



Summer 2001

ECLIPSE™, VARIAN'S NEW TREATMENT PLANNING SOFTWARE, TO BE EXHIBITED AT AAPM

New Software Employs Automation for Faster Treatment Planning in a Windows® PC Environment

Dominic Gélinas, M.Sc., a medical physicist at the Centre Hospitalier Régional de Trois-Rivières in Quebec, Canada, says that Varian's new Eclipse™ treatment planning and virtual simulation software will help medical physicists like himself to do their

calculations. But with Eclipse, it is no big deal to calculate 10 or 12 times. It is so much faster, you can do calculations just to get a feeling for what's going on as you change different parameters, and you can use this information to continue to refine your plan.

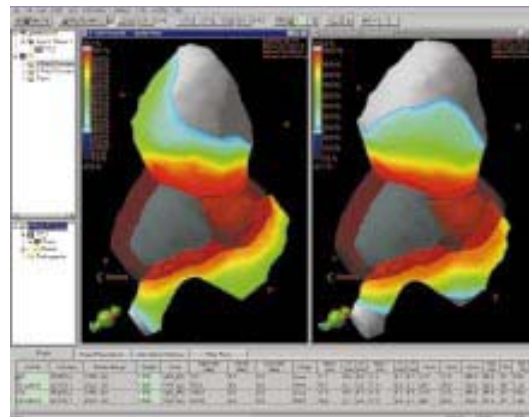
You don't stop, even when you get something 'reasonable,' you can continue a bit longer and produce an even better plan."

Due to enhancements to the dose calculation algorithm, volumetric dose calculations can be made ten times faster than was previously possible. For example, a dose calculation for a 70 slice CT head and neck plan with 1.25 mm grid size can be computed in a minute. This kind of calculation used to take 10-15 minutes.

Joseph Ting, Ph.D., a medical physicist at Emory University who

beta-tested the program, was also impressed with Eclipse's speed, which he characterized as "lightning fast." Equally important to him, however, was the ease with which he could use the tools for manipulating images and for organ segmentation—tools like 3D contouring in non-axial planes, Boolean logic-based structure creation, automatic 2D/3D segmentation,

continued on page 5



A surface dose mapping feature comparing two prostate cancer treatment plans.

jobs more efficiently and more effectively. One of the beta-testers who worked with early versions of the software, he says that Eclipse is so fast, physicists can use it to test more plan options and then fine-tune the best one in much less time.

"In the past, you tried not to calculate too often, because it took a long time," he said. "You'd get everything set up and then do the

ST. VINCENT'S CANCER CENTER

Up and running with SmartBeam in under ten weeks.

See page 2.

SILHOUETTE EDITION CLINAC

Newly installed Clinac is for dynamic IMRT.

See page 3.

INDUSTRY EVENTS

Upcoming radiation therapy events.

See page 5.

EDUCATION

SmartBeam IMRT Education Package and IMRT Workshop.

See page 6.

ST. VINCENT'S CANCER CENTER BEGINS TREATING PATIENTS WITH SMARTBEAM™ IMRT

System Installed and Operational in Under Ten Weeks

When the CFO of a New York company was diagnosed with a cancerous tumor at the base of his tongue, he also learned that conventional radiation therapy could potentially cure him, but might also cause serious side effects.

He and his wife had been going over their treatment options with his doctor at St. Vincent's Comprehensive Cancer Center in New York, when his wife asked about intensity modulated radiation therapy (IMRT). By coincidence, St. Vincent's had just installed a SmartBeam™ IMRT system

of this writing (one month post-treatment), the patient's salivary function was essentially normal and a diagnostic PET scan showed a significant drop in the FDG uptake. "These are encouraging results," said Dr. Berson.



(left to right) Dr. Jean M. Barsa, Assistant Chairman, Department of Radiation Oncology, and Davit Soberal, R.T.T., Radiation Therapist, review a treatment plan.



(left to right) Carol Scara, R.T.T., Radiation Therapist, and John Sinnott, R.T.T., Department Manager and Chief Therapist, in the treatment room with a patient.

from Varian Medical Systems, and after reviewing the case, doctors decided he would be an ideal IMRT patient.

