

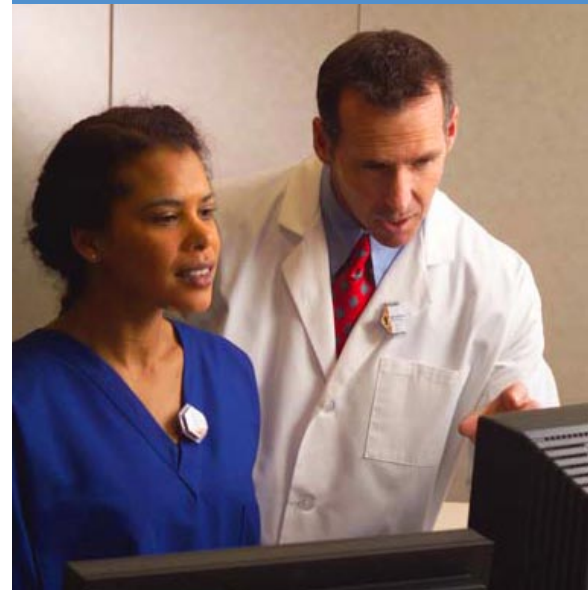
Acuity Planning, Simulation, and Verification System





“All our radical treatments are planned by CT and then **verified on Acuity.**”

—Paulo Costa, MD, Clinica de Radioterapia de Oporto, Portugal



### Advancing accuracy, powering efficiency

Varian Medical Systems has a rich history of providing the latest technology in oncology solutions. The Acuity™ system continues that tradition of innovation by combining advanced imaging techniques and software capabilities to support basic simulation and complex treatment plan verification in one fully integrated system.

#### **Clinica de Radioterapia de Oporto,**

a leading cancer clinic in Portugal, has seen significant benefit from weaving Varian’s Acuity simulation, verification, and planning system into its core treatment process. “Acuity’s high-quality images help us reduce the verification time and the dose the patient receives during the verification process,” says radiation oncologist Paulo Costa, MD.

“Acuity is intuitive and user-friendly,” says Paula Genésio, one of the clinic’s radiographers. “This means we can reduce the time allocated to each patient’s simulation and increase the quality of the procedure.”

Reduced treatment times, increased accuracy, and less residual imaging dose to the patient help the clinic successfully verify up to 15 patients a day. “We acquired the system because we’re interested in having the latest and best technology for our patients,” says Júlio Teixeira, MD, head of the radiology department.

# “With Acuity we can verify

**Mount Vernon Hospital in North London** has a busy radiotherapy department that currently houses treatment equipment and software from different manufacturers. In this bustling and diverse environment, Varian’s Acuity device plays a major role, able to simulate for all machines regardless of the manufacturer. Demand for the system has become so great that a second Acuity machine has been installed at the center.

With two CT simulators, nine Varian linear accelerators, and two Acuity devices for fast and effective planning and verification, the hospital has the integrated and automated radiotherapy infrastructure to meet the demands of a growing number of cancer patients.



## **One system, maximum efficiency**

The Acuity planning, simulation, and verification system is optimized for intensity-modulated radiation therapy (IMRT) and image-guided radiation therapy (IGRT). Designed to work alongside CT simulators, Acuity allows you to prepare treatment plans for efficient delivery.

## **Verifying treatment plans with pinpoint accuracy**

Acuity produces a high-quality reference image for daily verification, freeing treatment machines for patient treatment and helping you increase patient throughput.

Image-controlled simulation enables you to adjust field position, field size, and machine parameters directly from the image using drag-and-drop field wires, collimator rotation, and couch position. Acuity immediately moves to the new positions for reimaging.

treatment setups that we couldn't before.”

—Damu Shah, Mount Vernon Hospital, United Kingdom



“Acuity’s cone-beam CT is fully integrated with our Varian accelerator, which is important for precise and fast digital transfer of online planning data, parameters, and images.”

—Professor Boguslav Maciejewski, Gliwice Comprehensive Cancer Centre, Poland

### Power that works for you

The Acuity system combines planning, simulation, and verification capabilities on one dedicated system.

### Flexibility with cone-beam CT

With an option for cone-beam CT, the Acuity system combines conventional and CT imaging in one easy-to-use product. Acuity can quickly change from radiographic and fluoroscopic mode for isocenter localization to cone-beam CT acquisition mode for treatment planning without moving the patient from the actual treatment position. Additionally, with the large variable aperture size, patients can be imaged in the true treatment position and without set-up restrictions often found with regular CT scanners.

### Improve the respiratory gating process

Patient selection and coaching for respiratory gating can be performed on Acuity prior to gating on the CTSIM. Acuity’s fluoroscopic images, acquired at 15 fps, provide sharp reference images that are free from motion artifacts. By ensuring that patients are suitable for gating and that they use a stable breathing technique, you can improve the efficacy and efficiency of the gating process.

