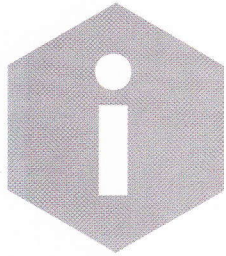


by Shari Held

The Power of Modern Medicine

Whether they're treating cancer or detecting signs of Alzheimer's, local hospitals and healthcare service providers offer groundbreaking ways to deliver the best in patient care

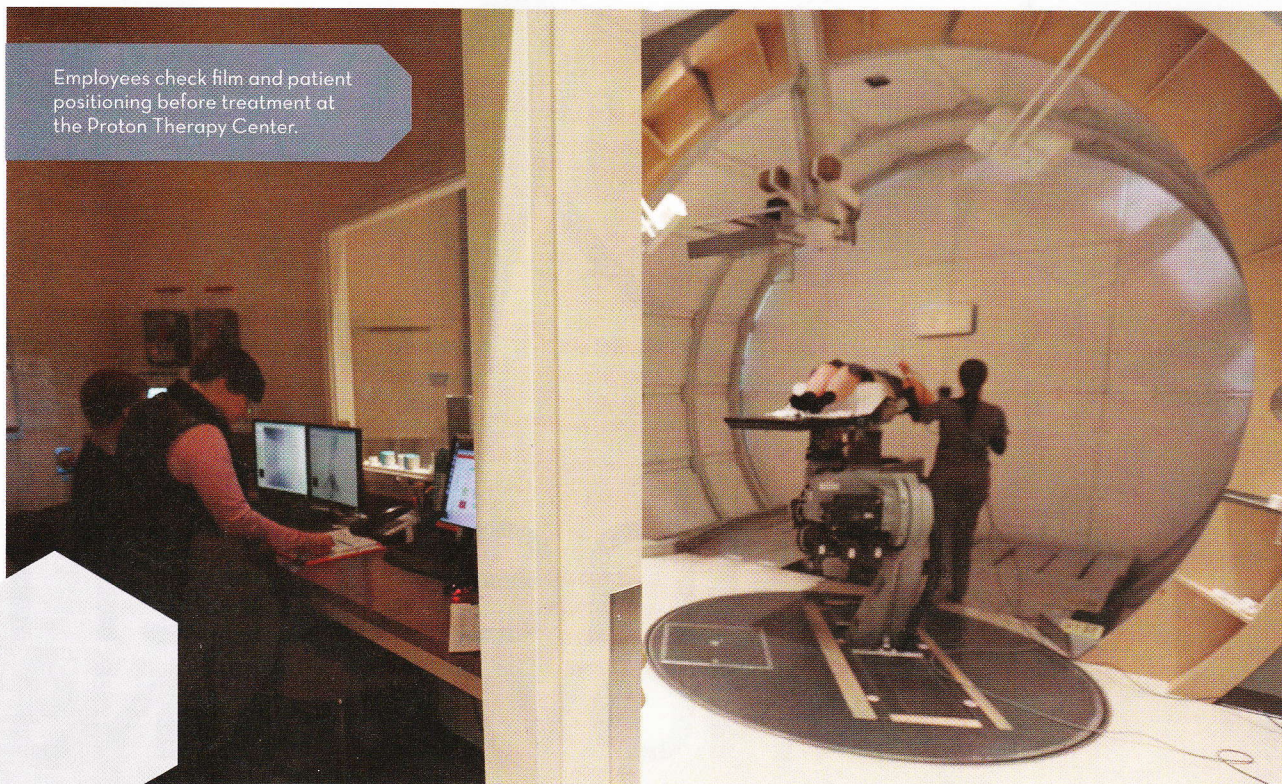


It seems like new innovations emerge in the field of healthcare just about every day—a promising pill to treat this, a never-before-seen test to detect that. So many make huge enhancements—even life-saving ones—to the care that's already available. Here are four being pioneered by area providers that have the potential to affect quality of life for thousands of people.

Using proton energy to blast tumors

Only 14 proton-therapy centers are open in the U.S., and even though the procedure is a viable treatment option for many kinds of tumors, it's unlikely that number will increase substantially. Why?

