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EDGE

Radiosurgery with
an EDGE

# Edge radiosurgery system

## An innovative gateway to the future

The practice of radiotherapy has seen profound advances in how radiation is delivered. Clinicians are now able to treat a wide variety of cancers efficiently and accurately, while keeping the patient's safety and clinical outcome at the forefront of their practice. These advances have allowed clinicians to push the envelope to provide the best possible outcomes for their patients.

The Edge® radiosurgery system from Varian is fully equipped with integrated features, the Edge system allows you to treat patients quickly and precisely, while potentially reducing time spent in a clinic for individual patients. This allows patients more free time away from treatment and enables clinics to treat more patients in established time slots.

As a dedicated radiosurgery machine with conventional treatment features available, the Edge system meets the needs of clinics that want to offer a wide variety of treatment options to patients.

The Edge system represents an evolution in how radiosurgery is delivered, enabling you to perform non-invasive, ablative intracranial and extracranial radiosurgery treatments in addition to highly precise radiotherapy treatments across a range of clinical indications.

# Delivering on
# the toughest demands

The Edge system is designed from the ground up to help you achieve your clinical goals and to transition your clinic to utilizing radiosurgery. Advanced imaging capabilities and treatment delivery tools designed to allow you to treat a wider array of cancers and clinical cases, opening the door to more treatment options for patients who may not otherwise be considered for radiation therapy or radiosurgery.

Accuracy, flexibility, and efficiency are words that embody the essence of the Edge system. When combined, they have the potential to help you provide unmatched clinical care to patients and may allow more patients to be treated with radiosurgery.

## Accuracy

- Enables sub-millimeter accuracy[1]
- Provides end-to-end accuracy with increased treatment precision for a wide range of applications relative to prior versions[2]

## Flexibility

- Caters to versatile treatment modalities for customized patient care to treat cases using conventional and radiosurgical techniques
- Offers a full range of photon and electron energy selections

## Efficiency

- Delivers dose rate up to 2400 MU/min for short treatment times
- Available with optimized planning, delivery, and workflow tools

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# Build your clinic on a solid foundation

The integrated features of the Edge system coupled with Varian's industry-leading developments in radiotherapy give you the power to build a solution that works best for your clinic. As a dedicated radiosurgery system, the Edge system is fully equipped to put enhanced treatment options in the hands of clinicians while expanding treatment possibilities for a wide range of conditions.

## Core Radiosurgery Features

- PerfectPitch™ 6 degrees of freedom couch
  - Supports robotic couch alignment with smooth isocentric rotation in 6 degrees of freedom
  - Provides robust 440 lb/200 kg patient-load capacity with sub-millimeter/degree positioning accuracy[2]
  - Offers increased treatment precision for challenging targets[2]
- HD120™ multileaf collimator
  - Enables precise, focused dose through fine 2.5 mm leaves
  - Produces high-resolution beam shaping
  - Improves sparing of surrounding healthy tissue

## Variety of Energies to Meet Your Clinical Needs

- High-intensity mode
  - 6X/10X high-intensity mode, 1400 MU - 2400 MU/min
  - Increases speed of beam-on time
  - Minimizes the effects of patient motion as a result of higher dose rate
- 7 photon energies
- 0 - 8 electron energies, up to 2 additional for high-dose skin treatments
- Low 2.5X imaging energy

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## Advanced Treatment Delivery Techniques

- HyperArc® high-definition radiotherapy

  — Provides prescriptive, streamlined, automated technology that safely delivers highly precise single isocenter cranial treatments

  — Combines treatment planning and delivery features that allow treatments to be delivered in one click without the need to re-enter the room

  — Delivers high-quality radiosurgery plan quality[3] with conformal and compact dose to potentially spare more surrounding healthy tissue

- RapidArc® radiotherapy technology

  — Improves clinical efficiency[4] while enabling volumetric treatments that minimize dose to critical structures

