HyperArc™

High Definition Radiotherapy

Cleverson Lopes  Marketing Manager LA  November 7, 2017

Not available for sale in all markets
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.
GROWTH IN SRS
SRS/SBRT National Forecast, U.S. Adult Market

- Technology innovation
- Increased survival and need for retreatment
- Cost pressure

* Source: Sg2 Consulting, Skokie, Illinois, U.S.
CLINICAL RATIONAL: TREND TOWARDS SRS

• SRS is recommended by NCCN as a primary treatment option for brain metastases (including n>4).\(^2\)

• Approximately 20 percent of newly diagnosed cancer patients will develop brain metastases.\(^1\)

• An increasing number of patients with brain metastases return for retreatment.\(^3\)

• Modern outcomes suggest adverse effects from WBRT on patient cognition and quality of life. Practice is evolving to SRS alone in patients with up to 4 brain metastases.\(^4\)

1 DeSantis CE, Cancer treatment and survivorship statistics, 2014 CA.

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HYPERARC
High-definition radiotherapy for more patients

- Prescribed Immobilization
- Virtual dry run
- Imaging waypoints

Safe*

- Rapid dose fall-off
- SRS NTO
- Optimized collimator angle

Compact Dosimetry

- Automated workflow
- Simplified planning process
- SRS in conventional timeslots

Efficient

*Designed for patient collision prevention

Multi metastatic cases may be treated using HyperArc.

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PRESCRIBED IMMOBILIZATION AND SET-UP

- Immobilization device modeled in Eclipse™
- Patient Protection Zone

NOT AVAILABLE FOR SALE IN ALL MARKETS
CREATE NON-COPLANAR PLAN WITHIN MINUTES*

Defining plan geometry and target doses

- Up to ten prescription doses
- Automatic lower dose objectives
- SRS NTO
  - Eliminates need to define upper objectives or to create the shell structures

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CREATE NON-COPLANAR PLAN WITHIN MINUTES*

Auto isocenter placement and trajectory selection

- Isocenter placement based on center of mass of selected target volumes
- SRS-specific target quality metrics calculated automatically

* Varian Summative usability test report. All participants were able to create HyperArc plan within 8 minutes, review HyperArc plan within 3 minutes and verify automated delivery or modify plan within 5 minutes.
CREATE NON-COPLANAR PLAN WITHIN MINUTES*

Optimized collimator angle for each arc

- Reduction of plan complexity
- Minimal interaction between targets
- Each target has its own ‘lane’
VIRTUAL DRY RUN: COLLISION PRE-CHECK

- Accurate 3D animation of delivery sequence
- Distance between gantry and patient protection zone is displayed and color-coded
- Only collision-free plans allowed for automated delivery
AUTOMATED
One-click delivery

- CBCT enforced for precise patient setup
- MV imaging available for verification
- Optimized treatment delivery order w/o need to re-enter the room

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RAPID DOSE FALL-OFF

Increasing dose compactness by distributing more beams around the patient

Prescription, 20Gy

50% prescription, 10Gy

4Gy

Image courtesy of NHS Greater Glasgow and Clyde
RAPID DOSE FALL-OFF: COMPARING PLANS

4Gy

• HyperArc plan (left)

• Typical non-coplanar RapidArc SRS plan (right)
OFFER RADIOSURGERY TO MORE PATIENTS

**Safe**
- Virtual dry run
- Prescribed Immobilization
- Imaging waypoints

**Compact**
- Rapid dose fall-off
- SRS NTO
- Optimized collimator angle

**Efficient**
- Automated workflow
- Simplified planning process
- SRS in conventional timeslots

*Designed for patient collision prevention*
Over the last five years, our radiosurgery plan quality has improved to equal or exceed our Gamma Knife. Physicians and patients preferred the frameless and highly efficient delivery on our TrueBeam and Edge systems and our Gamma Knife was decommissioned June 2017. HyperArc planning automates much of the radiosurgery treatment planning strategies that we have implemented at UAB and could enable more clinics to perform higher quality radiosurgery for more patients.

John Fiveash, M.D., professor and vice chair for academic programs in the UAB Department of Radiation Oncology
En los últimos cinco años, la calidad de nuestro plan de radiocirugía ha mejorado para igualar o superar nuestro Gamma Knife. Los médicos y pacientes prefirieron la entrega sin marco y altamente eficiente en nuestros sistemas TrueBeam y Edge y nuestro Gamma Knife se retiró de servicio en junio de 2017. La planificación de HyperArc automatiza gran parte de las estrategias de planificación de tratamiento de radiocirugía que hemos implementado en la UAB y podría permitir que más clínicas hagan radiocirugía para más pacientes.

John Fiveash, M.D., professor and vice chair for academic programs in the UAB Department of Radiation Oncology
THANK YOU