

A close-up, low-angle shot of a Varian TrueBeam Hypersight linear accelerator head. The machine is a light blue-grey color with smooth, curved surfaces. A small, dark rectangular port is visible on the upper part of the head. The 'trueBEAM HYPERSIGHT' logo is printed on the side. The background is blurred, showing more of the machine's structure.

T R U E B E A M

P L A T F O R M

trueBEAM
HYPERSIGHT

Not available for sale in all markets.

varian
A Siemens Healthineers Company

Built on trust and reliability

Advancing the next step in cancer treatment

Varian has continuously invested in the high-precision TrueBeam radiotherapy system since its inception.

The TrueBeam platform is uniquely capable of integrating hardware, software, treatment regimens, safety features, and third-party offerings in one modern solution.

These investments have led to technological advancements such as **Varian PerfectPitch, 6 Degree of Freedom (6DoF) Couch**: a solution completely integrated into the imaging and treatment workflow—and advanced imaging capabilities such as **Gated CBCT, 4DCBCT, and HyperSight**.

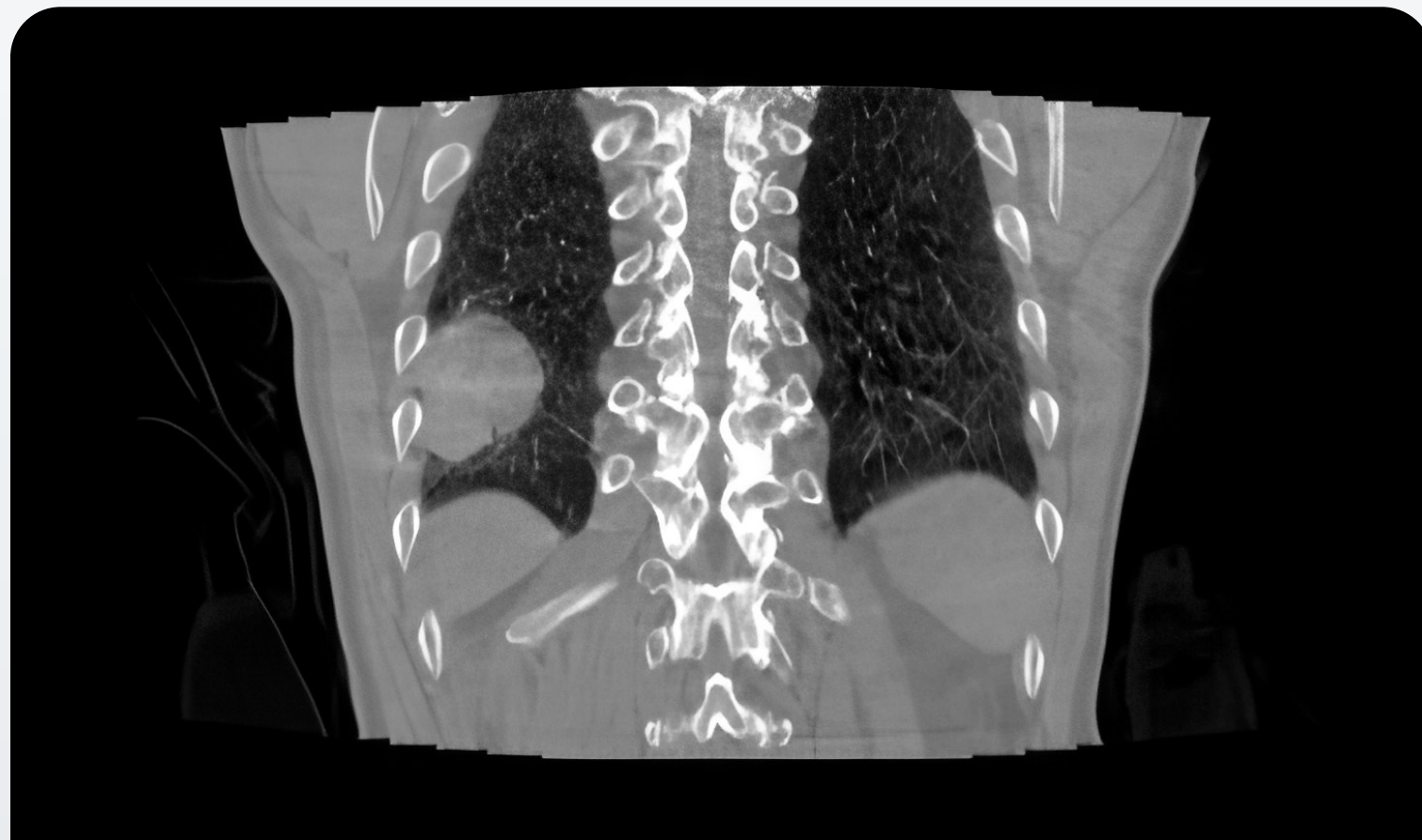
Consistent hardware and software improvements to the TrueBeam platform, combined with a variety of imaging and workflow innovations such as **Automatic Exposure Control (AEC), Enhanced Triggered Imaging, IDENTIFY, HyperArc, and RapidArc Dynamic**—have resulted in a reliable radiotherapy solution that is designed with today's challenges in mind.

With TrueBeam, care teams can harness transformative technology to collaborate more effectively, expand their clinic's treatment options, grow their business, and accelerate new healthcare initiatives.

All solutions in **bold** on this page are optional features on TrueBeam.



