

Embracing Technology

by Greg Ptacek

In trendsetting Southern California, Newport Orthopedic Institute sets the standard for sleek facilities and imaging technology.



Southern California, particularly Orange County, is often depicted in the media as populated by lithe and muscular 20-somethings whose biggest daily decision is whether to go surfing or rollerblading. However, Alan H. Beyer, MD, FACS, sports medicine and arthroscopic surgery specialist at Newport Orthopedic Institute (NOI) in Newport Beach, Calif, says his patient load is typical of any orthopedic practice, with a mix evenly divided between seniors, student athletes, and weekend warriors.

Okay, there was that 48-year-old patient who had unsuccessfully navigated his skateboard over a wall. "There's no cure for stupid," Beyer says.

Lucky for him and the other 5,300 patients who visit NOI monthly, the practice recently opened a sleek facility in the heart of Newport Beach, which boasts some of the most expensive real estate in the country. In part to hold down costs, the medical facility was designed around the concept of a paperless and filmless organization. There is no medical records storage. No film processing of x-rays. In every aspect, from front office to the surgery rooms, digital has been incorporated to streamline costs and to distinguish the practice with its target market.

To achieve its objective, NOI has developed a unique relationship with a local hospital and GE Healthcare. "It's really a triangle. By the three of us working together, we've found innovative ways of providing the highest of care at reasonable cost to the patient," says Beyer.

Planning Ahead

The new facility is the realization of a vision by the founding physicians, Beyer and James T. Caillouette, chairman of the board. The group—consisting of nine board-certified orthopedic surgeons, two physiatrists specializing in pain management, and a podiatrist—is the largest orthopedic and musculoskeletal group in coastal Orange County. It was established in January 2002 with the combination of two long-standing orthopedic practices—South Coast Orthopedics and Newport Orthopedic Surgery Medical Group. The combination of expertise and experience has allowed the practice to provide its patients with a high level of comprehensive care and service in every major orthopedic specialty, Beyer says.

"For a moment, when we were just about to open the new center, we thought that patients might balk at all of the state-of-the-art computer technology that the center had invested in," he says. "Would they resent it as nothing more than physicians and their fancy gadgets? But what we've found is that the patients love the new technology. They appreciate that we provide them with the highest level of quality care. And it has become a great marketing tool."

James T. Caillouette, MD, chairman of the board of Newport Orthopedic Institute, is a well-known expert in computer-assisted orthopedic surgery, which he performs at nearby Hoag Hospital, with BrainLab/DePuy technology.

"The accuracy of computer-assisted equipment is far beyond human capabilities," says Caillouette. "There's simply no question about that. I like to think of the analogy of a pilot flying a 747. Yes, he can do it manually, but the computer-assisted flight-control equipment makes a landing or take-off much safer and more accurate."

Caillouette says that computer medical technology is now at the stage where personal computers were in 1984, compared with the intuitively simple iPod of today. He says that utilization of computer-assisted surgery is still in "its early days," with only a small cadre of physicians taking advantage of it. Future advancements, he says, will provide the equipment with more of an "intuitively simple interface with technology."

State-of-the-Art Facility

Newport Orthopedic Institute occupies the entire second floor and part of the first floor of a 42,000-square-foot building on the bluffs of Newport Beach Bay. The second floor houses primary services including patient examination rooms (many with views of the bay), casting areas, x-ray, physician offices, business office and administration, and a server room. The space is designed in keeping with the specialty areas of adult reconstruction: spine, sports medicine, and extremity/trauma, with each area having its own distinct waiting room and reception area, to allow for more personalized care and service to patients. Each physician has a dedicated team that includes a medical assistant and a secretary to handle all questions or concerns of patients.

The acoustic environment throughout the facility features music and a sound-masking system from LogiSon, which allows HIPAA-compliant, confidential verbal exchange between staff and patients. The system introduces a comfortable background noise that makes overhearing conversations more difficult.

Digital X-ray

The move to a new facility prompted the practice to purchase two state-of-the-art GE Definium 8000 Digital x-ray systems. These digital x-ray systems allow the practice to save a significant amount on the cost of film and film development. Additionally, the digital x-ray systems are much faster than traditional x-ray, improving efficiency for doctors and staff.

"Quite literally, a patient can have a digital x-ray taken, and before they're back in the examining room, the image is ready to be viewed by the patient and the physician," says CEO Victoria Lister, who was among the core group at the practice to spearhead the move to a filmless, paperless environment.

The images are acquired in less than 10 seconds and electronically transmitted to a computer workstation in each examination room. Each room is equipped with a PC, allowing doctors and staff to pull up the image and the electronic medical record.

"Everything is at their fingertips in the room," Lister says. "The images can be enlarged, the contrast can be changed, the doctor can pinpoint exactly where the fracture or damage is apparent. This has really made a difference in patient satisfaction."

The decision to purchase digital x-ray equipment was made very early in the design process of the center.

"We knew we did not want to continue using film, which requires space for processors and film storage," Lister explains. "We made several site visits, looking at various manufacturers. We ultimately decided upon GE for all of our imaging equipment—two digital x-ray systems, one single detector system, and one dual detector system; a full-body, eight-channel MRI with high-definition technology; and the GE RA-600 PACS system."

