About four years ago, Lancaster (Pa.) General Hospital laid out $1 million for a portable device that would perform intraoperative magnetic resonance imaging, to please one neurosurgeon who wanted to see up-to-the-second images as he operated. But now that the neurosurgeon has left, the device is gathering dust.

“I didn’t think we did enough cranes (cranial surgeries) to justify it, and I was right,” says Stacey Youcis, assistant vice president for musculoskeletal and surgical services at the 521-bed hospital.

On the other hand, 734-bed Presbyterian Hospital of Dallas is putting up $8 million ($5 million of its own and the remainder from a generous donor) to outfit a new operating room with a built-in intraoperative MRI for minimally invasive neurosurgery. The BrainSuite system from BrainLAB USA is one of the first to be installed in the U.S. and Presbyterian’s state-of-the-art operating room will
Presbyterian President Mark Merrill expects the investment to break even within five years, and the equipment has a useful life of at least 10 years.

"We’ve had neuro as a key service line here for many years," he says. "We’re in a very competitive market, and we have to continue to differentiate ourselves in areas where we have depth and expertise. Our surgeons said if we were going to position ourselves as a leader, this was the way to go."

In any hospital, it’s hard to predict whether a major capital equipment purchase will be the salvation of the organization or a ruinously expensive doorstop. But surgical purchases are particularly tricky. New minimally invasive techniques emerge yearly, engendering a host of new gadgets for the surgeon’s wish list. Never mind the basic investment in scopes, monitors and control consoles. Should you spend $80,000 for a robotic arm to help place spinal implants? How about $600,000 for an image-guided system for sinus surgeries? Or $1 million for a surgical robot to do prostatectomies? Will the squeaky-wheel surgeon who wants a given item still be with you in five years? Will he have defected to another hospital that has bought him an even newer toy or will he have opened up his own competing surgery center?

And when is the right moment to acquire an innovative surgical tool?

"By the time research has validated the outcomes, it’s often too late to implement it and get the return on investment," says Giri Venkatraman, director of surgical services with consulting firm Sg2. Braver—or more foolhardy, depending on the perspective—institutions may already have claimed the territory. "Are you willing to not make money for three to five years, but be the only one who has something? Are you willing to take the risk that the technology won’t take off? The key is to pick a technology that you have a good feeling about."

The window closes quickly

Like computers, televisions or iPods, minimally invasive surgical equipment often has only a brief window before the next upgrade appears. The University of Chicago Hospitals opened its $135 million Comer Children’s Hospital in January 2004, with the very latest endoscopes in its operating rooms. "Now there are even newer models that have a greater density of fiber-optic cable," says Vice President of Surgical Services Allan Gray. "We have surgeons clamoring to replace devices that have been in service less than a year."

"Keyhole surgery" grows every year in volume, variety and popularity among patients. Overall statistics are hard to come by, because procedure coding doesn’t consistently distinguish between minimally invasive and traditional open surgeries. But laparoscopic techniques have nearly taken over cholecystectomy and gastric bypass procedures.

Many other standard procedures are being transformed as well. About 20% of appendectomies and 18% of inguinal hernia procedures are now performed laparoscopically, according to research firm Medtech Insight. Minimally invasive techniques are also becoming more available and accepted for joint replacement, spinal fusion, heart valve replacement, removal of pituitary tumors and other types of neurosurgery. The list is limited only by the considerable ingenuity of surgeons.

Smaller incisions, less pain, shorter hospital stays—the list of advantages is long. But from a hospital’s point of view, there’s one big disadvantage: higher overhead for equipment and disposables. Making those investments pay is not always easy, especially with equip-