"To build a brand-new center is roughly \$150 million to \$250 million, depending on where you build it," says John Kerstiens, chief operating and financial officer for the IU Health Proton



Employees check film and patient positioning before treatment at the Proton Therapy Center.

PHOTO COURTESY INDIANA UNIVERSITY HEALTH PROTON THERAPY CENTER

Therapy Center in Bloomington. The number of treatment rooms also plays a factor in the overall cost.

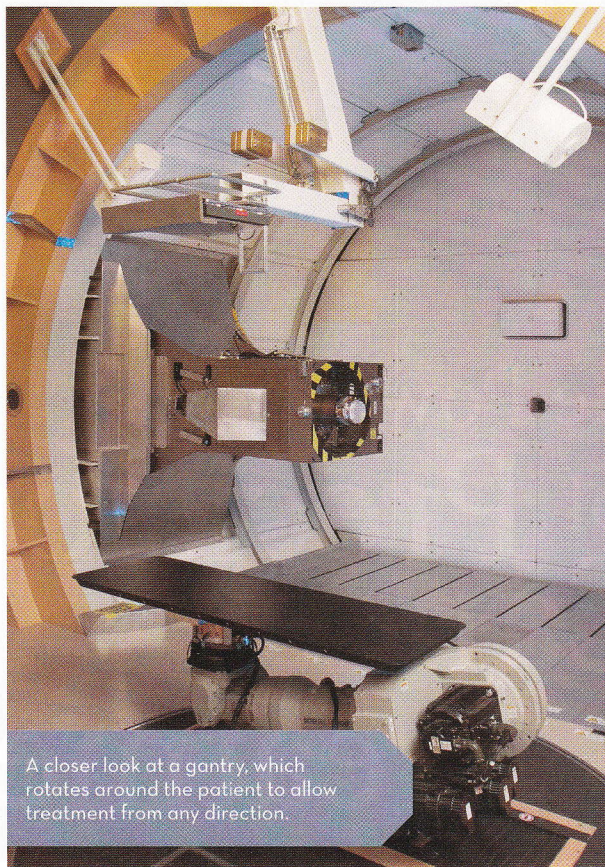
A partnership between IU Health and Indiana University, which owns the cyclotron that generates the proton beam, the center saw its first patient in February 2004. Though the facility uses the beam for an approved medical purpose, organizations like NASA and SpaceX rent the beam to test the effects of radiation on their equipment and technologies before they're sent into space.

Proton therapy dates back to the 1950s, but it wasn't until it was combined with 3-D imaging that the practice came into its own.

"What's so special about protons is our ability to deliver a very high dose of radiation directly to the tumor site," says Amanda B. Burnham, the center's director of marketing and development. "The radiation energy reaches its highest level, and it deposits that energy in that spot, and then it completely dies off. There's no exit dose."

That means healthy tissues and other structures surrounding the tumor are not harmed. Proton therapy is ideal for treating difficult-to-reach tumors in the head, neck, and at the base of the skull, and for treating pediatric tumors of all kinds. It's also an excellent option for prostate-cancer patients, for patients who have received other radiation treatments in the past, and for those with recurrent tumors.

The number of treatments needed varies by the type of tumor and area. The process is noninvasive and odorless, and



A closer look at a gantry, which rotates around the patient to allow treatment from any direction.

PHOTO COURTESY IU HEALTH PROTON THERAPY CENTER

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patients don't feel anything, Burnham says.

Patients can self-refer or have a physician referral. People come to the center from all over—Cincinnati, Chicago, Louisville, and as far away as South Africa.

"We even get referrals from other proton centers because we specialize in the very complex cases," Kerstiens says.

Currently, the center is conducting clinical trials in prostate cancer and Hodgkin disease, primarily in younger women, and trials in lung and breast cancers are under development.

◊ An out-of-the-box treatment for incontinence and overactive bladder

Botox isn't just for a pretty face. Last year it became Federal Drug Administration–approved for treating overactive bladder (OAB), which affects 15 to 20 percent of women.

Symptoms include urgency of urination, leakage, frequency of urination (more than seven times per day), and getting up multiple times during the night.

"The ideal candidate is someone who has not responded to medical management with medications, as well as conservative management with dietary modification, timed voiding, and physical therapy," says Sameena J. Rao,

M.D., a urogynecologist with Urology of Indiana.

