

## New Gamma Knife Perfexion treats areas of the brain, skull base and cervical spine previously unreachable without surgical incision

Backed by over two decades of clinical application in the U.S. with unsurpassed outcomes substantiated by voluminous literature, the Gamma Knife is the gold standard in stereotactic radiosurgery. Hoag Hospital and its Neuroscience Center of Excellence is the first in Southern California to employ the revolutionary Leksell® Gamma Knife Perfexion™, which takes the gold standard platinum.

Gamma Knife Perfexion is the most advanced radiosurgical device available, delivering the most efficient and precise radiosurgery treatments to date. With increased treatment volume and enhanced accuracy, Gamma Knife Perfexion benefits significantly more patients who can now be treated with Gamma Knife radiosurgery instead of a more invasive procedure.

### The gold standard in radiosurgery

Gamma Knife is globally recognized as the gold standard in minimally invasive neurosurgery. The Gamma Knife administers a single fraction dose of radiation to stop and/or reduce the growth of abnormal tissue by destroying the DNA mapping of the cells, which renders them unable to divide. 192 precise cobalt-60 gamma ray beams are focused on the abnormal tissue area with the area of intersection conforming to the size and shape of the target. “With steep dose falloff, we’re able to prevent injury to surrounding healthy tissue



while delivering a powerful dose to the targeted tumor,” explains accomplished Gamma Knife surgeon, Chris Duma, MD, medical director of Hoag’s Brain Tumor Program.

“We utilize the Gamma Knife most frequently in treating brain metastases, where we’ll often incorporate it as an adjunct to surgery, radiation therapy or chemotherapy,” Dr. Duma adds. “And, for high-risk patients that may not be able to tolerate an open-skull surgery, Gamma Knife offers an effective treatment alternative.”

The team of specialists at Hoag Gamma Knife Center treats more than 200 patients annually, adding months and even years to the lives of those treated with this technology. Hoag’s upgraded Gamma Knife

system, Leksell Gamma Knife Perfexion, will enable clinicians to offer this minimally invasive approach to even more patients—treating areas of the brain, skull base and cervical spine that could not previously be reached without surgical incision.

### Dramatically increased treatable volume

Perfexion’s anatomical reach has been expanded to treat the head, skull base and cervical spine, which allows clinicians to address difficult to reach tumors that were not previously treatable when compared to earlier generations of Gamma Knife and current competing technologies. Lesions in and around the paranasal sinuses, the orbits, and the pharyngo-laryngeal area are



now accessible. And clinicians can comfortably treat foramen magnum lesions and reach down to the lower cervical spine.

Additionally, while other radiosurgical tools require more than one session to treat multiple metastases, Gamma Knife Perfexion can safely and effectively irradiate multiple targets in a single treatment session.

### Enhanced efficiency and dosimetry performance

Gamma Knife Perfexion has better dosimetry performance than any other competitive radiosurgical system on the market, offering clinicians the ability to shape and conform radiation to fit their needs while enhancing protection of critical structures. A recent article in *Operative Neurosurgery* describes a 100x lower dose of radiation to normal body tissue than the competing CyberKnife.

“The enhanced collimator design provides us with almost unlimited ability for sculpting the dose to produce complex dose distributions with incomparable accuracy,” confirms Dr. Duma. “This more

precise system can now be used to treat patients whose tumors are very near vital parts of the body, such as the optic nerve.”

Additionally, the system employs computer-controlled automatic and sequential positioning of multiple shots during treatment. Thus, all steps of the procedure are performed through an unbroken chain, from stereotactic image acquisition to the control of the irradiation sequence. This significantly enhances efficiency and reduces the duration of each treatment session.

Radiosurgery with the new Gamma Knife Perfexion remains an outpatient procedure, free of the risks of invasive brain surgery. Following Gamma Knife treatment, patients can immediately return to preoperative lifestyle without any need for intensive care, extended hospitalization or convalescence.

## Leksell Gamma Knife Perfexion advantages

- > Expands clinical applications of procedures in the brain, skull base and cervical spine regions
- > No intracranial limits to treatment
- > Collimator design provides clinicians with almost unlimited ability for sculpting the dose to produce complex dose distributions with incomparable accuracy
- > Unwanted body dose to patient up to 100 times less than compared with competing technologies—especially important for pediatric treatment and treatment of women of childbearing age
- > Increased patient comfort

## Treatable indications

- > metastatic brain disease
- > trigeminal neuralgia
- > acoustic neuroma
- > malignant gliomas
- > meningioma
- > pituitary tumors
- > arteriovenous malformations
- > pediatric tumors
- > high-risk surgical patients

### To Refer a Patient

*For more information or to refer a patient, please contact Hoag Gamma Knife Center at 949/764-5938.*