

# Seeking Solace

Leading MRI facilities benefit from comfort pads

By Janine Kusza

**A**s cutting-edge technologies pierce the imaging community bubble, the comfort of the patient is often sidelined as radiology professionals struggle to stay abreast of the newest wrinkle in their field. Advancements that continually develop and enhance the modality tend to overlook the distress often experienced by the patient being imaged.

“Everyone in the imaging business is focusing on making the diagnosis, getting the images to move around the Internet, and building bigger and more powerful MRI, CT and PET scanners,” according to Peter Rothschild, MD, radiologist and president of Hayward, Calif.-based Patient Comfort Systems (PCS). Navigating through the frenzy of companies trying to technologically one-up the other, Rothschild found his niche, “for a company that is totally focused on the patient experience.”

While claustrophobia has been widely considered the key cause of a patient’s discomfort, experts are now determining that a significant amount of distress is caused by the mattress pads currently available on the MRI, PET, CT, nuclear medicine and X-ray tables.

Because of this, PCS developed a line of medical imaging table pads, lightweight knee wedges and positioners to facilitate the relief of pressure-related forces that cause pain and discomfort during imaging procedures.

Traditional pads quickly become worn out, failing to provide sufficient support and comfort for the patient. The Tempur® material incorporated into the PCS pads is heat sensitive and molds to the patient’s specific body shape and contour; pressure is redistributed away from the weight-bearing contact points, reducing the areas of peak pressure on the body.

Furthermore, this weight redistribution improves blood flow to those peak pressure points, which reduces the patient’s pain and overall discomfort. Tempur material also absorbs energy and dissipates it quickly, thereby storing very little as potential energy (known as the “spring-coil effect”).

This, consequently, is important because most polyurethane/resilient foams act like springs and return almost all of the energy they use in the form of undesirable pressure points. These qualities not only improve the patient’s comfort, but they also enable the patient to lay still longer, creating clearer images and decreased repeat scans.

## For the Patients

“Lying on the scanner table has always been a problem for some patients, particularly those with back or extremity problems,” says Murray Solomon, MD, medical director of Los Gatos MRI and Redwood City MRI, both in California. “The pads must be 100-percent MR compatible – no metallic components; and, for that reason, most of us relied on the magnet manufacturer to provide the pads.”

The foam used in standard MRI or PET scanner pads today produces uneven pressure distribution; and in a procedure that can last anywhere from 25 minutes to an hour and a half, even the slightest imbalance can cause patients pain as their weight becomes concentrated in certain areas.

PCS and Tempur-Pedic Medical, a division of Tempur-Pedic North America Inc., worked closely with leading MRI centers for more than two years to develop the PCS system, while ensuring they conform to the specific requirements for MRI compatibility, safety and patient comfort.

The system’s mattresses, wedges and positioning pads are compatible with existing tables and are designed to replace the current pads; pads that often seem like an afterthought for the imaging systems they came with. Fortunately, improving this basic comfort of the diagnostic system has had a surprisingly beneficial effect on the overall experience of the patient.

Randy Kostka, BS, RT(R)(MRI), owner and CEO of Open and Wide MRI, in Elkhart and Goshen, Ind., uses the comfort pads in both of his imaging sites. “MRI companies have these multimillion-dollar systems, and they’re not putting much engineering or thought into the pads they include,” he says. “It’s so low dollar; in a high-technology field, who really thinks about the pads?”

When it comes to an open MRI, the space may reduce claustrophobia, but the pads that originally came with his system offer little comfort. “They don’t fit the table well, so when patients are lying down, the pads scoot and crumple, or they



With fewer motion artifacts, thanks to the PCS pads, Murry Solomon, MD, finds images are sharper and easier to read.

separate,” says Kostka. “But the PCS pads are great because they extend the full length of the table, so it gives you a lot more working room.”

The new pads Kostka now uses on his Hitachi MRI scanner are large enough to extend the full length and width of the table, and have a non-skid bottom. “It allows me to do a lot of different configurations to make the patient more comfortable,” he says.

Other shortcomings of the traditional pads concern support of the lower back. A patient’s knees are normally propped up to relieve pressure off their low back. “The manufacturer’s original knee pads are not wide enough for my larger patients and their legs fall off the edges,” says Kostka.

Rothschild concurs that when it comes to many open magnets, the wedges that are used under the knees are not wide enough for many larger patients. “So we made our knee wedge [very] wide on all of our open magnet’s pad sets – and as wide as possible for the closed magnets,” he says.

When a larger patient’s legs fall off the side of the knee wedge, it can cause them to move or feel discomfort. Also, many patients have undergone surgeries before they have an MRI, so they’re extremely sensitive to any type of pressure on their low back.

In addition to the knee wedge, Rothschild describes some of the additional pads offered. “In the cervical spine, we have a little, round neck roll to support the normal lordotic curve of the neck. So, it’s the proper positioning of the pads – as well as the design of the pads – that has an impact on the comfort of the patient.”