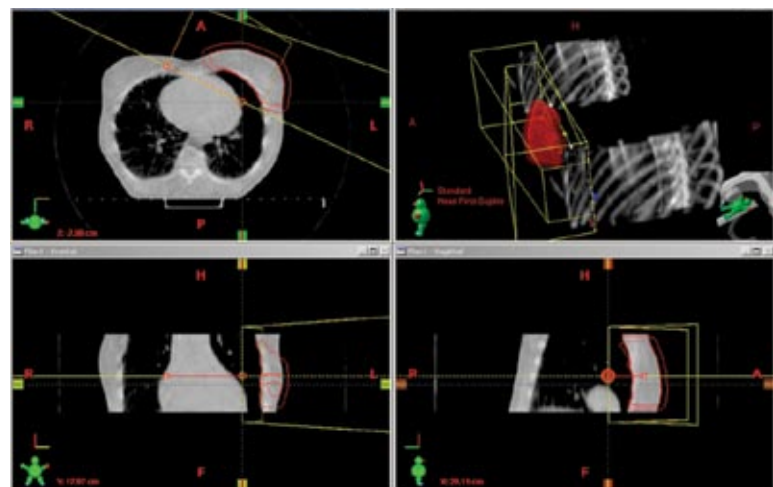
### Quick planning for unplanned starts

The Acuity system’s simple 2D planning option enables you to plan simple treatment techniques for palliative or emergency procedures.

### Eclipse SV 3D simulation

By implementing the option for Eclipse™ SV on Acuity, 3D diagnostic images of tumors can be compiled from CT scans and digitally reconstructed for precise treatment planning. This capability enables you to centralize all required information so images from Acuity can be viewed and compared alongside the treatment plan on Eclipse SV workstations.

Planning with Acuity cone-beam CT imaging





# “We’ve used cone-beam CT for

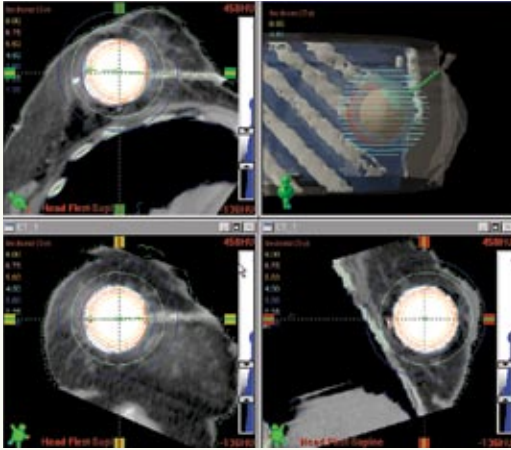
## Inspiration integrated oncology environment

Acuity gives you the tools you need today and the capabilities you need to build a solid platform for the future. As part of the Inspiration™ integrated oncology environment, Acuity integrates seamlessly with the ARIA™ oncology information system, the Eclipse treatment planning system, and the BrachyVision 3D image-based planning system.

## Ensure safe brachytherapy procedures

The Acuity Brachytherapy Suite allows you to image, plan, and perform an entire brachytherapy procedure all in one room in your clinic. Designed with a retractable flat-panel imager to give you clear access around the patient, cone-beam CT, and an advanced 3D image-based planning system (BrachyVision), Acuity provides detailed images to guide you through any type of brachytherapy procedure—from low-dose-rate seed implants to high-dose-rate applicator insertions. With the high-quality images acquired on Acuity, you can clearly see the seeds, applicators, and source positions required for accurate planning.

Furthermore, with Acuity and BrachyVision, you can delineate targets and critical structures reliably and accurately, quickly calculate and review complete, customized dose distribution plans, and easily verify the position of applicators during placement or treatment delivery. This high level of accuracy helps improve patient safety and increases the efficacy of treatment.



3D brachytherapy treatment plan produced by Acuity and BrachyVision

At the **Texas Cancer Clinic**, Bradley R. Prestidge, MD, medical director, is pioneering the use of Acuity-generated cone-beam CT images, which show anatomy in three dimensions, to guide his HDR brachytherapy procedures. He can place catheters, acquire images for treatment planning, and deliver a treatment in as little as 90 minutes, without having the patient leave the procedure room.

“We’ve used cone-beam CT so far for breast cancer, gynecological cancer, and prostate cancer,” says Prestidge. “It’s very convenient—a matter of imaging for a minute and waiting 30 seconds for the software to reconstruct the three-dimensional image that we use to guide the treatment. That’s a 90-second process, so it doesn’t add significantly to time spent in the operating room.”

