

GE Healthcare

# MR SURGICAL SUITE

MR-guided surgery.  
Precision with the versatility you require.



# OPEN THE DOOR TO MRI.

AND KEEP THE OPERATING ROOM YOU KNOW.

More than likely, you already value the detail provided in an MR image for your surgical planning. Imagine the impact that detail could bring to your surgery if it were available for mid-procedure updates. Especially for neurosurgery, where brain shift can affect even the most carefully planned pre-surgical strategies. A mid-procedure scan means you can identify residual tumor before the operation is over. That means you can make corrections right away, helping reduce the need for repeat procedures, and giving you greater certainty in the outcome of your surgery.

Our solution is a combination of key technological advancements that allow us to customize the MR Surgical Suite to meet the specific needs of your facility. Like our single-step transfer system equipped with the Mayfield® Skull Clamp by Integra LifeSciences, which allows us to keep the MR and OR environments separate, without restricting your surgical positioning or operating room environment. And Silent Scan, which makes our specific neuro scans no louder than background noise. A quiet MR sequence combined with a mobile transfer system means you have options. Not only for how you want to integrate your MR system into your facility, but for your clinical capabilities as well.

## MR Surgical Suite features

- 70 cm 1.5T or 3.0T MRI system
- Single-step iMRI table
- GEM Suite diagnostic capability
- MAQUET surgical tables
- Mayfield Skull Clamp
- Expression MR wireless patient monitoring
- Integration expertise







# THE IDEAL PATIENT TRANSFER SYSTEM.

## PRECISION IN MOTION.

Our single-step iMRI transfer system is the backbone of our MR Surgical Suite. Not only does it give you the safety of keeping your OR and MR environments separate, it allows you to preserve the integrity of the operating room with minimal disruption to the patient, operating room staff and your surgical procedures. With our iMRI technology, patients remain on the same transfer board throughout the entire procedure from pre-op to post-op.

For mid-procedure scans, the iMRI express patient table is brought in and docked directly to the surgical table, a process that takes all of 30 seconds, without having to lift the patient. Because our Discovery<sup>®</sup> MR750w and Optima<sup>®</sup> MR450w systems have a 50 cm field-of-view, there is no guesswork or repositioning involved while getting your patient into the field-of-view for imaging. Once the imaging is complete, the patient is re-docked to the surgical table and the images are transferred directly to the navigation system for quick re-registration. With this kind of capability, it's as though the patient never left the operating room.



### MAQUET MAGNUS surgical table

The MAQUET MAGNUS surgical table is a multi-purpose, three-section table for flexible use and superior positioning. It includes MR and X-ray-compatible interchangeable docking and transfer board technology and is available in a fixed or mobile column base.



### iMRI express patient table

The express patient table is an iMRI surgical transfer table designed specifically for iMRI. The table docks directly to both the surgical table and the MR system for simple, controlled, patient transfer that doesn't affect the OR environment.

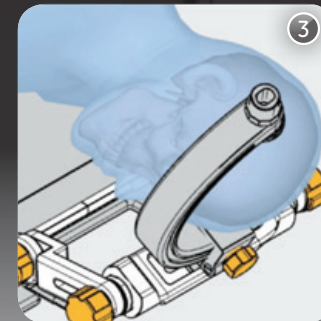
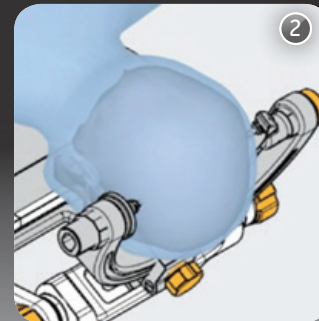
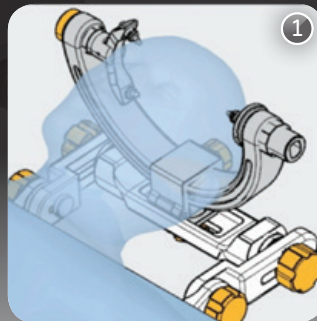




### Mayfield Skull Clamp

The Mayfield Skull Clamp is a three-point fixation device exclusive to GE that is compatible with both MR and X-ray imaging. It allows seven degrees of freedom and access to supine, prone and lateral positions for optimal placement of adult and pediatric patients. Its navigation arms are detachable for an open architecture design that integrates easily with multiple manufacturers' navigation systems.

