


# M.D. NEWS

A BUSINESS AND LIFESTYLE MAGAZINE FOR PHYSICIANS

A man with dark hair and glasses, wearing a dark suit jacket, a light blue shirt, and a patterned tie, stands in front of a Siemens MRI machine. The machine is white and has the word 'SIEMENS' visible on its side. The man is smiling slightly and looking towards the camera. The background is a clinical setting with the MRI machine's gantry visible.

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## New Machine Offers Combined Benefits of Both Open and Closed Options

By Karen Ellery Jones

The technology behind magnetic resonance imaging (MRI) has certainly come a long way. Consider the fact that in 1977, the first MRI machine was homemade, built using 30 miles

of niobium titanium wire wrapped around a cylinder. Named the “Indomitable” by its inventor, Dr. Raymond Damadian, it took five hours to complete a chest scan.

**Tiron Pechet, M.D., oversees MRI protocols at Shields Health Care.**



PHOTO BY DENISE PASSARETTI

In the 30 years that have passed since that first chest scan, MRI has undergone remarkable technological advances in both the quality and complexity of imaging.

But traditional, or “closed” MRI machines presented problems for atypical patients. With a weight limit of 300 pounds coupled with design limitations, bariatric patients could not be accommodated in the machine. Claustrophobic patients, too, who make up between 1% and 5% of all MRI patients, simply could not tolerate the closed environment.

Although the open MRI finally offered these patients access to this innovative technology, the image quality was often compromised because these machines had a lower magnetic field strength, which determines image clarity. The first generation open-MRI machines typically had a magnetic field strength of 0.2 to 0.3 Tesla, while the traditional closed-MRI machines had a magnetic strength between 1.0 and 1.5 Tesla. Even when technological advances later boosted the open-MRI strength to 0.7 T, radiologists still found that the imaging quality was not optimal.

Now, the latest generation open MRI, the Magnetom Espree High-Field Open, is capable of delivering superior imaging that meets and some-

times exceeds the image quality of a traditional MRI. Shields MRI, which operates New England's largest MRI network, purchased the Espree for its Framingham location in October of 2007. It now has additional Esprees in its Brighton, Boston (Mass Bay), Dartmouth, Brockton and Worcester locations, and radiologists and patients are equally delighted with the results and overall experience.

Shields radiologist Tiron Pechet, M.D., says that the Espree has exceeded his expectations. "When we got our first Espree we weren't sure where it was going to fall between an older-style low- or mid-field 'open' magnet and a true high-field machine both in terms of image quality and patient acceptance. It's been a very pleasant surprise."

Dr. Pechet says that patients prefer the Espree to conventional MRI machines because they are not as close to the magnet, giving them a less confining experience. With a bore opening that measures 2.3 feet in diameter, the Espree has a generous 12 inches of headroom and its length has been shortened from 71 inches to 49 inches. Dr. Pechet says that patients welcome this additional space and shorter machine length.

"It's further away from their face and abdomen as well as shorter from end to end. Bariatric patients actually fit better and are more comfortable in the Espree than a conventional 'open' machine which was another surprise for me."

Pechet says that patients tolerate the Espree better than a traditional MRI because of the extra space. And when a patient is comfortable and more relaxed, they are less likely to move or adjust themselves, resulting in better studies.

"One of the enemies of MRI is motion and I think we get fewer studies with motion artifact because

the patients feel better about being in the machine and their experience," he says.

Manufactured by Siemens, the Espree combines the best of both the traditional and "open" style MRI machines. Most examinations can be completed with the patient's head outside of the machine helping to relieve feelings of claustrophobia. Patients who use wheelchairs are easily accommodated



PHOTO BY DENISE PASSARETTI

**With a wider opening and a shorter tube, Dr. Pechet believes that there are no examinations that cannot be performed on the Espree.**

because the Espree lowers 16 inches, allowing a smooth transition from wheelchair to the machine.

The Espree also offers the ability to create fast, seamless whole-body images without the need to reposition the patient, using Total Image Matrix technology. But what really excites Dr. Pechet is the Espree's imaging and sequencing quality.

