

VARIAN IGRT: A DYNAMIC

A man with short, light-colored hair, wearing a blue zip-up jacket over a grey shirt, stands with his arms crossed next to a dark blue car. A red kayak is mounted on the roof rack of the car. The background is a blurred forest with green and yellow foliage. The overall scene suggests an active, outdoor lifestyle.

Advances in image-guided radiation therapy (IGRT) enable clinicians to track and target tumors precisely at the moment of treatment—sparing more healthy tissues and minimizing side effects.

TECHNOLOGY ON THE MOVE

When Clark Hayward's primary healthcare physician noticed a nodule on the left side of Hayward's prostate during a routine physical, he didn't think it was anything to worry about. Hayward is a 53-year-old active father of three and had no other symptoms. However, just to be on the safe side, he referred Hayward to a urologist, who took a biopsy. The results came as a big shock—multiple tumors and a high likelihood that the cancer had extended beyond the prostate.

As a part-time paramedic, Hayward knows a lot about emergency medicine, but up until then he had heard only a little about prostate cancer. Determined to confront his life-threatening diagnosis head-on, he started out on a research quest that led him to other prostate cancer patients, bookstores, Web sites of all the major cancer institutes, and to Arun Puranik, MD, director of the Image-Guided Radiotherapy Treatment Program for Community Care Physicians in Latham, New York.

"Based on my own personal goals and lifestyle, surgery was not a good option," says Hayward, who is director of client development for a major telecommunications company and enjoys many outdoor hobbies, including trail running, mountain biking, skiing, and kayaking. "So I sought out a couple of opinions on treatment options and liked Dr. Puranik's plan the best. It was the follow-up radiation treatment that made the decision for me—Dr. Puranik's ability to visualize the tumor, reduce the margins around the tumor, and preserve as much healthy tissue as possible."

Active Lifestyle. Varian image-guided radiation therapy has helped 53-year-old Clark Hayward (left) maintain his active lifestyle after Dr. Arun Puranik (center) recommended this treatment for prostate cancer.

Clark Hayward

Greenfield Center,
New York

Age: 53

Profession: Director of client development for a major telecommunications company; part-time paramedic and wilderness medicine teacher

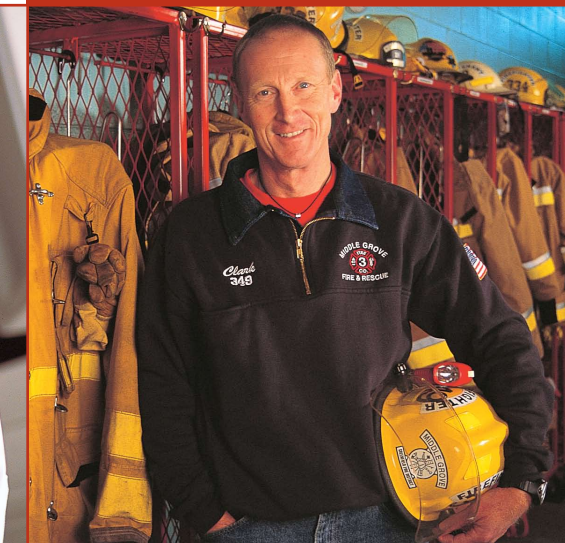
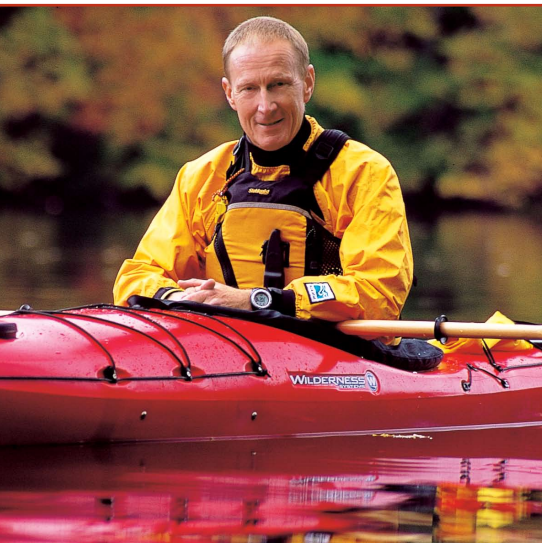
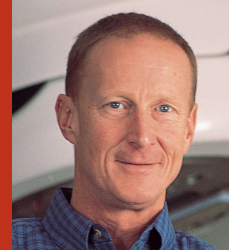
Hobbies: Trail running, mountain biking, kayaking, and white water rafting; avid skier and national ski patroller

