



## CYBERKNIFE® SYSTEM

The Standard of Radiosurgery





ACCURAY®  
**CyberKnife®**

From Our President

*"Accuray's CyberKnife System offers patient treatment options that, before now, were not available. Accuray has partnered with clinicians, researchers and patients to develop a system that defines full-body radiosurgery and provides a new standard of patient care. The fact that clinicians the world over have successfully treated tens of thousands of patients is testament to their confidence in the effectiveness of the CyberKnife System."*

*Euan S. Thomson*

Euan S. Thomson, Ph.D.  
President and Chief Executive Officer  
Accuray Incorporated

## THE STANDARD OF RADIOSURGERY

In the field of radiation oncology, the CyberKnife® Robotic Radiosurgery System is universally recognized as the premier radiosurgery system capable of delivering radiation with sub-millimeter accuracy anywhere in the body. As validated and proven in numerous peer-reviewed publications, the precision and accuracy of the system combines with continual image guidance and robotic mobility to deliver treatments characterized by exquisite conformality and steep dose gradients.

**World-Class Robotic Radiosurgery** – Recognizing that tumors move even when immobilized, the CyberKnife System employs continual image guidance throughout the treatment. Combining this unique capability with the robotic mobility inherent to the system, every beam position is automatically corrected for any target motion without user intervention and without treatment interruptions.

Managing respiratory motion presents one of the most significant challenges in radiation treatment delivery. Rather than use sub-optimal techniques such as gating or breath-holding, the CyberKnife System intelligently tracks respiratory motion in real-time and automatically adapts to any changes in the patient's breathing pattern.

**Established Treatment Capabilities** – The robotic mobility of the CyberKnife System enables the delivery of a large number of non-isocentric, non-coplanar beams individually directed at unique points within the intended target. This automation facilitates frameless treatment delivery and eliminates the need to reposition the patient for each beam. Delivery of multiple non-coplanar beams enhances dose conformality and creates very steep dose gradients, reducing dose to surrounding critical structures.



*Optional equipment shown. Accuray reserves the right to update or change these specifications without notice.*



**Robotic Manipulator** – The high precision robotic manipulator capable of delivering repeatable sub-millimeter accuracy, positions the linear accelerator in virtually any direction.



**Linear Accelerator** – The compact, light weight 6MV X-band linear accelerator with an optional output of up to 1000 MU/min precisely delivers highly collimated beams of radiation.



**X-Ray Sources** – The low energy X-ray sources generate orthogonal X-ray images to determine the location of bony landmarks, implanted fiducials or soft tissue targets throughout the treatment.



**Image Detectors** – The flush mounted detectors capture high-resolution anatomical images throughout the treatment. These live images are continually compared to previously generated DRR's to determine real-time patient positioning and target location.



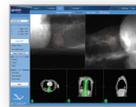
**Synchrony® Respiratory Tracking System\*** – Continuously synchronizes beam delivery to the motion of the tumor, allowing clinicians to significantly reduce margins while eliminating the need for gating or breath-holding techniques.



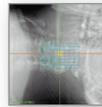
**RoboCouch® Patient Positioning System\*** – Robotically aligns patients precisely with six degrees of freedom, enabling faster patient setup. The Seated Load option enables simple and comfortable loading of mobility-limited patients.



**Time-based Imaging** – Allows users to intuitively and dynamically optimize intrafraction imaging frequency based on the unique needs of the patient, without interrupting treatment.



**Xsight® Spine Tracking System** – Eliminates the need for surgical implantation of fiducials by using the bony anatomy of the spine to automatically locate and track tumors, making radiosurgery more precise and less invasive.



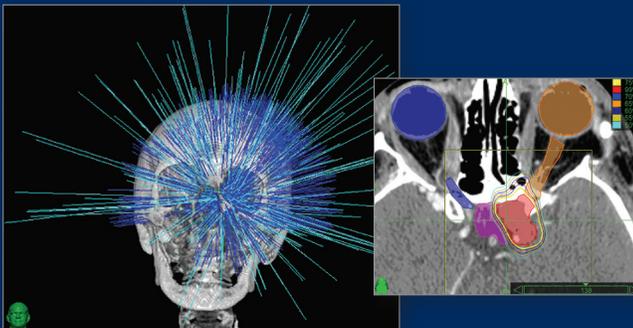
**Xsight Lung Tracking System\*** – Directly tracks the movement of lung tumors without fiducials while maintaining precision, reliability and self adjusting repeatability.



**6D Skull Tracking** – Non-invasively determines target location and displacements in 6D using image properties and rigid bony anatomy of the patient enabling automatic corrections throughout the treatment.

## Intracranial Radiosurgery

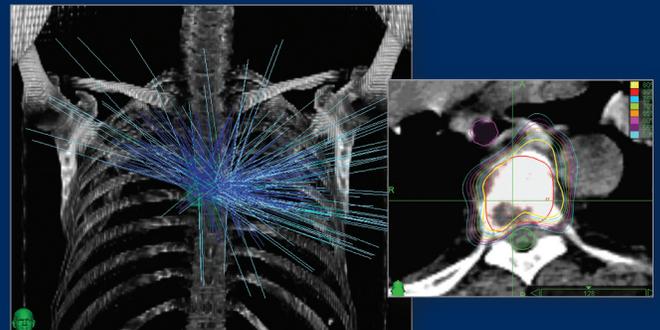
As a completely frameless system, the CyberKnife® System utilizes continual image guidance and automatic targeting corrections to compensate for even the slightest target shift that might occur with non-invasive immobilization. Rendering stereotactic headframes obsolete, the CyberKnife System provides the versatility to efficiently and painlessly deliver both single and multiple fraction intracranial treatments.



