



# Alexian Brothers Neurosciences Institute

## Illinois Gamma Knife Center

Information  
for Patients



Alexian Brothers  
Medical Center and  
St. Alexius Medical Center  
are designated as Certified  
Primary Stroke Centers.

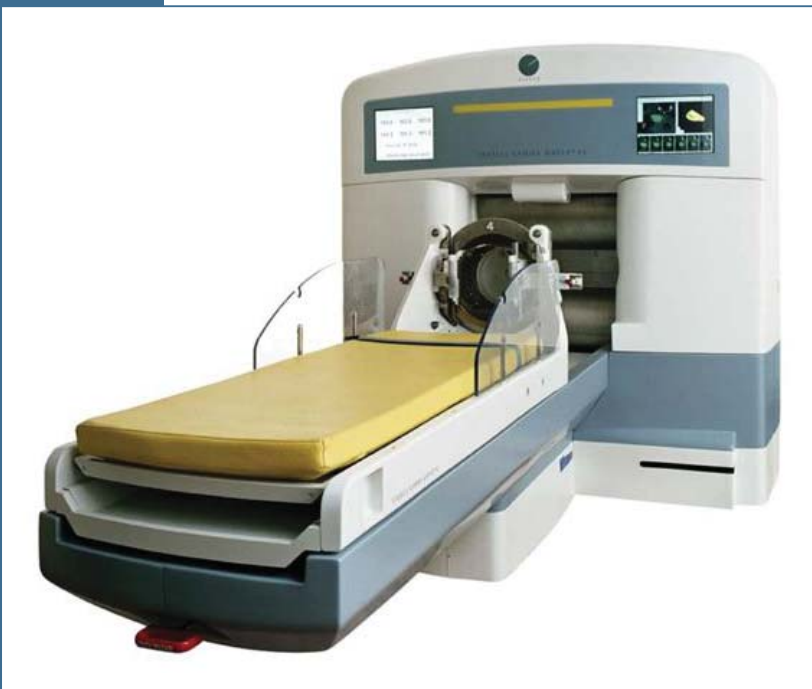
Access  
to the Exceptional

## What is Gamma Knife®?

Gamma Knife is a form of stereotactic radiosurgery or radiation therapy only used for the brain. The “blades” of the Gamma Knife are beams of radiation that are exactly focused on a tumor or site to destroy the cells where the beams come together. The Gamma Knife uses 201 beams of gamma radiation, these individual beams of radiation do not damage the cells they pass through, it is only when they unite at the target that they are powerful enough to destroy the tumor or targeted area. The reduction of a tumor or the thickening of the blood vessels (in the case of an AVM) occurs over time since there is not a removal of brain tissue. The Gamma Knife disrupts the ability of tumor cells to reproduce. In the case of fast growing tumors, results may be seen more quickly.

In order to determine the location in the brain to target, an MRI, CT scan, angiogram or combination are done prior to the procedure. The Gamma Knife computer analyzes the many images and a qualified, expert team comprised of a neurosurgeon,

radiation oncologist and medical physicist determine the dose of radiation and exact location to receive the treatment. Because the Gamma Knife uses radiation that penetrates the skull, an operation to open the skull and anesthesia are not needed.