Diagnosis: Prostate cancer

Treatment: Brachytherapy followed by image-guided radiation therapy

Profile: Active, adventurous, optimistic

Quote: "Some of the things you get so wrapped up in, especially work issues, are really not that important at all in the grand scheme of things."

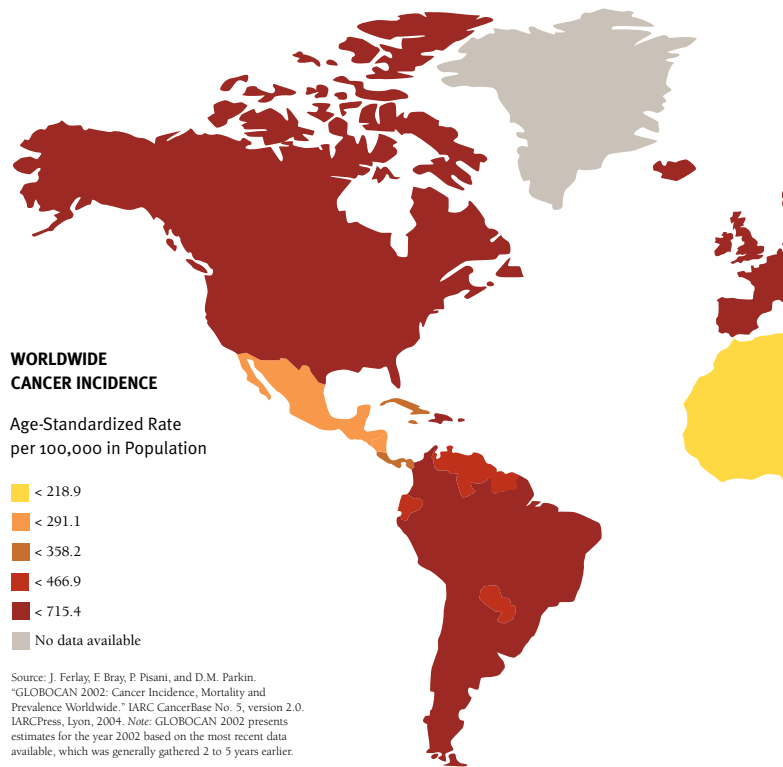


Dr. Puranik prescribed brachytherapy—radiation seed implantation—followed by image-guided radiation therapy (IGRT) using implanted gold markers and the Varian On-Board Imager™ device to help ensure accurate beam placement. “Every cancer patient is unique,” Dr. Puranik explains. “In my experience, Varian has a highly reliable radiation therapy system and with the On-Board Imager we can accurately match the radiation beam with the position of the tumor at the moment of treatment. This helps ensure we deliver the maximum radiation dose to the tumor, while sparing normal tissues.”

Accurate beam placement with advanced imaging techniques is setting the stage for a new standard of care in hospitals and clinics around the world. By the end of fiscal 2005, Varian had received more than 275 orders for On-Board Imager devices for either Clinac® or Trilogy™ accelerators. While the bulk of these orders are from North America, hospitals and clinics around the globe are expressing interest in this innovative imaging technology.

“IGRT is at the forefront of another technological revolution in cancer treatment,” says Todd Pawlicki, PhD, assistant professor in the department of radiation oncology at the Stanford University School of Medicine in Palo Alto, California. “In the past, we were treating larger areas of the body to accommodate tumor motion and daily setup errors. Now we have more control because we can more accurately image the tumor at any time during treatment, which allows us to precisely target the radiation therapy. For patients, this means sparing more normal tissue so we can deliver a higher radiation dose to the tumor while improving the patient’s quality of life.”