"We now had the ability to treat a base of tongue cancer to a high dose while sparing a parotid gland," said Dr. Anthony Berson, Chairman of Radiation Oncology at St. Vincent's. "With SmartBeam IMRT we increase the chances of eradicating the cancer while preventing chronic complications such as xerostomia."

The patient completed the entire course of treatment without any breaks and continued to work full time. Furthermore, at the time

The St. Vincent's radiation therapy team, led by Dr. Berson and Chief Medical Physicist Richard Emery, works with two Varian 21EX Clinacs, each with a 120-leaf multileaf collimator and PortalVision™

imaging. They installed IMRT treatment planning hardware and software (CadPlan™ Plus/Helios™) at the end of January 2001. During

February and March, Mr. Emery received CadPlan Plus and Helios training at the Varian training facility in Milpitas, California, and SomaVision™ software training on-site at St. Vincent's.

"Our resources did not allow everyone on the physics team to attend off-site training," Emery explained. "I received most of the



training and was primarily responsible for implementing this new technology. Once I had established a well defined process for both treatment planning and quality assurance, I could train the other members of the physics team.”

Emery collected beam data, transferred it to CadPlan Plus, and tested the systems between March 3 and March 16. On March 20, he



conducted acceptance testing of the dynamic multileaf collimator. Between March 27 and 29, he worked with a Varian physicist to verify beam data in CadPlan Plus and finalize IMRT QA procedures. At the same time, the team performed a test case and developed a treatment plan for their first real IMRT patient, who was treated on April 3.

St. Vincent's is using fused multimodality imaging, combining computed tomography (CT) and magnetic resonance (MR) scanning to precisely localize both tumors and critical structures to create their complex IMRT treatment plans.

What Is SmartBeam IMRT?

SmartBeam IMRT is Varian's solution for rapid delivery of high resolution IMRT. Some advantages of Varian's SmartBeam IMRT are greater reduction of dose to surrounding tissues, complete flexibility in treating difficult lesions surrounding or encompassing critical structures, and more conformal dose distributions around the target volume.

VARIAN'S FIRST COMPACT SILHOUETTE™ EDITION CLINAC® INSTALLED

University of Kentucky Plans to Use New Clinac for Dynamic Delivery of SmartBeam IMRT

In planning for a new radiation therapy treatment facility, every institution must grapple with the question of where to put the medical linear accelerator. These large

linear accelerator that provides all the advanced applications of Varian's high-energy Clinac accelerators in a smaller footprint. Introduced at ASTRO in October 2000, the



The Silhouette Edition Clinac

machines require a considerable amount of space. They stand nine feet tall by nearly 15 feet long and weigh as much as 18,700 pounds. Often, expensive new vaults must be constructed to accommodate them.

To help solve this problem, Varian Medical Systems developed the Silhouette™ Edition Clinac®, a compact medical

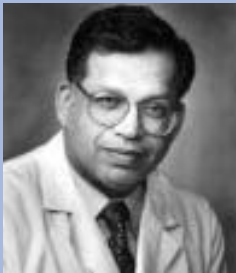
Silhouette is 18 inches (46 cm) smaller from isocenter to the back wall, so it fits into existing small accelerator treatment rooms. The Silhouette is also Varian's most patient-friendly unit, developed with considerable input from clinical professionals.

“Healthcare facilities face the very real challenge of incorporating radiotherapy

treatment systems into constrained spaces,” said Timothy Guertin, President of Varian Medical Systems’ oncology business. “The Silhouette is capable of the full range of IMRT and other conformal treatments, and it fits into a 16- by 19-foot space.”

University of Kentucky Installs First Silhouette

Since its introduction, a number of leading medical institutions have chosen the Silhouette Edition Clinac for their radiation oncology departments. The Department of Radiation Medicine at the University of Kentucky (UK) College of Medicine installed the first Silhouette in March 2001.