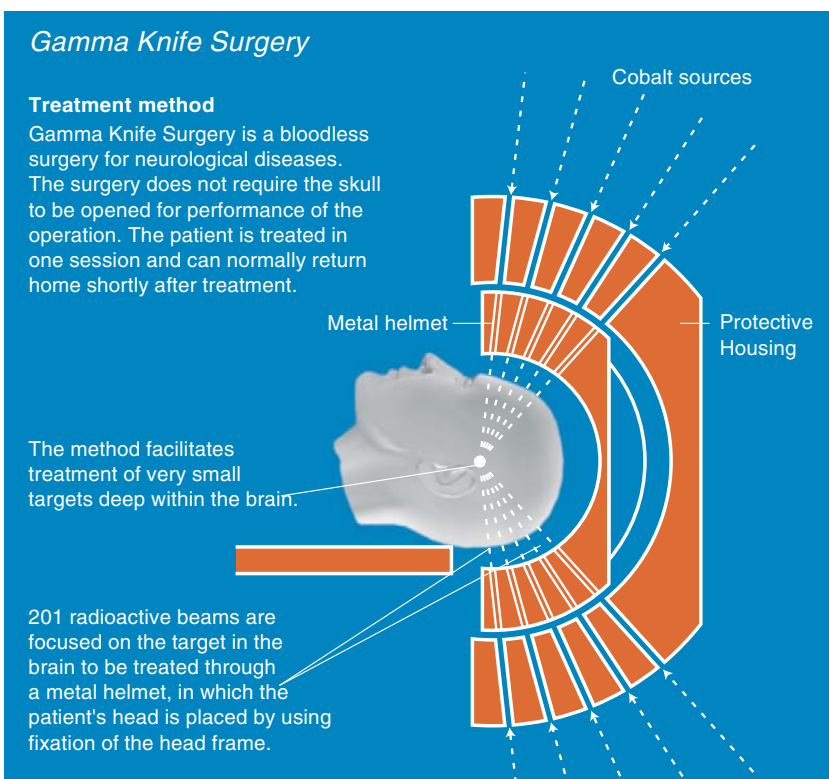


Surgical risks of bleeding, infection and injury to adjacent areas of the brain are eliminated.

Specialists at the Illinois Gamma Knife Center use the Leksell Gamma Knife 4C. Gamma Knife is the gold standard in stereotactic radiosurgery of the brain. It is designed to treat a number of neurological conditions, including benign, malignant and metastatic tumors, as well as arteriovenous malformation and trigeminal neuralgia. Gamma Knife is an extraordinary tool that reaches deep inside the brain to treat areas that are inaccessible in traditional open surgery.

Gamma Knife surgery has been used clinically for more than 30 years. In the past decade, improvements in brain imaging have made this procedure more common. 2,500 medical and scientific publications have described the Gamma Knife's benefits and superior clinical outcomes. Most types of insurance cover the procedure. The cost of the Gamma Knife procedure is often 25%–30% less than traditional neurosurgery.<sup>1</sup> Use of the Gamma Knife eliminates long hospital stays, extended recovery times and complications seen with open cranial surgical procedures.

<sup>1</sup> [www.irsa.org](http://www.irsa.org)



## Advantages of Gamma Knife

Because Gamma Knife surgery is non-invasive, it offers many advantages over open cranial surgery. They include:

- Reduced risk of bleeding and infection.
- Procedure completed in one day, usually without an overnight stay in the hospital.
- Ability to return to daily activities quickly.
- Allows for the treatment of tumors or areas that are otherwise inoperable.
- An option for treatment of high-risk patients who, for reasons of illness or advanced age, cannot undergo an open cranial operation.
- May be used before or after traditional neurosurgery to further decrease the likelihood of tumor re-growth.

## What Happens Before the Procedure?

Prior to the Gamma Knife treatment day, you will have met with the neurosurgeon and radiation oncologist in their office or in the Gamma Knife suite. You may be interested in seeing the Illinois

Gamma Knife Center suite prior to your treatment day, this can be arranged by our Gamma Knife nurse to better prepare you for the experience.

A complete history and physical needs to be completed prior to the procedure. Your medical doctor, neurosurgeon, radiation oncologist or nurse practitioner can do this. Any blood tests that