The Stanford clinic treats about 1,000 new patients each year, using the Varian Trilogy accelerator primarily for head, neck, and pancreatic cancers, as well as for innovative research into ways to conquer cancer. The majority of Stanford patients receive radiation therapy in conjunction with surgery and chemotherapy. “By

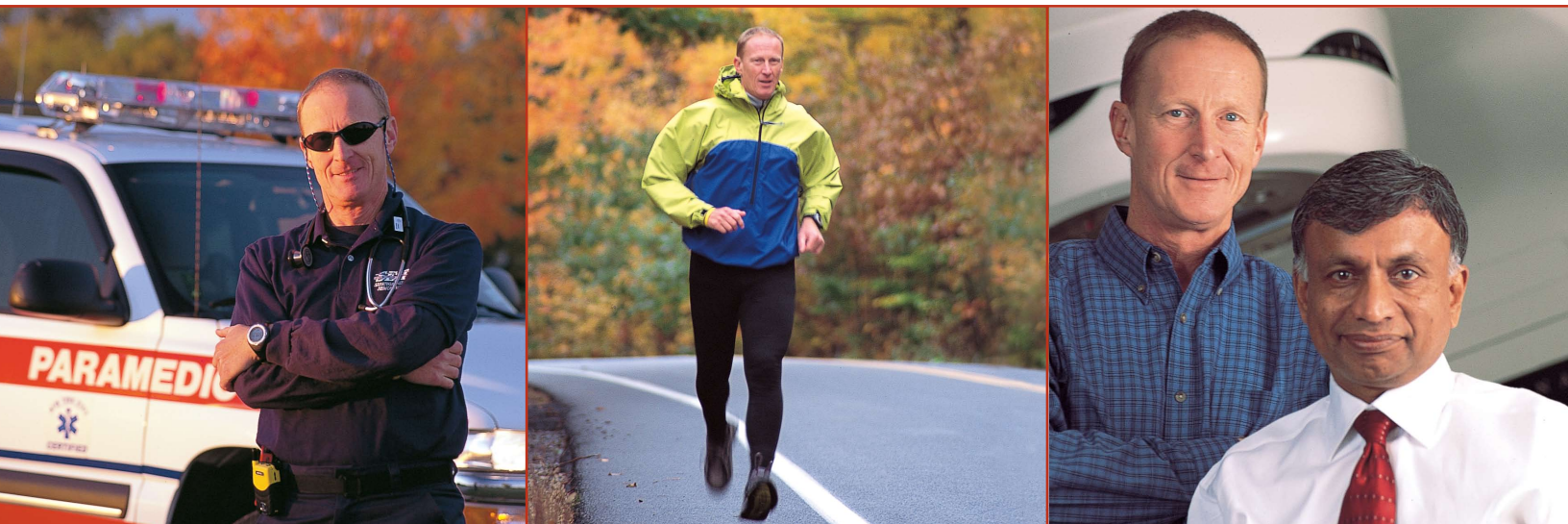


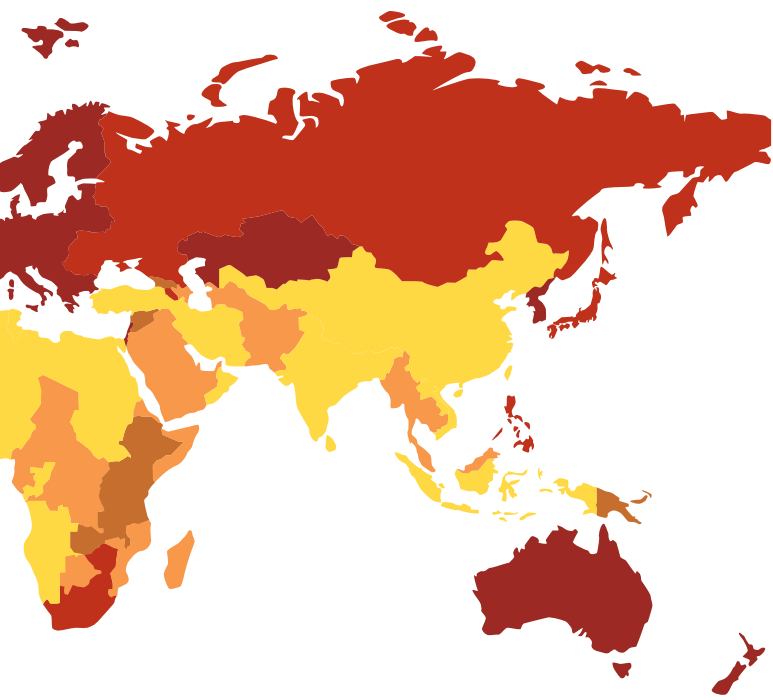
imaging and targeting the tumor more accurately, we can reduce the toxicity of radiation therapy,” says Quynh-Thu Le, MD, associate professor in the radiation therapy department at Stanford.

