

SACRED HEART HOSPITAL

SMART OR™

FREQUENTLY ASKED QUESTIONS

What is the Smart OR™?

The Smart OR (operating room) is an innovative neurosurgical suite designed for both surgery and diagnostics for brain, spine and trauma patients. It offers the most sophisticated neurological imagery and mapping technologies, equipping surgeons with the highest level of precision and accuracy for the complete removal of tumors of the brain and spine. The Smart OR is capable of supplying real-time information during surgeries with an iMRI (intra-operative magnetic resonance imaging). Eventually, an iCT (intra-operative computed tomography) – which provides a series of X-ray pictures of internal body tissue and structures taken from many different angles – will be added to the Smart OR configuration. The outcome with this technology is removing tumors completely, ensuring proper placement of spinal screws and reducing recovery time and the need for additional operations.

Why is the Smart OR technology important during surgery?

One component of the Smart OR is the iMRI, which provides real-time imagery during an operation enabling Sacred Heart Hospital neurosurgeons to precisely locate a tumor and remove it completely. Prior to this technology, standard MRI scans could only be done pre and post surgery. The iMRI, integrated with other technologies in the Smart OR, allows neurosurgeons to access real-time images of their progress during complex brain and spine procedures to determine if a tumor is fully removed before concluding surgery or to ensure proper placement of a spinal screw during surgery.

Why is the operating suite named Smart OR?

Sacred Heart Hospital refers to the neurosurgical operating suite as a Smart OR because of its technological configuration of many advanced components working together to deliver the highest level of care available. It is “smart” – often regarded as the operating room of the future – because it allows surgeons to see beyond what is capable of the human eye with special tools and real-time imagery.

What are the components of the Smart OR?

Sacred Heart Hospital’s Smart OR consists of a number of very sophisticated imaging and mapping tools that work together to provide the highest levels of surgical precision and accuracy. The primary component is an iMRI scanner that houses a six ton magnet. The ‘i’ in iMRI stands for intra-operative, meaning the MRI scanner is located within the operating room and used for imaging before, during and after surgery. In this minimally-invasive procedure, the iMRI moves to and from the patient to capture images as the operation progresses. Another key element is the VectorVision Sky, considered the global positioning system (GPS) for the brain, which monitors and documents every aspect of the procedure with high definition images. It is useful in minimizing disruption to areas not affected by the tumor thereby reducing trauma and facilitating faster recovery times. In addition, images are captured with the Smart OR’s high magnification Zeiss OPMI Petro C Microscope, which helps Sacred Heart Hospital neurosurgeons clearly see as they navigate through sensitive areas of the brain and spine while operating. This real-time information is gathered and organized via a surgical mapping system, called the BrainSUITE®, which stores all the images so they can be referenced at any time and projected, within seconds, on flat screens mounted in the

operating room. There also will be an iCT component eventually installed as part of the Smart OR at Sacred Heart Hospital, which will provide high resolution images needed to perform additional types of complex spine and trauma surgeries.

Does any of the Smart OR technology get in the neurosurgeons' way while operating?

All components of the Smart OR are helpful, not hindering. The technology is accessible as needed. For instance, if a MRI scan is needed during the operation, the iMRI is mobile and can be brought to the patient. Once the image is captured, the iMRI can be moved out of the way, returning to its designated "garage" in the Smart OR suite. Images can be called up on flat screens mounted in the operating suite as desired by the surgical team, for easy, fast access.

Why is the Smart OR beneficial for patients?

Dr. Kamal Thapar, MD, Marshfield Clinic neurosurgeon and director of the Brain & Spine Institute at Sacred Heart Hospital, identifies the Smart OR as a quantum leap forward in the way surgery is performed. The Smart OR brings together real-time, high definition images and mapping technology to provide the surgical team with unmatched precision to remove tumors more effectively than ever before. Prior to the iMRI technology, patients had to undergo a standard MRI scan after surgery to determine if the surgery was a success or if additional follow-up surgery was required. With the Smart OR, surgery progress is monitored as the operation happens, which helps ensure success. The Smart OR reduces trauma, leading to a faster recovery time and shorter hospital stay. It also reduces risk of various complications, especially the need for additional surgeries.

Why did Sacred Heart Hospital choose the Smart OR technology?

Sacred Heart Hospital puts its patients first, so when it came to bringing in tools to help surgeons with brain and spine surgeries, the hospital chose to acquire the most advanced technology available anywhere. The Smart OR provides specialized technology so patients from Eau Claire, Wisconsin, and the surrounding Chippewa Valley region do not have to travel far distances for the ultimate care they deserve. The Smart OR ensures the highest quality of care with optimal patient safety, surgical precision, patient comfort and outcome. It offers excellence close to home, providing convenience for patients and their families.

Why is the Smart OR a priority for Sacred Heart Hospital?

Sacred Heart Hospital's commitment to providing high quality care means practicing medicine with the latest, most advanced technology. Sacred Heart Hospital employs a calculated, yet aggressive, approach to identifying strategies and tactics that bring the best possible care, housed in the latest technology, to its patients. The combination of the technologies that comprise the Smart OR supports this commitment for its brain, spine and trauma patients. In addition, the Smart OR is just one example of the types of investments Sacred Heart Hospital is willing to make to offer patients in the Western Wisconsin region convenient access to the highest quality care and latest technology. Sacred Heart Hospital believes all people should have access to specialized care and should not have

to travel far from home to receive that care. Patients' needs come first at Sacred Heart Hospital, serving the sick, aged, poor and terminally ill without regard to race, color, creed or national origin.

Is the Smart OR technology common?

No. The technology housed in Sacred Heart Hospital's Smart OR is not standard at most hospitals, and is typically found only among elite, academic medical centers. Sacred Heart Hospital is the first hospital of its size to have a BrainSUITE with the IMRIS iMRI operating suite and eventually the iCT operating suite; and it is the first hospital in the country to use this unique configuration for both surgery and diagnostics. Furthermore, Sacred Heart Hospital is one of only six hospitals in the U.S. – and one of only 17 hospitals in the world – to offer BrainSUITE and IMRIS iMRI technology.