

**SmartBeam IMRT** Better technology at every step

Create a reliable, flexible, and well-organized IMRT program with **SmartBeam™ IMRT**.

For each step in the IMRT process, Varian has the essential components. The components are integrated, not just interfaced, providing an efficient process with superior technology. Optimize the process for your clinic now, and upgrade easily when the time comes.

SmartBeam IMRT supports all types of IMRT delivery: segmental, dynamic, combined dynamic and segmental in the same field, and conformal arc. SmartBeam IMRT also allows the full range of IMRT dose possibilities, from low to high resolution.

Take advantage of Varian's core technologies and integrated process, and provide your patients with the most advanced IMRT possible.



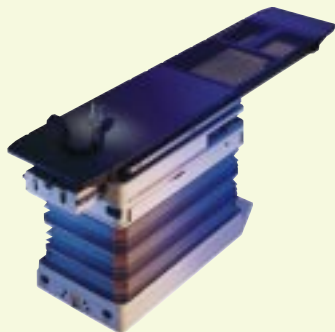
The Varian **SmartBeam** IMRT process





## Localization & immobilization

*Exact™ Couch with Indexed Immobilization™*



**Exact repeat positioning.** An Exact Couch in the IMRT process ensures easy, accurate setup every time.

**Indexed Immobilization.** Minimizes patient setup times and ensures reliability through standard, indexed device docking.

**Moveable side rails.** Allows all clinical setups, and eliminates the need to reposition patients or move the couch.

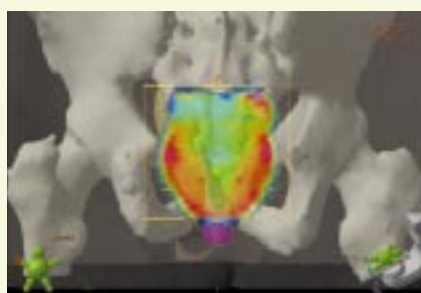
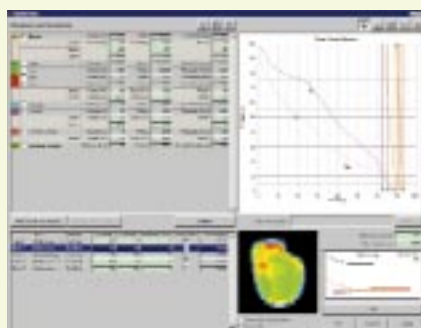
**Carbon fiber couch top.** Facilitates higher portal image quality by reducing radiation attenuation.

## Treatment planning

*Eclipse™ inverse treatment planning*

**Leading the field.** Thousands of patients at hundreds of institutions have been treated with Eclipse inverse plans.

**Rapid plan setup.** Set up an Eclipse IMRT plan in seconds using smart templates.



**Interactive optimization.** Achieve better results in less time by adjusting dose constraints during optimization.

**Advanced DMLC sequencing.** Create dynamic and segmental DMLC with up to 2.5 mm x 5 mm resolution.

**Accurate dose calculation.** Incorporate MLC characteristics and delivery method into the final dose calculation.

## Plan verification

*Acuity™ planning, verification, and simulation system*



**Treat more patients.** Verifying the isocenter for IMRT plans on Acuity increases confidence in the treatment plan without tying up the delivery system.

**Automatic planned field positions.** Planned IMRT field positions from Eclipse are automatically set up on Acuity for comparison.



**Better images.** Digital imaging provides the accuracy needed for IMRT. It is also lower in cost and less labor-intensive than film.

**Motion analysis.** Viewing the effects of motion provides a more complete verification of the treatment plan.

Visit [www.varian.com](http://www.varian.com) for more information.





## Treatment delivery

### *Clinac® linear accelerator*



**Proven standing-wave guide technology.**

Provides stable dosimetry,

low stray radiation, and the highest dose rates in the industry for fast and accurate IMRT delivery.

**Patented energy switch.** Provides the full range of therapeutic energies at consistently high, stable dose rates.

**Fastest beam-on time to full stability.** Less than 500 milliseconds. Shortens treatment times, maximizes throughput.

**Patented triode gun.** Allows pulse-to-pulse beam control, enabling fast, high-resolution dynamic treatments.

**Klystron technology.** Provides the most stable, reliable RF power source to eliminate costly downtime.

**Auto Field Sequencing.** Eliminates manual steps for the therapist.

### *Millennium™ multileaf collimator*



**Highest resolution IMRT.** Combine with Eclipse to deliver beamlets of 2.5 mm x 5 mm resolution.

**Largest IMRT treatment field size.** 40 cm x 34 cm without moving the machine or the patient. Allows more flexibility in the types of tumors treated.

**Most accurate leaf positions.** Provides greater precision for treating small targets and protecting critical structures.

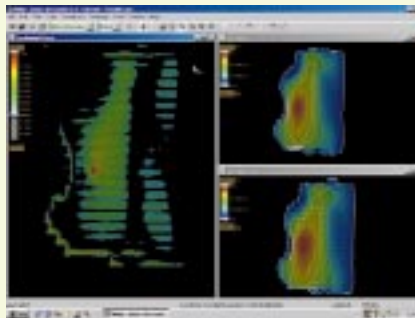
**Exclusive DynaLog™ files.** Enables analysis of planned vs. actual leaf position.

## Quality assurance & verification

### *IMRT QA Solutions*

**Faster and easier IMRT QA.** Reduce the time spent on both machine QA and patient plan verification.

**Efficient pre-treatment QA.** Capture and compare a relative dose image from Varian's PortalVision™ portal imager to a predicted portal dose image calculated with Varian's Eclipse treatment planning system.



**Quick verification.** Analyze and document results without having to expose, process, and calibrate film.

### **Exclusive DynaLog analysis.**



Perform instant, in-depth analysis of DMLC operation with Argus™ IMRT.

### *PortalVision™ portal imaging*



**Integrated amorphous silicon imager.** Gives the therapist immediate on-line visual confirmation of patient positioning.

**Optimal system design.** Combines high clinical resolution with compact image files.

## Image & information management

### *VARiS Vision™ image and information management system*



**Unified database.** Integrates all steps in the IMRT process and provides accurate, up-to-date information.

**Intuitive user interface.** Simplifies workflow, reduces manual data entry, and displays more information at a glance.

**IMRT support.** Designed as a reliable data repository for a single or multivendor IMRT environment.

**DICOM RT.** Imports and exports data and images using industry standards.



**Process-driven design.** Automates key processes, such as MLC control and imaging, at the time of delivery. Users can focus on the patient, rather than the process.

**Streamlined delivery.** Allows even the most complex IMRT treatments to be delivered in time slots comparable to conventional 3D techniques.

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### Not all target volumes are alike.

Sometimes you need the ability to paint or conform the dose very tightly to a small or irregularly shaped target. You may need to spare a small or irregularly shaped structure, such as the optic nerve. In cases like these, high-resolution IMRT is important.

### High-resolution IMRT

- spatial resolution: 2.5 mm – 5 mm
- dose resolution: up to 500 segments per field
- minimizes hot spots
- improves target dose homogeneity
- provides detailed dose painting to the target
- sculpts dose around critical structures more effectively
- allows treatments to occur in conventional 10- to 15-minute time slots

Low resolution



Medium resolution



High resolution



SmartBeam IMRT optimizes all forms of IMRT delivery, from low resolution to high resolution. Choose the resolution you need according to each clinical situation.



PET/CT and image registration of MR/CT images courtesy of GE Medical Systems. See and Treat™ Cancer Care is the alliance between Varian and GE to provide a full suite of products for radiation oncology.

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