- ① Supine
- ② Prone
- ③ Lateral





# ONE SOLUTION.

## MULTIPLE POSSIBILITIES.

We don't believe incorporating an MR into your facility should interfere with other spaces. It shouldn't complicate or compromise the procedures and environments you've already established. We believe that technology should be practical and adaptable so that it works with your environment and not the other way around.

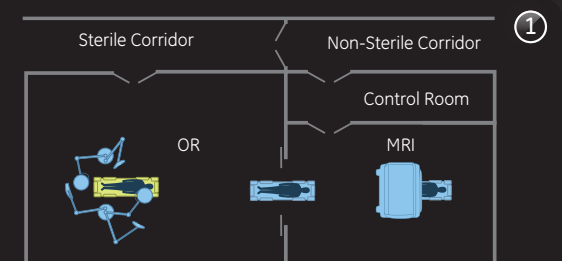
The MR Surgical Suite offers much more than an MR in an OR environment. Our patient transfer system is independent from the MR and OR environments it moves between. It doesn't run along a fixed track requiring the MR system to be directly in line with the surgical table, or interfere with the sterile, laminar airflow above the patient. That means both the OR and the MR environments function independently. This eliminates infrastructure limitations, so they can be a shared resource for your other surgical and radiology needs and ultimately lowers the expense of this essential capability. We'll help you choose from a variety of layout options and plan your room setup, ensuring that you get the most out of your system. That way your bottom line can remain just that, a line, and not a limit.

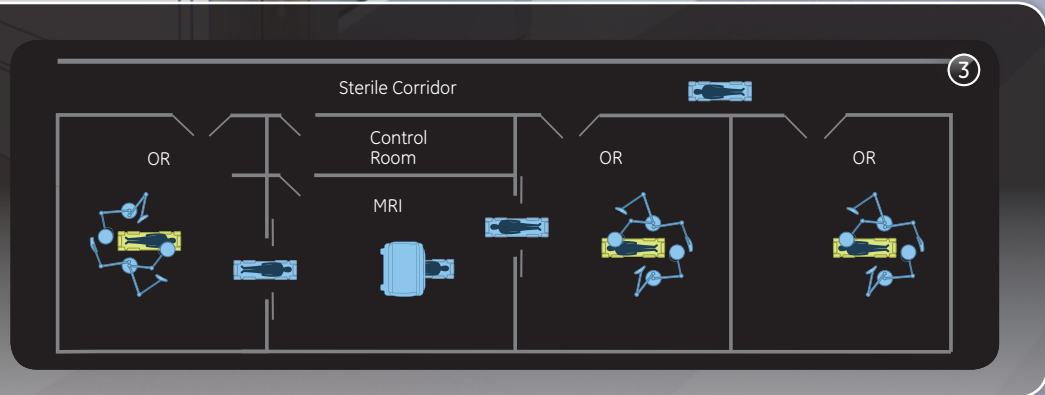
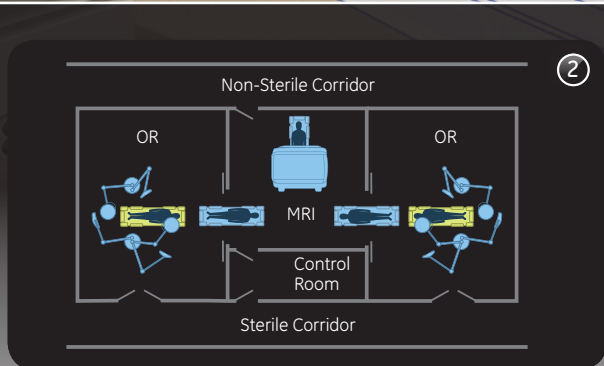


### Flexible layout options

Flexible layout options allow your surgical suite to grow with you and adapt to your changing needs. The standard MR-OR design allows for independent use of the MR room and the operating room for maximum utilization and return on investment. Real potential lies with the opportunity to extend your imaging capabilities to diagnostic needs and interventional applications or to expand it to service multiple ORs.