Images courtesy of Barrow Neurological Institute

## Spine Radiosurgery

Extending the proven benefits of diverse non-coplanar treatment delivery to applications outside of the head, the CyberKnife System automatically delivers hundreds of uniquely angled beams per fraction in routine, daily clinical practice. And with both isocentric and non-isocentric capabilities, the CyberKnife System has an unrivaled ability to precisely sculpt delivered dose around the spinal cord and other sensitive critical structures.

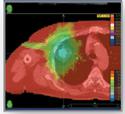


Images courtesy of University of Pittsburgh Medical Center

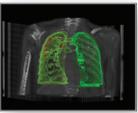


#### **MultiPlan® Treatment Planning System –**

An intuitive workflow-based application designed specifically for the CyberKnife® System, allowing for the simple and efficient creation of even the most complex treatment plans.



**Monte Carlo Dose Calculation –** Often considered the gold standard for dose calculation, the CyberKnife System's Monte Carlo Dose Calculation produces results in minutes compared to what commonly requires hours or days with other systems.



#### **4D Treatment Optimization and Planning System\* –**

True 4D treatment planning that takes into account not only the movement of the target but also the movement and deformation of the surrounding healthy tissue and critical structures.



#### **CyberKnife Data Management System –**

Provides comprehensive storage and processing of the patient data that is generated as the patient progresses through the CyberKnife planning and treatment workflow.



**Report Administration\*** – The ability to review stored patient and usage data is simple and straightforward with the easy availability of a variety of departmental reports.



#### **Radiosurgery DICOM Interface\* –**

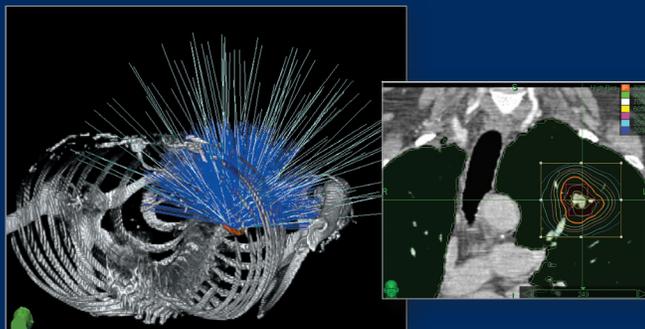
This interface utilizes the industry-standard DICOM protocol to export patient treatment plan and delivery information to an Oncology Information System.

*The CyberKnife System and CyberKnife options may not be available in some countries. For a complete list of CyberKnife Systems and options available, please contact Accuray at [sales@accuray.com](mailto:sales@accuray.com).*

*\* Limited to tumors of specific size and location.*

## **Lung Radiosurgery**

Without conventional gating or breath-holding, the CyberKnife System delivers tightly contoured beams that move precisely with 3D tumor motion throughout the respiratory cycle. With this unique capability, margins are limited to only that which are clinically relevant, dramatically decreasing the additional margins required of other systems to account for set-up and treatment delivery inaccuracies.



*Image courtesy of Georgetown University Hospital*

## **A Tradition of Innovation**

Accuray has pioneered the field of full-body radiosurgery and the CyberKnife Robotic Radiosurgery System is well recognized as the leader in this field. While establishing itself as the first choice of clinicians when considering a radiosurgery solution, the CyberKnife System has continuously evolved to provide the capabilities that serve to enrich both the user and the patient experience.

The clinical results of CyberKnife treatments are well documented in an ever increasing body of peer-reviewed literature. The trust that the community has placed in the capabilities of the system is reflected in the rapidly increasing number of systems and the tens of thousands of patients that have been treated with the CyberKnife System. An increasing number of users are recognizing the key aspect of the CyberKnife System – the system automatically and seamlessly adapts to the unique needs and characteristics of each patient.

# ACCURAY INCORPORATED

*Our Business Begins with Patients™*

**Accuray's philosophy, *Our Business Begins with Patients™*, drives the company's commitment to advancing the field of robotic radiosurgery through innovation, while also establishing its products as the standard of care.**

Accuray's success is measured by the success of its customers in delivering the most advanced care to their patients. Medical institutions worldwide have expanded their clinical programs using Accuray's CyberKnife® Robotic Radiosurgery System by treating patients that may have been considered untreatable, while building a more comprehensive oncology practice.

To this end, Accuray has developed collaborative partnerships with clinicians, researchers and patients. These partnerships help educate clinicians and patients on the benefits of robotic radiosurgery, enabling Accuray to refine and upgrade its technology based on user and patient feedback. This feedback allows Accuray to develop innovative programs that improve clinician's success while differentiating Accuray from traditional medical device companies.

The result, the CyberKnife Robotic Radiosurgery System, a pain-free treatment alternative for patients that eliminates invasive surgery and results in a significantly improved quality of life for cancer patients the world over.



ACCURAY®

*Our Business Begins with Patients™*

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