A forward-thinking solution for your daily clinical challenges



VISUALIZE

Sharp, clear, high-quality images are essential in achieving your treatment goals. TrueBeam's innovative imaging techniques help to improve visualization in patient setup, positioning, and monitoring—allowing for quick, more efficient clinical setup, and treatment delivery.



OPTIMIZE

The combined power of TrueBeam's imaging and treatment delivery techniques helps to maximize the radiotherapy options available for patients. Highly efficient workflows may optimize clinicians' ability to treat more patients while maintaining the highest quality and safety standards.



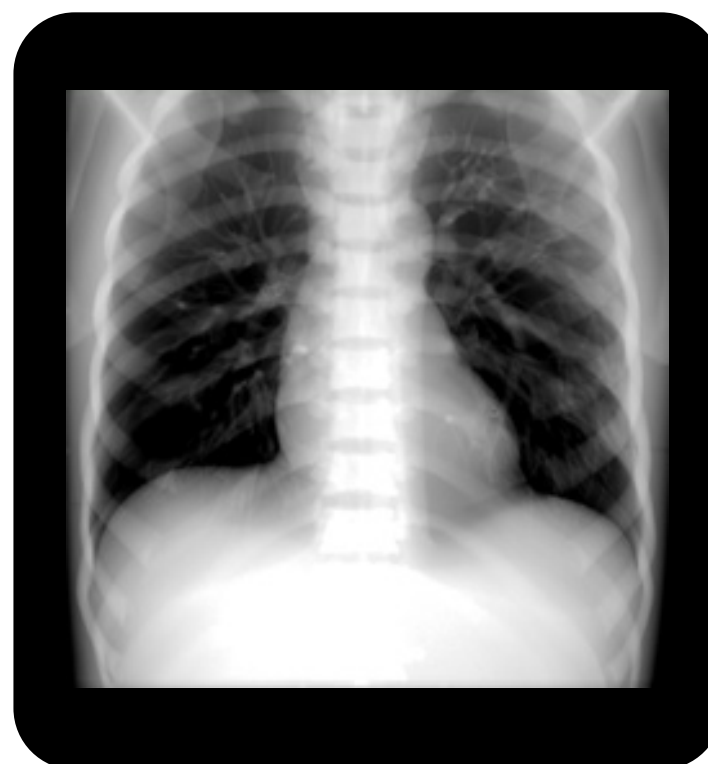
CUSTOMIZE

Every patient is unique. TrueBeam allows clinicians to individualize every treatment to meet each patient's specific needs.

Advancing your imaging capabilities

Imaging is a core element of patient positioning that needs to be accounted for due to moving targets and organs, changing anatomy, and various artifacts.

Varian recognizes the importance of image quality—not only for your clinic, but more importantly, for your patients. TrueBeam offers a variety of **2D, 3D, 4D CBCT**, and **Gated CBCT** imaging techniques which can help safely expedite the imaging process, even for the most challenging scenarios.



2D kV/kV quickly provides sharp, clear images with several selections to optimize image quality.

2D MV/kV allows for efficient, high-quality images from the initial setup position—reinforcing user confidence that treatments are delivered as planned.



3D cone beam CT (CBCT) provides a good balance between dose and image quality and high contrast-to-noise ratio. This supports high image quality, sharp delineation of structures, and decreased artifacts.



The **4D CBCT accelerated reconstruction** and imaging acquisition process allows for high-quality images engineered to lead to more precise treatment delivery as clinicians are able to assess and adjust to the target motion.

VISUALIZE

HyperSight imaging solution

A revolution in resolution

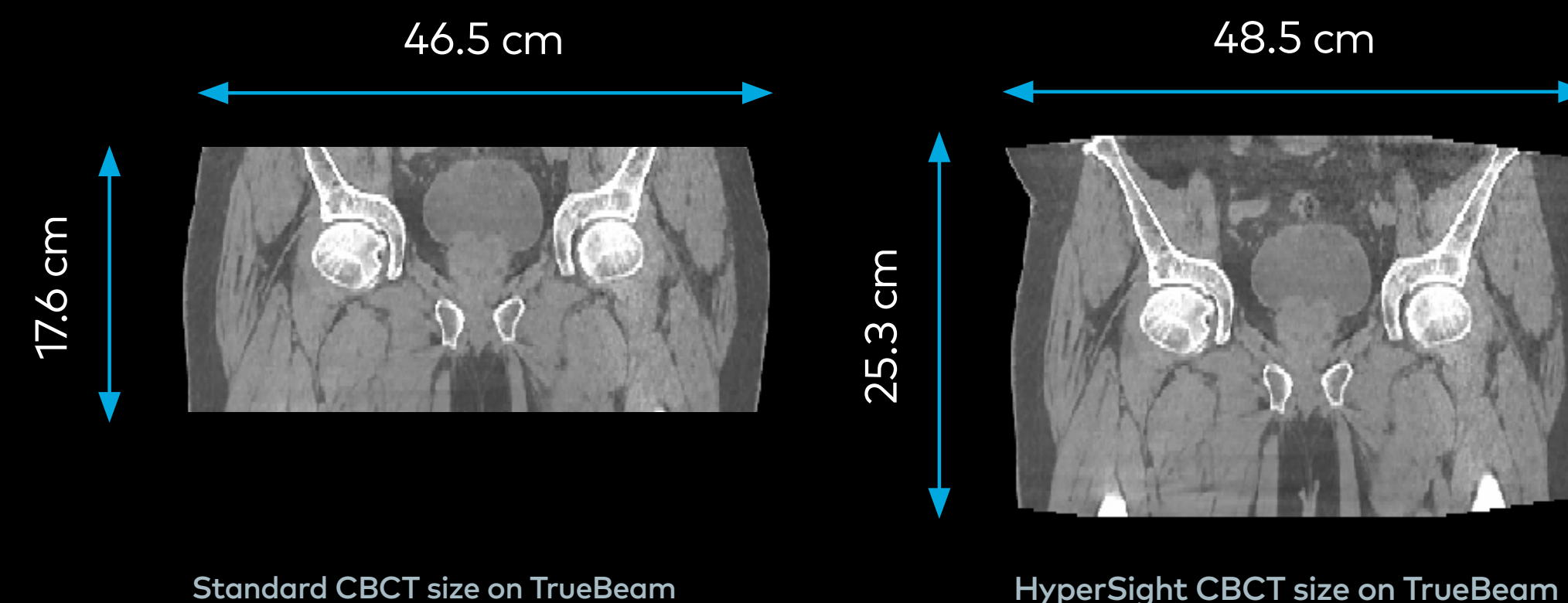
HyperSight is an epic advancement in image quality, precision, and speed—right inside your treatment room. The ability to better see challenging, difficult-to-view anatomical regions is paramount when making important decisions during the course of treatment.