- ① Single-room layout
- ② Dual-room layout
- ③ Multi-room layout









### **Flexible coil positioning**

The MR Surgical Suite provides flexible coil positioning for iMRI and other diagnostic imaging use. It offers flexible phased array design with multiple elements and channels that accommodate the precision needed for iMRI scans. The results are higher resolution, high-SNR images without compromising patient positioning.





# CARING DESIGN.

## INSIGHTFUL TECHNOLOGY.

Our MR Surgical Suite doesn't give you access to just any MR system. It comes with the same Discovery MR750w and Optima MR450w systems used for the most advanced clinical imaging, including the capability for expert-level neuro and body suites of applications. It's the best of both worlds, providing a shared resource model that can keep your scanner working full time on routine diagnostic scans, and keep your neurosurgical services at the forefront of the industry with access to advanced iMRI capabilities. And, with Silent Scan, it's quiet too. Silent Scan technology means you can use select sequences without disturbing sensitive surgical operations next door, like deep brain stimulation procedures or complex tumor resections. Combined with our flexible room layouts, it's powerful technology that can both enhance your surgical operations and expand clinical capabilities today and in the future.

### **Intuitive applications**

The MR Surgical Suite is fully equipped with advanced MR applications. You get diagnostic powerhouses like PROPELLER 3.0, which reduces the effect of patient movement and critical neuro apps like Cube, which replaces 2D scans with a single 3D volume scan for superior images of hard to scan anatomies like temporal lobes, cerebellum, and deep mid-brain structures.

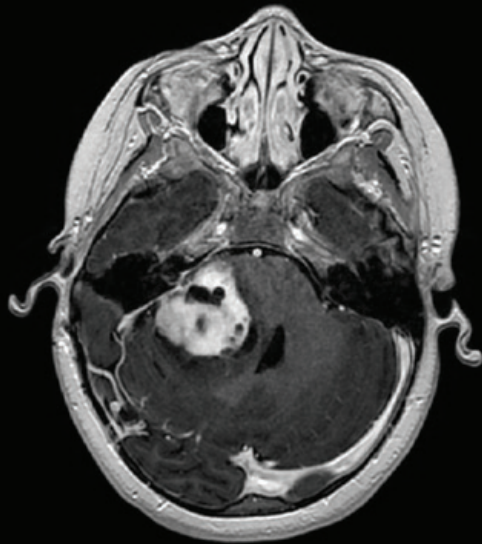
### **Silent Scan**

Combining a new 3D scanning and reconstruction technology called Silenz with our high-fidelity MRI gradient and RF system electronics virtually eliminates the noise associated with neurological scans. Sound is reduced from the typical 110 dB to just a little louder than background noise. Surgeons can comfortably work even with scans in progress next door.

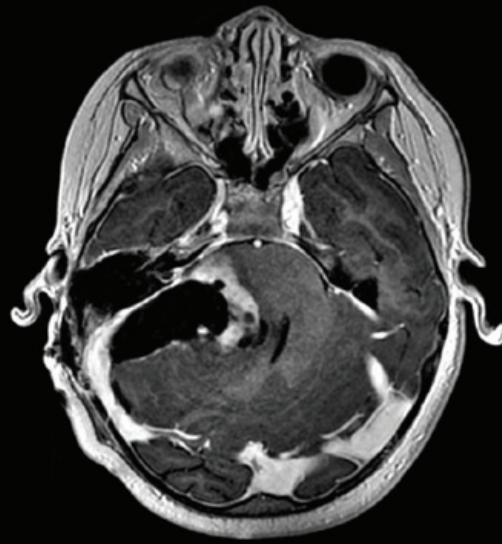
### **Usable field-of-view**

Our 70 cm flared, open bore design with a large 50 x 50 x 50 cm field-of-view results from excellent magnet field homogeneity and superb spatial accuracy within the images. This means you have more flexibility in positioning iMRI patients and acquiring even the most challenging images.