The increased accuracy of radiation beam placement is one of the main reasons the Buddhist Tzu Chi General Hospital in Taipei, Taiwan, one of Asia’s leading cancer treatment centers, recently purchased a Varian IGRT system. The Tzu Chi hospital provides treatment for a wide range of diseases, including lung, esophageal, head, and neck cancers, offering advanced treatments to help patients recover from their ailments as quickly as possible.

“The Varian technology will enable us to treat tumors more precisely and at higher doses,” says Dr. Jing-Min Hwang, director of the hospital’s radiation oncology department. “This will help us improve the

Global Reach. The prospect of few side effects and short treatment time appealed to Clark Hayward (left), one of a growing number of patients around the world who have chosen IGRT after evaluating several treatment options. Dr. Arun Puranik (right) offered a personalized approach that helps Hayward live life to the fullest.






Most recent estimates available from the World Health Organization indicate that in 2002 approximately 10.9 million new cases of cancer were reported worldwide. This study was conducted by the International Agency for Research on Cancer (IARC) and focused on 26 types of cancer. For more information, visit IARC at www-dep.iarc.fr.

feedback that helps ensure we've lined up the beam exactly right," Dr. Seagren says. "The fact that this imaging technique is inherent in the system, and not an add-on, increases our ability to provide intensity-modulated radiation therapy (IMRT) safely and competently, improving the outcome for patients and reducing unpleasant side effects." IMRT enables doctors to segment a tumor into hundreds of fields and to apply different radiation doses to the different fields.

Since the center opened in April 2005, the number of patients seeking treatment has increased much faster than the team anticipated. Dr. Seagren expects that the patient load will only continue to grow as the innovative Varian technology enables his team to treat more complex and difficult-to-control tumors.

Improved tumor control has been a key benefit for many patients at the Emory University School of Medicine in Atlanta, Georgia, which treats about 2,500 cancer patients each year across four clinics. Over the past year, doctors have performed around 3,500 treatment sessions using Varian IGRT technology. "Imaging enables us to verify the patient setup at each treatment and better localize the tumor," explains Jerome Landry, MD, professor of radiation oncology at Emory University. "We're seeing this translate into fewer side effects and better control of tumors."

As more treatment centers and patients realize the benefits of Varian IGRT technology, prostate cancer patient Clark Hayward continues to enjoy his active lifestyle and excellent prognosis. "I chose this treatment to avoid some of the side effects of other treatments. Still, I've been pleasantly surprised that I've had fewer problems than I thought I would," Hayward says. "I'm very optimistic about the future." 

treatment outcomes for cancer patients and as a result, I believe more patients will come to our hospital for this advanced treatment."

At the University of California, San Diego (UCSD) Medical Center, providing top-notch clinical care and cancer research was a key goal for the cancer center team that designed the Rebecca and John Moores UCSD Cancer Center in La Jolla, California. The university decided to invest in state-of-the-art Varian equipment to enhance the spectacular new three-story medical center with innovative technology that would expand their cancer-fighting capabilities and enhance their research projects.

Stephen Seagren, MD, is chief of the UCSD Medical Center radiation oncology division and has been using a Trilogy accelerator primarily to treat head and neck cancers. "On-board imaging gives us immediate

Stimulating Research. At Stanford, Dr. Quynh-Thu Le (left) uses the Varian Trilogy accelerator for cancer treatment and innovative radiation therapy—primarily for head, neck, and pancreatic tumors. Dr. Stephen Seagren (center) is seeing patient load grow since a Trilogy accelerator was installed at the new UCSD cancer center (right).