Using faster acquisition to reduce motion artifacts, a larger Field of View (FOV) to cover patient anatomy, advanced reconstruction algorithms to increase image quality, and novel proprietary technology, HyperSight provides a remarkably sharp and crisp image.

"We see a decrease of the number of extended CBCTs, which is beneficial to both RTTs and patients."

—Catherine Dupont

Radiotherapy Technologist (RTT), UZ Leuven



"Larger field of view is very useful in the pelvis. We may no longer need to use extended CBCT in the pelvic area, reducing treatment time and dose to the patient."

—UH Seidman Cancer Center

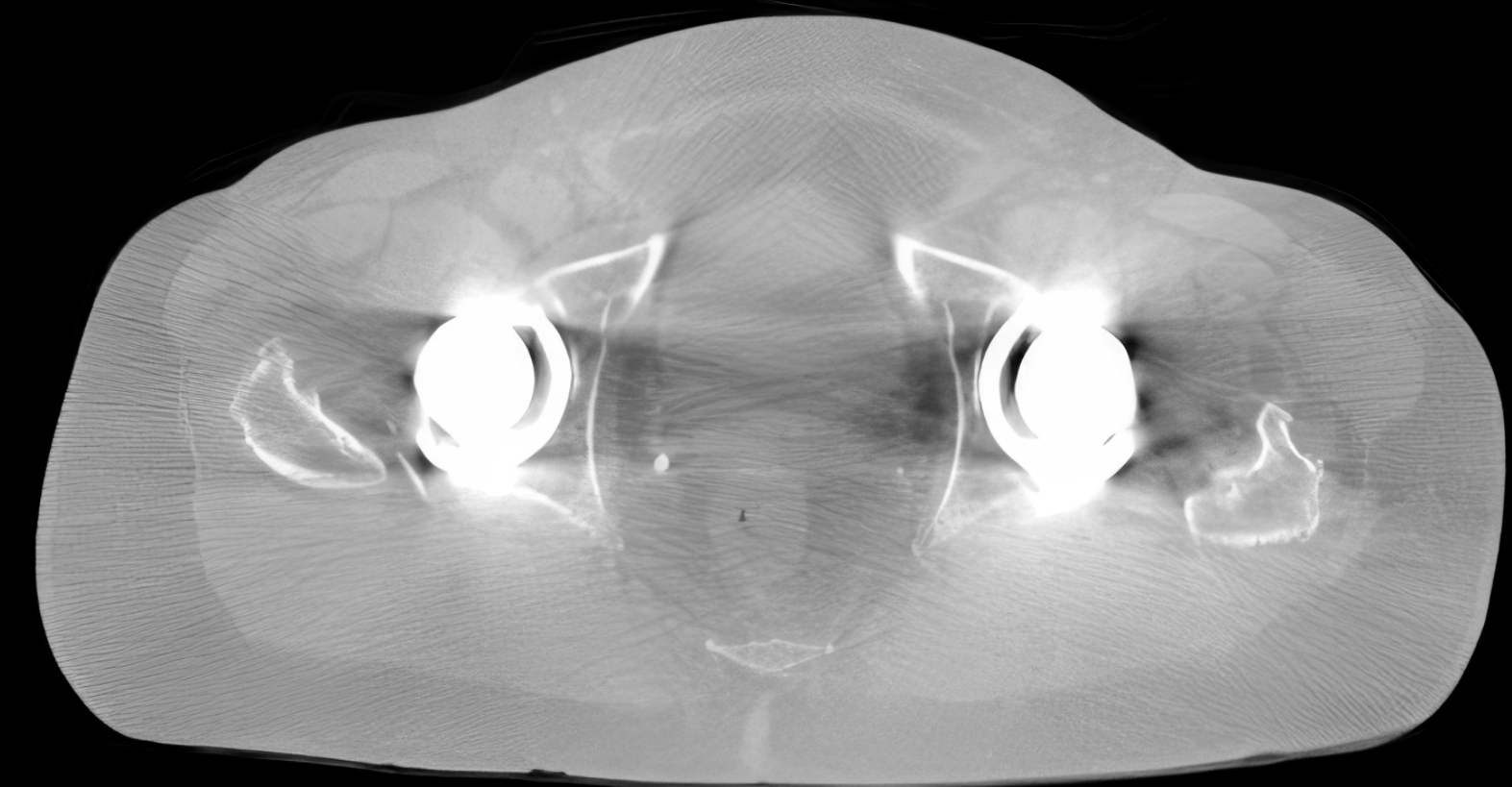
HyperSight imaging solution

Image quality