# INTUITIVE APPLICATIONS.



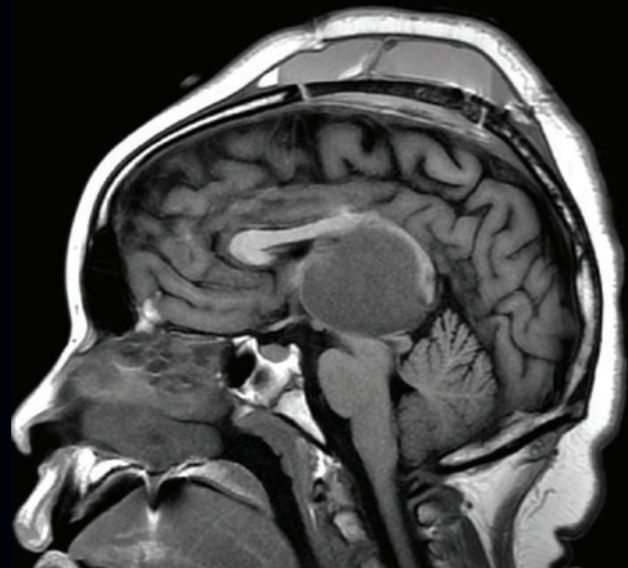
Pediatric case 1  
Pre-operative



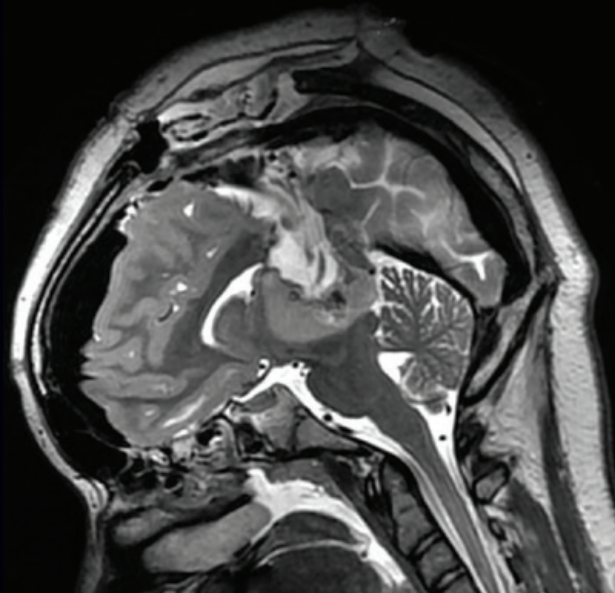
Intra-operative 1st resection



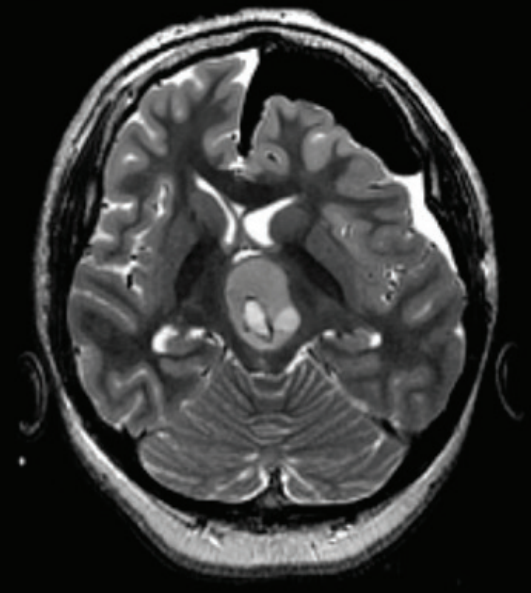
Intra-operative 2nd resection



Pediatric case 2  
Pre-operative

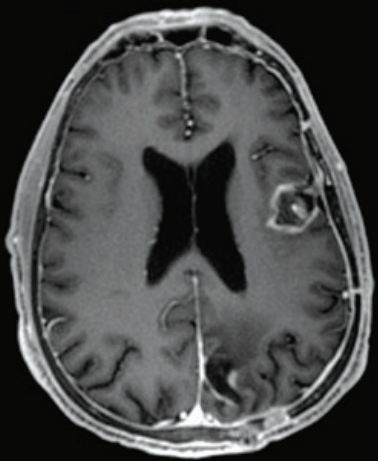


Intra-operative



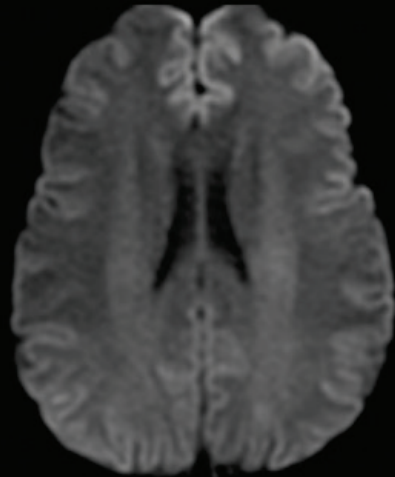
Post-operative





#### Silent Scan

Silent Scan 3D, Isotropic, T1 acquisition with 3 mm Axial reformat



#### eDWI

eDWI with tetrahedral diffusion encoding allows imaging with shorter TE's, thus reducing susceptibility and preserving SNR