  — Synchronizes MLC and gantry motion together with MU output for fast and highly modulated volumetric modulated arc therapy (VMAT) treatments

  — Supports delivery of precisely sculpted 3D dose for stereotactic ablation of operable and inoperable high-risk tumors

## Fast, Accurate Imaging Features

- Planar 2D kV and 2D MV imaging

  — Provides multiple imaging options such as 2D kV imaging, paired 2D kV-MV imaging, kV fluoroscopy

- 3D CBCT

  — Offers full-arc, partial-arc, short-arc 3D CBCT imaging to meet various clinical needs

- Iterative CBCT

  — Delivers statistical reconstruction and advanced scatter reduction algorithms to reduce noise and streak artifacts in 3D CBCT images, resulting in improved image quality compared to routine CBCT[5]

- 4D CBCT

  — Visualizes motion caused by respiration to ensure optimal positioning of moving targets

- Gated CBCT

  — Reduces CBCT motion artifacts in thorax and abdominal regions, thus improving visibility of anatomy position

- Respiratory gating package

  — Monitors the patient's respiratory motion and delivers radiation only when the patient's respiration is within the gating thresholds

- Visual Coaching Device

  — Presents breathing guidance to patients to improve the regularity (e.g., frequency, amplitude) of their breathing patterns
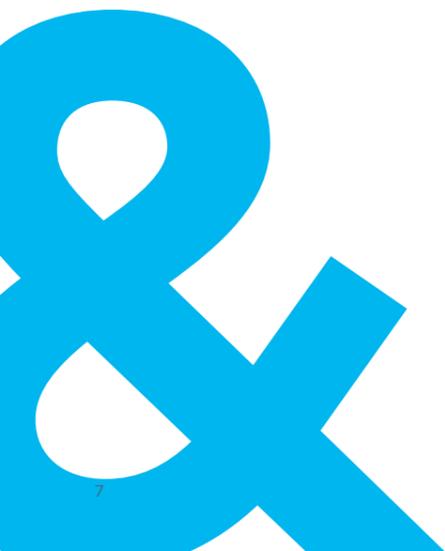
## Motion Monitoring

- Triggered imaging and auto beam hold
  - Monitors the location of implanted fiducial markers by automatic detection of marker locations within kV images that are acquired at regular intervals during treatment delivery
  - Automatically holds treatment beam when motion is detected

- IDENTIFY™ system[6]
  - Has three high precision stereo vision cameras with sub-millimeter accuracy[7] and with a refresh rate of 5-10 frames/second[8]
  - Supports a non-invasive, markerless technique to track the surface of a patient in real time during treatment
  - Accommodates a variety of treatments and techniques including stereotactic radiosurgery (SRS), stereotactic body radiotherapy (SBRT), and deep inspiration breath hold (DIBH)
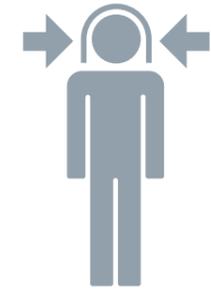
## Radiosurgery Accessories

- Varian Head Frame
  - Provides frame-based, rigid immobilization to support traditional radiosurgery treatments
  - Includes treatment and CT couch mounts
  - Contains a cranial screw kit with a variety of screw lengths available

- Integrated Collimator Verification & Interlock (ICVI) system
  - Offers automated and electronic correlation of plan requirements for cone sizes with the physical cone present in the system, including checks on the MV isocenter and cone alignment
  - Includes 7 conical collimators of the following sizes (in millimeters): 4, 5, 7.5, 10, 12.5, 15, and 17.5
  - Increases treatment precision for traditional cone-based radiosurgery and functional SRS treatments

## Dedicated Marketing Resources[6]

- Allows access to Edge-only marketing materials to create a personalized marketing program that targets referring physicians and patients in your community

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# The Edge of innovation in radiosurgery

With integrated technology that puts the needs of the clinician and clinic first, the Edge system allows you to effectively and precisely treat a wide variety of clinical indications to help you achieve your best clinical care.