Dr. Mohammed Mohiuddin

Mohammed Mohiuddin, M.D., Professor and Chair of the UK team and a pioneer in the use of a technique called spatially fractionated radiation therapy for treating large, advanced tumors,

sought to add a new linear accelerator while dealing with space limitations.

“We were looking to install a compact high function linear accelerator that would allow us to expand our treatment capabilities,” he said. “We had to make maximum use of room space to allow for the full range of treatment table and machine movements.”

Dr. Mohiuddin said that the most important assets he and his colleagues were looking for in a new linear accelerator were the multileaf collimator system and the potential for using dynamic treatment techniques.

“Some aspects of IMRT are already in place here,” he said. “Others are being developed, especially the differential dose and dynamic treatment strategies. We have started treating prostate and lung cancers and will be expanding [to treat] head & neck, pancreas, and brain tumors,” he added.

Patient Friendly

In addition to offering clinicians like Dr. Mohiuddin advanced high-energy accelerator capabilities, the new Silhouette was also designed with patient comfort in mind. Research has shown that a more welcoming and

comfortable atmosphere can improve outcomes when it comes to health care.



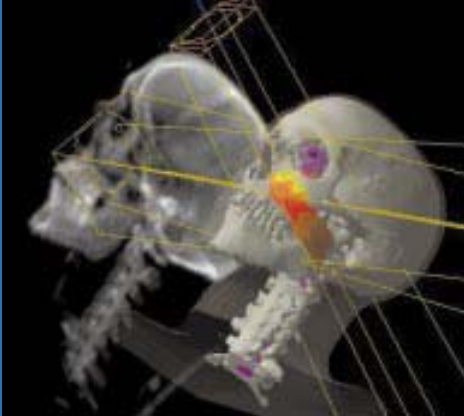
Consequently, the Silhouette can be customized with murals—more than 40 choices are available, including natural panoramas, lush photographs, original fine art reproductions, or playful graphics.

The Silhouette also utilizes special sound reduction technology that diminishes the unsettling noise of many linear accelerators. Additional options include a music sound system, children’s toys and furniture, and a customized marketing program that helps customers market services in their local communities.

“We wanted to offer a compact linear accelerator that would give clinicians what they need while addressing the concerns of patients,” said Bob Larsen, Senior Business Manager of Delivery Systems. “The Silhouette was the product of considerable research, clinical collaboration, and problem solving.”

ECLIPSE,
continued from page 1

and an organ-specific segmentation wizard. Dr. Ting also appreciated the program's ability to show dose distributions in different ways, including 3-D dose clouds, isodose surfaces, and surface dose mapping.



A head and neck tumor shown from the observer's-eye-view, with a digitally reconstructed radiograph (DRR) on the left.

"It's hard to communicate information about a three-dimensional volume," he said. "Eclipse does this very well."

Another beta-tester, Anil Sharma, Ph.D., Chief Medical Physicist at Long Beach Memorial Medical Center, found the program to

be extremely flexible in other ways. "Eclipse has so much flexibility. A physicist can use it to accomplish whatever a physician or a dosimetrist wants in planning any case," he said. "You have lots of choices of tools for establishing the target volume, for example. You can create margins that are different in different directions. You can have targets that are not continuous, but still irradiate them as if they were a single structure. That was not possible with most other treatment planning systems," he added.

"Customers wanted a faster, more powerful, easier-to-use treatment planning program, and they wanted one that would work in a Windows environment," said Corey Zankowski, Ph.D., Treatment Planning Product Manager. "Many of them wanted to do graphical visualization work, treatment planning and dosimetry on the same machine. Eclipse makes that possible."

Eclipse also automates many of the most time-consuming functions. A streamlined user interface and sophisticated planning templates further simplify the treatment planning process. Users can build up libraries of their most frequently used plans,

rather than creating them anew every time, beam angle by beam angle.

Dr. Sharma was impressed by the speed with which a new system could be commissioned. "It takes little time to enter the beam data, to send the data to the treatment planning system, to manipulate it, and get the beams configured," he said. It's easy and also very visual. You can see what's happening so you can make changes without spending much time."