#### FiberTrack

Visualizes white matter trajectories in the brain and generates colored orientation maps as well. The eXtreme gradients enable the ability to capture exquisite DTI outputs.



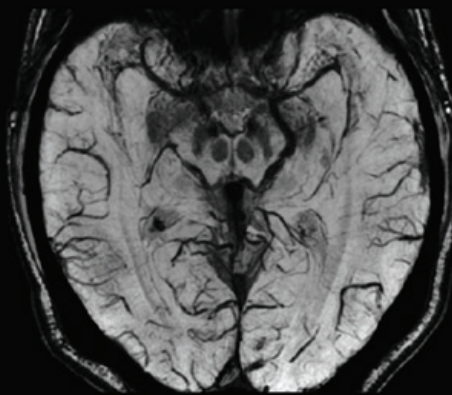
#### Inhance 3D Velocity

High-resolution, fast, non-contrast imaging of the arterial and venous structure in the brain



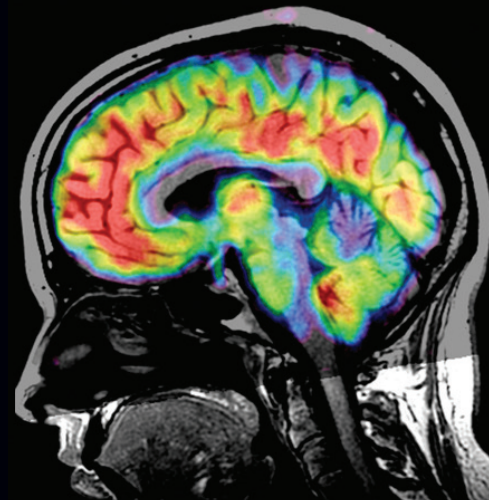
#### Cube

3D FSE-based sequence for isotropic resolution in all contrasts (T1, T2, & T2 FLAIR)



#### SWAN

High-resolution visualization and delineation of small vessels and microbleeds



#### 3D ASL

Non-contrast, whole brain, quantitative perfusion assessment



#### PROPELLER 3.0

Enabled for T1 FLAIR, T2, T2 FLAIR imaging in all planes, Axial DWI for brain, T2-weighted imaging

# GO FURTHER.

## WITH A NEW STANDARD OF CARE.

We know how important being at the forefront of technology is for you because it's important to us. Twenty years ago we were the first to bring MR into the OR with the first ever intra-operative surgery being performed on one of our systems. Now we have brought them into balance, continuing to push the limit of MR capabilities beyond radiology to MR-guided surgeries, radiation therapy planning, ExAblate® O.R. MR-guided focused ultrasound (MRgFUS), and other noninvasive procedures. And because our MR Surgical Suite comes with an upgradable MR system and a variety of MR-compatible tables, you will be ready for a bright future with MR.

With the largest fixed iMRI installation base, we've enhanced our training and service options along with the technology. Not only will our team help you design, plan and integrate the layout of your MR Surgical Suite, we will continue to provide you with Continuum\* Pak options and select no-charge FMI enhancements to keep your systems and application capabilities up to date, ensuring you get the most out of your investment. Safeguard the future performance of your MR system with our latest digital services to help fix issues fast and stop problems before they happen.



### **InSite\***

InSite remote digital services enable us to reach out over broadband connections to understand and care for your critical equipment.



### **InSite OnWatch**

InSite OnWatch proactive technology can help avoid unplanned downtime by identifying service issues before they occur – even before you know anything is wrong.



### **iLinq\***

iLinq allows you to request applications support and also receive a quick response from our technical experts, all at the touch of an on-screen button.







#### About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world.

GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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imagination at work

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