## Radiosurgery Case Examples

- Intracranial SRS treatments:
  - Single and multiple brain metastases
  - Acoustic neuroma, meningioma, pituitary adenoma
  - Glioblastoma (GBM)
  - Arteriovenous malformation (AVM)
  - Trigeminal neuralgia
- Stereotactic body radiation therapy (SBRT) treatments:
  - Spine
  - Lung
  - Liver
  - Pancreas
  - Prostate

a) *Courtesy of University of Alabama Birmingham, Alabama.*
b) *Courtesy of Henry Ford Health Systems, Detroit, Michigan.*
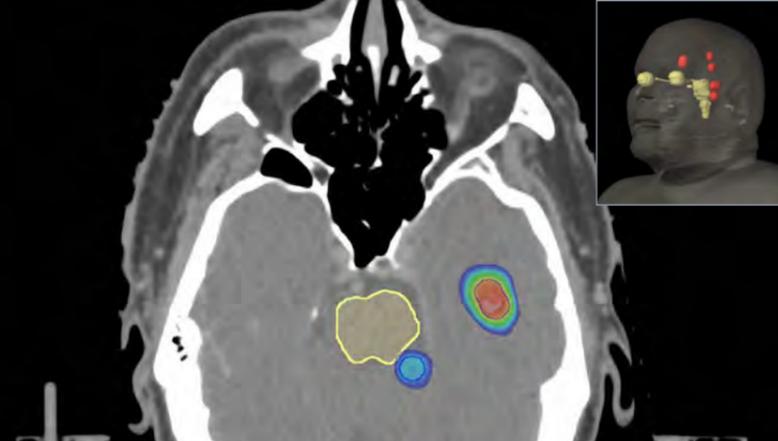
**Multiple brain metastases:**
HyperArc with 12 Gy & 18 Gy in a single fraction with 4 arcs.
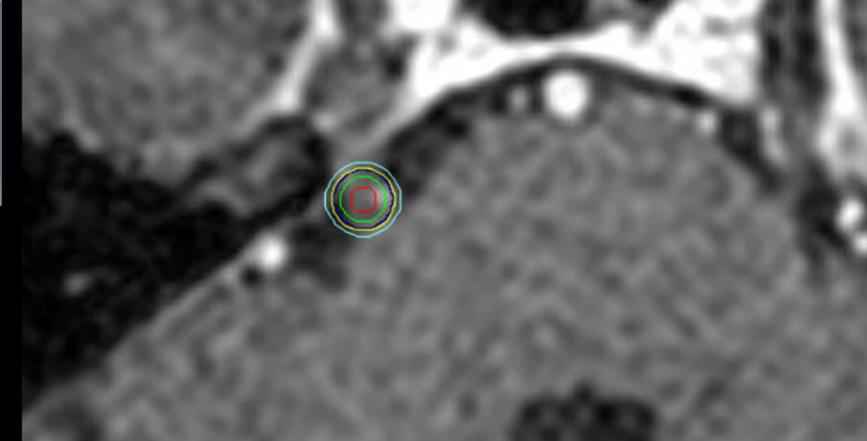
**Trigeminal neuralgia:**
80 Gy in a single fraction with HD MLC and 10 arcs.[a]
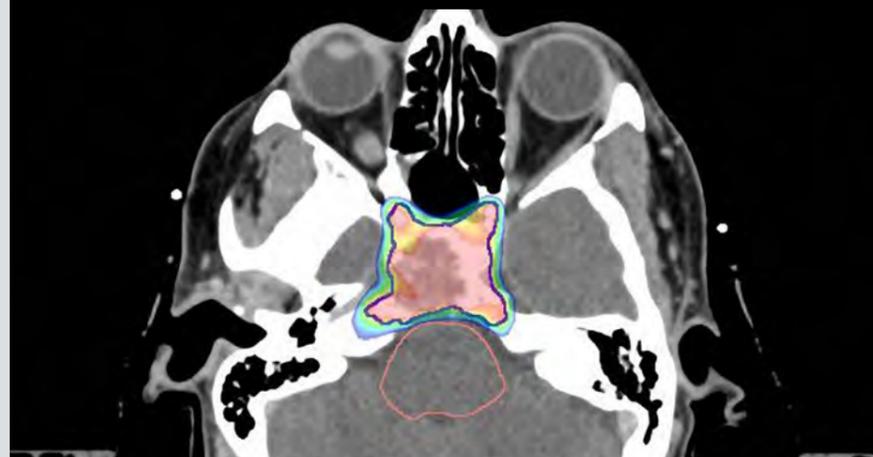
**Pituitary adenoma:**
HyperArc with 5 Gy in 5 fractions with 3 arcs.[a]
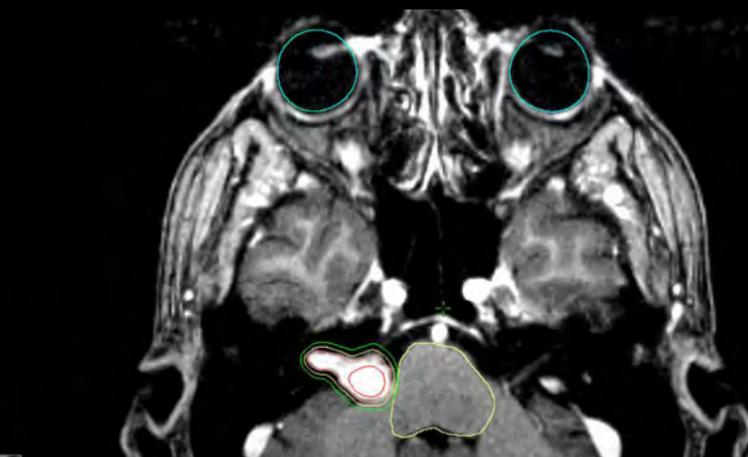
**Acoustic neuroma:**
HyperArc with 12.5 Gy in a single fraction with 4 arcs.