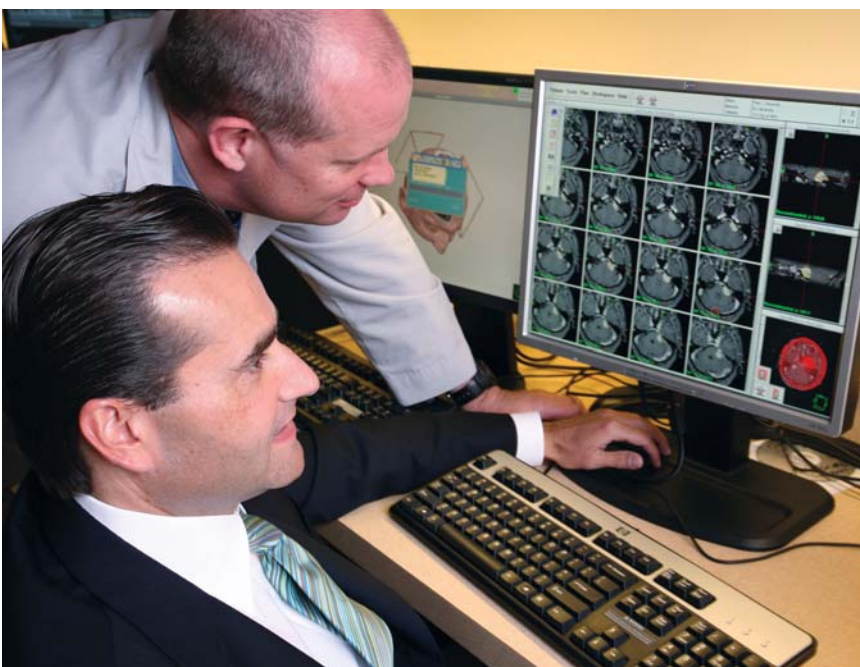
are required can be completed at the time of the history and physical exam or about a week prior to the procedure.



The night before the procedure, do not eat or drink anything after midnight. If you are taking prescription medications, please take them in the morning with a small sip of water. The Gamma Knife nurse will need to know what medications you have taken that morning.

Once you arrive, the placement of a lightweight head frame will be applied to your skull with four small “pins” after the area is numbed with a local anesthesia. The frame gives the physicians and physicist exact markings for matching your brain structures to the images from the MRI/CT/angiogram.

You will proceed to the diagnostic area for the appropriate imaging (MRI, CT or angiogram) before coming to the Gamma Knife suite.



## What Happens During the Procedure?

The Gamma Knife process is quick and painless. With the frame in place, you will lay on the Gamma Knife “couch.” The couch is a movable table that holds the frame (and thus the head) motionless in a large, metal cylinder-type helmet. The helmet contains the precise holes that will allow the radiation source to penetrate the skull, by up to 201 different angles. The couch will move you into position once the beams of radiation are ready to be delivered. Your physicians and nurse will be watching you via cameras during the duration of the treatment. You will be awake and can talk to the staff throughout the procedure. You may bring a CD and listen to music while receiving the treatment. The procedure may last a few minutes to less than an hour, depending on the location and number of doses needed.

## What Can I Expect After the Procedure?

After the treatment, the head frame is removed. You may have a slight headache, minor swelling, numbness or tingling sensations where the frame was attached. These are normal feelings and will subside over time. If you required an angiogram prior to the

Gamma Knife, you may need to remain flat in the recovery area for a bit longer to ensure there are no side effects from that imaging study.

Your doctor will determine if you can go home or if you need to remain in the hospital for observation. If you require an overnight stay, you will be



admitted to the Neurosciences Unit, where specially trained nurses will care for you until discharge. If you are discharged the same day, plan to have a family member or friend drive you home.

Discharge instructions will be provided and your physician will monitor your response to treatment in follow-up visits. Additional imaging at regular intervals will be necessary to monitor your response to the Gamma Knife treatment.

## Location

The Gamma Knife procedure is performed at the Illinois Gamma Knife Center, located in the ground level of the Eberle Medical Office Building on the campus of Alexian Brothers Medical Center in Elk Grove Village, Illinois.