## Evidence-Based

Typically, there are five areas referred to as the primary peak pressure areas in the body: the bony prominences of the head, scapulae, sacrum, trochanteric head and heels. When a traditional pad no longer provides sufficient support to redistribute weight away from these areas, increased



Patient Comfort Systems worked closely with leading MRI centers to develop the systems, which conform to specific requirements for MRI compatibility, safety and patient comfort.

pressure compresses the tissues between the surface and the underlying bone, shunting blood flow away from the area.

This, in turn, results in decreased oxygen perfusion to underlying tissue, and is initially experienced by the patient as discomfort and, ultimately, as pain. The discomfort associated with peak pressure is a primary reason that patients move during MRI scans. Patients move to relieve the pressure forces and, thereby, allow blood and oxygenation back into the body areas that had been deprived by the restricted blood flow.

“The Tempur-Pedic material does a much better job of distributing weight around pressure points, [which allows] many individuals to stay in the scanner for longer periods of time,” says Solomon. “I, myself, have tested the pads and was pleasantly surprised at how much more comfortable than the standard pads these new pads are.”

Interpreting MRI scans since 1983, Solomon has seen many improvements in radiologic technology; in fact, he was present at the University of California at San Francisco the first year there was an in-hospital magnet.

Still, Solomon says, “The magic is in the Tempur-Pedic material, which I have not seen duplicated. If patients are more comfortable, they can stay in the scanner for longer periods of time, reducing repeat pulse sequences and call-backs for substandard exam quality.”

According to a study presented at the 2006 annual meeting of the Radiological Society of North America in Chicago, when patients were scanned using PCS’ pressure management pads, repeat sequences decreased by 56 percent and patient call-backs dropped by 50 percent.

“When we saw the study results, we were pretty shocked at what we found, because that is not what we felt was going on,” says Rothschild. “We knew there was less motion, but we didn’t realize how much less patients were really moving and how this really affected our throughput.”

The study reviewed 200 lumbar MRI exams conducted for back pain: 100 using traditional MRI pads and 100 utilizing the PCS pads. The study found that with traditional pads, 18 percent required at least one sequence to be repeated and 8 percent needed the entire procedure repeated due to motion artifacts. With the PCS pads, 8 percent required one sequence to be repeated and only 4 percent needed repetition of the entire exam.

“If patients are more comfortable or in less pain, they are less likely to move. In CT, when you move usually [one] slice – or a few slices – are compromised,” says Solomon. “Because of MR physics, when you move, all the images in a given pulse sequence are degraded. Holding still is critical; and the new pads make it easier for the patient to hold still.”

Furthermore, Rothschild says, “We looked at not just the comfort of the patient, [but] we also looked at the workflow of the technologist; they have to [constantly] move these pads on



Randy Kostka, BS, RT(R)(MR), images a patient using the PCS pads.

Patient Comfort Systems

and off the table. So our knee wedges, even though they are larger than the original manufacturer’s knee wedges, are still light weight and we added a handle on either end to make it easier and more efficient for the techs to move.”

Arranging the patient in that perfect position can be a puzzle – and sometimes a hassle for the tech. “The [PCS] pads help us quickly get the patient comfortable so we’re not readjusting them for a long time,” says Kostka. “I have noticed that my techs and I work better with these pads. And, I think we work better because we can get the patient comfortable and get on with the other stuff we need to do without worrying further about the patient’s comfort.”

## Word of Mouth

Competition and consumerism are more driving factors to ensure a comfortable and happy patient. What makes one imaging center stand out among all the others is the patient’s experience. “Word of mouth is the best marketing,” says Rothschild. “You can spend all the money you want promoting a center, but it’s the word of mouth: ‘What was the experience the patient had?’ That works the best.”

Moreover, Rothschild says, “The pads on the MRI [scanners] were a real weak link in patients being comfortable. [Many imaging centers] have really good sound systems; some of them have TV systems. They have nice centers with everything imaginable. Then, they put their patient on a pad that is already worn out and wasn’t very good to start out with.”

“So now, the patient becomes uncomfortable at the most important time of all, the entire reason for their visit: the actual scan itself,” Rothschild says. “What really makes a center successful in the long term is what one patient tells another, and overall comfort is a very important – if not the most important – item.”

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## Patient Comfort Products

**H**ayward, Calif.-based IES-Patient Comfort Systems Inc. introduces a comprehensive line of high-performance mattress pads, lightweight knee wedges and positioners specifically designed to enhance advanced imaging scans, while boosting patient comfort.

Developed in conjunction with Tempur-Pedic Medical for MRI, CT, PET and related exams, the new product line features Tempur® material. In addition, the line provides a direct high-performance replacement for original equipment pads, which quickly become worn out and lose their comfort factor over time.

Furthermore, these pads will allow imaging centers and hospitals to manage pressure-related pain and discomfort during imaging procedures, helping patients to remain motionless for extended time periods. The results are clearer images as well as decreased repeat scans and call-backs due to motion. Also, the Tempur

material redistributes pressure away from weight-bearing points of body contact, thus reducing sensations of discomfort and pain.

Finally, the product line conforms to specific requirements for MRI compatibility, safety and patient comfort. A composite of proprietary, pressure-redistributing Tempur materials yields a thin form factor, retaining the maximum amount of free space inside the MRI, CT or PET scanner for patients.

Visit [www.patientcomfortsystems.com](http://www.patientcomfortsystems.com) for more information.



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