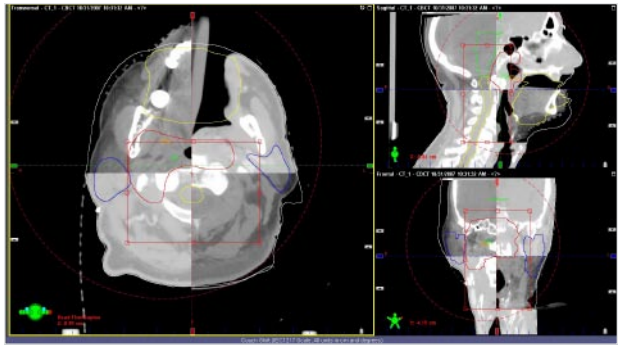
Oncology Solutions

VARIAN
medical systems
A partner for life

IGRT

Image-Guided Radiation Therapy

The Varian On-Board Imager® kV imaging system makes IGRT more efficient by using high resolution, low dose digital imaging to deliver improved tumor targeting. You can confidently manage patients and target movement—both before and during treatments.



CBCT of a head and neck; match verification using split window tool.

IGRT goes beyond IMRT to allow precise tumor targeting for radiation therapy. IGRT high-resolution, three-dimensional images help you pinpoint tumor sites and verify positioning prior to treatment, adjust patient positioning when necessary, and complete a treatment —all within a standard treatment time slot.

With its ability to verify the exact location of the tumor prior to treatment, IGRT increases the likelihood of the dose being delivered to the tumor and not healthy surrounding tissue.

Varian IGRT

The power to see. The confidence to treat.
Successful IGRT programs demand imaging options have the power and flexibility to deliver personalized patient treatments. Only Varian IGRT integrates innovative radiographic, fluoroscopic, and cone-beam CT (CBCT) modes with automated repositioning and motion management visualization software to verify that treatments are in sync with the patient's respiration.

The Varian Advantage

- The widest array of imaging modalities available
- To date, more than 1,000 On-Board Imagers® have been installed worldwide
- Robotically controlled imaging provides fast, flexible positioning on three axes of motion for optimal tumor viewing
- Adapts to patient needs by using real-time motion management for patient free breathing, breath-hold or gating
- Increased confidence in patient positioning with 2D-2D and 3D marker match

We have used IGRT to treat tumors in the head and neck, lung, esophagus, liver, brain and other parts of the body.

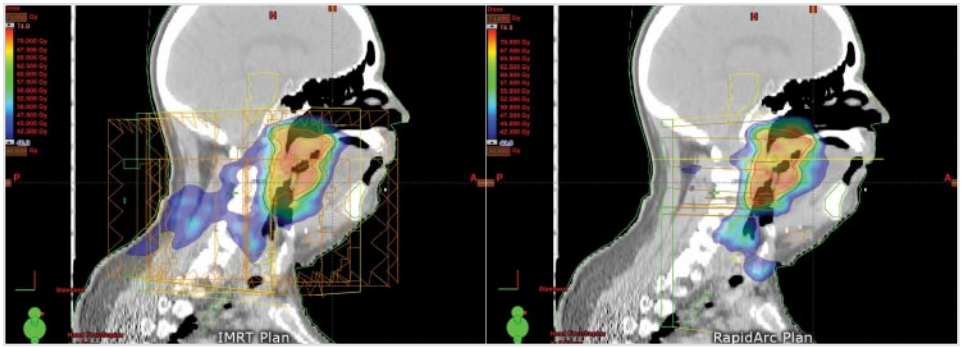
"Our observations... have only served to confirm that image guidance is important..."

Our observations of how tumors move and change over the course of treatment have only served to confirm that image guidance is important for adapting to those changes and getting the treatment beam in precisely the correct position."

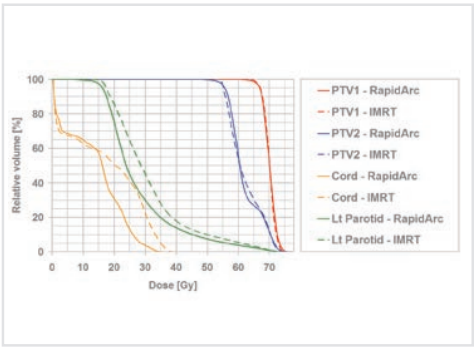
Jin-Ming Yu, MD, President, Chief Radiation Oncologist, Shandong Cancer Hospital, and President, Chinese Society of Therapeutic Radiology and Oncology

VMAT

Volumetric Modulated Arc Therapy



Comparison of a 7-field sliding window IMRT plan and a single-field RapidArc plan for a head and neck case. The IMRT plan requires 1685 MU while the RapidArc plan only requires 496 MU. The RapidArc plan is delivered in less than 80 seconds.



A DVH illustrates the dose conformity and critical organ sparing achievable with RapidArc compared to equivalent target coverage using conventional IMRT.

Volumetric modulated arc therapy (VMAT) is rotation-based IMRT that uses an advanced treatment planning system to improve dose conformity and reduce patient treatment times. As the gantry travels around the patient, VMAT can modulate radiation intensity by using MLC leaves to dynamically shape the beam to deliver a precision dose to the full tumor volume, while sparing surrounding healthy tissue.

The speed, accuracy, and efficiency of VMAT allow you to offer an even wider range of treatment options to a growing number of patients.

Varian RapidArc

One revolution is all it takes.

RapidArc® radiotherapy technology can deliver a precisely sculpted 3D dose distribution with a single 360-degree rotation of the linear accelerator gantry, and readily supports multiple arc for more complex treatments. Dose accuracy is facilitated by a treatment planning algorithm that simultaneously changes three parameters during treatment: rotation speed of the gantry, shape of the treatment aperture using the movement of MLC leaves, and the delivery dose rate.

The Varian Advantage

- Precision conformal dose distribution and uniform target coverage increase the probability of tumor control without complications
- RapidArc technology establishes a new benchmark for IMRT treatment speed, without sacrificing treatment quality
- Reduction in MU may result in less scatter, and lower overall peripheral dose than conventional IMRT treatments
- The most clinical experience of any VMAT solution, with over 270 RapidArc systems installed worldwide

"RapidArc technology is the future of IMRT. Treatment planning and delivery are much faster with Varian RapidArc technology. We have already treated more than 500 patients with RapidArc.

"RapidArc technology is the future of IMRT."

The dose distributions are equal to or better than with conventional IMRT, but can be generated more rapidly. The actual treatment generally takes less than 2 minutes. The greatest benefit of switching entirely from conventional IMRT to Varian RapidArc is that we will be able to treat more patients, more efficiently, every day."

Ben J. Slotman, MD, PhD, Professor and Chair,
Dept. of Radiation Oncology,
VU University Medical Center