**Head and neck:**
RapidArc with 6 Gy in 5 fractions with 2 partial arcs.[b]
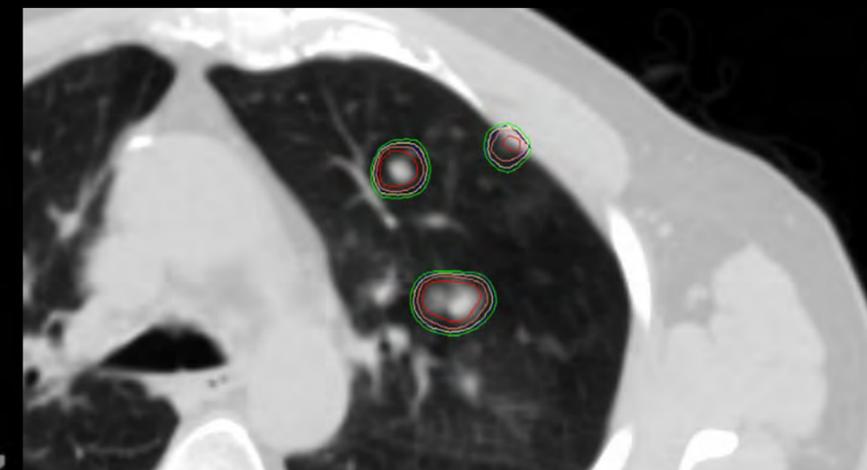
**Lung metastases:**
RapidArc with each 12 Gy in 3 fractions with 2 partial arcs.[b]
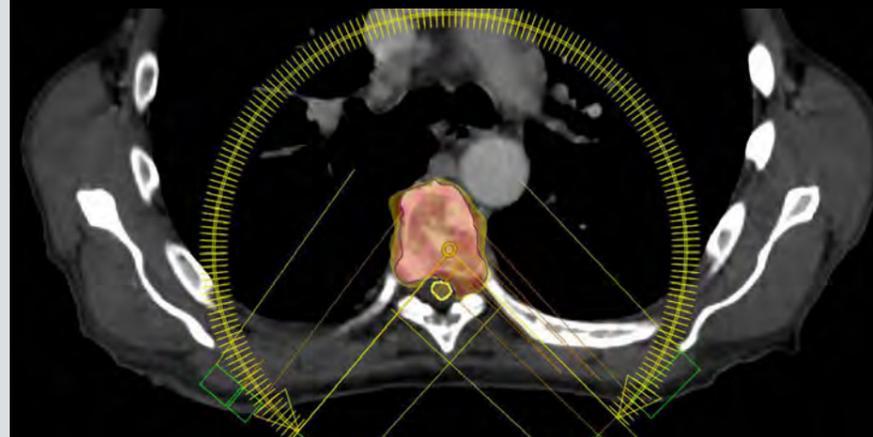
**Spine:**
RapidArc with 16 Gy in a single fraction with 2 partial arcs.[b]
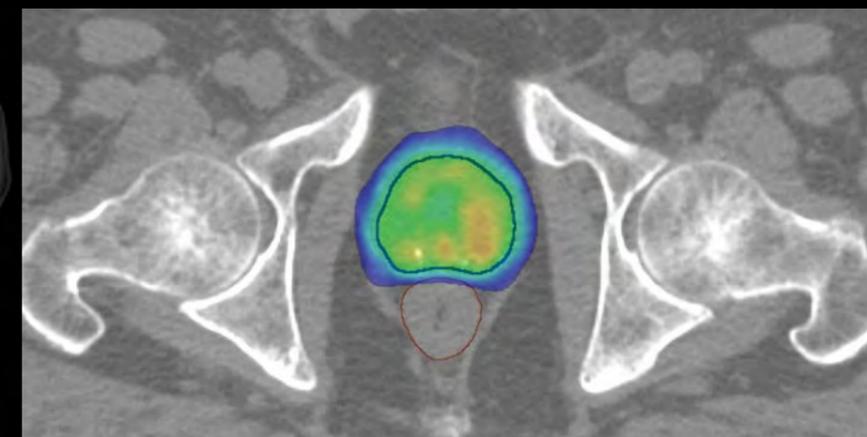
**Prostate:**
RapidArc with 8 Gy in 5 fractions with 3 arcs.

