

# in a league of its own

Neurosurgery Department offers unparalleled features

by Sarah Padilla



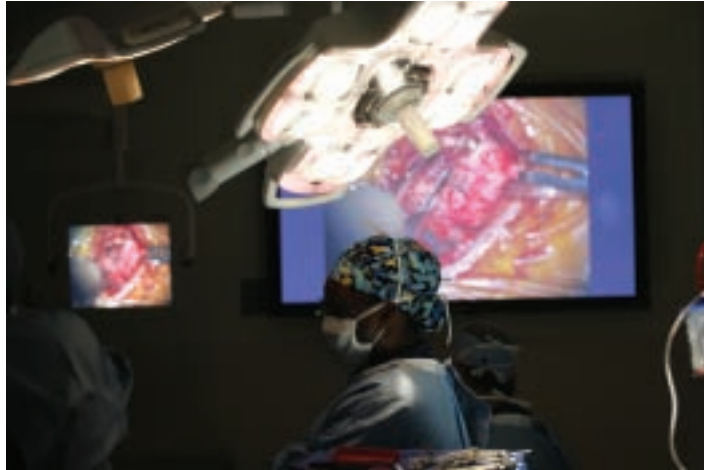
“We're thrilled with the move into this beautiful new facility. I've been at Barrow for 16 years. Finally, the look of our building matches Barrow's reputation in the community and around the world.”

Terry Maxwell, RN, BSN, manager of Neurosurgery Dept

When you're standing at the nurses station of Barrow's new Neurosurgery Department, it's easy to see why the staff was so eager to make the move into the spacious unit. The previous cramped nurses station and narrow, crowded hallways have been replaced with wide, pristine walkways, ample storage space, new offices and a conference room.

What the view from the nurses station doesn't offer, though, is a glimpse into the 11 most technologically-advanced neurosurgical operating suites in the world. Aside from a significant increase in space—the suites range in size from 650 to 750 square feet, about twice as large as the previous rooms—the operating suites boast several surgical firsts, especially in terms of informatics and imaging capabilities.

“Our new neurosurgical operating rooms provide the best facilities for performing delicate operations found anywhere in the world,” says Robert Spetzler, MD, director of Barrow. “I consider our new Barrow Neuroscience Tower to be the Taj Mahal of neurological institutions.”



Giant plasma screens in each surgical suite can display what the neurosurgeon sees under the operating microscope.



### Improved safety and efficiency

All of the operating rooms share some impressive features. For example, all of the monitors and all of the surgical and anesthesia equipment are stored on booms, storage devices that are suspended from the ceiling. The cords and wires run through the booms, eliminating the need to have anything on the floor and creating a safer, cleaner environment.

Another feature that boosts efficiency: every room feeds into one of two employee-designed sterile core areas where supplies are kept for easy access. One area accommodates supplies for craniotomies, while the other stores supplies for spine cases.

A 15-panel screen sits behind the nurses station, giving staff a bird's-eye view of what's happening in each surgery suite. Another large screen includes patient information for each case, including who is working on the case and any special notes. The computerized system is a far cry from the old unit's magnetic and dry-erase marker white boards.

### A "super-cool" room

Because Dr. Spetzler has helped pioneer the cardiac standstill, performing more of the complex procedure than anyone else in the world, one suite is equipped with a powerful refrigeration unit that can cool the room to 55 degrees in just three minutes. Another suite, still under construction, will offer radio frequency (RF) shielding for cases involving deep-brain stimulation.

Barrow is the first surgical facility in Arizona to use the most up-to-date Zeiss operating microscopes with built-in diagnostic capabilities. The newer microscopes are capable of not only seeing what's in the surgical field, but also of integrating information and data from other sources into the view screen. Every room also offers Medtronic image-guidance capability.

At least two giant plasma screens hang on the walls of every surgery suite. The screens can display virtually any type of medical imaging, ranging from the current view under the microscope to a patient's previous MR scan to a real-time image from another suite.

### MedPresence capability

Two suites are each outfitted with three plasma screens, taking the real-time concept to another level. These rooms are part of Barrow's revolutionary MedPresence system, a \$1.1-million video-conferencing system that provides an unsurpassed view of a Barrow operating room from the comfort of leather chairs in a conference room on the other side of campus. Observers, who may include neurosurgery residents, visiting neurosurgeons or business executives touring the facility, can watch live audio and video from a surgery suite and can even converse with the staff. From a teaching standpoint especially, this technology is revolutionary.

"Our mission is to raise the bar of knowledge in the neurosciences, and MedPresence is one way we can



Above, an intraoperative 3T MRI is located between two surgery suites, allowing neurosurgeons to check their work before the end of an operation. Lower left, a 15-panel screen allows staff at the nurses station to keep track of what's happening in every surgery suite.

share the expertise and talents of our staff," says Phil Pomeroy, vice president of Neurosciences. "We're truly taking neurosurgery to another level."

Ultimately, Barrow hopes to expand on MedPresence by helping other medical centers around the world incorporate the technology. Already, Barrow has a portable unit that can be shipped to another site and linked via the Internet to the institute.

Another educational tool enables the staff to record surgical procedures through microscopes. The recorded information can then be used for educational purposes, whether for surgeons in training or for a consultation with a colleague. The technology is incorporated into the hospital's IT system, allowing physicians to share images via computers in their offices.

"The ability to use this shared expertise not only facilitates better care for the patient but also more efficient care," says Phil.

## World's first intraoperative 3 Tesla MRI

Modern neurosurgery is dependent on diagnostic imaging technology, and the new department offers some of the most advanced devices available, including the first intraoperative 3 Tesla (3T) MRI scanner in the world. The scanner sits in a room adjacent to two suites and can be used even in the middle of surgery to get the most accurate, up-to-date images possible.

The powerful magnet can provide views of tissue at a cellular level and even has the ability to view the vasculature of the brain.

The scanner includes specialized gurneys that allow patients to be transferred seamlessly from the operating table to the powerful MRI unit mid-surgery, even while still hooked up to anesthesia equipment. Thus, surgeons can check to see that they have removed as much of a tumor as possible, for example, while the patient is still in surgery.

Another piece of imaging technology that is currently on trial in the OR is a portable perioperative CT device. The device can be moved into a patient room immediately prior to or following surgery, as opposed to having to take a patient to a separate radiology unit. Similarly, an Iso-C 3D scanner, which has been in use at Barrow for close to a year, is a C-shaped device that provides three-dimensional images during spinal surgery.

Barrow has always been known for advanced patient care and state-of-the-art technology, but the new facility has propelled the institute into a league of its own. And everyone, patients and staff alike, will benefit.

"This technology not only gives us—and our patients—an added measure of assurance, but it will continue to open doors for even better approaches," says Phil. "Our surgeons now have the best possible opportunities to deliver the best possible outcomes. ■"