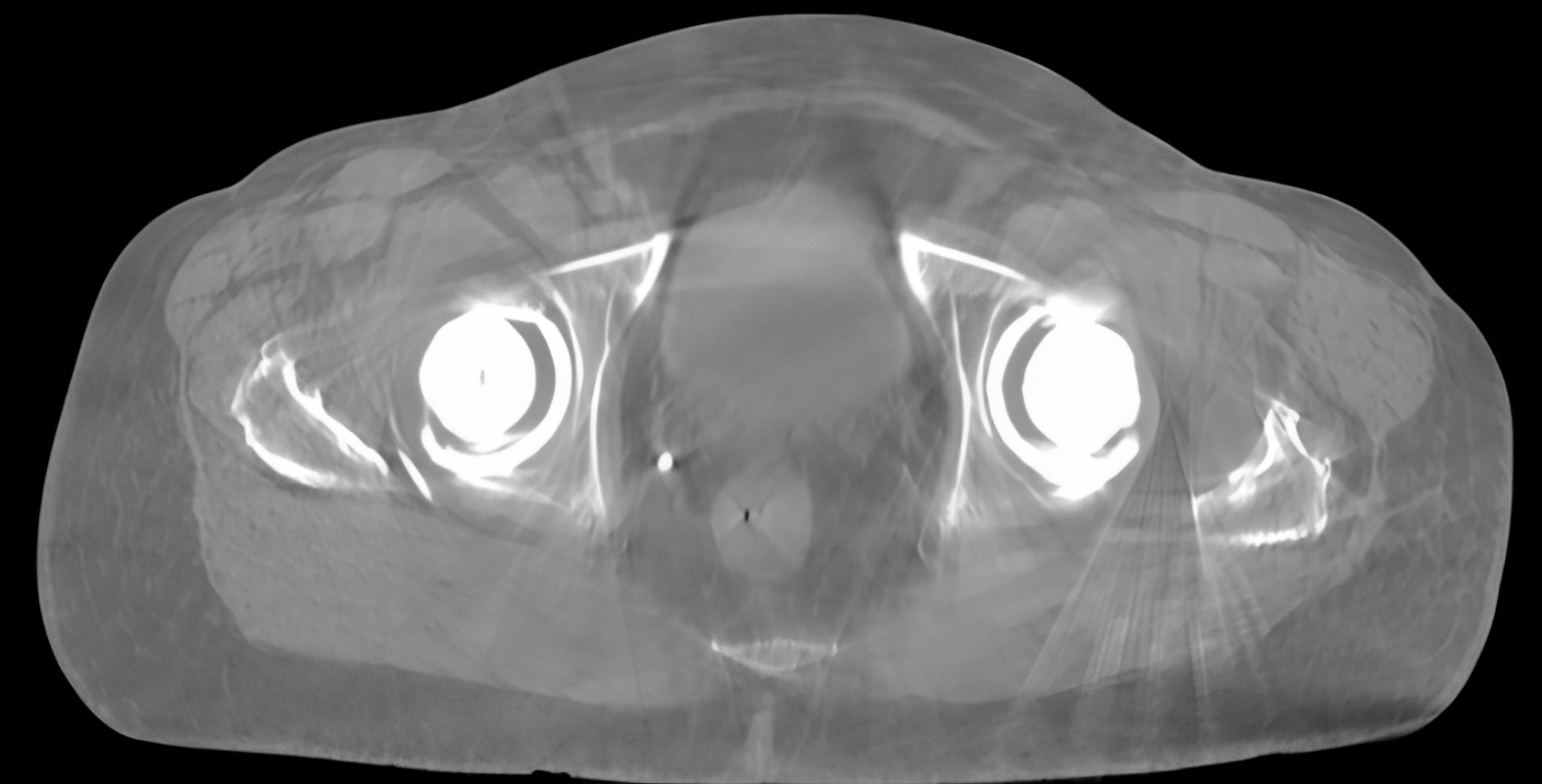
Going beyond IGRT. HyperSight improves image quality through enhanced contrast resolution, artifact suppression, and reduced non-uniformity. This is designed to improve the ability to precisely target tumor volumes and increase sparing of healthy tissue during treatment.

HyperSight enables **50% faster imaging** to improve motion artifacts, metal artifact reduction (MAR) to help with difficult to visualize structures, and larger FOV which may reduce the amount of extended length CBCT due to expanded view.

Clinical case with **double hip implants**



Conventional CBCT



HyperSight CBCT* with MAR

Images courtesy of University of Maryland, Baltimore.