# Comprehensive service, world-class support

Varian provides world-class service to help keep your Edge system online, your clinicians engaged, and your patient satisfaction scores high. You get the right parts and the most up-to-date software, installed and maintained by Varian-trained professionals — virtually anywhere in the world. We combine a full range of capabilities, including:

## Knowledge and Experience

Varian service professionals receive up-to-date classroom instruction, on-the-job training, and advanced workflow tools, while you receive exclusive access to Varian product engineers and system designers.

## SmartConnect® Plus Technology

Remote equipment monitoring automatically alerts Varian to potential issues, proactively diagnoses these issues, and can expedite repairs before problems escalate.

## Machine Performance Check

Machine Performance Check (MPC) allows you to evaluate the performance of your Edge system. It is fully automatic, acquiring images and processing results to verify specifications such as isocenter, couch rotation, MLC positioning, and more. Results are displayed as clear pass/fail indicators.

## Proprietary Processes

We maintain detailed, tested protocols for servicing your equipment in the most efficient way while keeping patients and staff safe.

## Planned Maintenance Program

Regularly scheduled parts maintenance and replacement can help you keep your machine up and running.

## Education and Training

Our education and training mission is to provide you with the skills and knowledge to operate your Varian equipment efficiently, helping with your mission to save more patients' lives. Our global team comprises hundreds of experienced radiotherapy professionals, including physicists, MDs, dosimetrists, and radiation therapists, as well as highly trained technical instructors.

## Professional Services Tailored to Your Requirements

Varian's Professional Services organization delivers a wide range of programs tailored to your needs, helping you achieve higher clinical availability, more efficient workflows, safer use of technology, faster treatment times, and a more relaxed patient experience.

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# More options for your patients
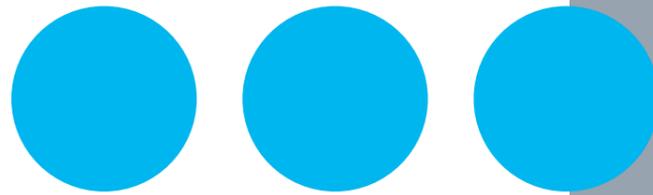
# More opportunities for your clinic

**TrueBeam®/VitalBeam® Systems**
Treatment Procedures with Ease, Speed, and Accuracy
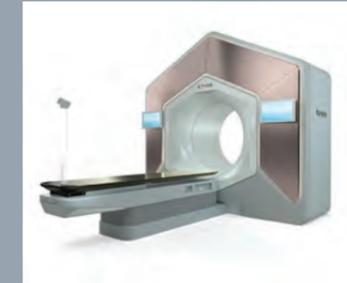
**Halcyon®**
Intuitive Treatment System

**Ethos®**
An Adaptive Intelligence™ Solution

**Edge® System**
Dedicated Full-Body Radiosurgery Platform

**ProBeam®**
Proton Therapy Systems

**BRAVOS® Afterloader System**
Product Suite for Planning and Delivery
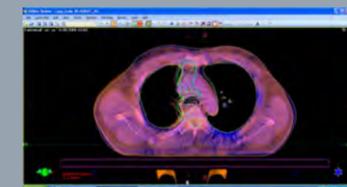
**Eclipse™**
Treatment Planning System

**Velocity™**
Oncology Imaging Informatics System

**ARIA®**
Oncology Information System
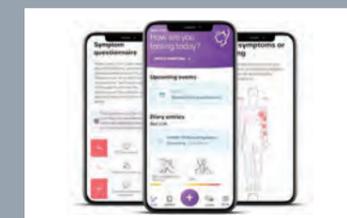
**Noona®**
Patient Outcomes Management Solution
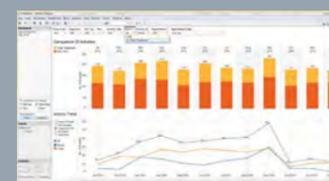
**InSightive™**
Oncology Analytics

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## Imagine a world
## without the fear of cancer

Varian has been a pioneer in the field of oncology for more than 70 years. During this time, we have introduced innovative treatment techniques, equipment, and software that have been used to treat tens of thousands of cancer patients worldwide. Today we offer products and services to advance the entire treatment process. Our work creates a community of those affected by cancer, so we can unite around our common goal to fight this disease.

**( we do. )**

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# Expanding the boundaries of hope

1. Functional accuracy of couch, collimator and gantry.
2. In comparison to mechanical accuracy of a 4DoF couch. Varian Medical Systems data on file.
3. Varian Medical Systems data on file.
4. Varian Medical Systems data on file.
5. Iterative CBCT applies to non-moving anatomies such as head and neck and pelvic regions.
6. Not available in every market.  Please check availability with your sales representative.
7. Based on Varian IDENTIFY Specification Sheet RAD106998. Varian Medical Systems, Inc. 2021.
8. Based on Varian IDENTIFY Specification Sheet RAD106998. Based on 10 cm x 10 cm region of interest (ROI).  Varian Medical Systems, Inc. 2021.

**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.