During a 20- to 30-minute in-office procedure, a small scope is placed through the urethra into the bladder. Botox is then injected into the wall of the bladder in several locations. It causes the bladder to relax, increasing its storage capacity and decreasing episodes of incontinence.

The treatment needs to be repeated about every six months, and you'll know if it's going to work within a few days to a week.

"Botox can potentially work *too* well, and that can be a deal-breaker," Rao says.

After the procedure, 5 percent of women can't void and have to catheterize themselves for about two months until the Botox wears off.

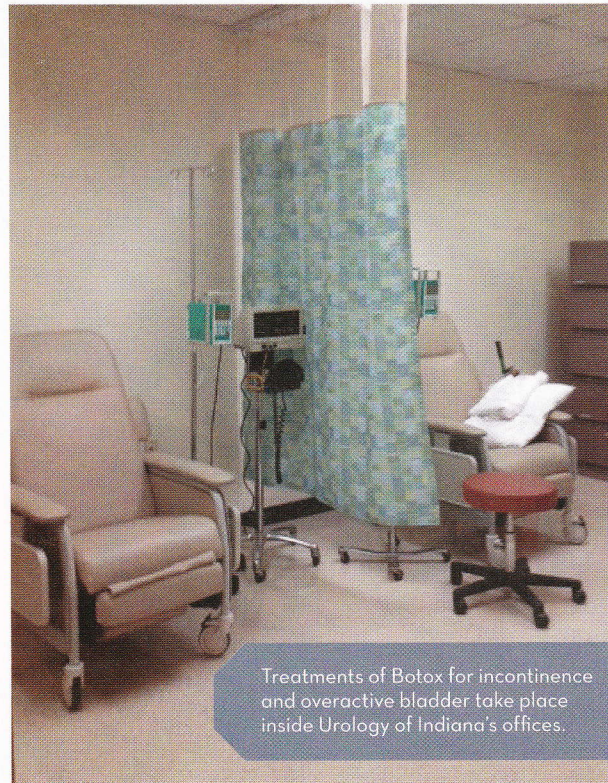
"But it's a good option for women who are willing to try something new without using a permanent device," Rao says.

"It's a good option for women who are willing to try something new without using a permanent device."

SAMEENA J. RAO, M.D., UROGYNECOLOGIST WITH UROLOGY OF INDIANA



Injectable Botox is now approved for treating bladder problems.



Treatments of Botox for incontinence and overactive bladder take place inside Urology of Indiana's offices.

"Before Botox, women didn't have that option."

If you'd rather pop a pill, consider asking about Myrbetriq, a new class of medications that was approved in 2012. It doesn't have the side effects of dry mouth and constipation like Oxybutynin, the old stand-by.

"Even when it worked, more than 50 percent of women stopped using it within a year," Rao says, adding that her patients have been very happy with Myrbetriq.

"This is a good time for OAB treatments," she says. "There are so many more options than there used to be. Women can now find something that is tailored for and works for them."

◊ Good news for patients with faulty heart valves and atrial fibrillation

Two innovations—the On-X aortic heart valve and the addition of the Maze IV procedure for atrial-fibrillation patients who are undergoing other heart procedures—have the potential to affect many heart patients' lives for the better.

Marc Gerdisch, M.D., chief of cardiovascular and thoracic surgery, Franciscan St. Francis Health Heart Center; co-director, Franciscan St. Francis Heart Valve Center; and co-director, Franciscan St. Francis Atrial Fibrillation Program,

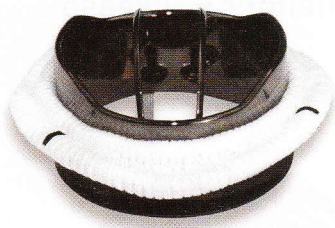
“No other valve offers all of these advantages.”

MARC GERDISCH, M.D., CHIEF OF CARDIOVASCULAR AND THORACIC SURGERY,
FRANCISCAN ST. FRANCIS HEALTH HEART CENTER

is the leading enroller in studies involving both innovations.

Warfarin (Coumadin), a powerful blood thinner used to discourage clot formation, can make the blood too thin, resulting in serious bleeding events. Mechanical valves require patients to use warfarin. But many younger patients have been opting for tissue valves so they don't have to take it. The problem is that tissue valves need to be replaced when they do not last as long as the person lives.