*Image acquired on TrueBeam using standard IGRT workflow

VISUALIZE

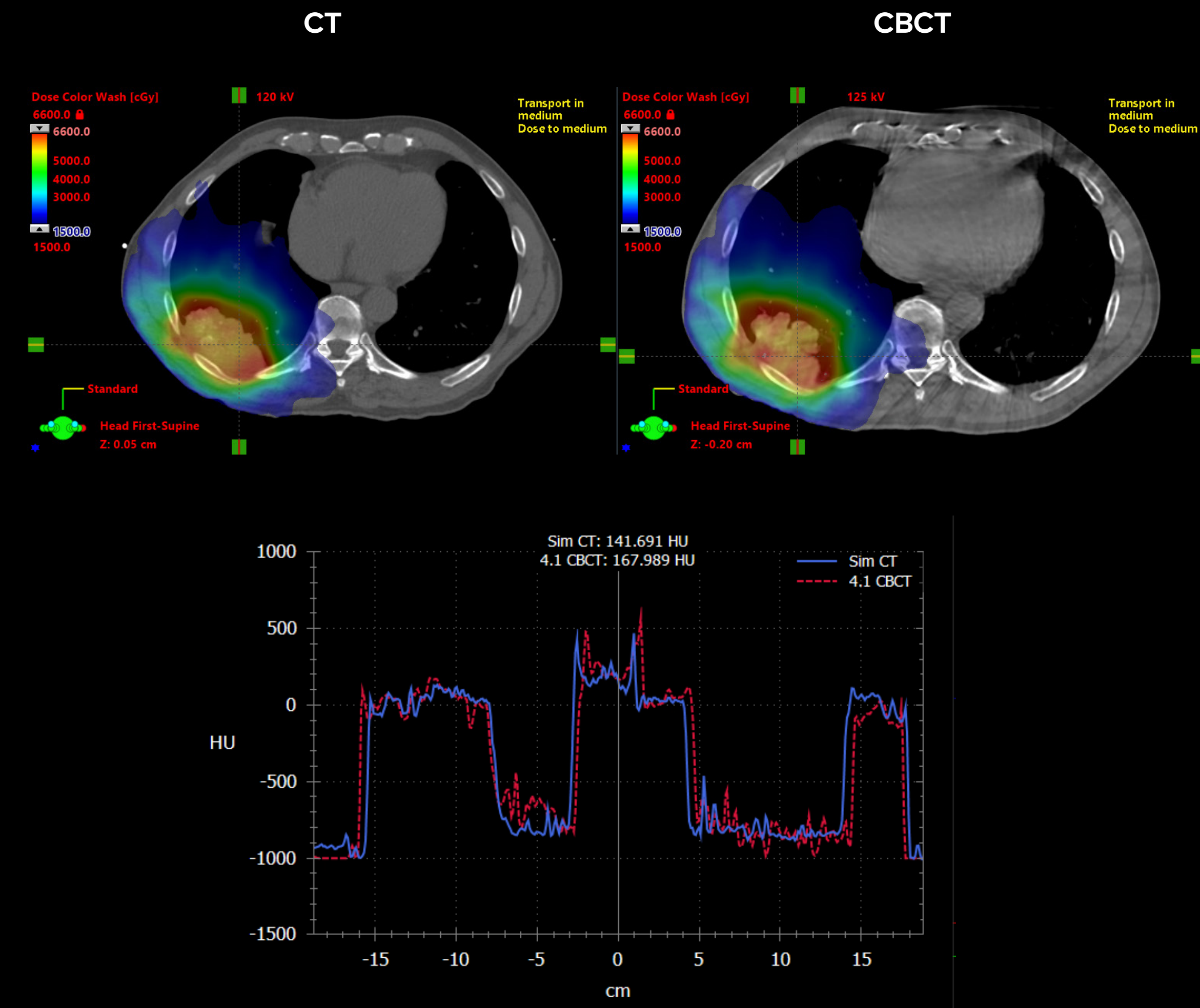
HyperSight imaging solution

Precision

Images you can plan on. The Hounsfield Unit (HU) accuracy of HyperSight, rivaling that of conventional CT, enables the calculation of the dose distribution directly on the CBCT image.

The image reconstruction algorithms and the increased FOV delivers improved visualization of the entire patient volume and surrounding organs at risk (OARs)—enabling the generation of precise treatment plans.

This has the potential to streamline the offline adaptive workflow. Clinicians now have the option to use HyperSight CBCT for re-planning purposes, making the additional step of a CT Sim unnecessary.



Dose calculation and HU comparison CT (red) vs. HyperSight CBCT (blue). Doses calculated with Acuros XB photon dose algorithm.

Images captured on TrueBeam. Images courtesy of University Hospitals, Seidman Cancer Center.
Graph from Varian Medical Systems.

HyperSight imaging solution

Speed

A single breath hold is all you need.

HyperSight acquires images for all anatomical sites with at least 50% increased gantry speed. Faster gantry movements mean shorter breath hold times for patients, which allow clinicians to clearly see potential anatomical changes that could trigger plan adaptation.

This significant reduction in CBCT acquisition time reduces motion-related artifacts due to patient movement. Shorter image acquisition time may minimize patient discomfort and anxiety due to less time on the couch.

Operational benefits

- Decreased need for CT-based replanning—replan and dose calculation possible on HyperSight CBCT images
- Decreased need for peripheries interventions, such as fiducial placement

"[With HyperSight], we feel confident that we can identify the tumor on a CBCT without the need for fiducial placement, reducing the risk to the patient and the burden on the hospital system from a financial standpoint."¹

- A more efficient and confident image matching and patient positioning: the enhanced image quality and better soft tissue contrast of HyperSight "makes the therapist's job easier."¹ It enables a more efficient and confident image matching and patient positioning.

1. Jason Molitoris, MD. Radiation oncologist at the University of Maryland Medical Center.

VISUALIZE

Precision patient setup and monitoring during treatment

Continuous patient monitoring during treatment can be achieved through **Enhanced Triggered Imaging***. Enhanced Triggered Imaging supports patients with surgical clips, Visicoil, etc. (enhanced to irregularly shaped fiducials) and allows for a variety of patient treatment setups. This feature aims to inspire confidence that you are treating according to plan by providing real-time imaging during treatment.