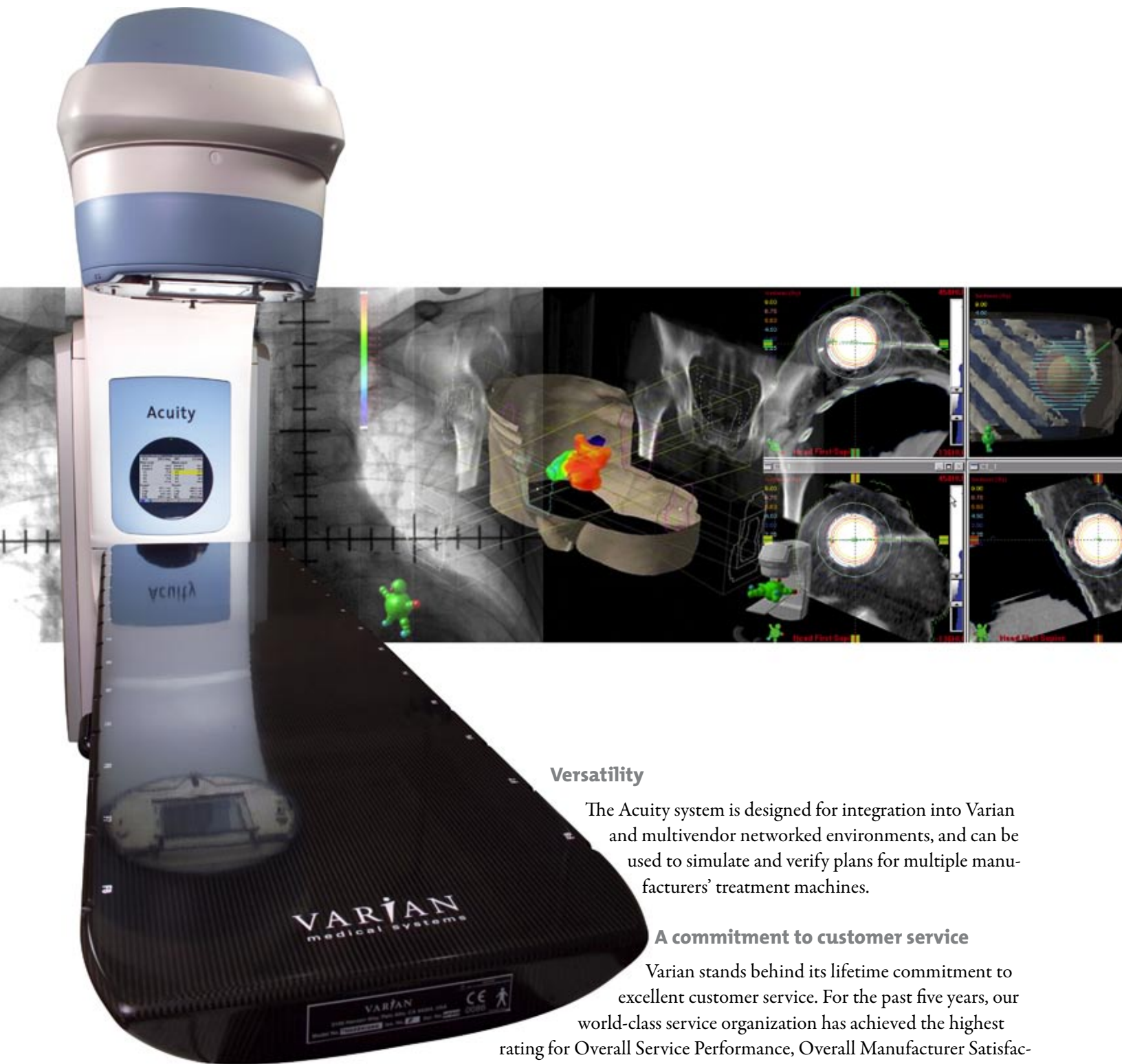
With imaging capabilities and Varian’s BrachyVision™ software in the procedure room, doctors can see the effect of each placement on dose distribution and adjust placements as they work to make the treatment more precise.



breast, gynecological, and prostate cancer.”

—Bradley R. Prestidge, MD, Texas Cancer Clinic






### **Versatility**

The Acuity system is designed for integration into Varian and multivendor networked environments, and can be used to simulate and verify plans for multiple manufacturers' treatment machines.

### **A commitment to customer service**

Varian stands behind its lifetime commitment to excellent customer service. For the past five years, our world-class service organization has achieved the highest rating for Overall Service Performance, Overall Manufacturer Satisfaction, and/or Probability of Repurchase from IMV Ltd.

With more than 800 service engineers worldwide, help is always close at hand when you need it.



Acuity redefines technology for planning, simulation, and verification.  
For more information, contact your local Varian representative or visit  
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