Furthermore, the younger the patient is when a tissue valve is implanted, the sooner the valve will fail. The On-X valve is made with a pure carbon coating and is specifically tailored for smoother blood flow to prevent clot formation. In addition, the design and the way it's implanted appear to prevent



The On-X model, a promising option for those needing heart-valve replacement.

pannus ingrowth, a known problem with valve replacements.

“No other valve offers all of these advantages,” Gerdisch says.

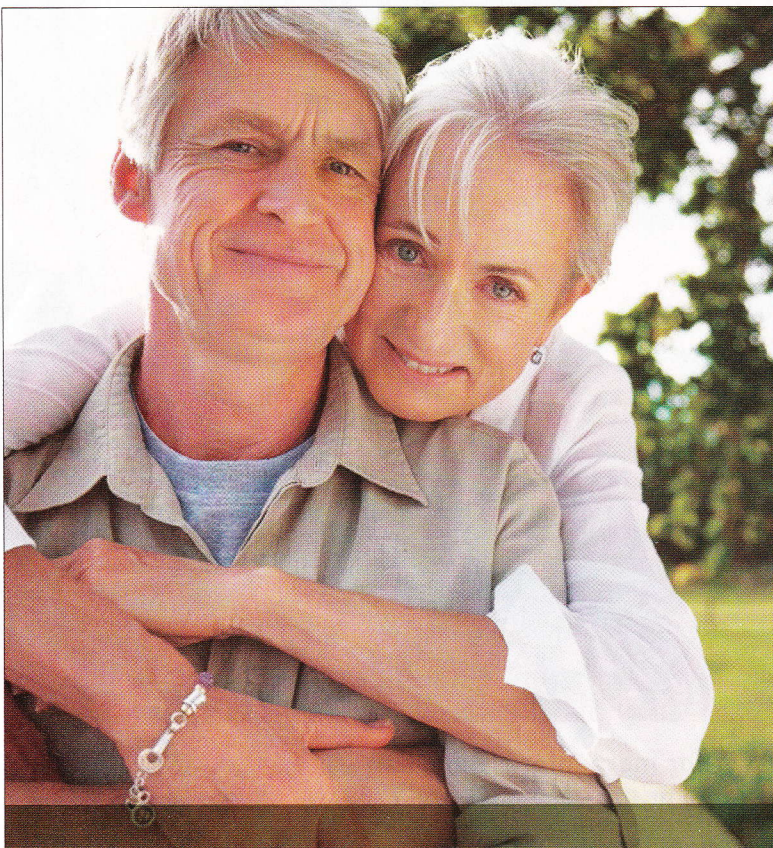
Studies with patients receiving the On-X valve who monitored their dose of warfarin at home found that the valve operated just as effectively on a much lower level of blood thinning. This means patients can now have a virtually indestructible mechanical aortic valve without taking high dosages of warfarin.

“It lessens their anxiety and their overall risk for a bleeding event,” Gerdisch says. “It's the first time we've been able to change the expectation with respect to a mechanical valve.”

The lower dose of warfarin has already been approved in Europe, and the same data has been submitted to the FDA.

Nearly 25 percent of valve-disease patients have atrial fibrillation (A-fib), or irregular heart rhythm. A-fib increases the risk of clot formation and stroke, so most patients take warfarin for life. About a year ago, the FDA approved the

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Marc Gerdisch of St. Francis is passionate about training other physicians on the Maze IV procedure.

Maze IV procedure and a clamp device to treat long-standing, persistent A-fib, the most difficult type to treat.

Today's Maze IV open procedure passes bipolar radio-frequency energy (heat) and cryo energy (cold) to scar the tissue of the upper heart chambers and inactivate the electrical circuits causing A-fib.

Gerdisch is the leading enroller in a study involving use of the Maze IV procedure in combination with other cardiac operations being performed for patients with A-fib.

"We have data that shows we are improving people's longevity and their quality of life substantially, and that we are not increasing their risk of surgery," he says.