Surgery Center

The Orthopedic Surgery Center in the building has a GE OEC C-arm and two Fluoroscan units. Images from all of the equipment are stored in the PACS system for easy filmless access from any PC in the practice, from the Orthopedic Surgery Center, Hoag Hospital, and physicians' homes. If patients request a copy of their images, a CD can be burned and downloaded onto a flashdrive or printed to film.

Lister says that adequate staff training was an essential component in transitioning to a filmless system. "The x-ray staff spent a full day at the University of Utah Orthopedic Clinic, observing and getting comfortable with the technology. When they returned, they were confident the transition to digital x-ray would go without a hitch," she says. Additionally, the staff had 3 days of on-site training.

Using the PACS system also was an easy implementation for physicians and staff. "Now, they couldn't live without it," Lister says.

GE wrote a custom interface between the modality and the practice management system, eliminating redundant data entry and the potential for error. The patient account is set up in Centricity Practice Management and pushed over to a worklist on the modality itself. From there, the image is sent to the PACS with no additional naming or data entry. No more 3 x 5 cards to file, no paper orders for x-ray, no x-ray file room. Everything is ordered, performed, and stored electronically. If a physician wants to save the images, outside films can be digitized.

The PACS is compatible with the practice's EMR and provides a link to all the images within the system. It offers the ability to create a patient worklist from one system to the other, eliminating the time it would take to duplicate data entry from one system to the next.

Another benefit is that the GE Centricity worklist avoids potential typing errors, which can be critical when trying to locate patients' records if their names have been misspelled or their Social Security numbers or account numbers transposed. "This has significantly increased staff productivity and patient turnaround time within the department," says Lister.

A link within the EMR system provides immediate access to the stored images. The PACS is backed up every night, and the data is stored off site. Two IT specialists on staff keep the computer equipment running smoothly.

Ancillary Services



Alan H. Beyer, MD, with a Definium 8000 Digital x-ray system.

Services on the first floor include full body MRI and complementary and alternative medicine (CAM), a durable medical equipment (DME) shop, and a conference center. The 1.5T Signa EXCITE HD 8-Channel Hi-Speed MR system by GE is powered by high-definition technology, creating images on even the most challenging cases. The system is fast and quiet compared to older MRI scanners. The availability of an on-site MRI allows the practice to meet its objective of delivering comprehensive services in a single, convenient location.

CAM includes physical therapy, hand therapy, acupuncture, massage therapy, and chiropractic care. Physical therapy is taking on a new twist at NOI with the integration of Pilates equipment and techniques. In addition to therapy prescribed by a physician, NOI will offer Pilates-based wellness and conditioning for individuals as well as group classes scheduled for evening hours.

Through a partnership with a DME vendor, NOI will make prescription and nonprescription DME items available to its patients. The shop will include merchandise such as wrist splints, knee braces, walker boots, exercise kits, books, reference materials, and nutraceuticals such as glucosamine and chondroitin supplements.

The conference center with seating capacity of about 100 people will be used for physician training conferences with videoconferencing capability and an electronic interface with equipment in the operating room, allowing attendees to view live surgeries in progress in the Surgery Center. The center also will be available for staff training and community education classes jointly sponsored by Hoag Hospital and NOI.



The GE Excite high-definition 1.5 Tesla MRI is in the background, and cartilage-mapping images are on the computer screen.

Orthopedic Surgery Center

The remainder of the first floor is utilized by the Orthopedic Surgery Center, which includes four operating suites and space for pain management procedures and fracture care.

All NOI physicians are on staff at Hoag Hospital, a privately owned institution with a 50-year history in the Newport Beach area. The hospital was recently recognized by the independent research firm, Health Grades, as receiving Five 5-Star ratings in Orthopedic Services, making it the top program in the state of California.

Despite Hoag's reputation, the decision to ally NOI with Hoag was not a given. "A few years after the two private physician medical groups merged and in advance of the decision to build the new center, we did an analysis of the relationship with the hospital," Lister says. "The bottom line was that the relationship generated a lot of outpatient surgery for us. Today, our physicians perform most of their inpatient surgeries at Hoag, while the majority of Hoag patients have their outpatient surgery at NOI. It's a 50/50 joint partnership and a win-win situation for both facilities."

Taking the Plunge

The third component in NOI's business strategy is its relationship with General Electric Healthcare. NOI is one of two facilities in the country designated by GE as a demonstration site for its latest technology, and the only one on the West Coast. The relationship allows the practice to distinguish itself among other orthopedic groups in the highly competitive Southern California market. Likewise, the manufacturer is provided with a real-life environment to showcase its technology to other practices.

Caillouette says the decision to embrace GE as a partner in the practice's business development was an easy one. He acknowledges there is a learning curve in using the state-of-the-art equipment, which is still in its infancy and not as intuitive for the user as it will be in the future. "It's just a matter of time before it becomes as user-friendly as an iPod," Caillouette says.

For physicians contemplating such technology for their own practices, Beyer has some straightforward advice: Take the plunge. "If you continue to wait until the technology becomes better, cheaper, faster, you'll never make the decision to buy. It will always be improving. The equipment is great now, so why not jump in?"

Greg Ptacek is a contributing writer for Orthopedic Technology Review.