Varian will demonstrate Eclipse's capabilities at the AAPM annual meeting in Salt Lake City, July 22-26, 2001.

E V E N T S



American Association of Physicists in Medicine (AAPM)
July 22-26
Salt Lake City, UT

American Healthcare Radiology Administrators (AHRA)
July 30-August 3
Las Vegas, NV

6th Biennial European Society for Therapeutic Radiology and Oncology (ESTRO) Meeting On Physics for Clinical Radiotherapy
September 17-22
Seville, Spain

Canadian Association of Radiation Oncologists (CARO) 2001
September 21-23
Quebec City, Canada

Royal Australian & New Zealand College of Radiologists (RANZCR)
October 18-21
Melbourne, Australia

European Society for Therapeutic Radiology and Oncology (ESTRO) and the 11th European Cancer Conference (ECCO)
October 21-25
Lisbon, Portugal

American Society for Therapeutic Radiology and Oncology (ASTRO)
November 4-8
San Francisco, CA

Japanese Society for Therapeutic Radiology and Oncology (JASTRO)
November 22-24
Osaka, Japan

Radiological Society of North America (RSNA)
November 25-30
Chicago, IL

SMARTBEAM IMRT PATIENT EDUCATION PACKAGE AVAILABLE



Varian Medical Systems has developed a set of materials to assist hospital partners in explaining SmartBeam IMRT to patients, their families, and others who want non-technical information.

This set of four documents includes basic information about radiation therapy and SmartBeam IMRT. It describes what happens when a patient undergoes IMRT treatment, and answers frequently asked questions.

The IMRT Patient Education Package is available at the Varian website, by mail, or as a set of e-mail attachments. Find them at www.varian.com/imrteducation, or to request a copy, please send an e-mail message to meryl.ginsberg@varian.com or call 650.424.6444. Please provide a full mailing address (if you want a mailed package) or e-mail address (if you want e-mail attachments). Also specify the form the attachments should take (either Microsoft® Word or pdf files).



UPCOMING IMRT WORKSHOPS

Memorial Sloan-Kettering Cancer Center (MSKCC)/Varian Course on IMRT Treatment Planning & Dosimetry

Tuition \$1,500 (includes three breakfasts, one lunch, and one dinner)
October 11-13 (limited to 20 attendees)
Contact: Ms. Maureen McDonnell, 212.639.8300 or mcdonnem@mskcc.org, or Dr. Howard Amols, 212.639.6807 or amolsh@mskcc.org

This two-day workshop is designed to be a practical tutorial on getting IMRT started in your clinic. Lectures will cover the clinical rationale for IMRT, and discuss patient selection and treatment planning strategies for various treatment sites. The workshop includes lectures on dosimetry and commissioning an IMRT system, inverse treatment

planning, dose calculations, QA for dosimetry and multileaf collimator, verification of IMRT beam delivery, and respiratory gating. There will also be demonstrations of physics QA and dosimetry on a dMLC equipped linear accelerator, plus a real time demonstration of IMRT treatment planning using the Varian SomaVision/Helios system.

Varian Helios/IMRT Milpitas Training

Tuition \$3,809/\$2,751*

August 27-31 October 1-5
September 10-14 November 12-16
<http://www.varian.com/onc/trn152u.html>

This IMRT course will cover inverse treatment planning with the CadPlan Plus/Helios system, delivery of IMRT using Varian dMLCs, and IMRT QA procedures.

** for hospitals with service contracts*

Editor: Meryl Ginsberg
Design: Sun Communications

Send comments to:
Varian Medical Systems
3100 Hansen Way, M/S MGM
Palo Alto, California 94304-1038
ATTN: Meryl Ginsberg
or phone at 650.424.6444

♻️ Printed on recycled paper

All company and product names mentioned are used for identification purposes only and may be trademarks or registered trademarks of their respective owners.

VARIAN
medical systems

3100 Hansen Way, M/S MGM
Palo Alto, CA 94304-1038

Bulk Rate
U.S. Postage
PAID
San Jose, CA
Permit No. 2196