

# A new generation of technology is improving MRIs

Staff - Wednesday, September 8th, 2021 [Print](#) | [Email](#)

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The demand for MRI scans is growing and the location of MRIs is shifting, with more scans taking place in physicians' offices. At the same time, MRI technology is advancing, improving physicians' diagnostic capabilities and enhancing the patient experience.

*Becker's* recently spoke with three MRI experts from Esaote, one of the leading MRI companies in the world, about trends in MRI imaging, advantages of providing MRI scans in surgeons' offices, how Esaote is supporting physicians in this transition to in-office MRIs — especially in a value-based environment — and how imaging is likely to evolve in the future. Representatives from the Esaote team were:

- Stephen Gibbs, MRI sales and marketing manager, North America
- Sheila Hughes, MRI clinical applications manager for SLT, North America
- Giacomo Pedretti, global customer marketing manager

## Why demand for MRI scans is growing

A few macro factors are driving the growing demand for MRIs. The population is aging, resulting in more osteoarthritis, degenerative disease and joint replacement procedures. However, even as individuals are aging, they still want to have a good quality of life — leading to more MRIs to diagnose and treat various pains.

In addition, there is a continued increase in sports activities among individuals of all ages, resulting in more sports injuries and a growing need for MRI images.

Mr. Pedretti also attributed the continued growth in the use of MRIs to surgeons seeing greater precision in magnetic resonance imaging compared to X-rays. Use of MRIs for diagnosis “is growing because for some pathologies, the MRI modality is a better diagnostic response than a traditional X-ray due to the intrinsic ability of MRIs to see the soft tissue and to give more precise information to the surgeon,” Mr. Pedretti said.

## Many MRI scans are shifting to physicians' offices due to the advantages of in-office scans

Traditionally, MRIs have often been administered in hospitals. But, Mr. Pedretti noted, “Hospitals are not able to respond to all of the needs and requests [for MRIs].” For this reason, some surgeons are reluctant to direct patients to a hospital because of the long wait time to receive an MRI. This situation worsened during the pandemic. “Within the last year, there has been a wait list to get in for a non-emergency-type of MRI,” Ms. Hughes said. In some instances, it might take two to three weeks for a patient to get even a routine MRI.

“More than 50 percent of the total market for MRIs today is for spine and extremities — and the market is moving from the traditional hospital setting to outpatient imaging centers.” Giacomo Pedretti, Global Customer Marketing Manager

While Mr. Gibbs expects conventional hospital-based MRIs to continue to be used for oncology and neurology scans, he expects many MRIs of the spine, joints and extremities like feet and hands to shift to an outpatient setting, particularly physicians' offices. Mr. Pedretti agreed, observing that more than 50 percent of the total market for MRIs today is for spine and extremities and “the market is moving from traditional hospital setting to outpatient imaging centers.”

Among the advantages of this shift to outpatient settings, particularly physicians' offices, are:

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- **Greater speed to diagnosis and treatment.** Historically, a patient would have an appointment with a physician. If the physician determined an MRI was needed, the patient would have a separate appointment, often several days later. Then, it might take several more days to have the MRI reviewed, with a follow-up appointment to determine and initiate treatment.

When an MRI is performed in a physician's office, the entire process is simple, fast and a "one-stop shop." The patient sees the doctor, has an MRI, which is quickly reviewed, and treatment can begin. "We're seeing a demand for patients to be diagnosed through imaging at a facility rather than having to transfer and go to an alternate location," Ms. Hughes said. "A patient can literally be assessed, scanned and into treatment within hours, rather than within days."

Mr. Gibbs remarked that for patients, a one-stop shop in a surgeon's practice is a better overall experience, requiring fewer appointments and providing increased convenience. Patients also like the idea that "my surgeon gets to control my MRI," Ms. Hughes noted. For providers, performing the MRI in their office allows for faster workflow and throughput.

- **More customization.** By having an MRI in their office, specialists can tailor the exact MRIs that are provided. "From the physician's perspective," Ms. Hughes explained, "they get to modify and specify the scans that are done on their patients for their sub-specialties; it's not just generalized imaging." For example, podiatrists can have specific protocols for the images they need for a foot and ankle. "They get to customize their needs and tailor them [the MRIs], whether they are hand surgeons, spine surgeons or podiatrists."
- **Greater value.** Instead of requiring patients to get MRIs in a higher-cost hospital setting, an in-office MRI can be performed at lower cost and greater value. Mr. Gibbs said that the cost to purchase and install MRIs in offices is lower than for hospitals, as is the cost to operate these MRIs. "The cost of the examination could be less because the infrastructure costs are less," he said. Ultimately, in-office MRIs deliver on the fundamental premise of value-based care because they provide "the right examination, using the right technology, at the right time for patient care," Ms. Hughes said.

### Technological advances are improving MRI imaging, especially for the in-office setting

Several important technological changes provided by Esaote make in-office MRIs an attractive option for both surgeons and patients. Among Esaote's offerings include the O-scan, the S-scan and the G-scan.

- O-scan is designed to scan the upper and lower extremities, including elbows, wrists, hands, knees, ankles and feet.
- S-scan is an open-concept MRI designed to scan the spine, extremities and the hips and shoulders and is frequently used in orthopedic clinics.
- G-scan can scan the same areas as the S-scan but also has capabilities to scan a patient in an upright position for a weight-bearing examination.

All three of these models have a small footprint, allowing for easy installation in an office or an imaging center. They also don't require as much power or infrastructure as a conventional MRI. Unlike conventional MRIs that have an enclosed capsule design, which many patients are uncomfortable with, the models from Esaote have an open concept design, where a patient has open space around them. This is a gamechanger for those patients with claustrophobia and those who may require medication before an MRI exam.

Esaote's weight-bearing capability is a unique enhancement that allows an MRI to be taken in the specific situation when a patient's pain presents itself. "MRI scans are often done on the spine with a patient lying down, but their clinical condition only shows up when they are sitting or standing," Mr. Gibbs said. "Scanning in a weight-bearing scenario is important to assessing a patient." It also provides more information to surgeons to help them prepare for surgery," Mr. Pedretti said.

"Surgeons — orthopedic surgeons, spine surgeons — are interested in scanning the patient in the position in which their pain presents itself," Ms. Hughes said. This could be when a patient bends their neck, sits at a computer or even when a patient is in motion. Ms. Hughes explained that "motion imaging" is now possible by conducting a true motion dynamic study.

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Stephen Gibbs, MRI Sales and Marketing Manager, North America

### In-office MRIs have significant operational and financial advantages for surgeons’ practices

In addition to the speed advantages of faster diagnosis and treatment, by having an in-office MRI, a practice doesn’t need to send patients out for an MRI. “It helps retain patients within the facility and improves the patient flow,” Mr. Gibbs said. “In one location there is a single point of reference for the whole therapeutic process, which is very much appreciated by the patient,” Mr. Pedretti added.

Having an MRI capability within the practice is an important tool to help a practice grow, improve its cash flow, and position it well for a value-based environment.

Over the next five years, in-office imaging “is going to continue to grow and is going to become more accepted,” Mr. Gibbs predicted. He added, “Clinicians are becoming more demanding in wanting to have an MRI within their facility. I see it’s going to grow, and people want to have more access to an MRI at the point where the patient sees a clinician.” No longer will MRIs be just the domain of hospitals and radiology departments; they will become widespread in clinics, practices and offices.

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