"The image quality and available sequences are far better than other 'open' machines and are essentially equivalent to other 1.5 T high-field machines," he explains. "This means that the Espree is suitable for any patient, whether or not they need or prefer an 'open' machine. This greatly simplifies scheduling, as there are no examinations that I can think of that we cannot perform in the Espree. That's not at all true for the old-style open magnet, which, I would say, are only appropriate for patients who are too large or too claustrophobic to tolerate imaging in conventional scanners. The

Espree, however, is terrific for any MR examination."

What further distinguishes the Espree from other open-MRI machines is its abil-

ity to provide a broad range of advanced MR applications, including 3-D imaging, perfusion and diffusion, functional neuroimaging and cardiac imaging. "At our Brighton center, we are routinely imaging all of our brain and spine studies using 3-D sequences, quite similar to what one would expect from a 3 Tesla study, but performed on the Espree at 1.5 T. I believe that this offers significant advantages in terms of lesion

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detection and characterization,” notes Dr. Pechet.

It’s easy to understand why Dr. Pechet is so enthusiastic about the technology behind the Espree when you consider that he co-founded a software start-up company between graduating from Harvard University and entering Harvard Medical School. That company was later sold to Simon & Schuster, but Dr. Pechet remained connected to the high-tech industry while at medical school where he also did computer consulting. It’s that perfect fusion of advanced technology and medicine that drew him into radiology.

“Radiology is a very natural fit for someone who loves both cutting-edge technology and medicine,” says Dr. Pechet, who oversees the protocols for all of magnets at Shields Health Care.

Because Shields actively encourages innovation and is constantly looking forward toward future advances in imaging technology, Dr. Pechet says he has time to investigate emerging imaging techniques.

“I am given the time to experiment and try things to improve the level of care that we deliver,” he explains. “When we got the Espree I had the opportunity to spend a lot of time figuring out how to optimize imaging. And every month or two, we’ll find a new imaging technique in the journals and will build the sequence on the Espree and we’ll start trying it. We can then offer it to our patients as state-of-the-art imaging.”

For Shields Health Care, which has been at the forefront of a breathtaking series of innovations in patient care and diagnosis since it was founded in the 1970, the Espree represents that latest in a long line of technological advances.

*For more information about the Magnetom Espree High Field Open MRI at Shields, please call (800)258-4674 or visit [www.shields.com](http://www.shields.com). ■*

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## Shields Express Link: Beyond Images and Reports Online

Recognizing the increasing demand to handle all transactions online, Shields Health Care Group introduced Shields Express Link (SEL) in 2002. It quickly became the cornerstone of the company’s e-business strategy and a valuable online tool for referring physicians.

Today, there are over 10,000 SEL logins a month and 2008 sees the introduction of three new online modules that focus on improving workflow in the physician office.

**Online Ordering.** The online order debuted in 2007 and seems to have put the practice of faxing paper order forms behind us. By simply clicking Order Now! in Shields Express Link, a referring physician can submit multiple orders in just a few minutes. Unnecessary follow up related to illegible fax orders have been eliminated. Enhanced look-up tables including ICD-9 and procedure codes, add value to the electronic ordering experience.

**Pre-Cert Tracker.** As the preauthorization process has become more cumbersome, Shields wanted to help ease the burden. If an order is placed, Pre-Cert Tracker provides the information on whether an authorization number is required. If an authorization is needed, the insurance company name, website address and toll-free number are also displayed. Not only does this demystify the process for the referring office, it also allows support staff to focus on other activities directly related to patient care.

**Patient Status.** New for 2008, the patient status module allows referring offices to see where the patient is in the Shields system. What is the patient appointment date? Has the exam been done? Was the exam read yet? All these answers and more are available online.

**On the Horizon.** In the near future, test results will be integrated directly into the physician office electronic medical record (EMR). EMR integration, and other efforts to share patient data, are likely to dominate physician-provider relations over the next decade.

In addition to interfacing to the physician office EMR, the product of radiology will change. Next generation reporting will include a multimedia report with embedded images. Physicians will also have more choices with regard to how they interact with results as audio files of the actual dictation will just be a click away.

In addition to SEL development, a major offering from Shields Health Care Group this fall will be an affordable hosted PACS solution for physician offices. Sold on a subscription basis, this solution offers a per study price point while removing all the headaches of managing a PACS.