It enables the ability to initiate multiple kV image acquisitions at specific intervals during treatment delivery, providing check points for motion review. Users are given the option to have images triggered based on time, MU, gantry angle, or respiratory gating (for gated plans only).



ENHANCED TRIGGERED IMAGING

"It will allow us to monitor tumor position in real time and intervene if a change in patient respiratory pattern causes a shift. The enhanced precision could potentially increase tumor control and decrease the amount of surrounding healthy lung tissues exposed to the beam."

—Richard Popple, Ph.D.

Director, Medical Physics, University of Alabama at Birmingham (UAB) Health System



The **Auto Beam Hold (ABH)*** functionality allows the beam to automatically be suspended if your patient becomes misaligned.

Monitor your patient's surface for motion against your preferred standard with **Surface Guidance (IDENTIFY*)**. Our intuitive interface and advanced coaching mode helps your team treat more confidently with a focus on patient treatment tolerance.

Patient safety-focused treatment delivery

The TrueBeam platform supports efficient workflows with a focus on patient safety. During the initial patient setup, a **pretreatment dry run** may be performed to verify motion clearance during treatment.

Once the patient is ready for imaging, the **live view camera** causes lights on the panel to change from yellow to red when components are either too close to each other or the patient. The system acts as a virtual presence, allowing therapists to remain focused on the patient throughout the case.

During treatment, **Laser Guard II** continuously monitors the contoured region between the collimator face and the patient for added safety, deterring any potential collision.



Maintain an agile clinical environment

During treatment, **automation** allows the machine to safely go from one treatment field to the next without the therapist needing to manually initiate the next field.

On-Demand imaging allows the use of any gantry angle to acquire the image. When selecting the image procedure, the gantry angle chosen will also be the gantry angle location during image acquisition. On-Demand imaging is available for single MV image, MV/MV image pair, single kV image, and MV/kV image pair.

Automatic Exposure Control (AEC) for 2D kV imaging optimizes and simplifies image acquisition settings, potentially decreasing the number of kV image retakes and dose exposure to the patient.

Machine Performance Check (MPC) is an integrated self-check tool used to verify that the critical functions of the systems are operating within specifications. This application is designed for fast and reliable system testing on a daily basis before routine treatment begins.



Versatility in treatment delivery

The TrueBeam platform provides 3D conformal treatment, Intensity Modulated Radiotherapy (IMRT), RapidArc treatment techniques with seven static photon energies and 0–8 electron energies, photon and electron treatment arcs, and dynamic conformal arc treatment techniques.

TrueBeam also offers treatment delivery versatility enabled by **RapidArc Dynamic***, an innovative solution that uniquely leverages a **dynamic collimator** and combines the benefits of directional control of **IMRT** and the efficiency of **VMAT**.



Linac elements

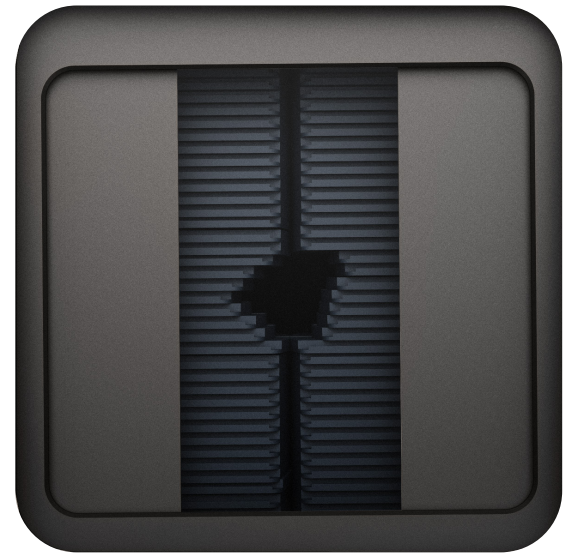
- Accelerator structure
- Energy switch
- Carousel
- Klystron
- Gridded gun

The energy switch and carousel design support a wide range of energies and can handle anywhere from 4X all the way to 25X with the ability to have five flat fields and two flattening filter free energies.

This allows users to tailor treatments to a variety of patient conditions.

*RapidArc Dynamic is an optional feature on TrueBeam

Versatility in treatment delivery



The **120 multileaf collimator** for conventional treatments and **HD120 multileaf collimator** for SRS treatments help shape the dose with high conformity while sparing surrounding tissue and/or organs at risk.

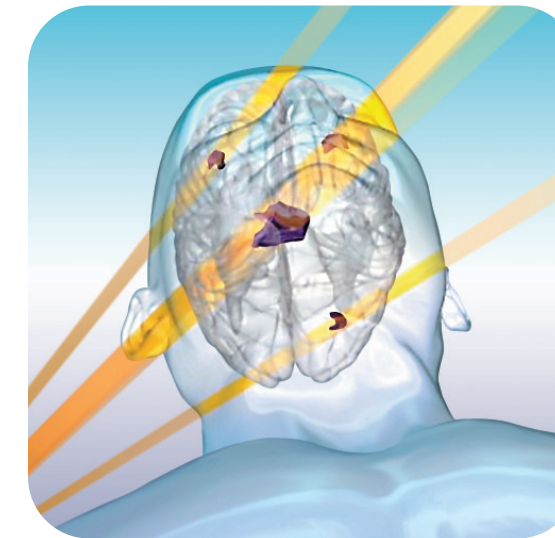


The Varian **PerfectPitch 6 Degrees of Freedom (6DOF)** couch allows for additional axes of rotation: Pitch, Roll, Yaw, in addition to Vertical, Long, and Lateral motions. The 6DoF is entirely integrated into the imaging and treatment environment for an efficient workflow. It is designed to deliver advanced radiation therapy techniques with a high level of accuracy and reproducibility.