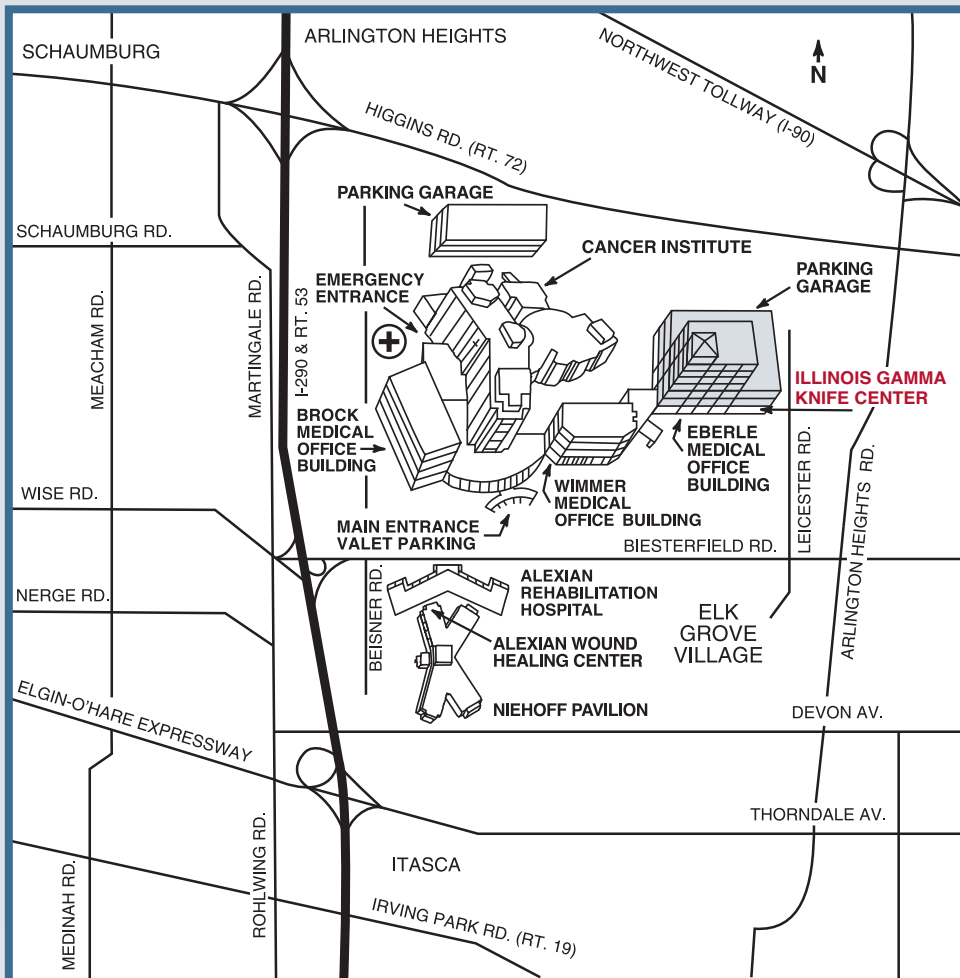
## For More Information

For more information on the Illinois Gamma Knife Center at Alexian Brothers Medical Center, visit our website at [www.igkc.org](http://www.igkc.org), or call **847.956.5428**.

The Alexian Brothers Neurosciences Institute provides a comprehensive range of services for patients impacted by neuro-based illnesses, including neurology, neurosurgery, adult and pediatric neuropsychology services, interventional neuroradiology and neuropsychiatry. For more information on the Alexian Brothers Neurosciences Institute, call **888.365.5240**.



## Illinois Gamma Knife Center on the Alexian Brothers Medical Center Campus



The Illinois Gamma Knife Center is located in the ground level of the Eberle Medical Office Building on the campus of Alexian Brothers Medical Center in Elk Grove Village, Illinois.

**For more information on the Illinois Gamma Knife Center  
at Alexian Brothers Medical Center, please call:**

**847.956.5428**

**or visit our web site at:**

**[www.igkc.org](http://www.igkc.org)**

*For more than seven hundred years, the Alexian Brothers have cared for the sick, the aged, the poor and the dying. The basic Judeo-Christian beliefs that inspired the founders of this Catholic religious congregation sustain its ministry today. This heritage is espoused by the governance, management and entire health care team throughout Alexian Brothers Health System in their mutual commitment to promote the physical, mental, spiritual and social well-being of all individuals served through the health care ministry.*

*Alexian Brothers Hospital Network carries out the healing mission of the Catholic Church through the Alexian Brothers ministries by identifying and developing effective responses to the health and housing needs of those we are called to serve.*



**ALEXIAN  
BROTHERS**  
HOSPITAL NETWORK

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