The irony is that thousands of people who have A-fib have heart surgery to repair other problems and do not have the Maze IV to treat their A-fib. Part of the issue is that the Maze IV procedure requires special training. Gerdisch is making it a mission to train as many surgeons as possible nationwide so they're comfortable offering the procedure to their patients.

"If you have A-fib and are having heart surgery, at least

find out if you are a candidate for the Maze IV," he says.

○ New help with diagnosing Alzheimer's disease

Alzheimer's disease accounts for 50 to 80 percent of all dementia cases, according to the Alzheimer's Association, and is one of the most dreaded possibilities a patient and family can hear. Warning signs—memory loss, confusion on time and place, and difficulty completing familiar tasks—are also common to other cognitive disorders. Now for the first time in clinical practice, physicians can detect evidence of amyloid plaques, which are associated with brain degeneration.

In 2012, Amyvid, a new imaging drug produced by Eli Lilly & Company (Florbetapir F 18 injection), received FDA approval for use with PET-CT machines to scan the brains of adults being evaluated for Alzheimer's. Amyvid is injected intravenously. Physicians, who need specialized training to read these specific scans, determine whether plaque is present in the brain and how much.

"We have data that shows we are improving people's longevity and their quality of life substantially."

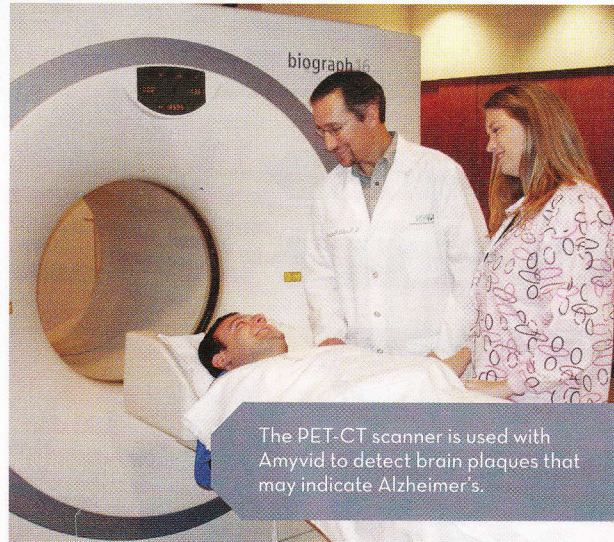
MARC GERDISCH, M.D.

“The prevalence of plaque may indicate a higher incidence of Alzheimer’s, but it’s not a definite diagnosis,” says Linda Wilgus, executive director of Northwest Radiology Network, PC. “The physician will use the scan as part of the overall diagnosis plan for the patient.”

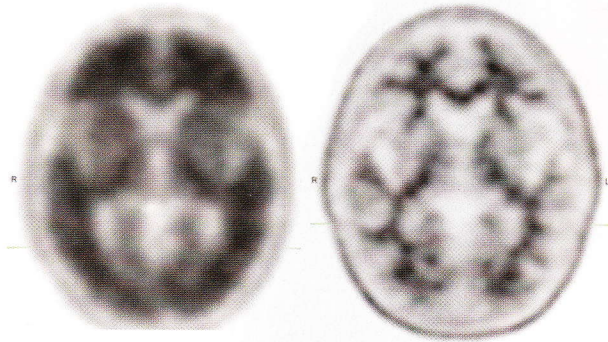
Northwest Radiology’s Meridian North Imaging Center, an outpatient facility, offers the test. The PET-CT scanner is also used to detect and stage cancer.

The procedure requires a physician’s referral and is not currently covered by insurance.

“Whether or not to have the test is a case-by-case decision among a patient, the family, and the physician,” Wilgus says. “If



The PET-CT scanner is used with Amyvid to detect brain plaques that may indicate Alzheimer’s.



Left: A positive brain scan that shows an amount of plaque consistent with those who have Alzheimer’s. Right: A negative scan indicates that symptoms likely are not caused by the condition.

the patient is on the fence, if there is some concern that another type of neurological disorder could be causing the symptoms, then the physician might want to use it as a rule-out.”

Early diagnosis of Alzheimer’s can make a big difference, as it allows the patient a better chance to benefit from treatment. Specific medications can delay the effects of the disease, and clinical trials are also available. So far, 16 people have had the scan at Northwest Radiology. ●

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