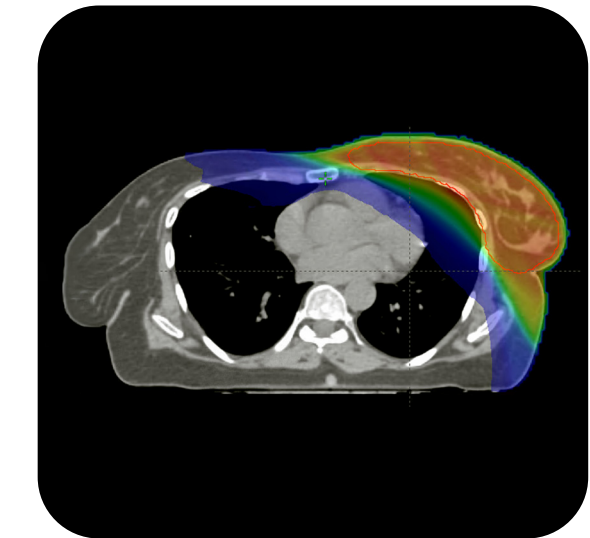


The **IDENTIFY system** provides fast, highly precise motion management during delivery of SGRT and allows you to focus directly on your patient. With features like submillimeter accuracy, automated beam hold, and couch shifts*, it enables consistent and personalized workflows and seamless integration with other technologies in the Varian ecosystem.

*Only available on TrueBeam, Edge, and VitalBeam systems equipped with Motion Management Interface (MMI)



HyperArc on TrueBeam elevates your treatment efficiency for intracranial radiosurgery. Unique HyperArc automation during treatment delivery allows treatment of SRS patients in a conventional time slot. The planning module included in the solution guides the user in creating a single isocenter plan for unique and multiple metastases, as well as primary brain tumors.

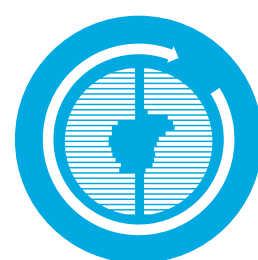


RapidArc improves clinical efficiency while enabling volumetric treatments that minimize dose to critical structures. RapidArc synchronizes MLC and gantry motion together with MU output for fast and highly modulated volumetric modulated arc therapy (VMAT) treatments.

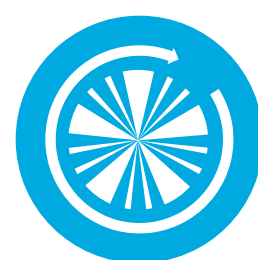
All solutions in **bold** are optional features on TrueBeam.

RapidArc Dynamic

A turning point for arc therapy



Dynamic collimator



Modulated ports



Arc tools

Revolutionary from every angle.

RapidArc Dynamic* is innovative from every direction—empowering clinicians with the confidence to deliver efficient, seamlessly flexible, and highly personalized patient care.

RapidArc Dynamic uniquely leverages a dynamic collimator and combines the benefits of directional control of IMRT and the efficiency of VMAT in a single solution.

