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MEDTRONIC NAVIGATION ORTHOPAEDIC SURGERY SOLUTIONS: WHERE TECHNOLOGY FOLLOWS NEED

Surgery using navigation technology is rapidly becoming viewed as a necessity in any fast-paced, competitive, high-volume orthopaedics practice. Integration of navigation may become even more critical in the near future given the trend toward minimally invasive surgery (MIS). Navigation for MIS procedures can help surgeons compensate for a marked decrease in visual cues that are traditionally available in classic orthopaedic techniques.

Orthopaedic surgeons consistently and continuously strive to provide optimal outcomes and enhance the surgical experience for their patients. Given the compelling patient need of living a full life, orthopaedic surgeons are increasingly coming to value navigation as a useful and powerful measurement tool for accurate and reproducible limb and implant alignment, for pre- and post-operative kinematics measurement, optimal soft-tissue balancing, range-of-motion analysis and leg length measurement.

With over 12 years of expertise in computer-assisted surgery solutions, **Medtronic Navigation** (Louisville, CO) is ideally suited to the orthopaedic medical specialty, which performs more than one million knee and hip replacements worldwide each year.

Mission: Meeting Surgeon Need

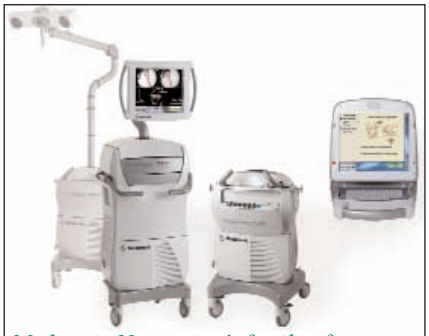
"We can be confident that navigation helps us to improve patient outcomes. We can leave the OR knowing that we put the implant exactly where we wanted it," observes Mark Hartzband, MD, Director, Joint Replacement, Hackensack University Medical Center (Hackensack, NJ). "With the Medtronic system, we always have the most up-to-date, high-speed technology. When surgical techniques evolve so rapidly, we need to have a company that can keep pace and evolve their technology at the same pace."

Surgeons can use the AxiEM™ System for electromagnetic navigation in orthopaedic procedures.

Dr. Hartzband, who is also a director at the Insall Scott Kelly Institute in New York City, identifies the simple, straightforward graphics and reliable measurement tools as key benchmarks in rating Medtronic's navigation product as the leading system on the market.

The **Medtronic Navigation Orthopaedic Surgery Solution** has a continuous development pipeline with a mandate to meet surgeon and patient need through relevant technology and product development, striving to provide the most flexible solutions for all orthopaedics procedures.

On the forefront of technology development, Medtronic now has available in the United States, an electromagnetic localization system. "This system is ideally designed for minimally invasive procedures," asserts Nadim Yared, Vice President and General Manager of Medtronic Navigation. "The **AxiEM™** system is innovative technology, bringing the frontier of navigated MIS procedures into today's OR." He goes on to explain that the patented mini patient reference, about the size of a



Medtronic Navigation's family of systems and service accommodates the diverse needs of surgeons and facilities.

dime, allows surgeons to place it within very small incisions. This proprietary technology is the only one on the market today that is minimally invasive to the surgical procedure, allowing MIS navigation for optimal implant placement.

The Medtronic multi-tiered product offering—the **OrthoNav™ Universal Suite**—provides surgeons with both mainstream approaches to navigation. These approaches, "imageless" and "fluoroscopy-based," each have distinct advantages, so the optimal technology choice is dictated by the clinical procedure and requirements as well as surgeon preference. To further increase functionality for the surgeon, Medtronic offers both universal and implant-specific knee and hip navigation solutions. Universal (non-implant specific) navigation ensures incorporation of any and all implants—an ideal solution for large institutions or practices where surgeons use numerous implant manufacturers. Implant-specific navigation may be the right solution for a surgeon or institution using exclusively one manufacturer and it allows for more sophistication within the software. The solution that allows for both approaches has the greatest utility now and into the future.

Duty: Meeting Patient Need

"The use of navigation in most of my cases increases surgical accuracy and is vital for optimal ligament balance and stability," explains James Stiehl, MD, orthopaedic surgeon at Columbia St. Mary's in Milwaukee, WI. "These factors are critical to the immediate and long-term clinical success of the procedure."

As baby boomers age and the population, in general, lives longer, healthier and more active lives, the longevity of a patient's implant is paramount. "As surgeons," states Dr. Stiehl, "we realize this and strive each and every day to achieve optimal surgical outcomes to increase the probability that our patients can golf, play football, dance and push their grandchildren around on bicycles."

Accuracy, Simplicity, Portability

Medtronic Navigation offers a wide range of options to meet the needs of the various communities they serve, from large teaching hospitals to small community hospitals to surgeon-owned clinical institutes. Customers may choose between an open platform, an application-specific platform and a fee-per-use offering that allows for easy access to this advanced technology.

With the addition of the AxiEM™ electromagnetic technology to the existing optical product offering, Medtronic has again met the clinical and individual needs of orthopaedic surgeons and their patients.

The overriding goal for developing navigation technology is to improve outcomes, decrease risks and operative time and minimize invasiveness. Use of this powerful computer visualization technology aids surgeons in performing a vast array of orthopaedic surgeries, from straightforward joint reconstructions to complicated total hip revisions and knee arthroplasties.

Where Technology Follows Need

Medtronic Navigation has an extensive and successful history in the world of clinically valuable surgical navigation solutions. No other organization is as committed, through substantial investment, to the overall functionality and utility of computer-assisted surgery.

For more information concerning Medtronic Navigation's orthopaedics product portfolio, call 1-888-580-8860; fax at 720-890-3500 or visit the company's Web site at www.stealthstation.com.