatment of lung, breast, prostate, head and neck, as well as other cancers.

**Why would a patient want to be treated with Varian TrueBeam?**

A doctor may prescribe treatment with the TrueBeam system for many reasons. This technology gives medical professionals the tools to treat many different types of cancers.

Also, TrueBeam is fast. Simple treatments that once took 10 to 30 minutes can now be completed in less than two minutes. As well as allowing for a more comfortable experience for the patient with less time on the treatment couch, faster delivery also allows for reduced chances of tumor motion during treatment, which helps protect nearby healthy tissue and critical organs.

The precision of the TrueBeam system is measured in increments of less than a millimeter. This accuracy is made possible by the system's sophisticated architecture, which synchronizes imaging, patient positioning, motion management, beam shaping and dose delivery, performing accuracy checks every ten milliseconds throughout the entire treatment.

TrueBeam imaging technology can produce the three-dimensional images used to fine-tune tumor targeting in 60% less time than previous Varian imaging technology. Additional functionality makes it possible to create images using 25% less X-ray dose. These images are used to fine-tune a patient's position prior to and during the treatment process.

For lung and other tumors subject to respiratory motion, TrueBeam offers Gated RapidArc® radiotherapy, which makes it possible to monitor the patient's breathing and compensates for movement of the tumor while the dose is being delivered in a continuous rotation of the treatment machine.

In addition to its impressive technical specifications, TrueBeam has also been designed with patient comfort in mind. It operates quietly and provides built-in music capabilities

so the patient can listen to music during their treatment. The patient is in constant two-way communication with the therapist who operates the system. Plus the therapist will be able to visually monitor and see the patient through two closed-circuit television systems.

### **How does radiotherapy work?**

An effective treatment for cancer, radiotherapy has been used safely for many years—in fact, according to the American Society for Radiation Oncology (ASTRO); nearly two out of every three cancer patients receive some type of radiotherapy during their treatment. In basic terms, radiotherapy works by limiting the ability of cancer cells to grow and spread. Radiation disrupts the DNA of these fast-growing cancer cells and prevents them from replicating.

The radiation is generated by a machine called a medical linear accelerator. This machine shapes beams of energy with varying intensities, which can be aimed at a tumor from multiple angles to attack the target in a complete three-dimensional manner. In fact, TrueBeam's treatment can be delivered with submillimeter accuracy and varying intensity. The idea is to deliver the lowest dose possible to the surrounding healthy tissue, while still delivering the maximum dose to the tumor.

### **What happens when a person is treated with radiotherapy?**

TrueBeam treatment involves several basic steps: diagnosis, the planning of the individual treatment and the delivery of the treatment.

After their diagnosis, the medical physicist generates three-dimensional diagnostic images (usually CT or MRI) of the tumor and the area around it. They then use these images to specify the dose of radiation needed to treat the tumor. A radiation oncologist will work with a physicist to plan an individualized treatment.

### **What is unique about treatment using Varian's TrueBeam technology?**

The main advantages of the Varian TrueBeam system are ease, precision and speed. Thanks to its pinpoint accuracy, the TrueBeam system can be used to treat many different types of tumors, including those in sensitive areas such as the prostate, abdomen, liver, lung, breast, and head and neck. We can now treat prostate cancer in 5 treatments versus the standard 40.

Treatments focus powerful radiation on the tumor while minimizing exposure of surrounding healthy tissues. TrueBeam was designed from the ground up to seamlessly integrate sophisticated imaging and radiation delivery treatments. What this means for patients is accuracy, speed and comfort. What it means for medical professionals is the ability to treat many different types of complex cancer cases.

For more information regarding the Varian TrueBeam System, please contact the Marketing and Public Relations Department at 609-463-2059.