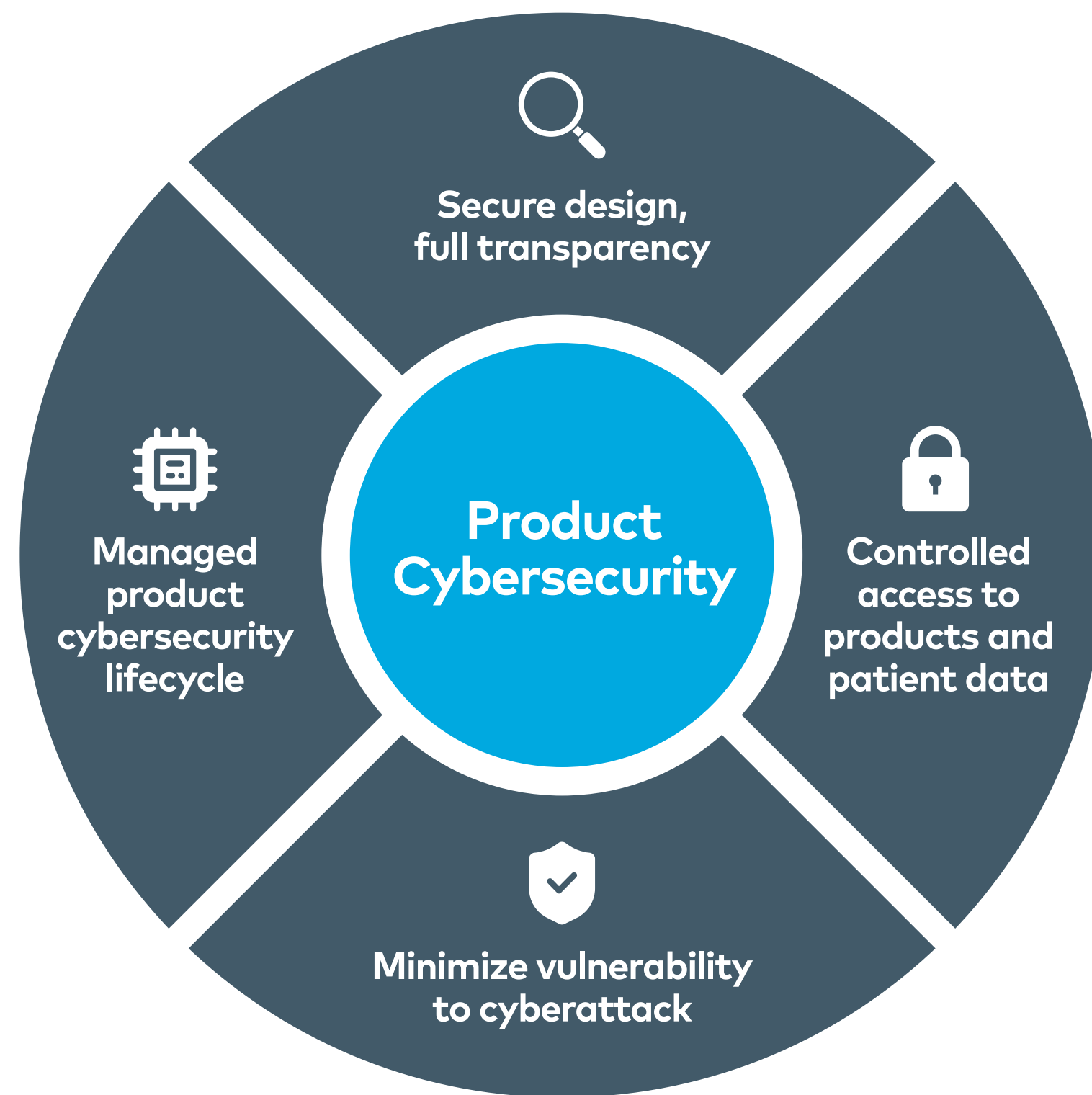
RapidArc Dynamic offers clinicians a monumental leap forward in planning and delivery flexibility by providing:

- Directional control of IMRT and efficiency of VMAT delivery in a single treatment field
- Ability to strategically pause the gantry during an arc rotation for enhanced modulation at optimal beam angles
- Real-time collimator adjustments during treatment to ensure optimal dose delivery
- Easy adjustment of the weighting between arc or modulated ports for increased control



Cybersecurity is a priority

Treatment delivery and patient motion monitoring



Secure design, full transparency

- Secure design adheres to best practices and latest standards
- White Papers, software "bill of materials", and manufacturers disclosure statement provide full transparency with an outline of all cybersecurity measures and features for each product release
- Security White Paper, software "bill of materials", manufacturers disclosure statement for all new releases



Managed product cybersecurity lifecycle

- Security optimization requires ongoing updates and application upgrades to maximize performance and maintain product security

Ongoing:

- Vulnerability scans
- Penetration testing
- Periodic firewall and OS security updates



Controlled access to products and patient data

- Highly controlled access to products ensures only authorized users and authorized data traffic
- User authentication against clinic active directory
- Two-factor authentication for access to OS
- Console whitelisting, firewall, USB port blocking
- Activity audit logs



Minimize vulnerability to cyberattack

- Security "hardening" reduces vulnerabilities and mitigates risks of cyberattack
- Win10 OS and Ubuntu OS with LTSC
- TLS 1.2 data-in-transit encryption
- Third-party component version updates

The statements by Varian’s customers described here are based on results achieved in those customers’ unique clinical setting. Because there is no “typical” clinical setting and many variables exist, there is no guarantee that other customers will achieve the same results.

Not available for sale in all markets.

Certain features are optional. Please speak with your sales person for more information.

Intended Use Summary

Varian Medical Systems’ linear accelerators are intended to provide stereotactic radiosurgery and precision radiotherapy for lesions, tumors, and conditions anywhere in the body where radiation treatment is indicated.

Important Safety Information

Radiation treatments may cause side effects that can vary depending on the part of the body being treated. The most frequent ones are typically temporary and may include, but are not limited to, irritation to the respiratory, digestive, urinary or reproductive systems, fatigue, nausea, skin irritation, and hair loss. In some patients, they can be severe. Treatment sessions may vary in complexity and time. Radiation treatment is not appropriate for all cancers.

Medical Advice Disclaimer

Varian as a medical device manufacturer cannot and does not recommend specific treatment approaches. Individual treatment results may vary.



varian.com

**USA, Corporate Headquarters
and Manufacturer**

Varian Medical Systems
Palo Alto, CA
Tel: 650.424.5700
800.544.4636

**Authorized Representative
in the EU**

Varian Medical Systems
Nederland B.V.
Kokermolen 2
3994 DH Houten,
The Netherlands
customer.relations@varian.com

**Headquarters Europe,
Eastern Europe, Middle
& Near East, India, Africa**

Varian Medical Systems
International AG
Steinhausen, Switzerland
Tel: 41.41.749.8844

Asia Pacific Headquarters

Varian Medical Systems
Pacific, Inc.
Kowloon, Hong Kong
Tel: 852.2724.2836

Australasian Headquarters

Varian Medical Systems
Australasia Pty Ltd.
Sydney, Australia
Tel: 61.2.9485.0100

Latin American Headquarters

Varian Medical Systems Brasil Ltda.
São Paulo, Brasil
Tel: 55.11.3457.2655