

Elekta Axesse™

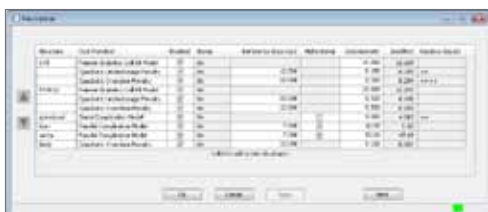
for Spinal Radiosurgery



Spinal Radiosurgery has proven to be a viable effective way to treat spinal metastases, especially for those cases affecting the vertebral bodies of the thoracic spine, where classical surgery would employ a more invasive approach with increased morbidity and recovery time. Also in some cases of neural compression or with metastatic lesions with tendency to vascularization, Spinal Radiosurgery has proven to be an effective complement or alternative to classical Spinal Neurosurgery.

The Elekta Axesse robotic image guided stereotactic system offers everything that is needed for advanced Spinal Radiosurgery planning, localization, immobilization and delivery in a single solution.

The Elekta Axesse integrated multi-leaf collimator allows greater resolution around the concavity of the lesions due to its minimal leaf thickness and narrow penumbra. Due to the low transmission and leakage, the risk of secondary induced recurrences are minimized. Treatment delivery is as efficient as possible, thanks to the high leaf speed in combination with the large clearance of Elekta Axesse that allows the greatest freedom in optimizing planning and delivery. Moreover, the 6 degrees of freedom of the robotic couch offers sub-millimeter positioning of the patient to ensure accurate localization of the target volumes.



Physical and Radiobiological prescriptions combined to characterize the specificities of the tissues involved

Image Guided Radiosurgery

Image Guided Radiosurgery (IGRS) applied to spinal treatments allows the most precise localization of the target volume, where cone beam CT images act as a virtual stereotactic localizer to map the real patient space. Elekta XVI offers the largest field of view for CBCT on the market, allowing the full visualization of all the surrounding vertebrae.

Contact:

To find out more about Elekta Axesse, please contact your sales representative or visit www.elekta.com

Structure	Cost Function Label	Isolated Label	Parameters
C1	C1: Quadratic Underdose Penalty	RMS QUAD C1 Dose [Gy]	0.000 0.000
C2	C2: Quadratic Underdose Penalty	RMS QUAD C2 Dose [Gy]	0.000 0.000
P1	P1: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000
P2	P2: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000
P3	P3: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000
P4	P4: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000
P5	P5: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000
P6	P6: Parabolic Compliance Model	Mean Range GR50 [Gy]	0.000 0.000

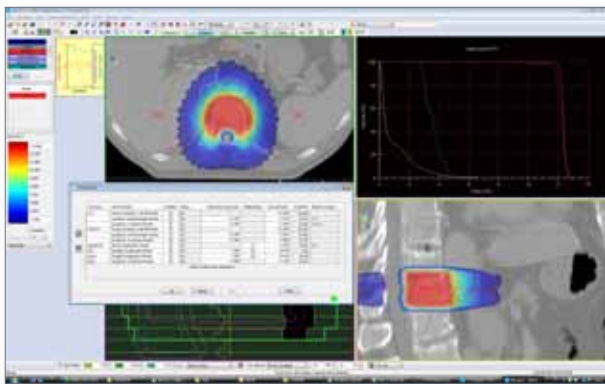
Sensitivity Analysis Tools for a precise and quantitative fine tuning of the optimization

Intensity Modulated Radiosurgery

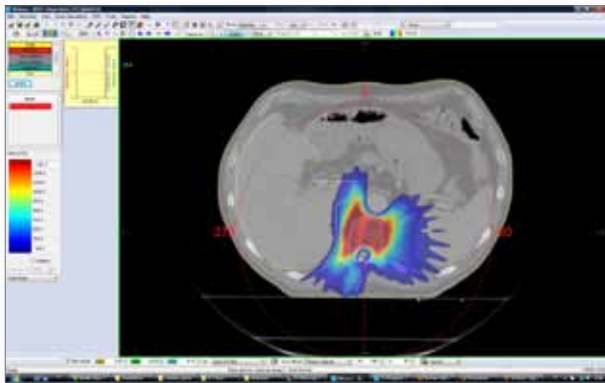
The use of Intensity

Modulated Radiosurgery (IMRS) techniques already helps in the process of sculpting radiosurgery dose distributions around the target volumes. With Volumetric Modulated Radiosurgery





VMRS Sequencing based on Monte Carlo calculation achieves high levels of conformality in Monaco



High Degrees of Modulation are made possible with Monaco VMRS

(VMRS) the dose is modulated in the most efficient and precise way during the fully robotic delivery by Elekta Axesse.

Treatment Planning

Monaco® combines the power of the radiobiological approach of the most advanced IMRS technique with the approach of VMRS for enhanced dose conformance, where all delivery parameters are variable and automatically controlled in real time during delivery with Elekta Axesse. The user can clearly define the dosimetric tolerances of serial and parallel organs. With Constrained Optimization, Monaco spares critical structures, including the spinal cord, effectively helping the decision of dose escalation in single fraction treatments.

Using the Monte Carlo calculation during the optimization process gives clinicians the tools to achieve a high level of precision, even at the interface of tissues with different densities or on vertebral implants.

Practice Expansion

Intensity Modulated Radiosurgery (IMRS) for the Spine

Clinical Techniques

CBCT Based
Frame-based
Intensity Modulated Radiosurgery (IMRS)
Volumetric Modulated Radiosurgery (VMRS)

Delivery System

Elekta Axesse™

Stereotactic Enhancement Upgrade

Monaco® (Base + IMRS + VMRS)
BodyFIX® & Other Frames
HexaPOD evo®

*Monaco for radiosurgery is a works in progress

www.elekta.com

Human Care Makes the Future Possible

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