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Wireless Devices Facilitate Faster Communications Between Researchers and Caregivers

The National Institutes of Health Empowers Employees with Wireless Interpersonal Communication Devices for Enhanced Patient Safety

By Rick Gentry, Vice President of Healthcare at InnerWireless

6/9/06 - The National Institutes of Health (NIH) has been dedicated to advancing medicine through research since its founding in 1887. In August 2004, construction was completed on the NIH's Mark O. Hatfield Clinical Research Center (CRC), a 242-bed hospital and research center, which totals 870,000 square feet. The new center is connected to the existing Warren Grant Magnuson Clinical Center to form the NIH Clinical Center, which is the world's largest clinical research complex. The CRC was built to replace the original facility that was constructed in 1953, which could not support new technologies developed for improving patient care. The goal of the NIH remains the same – seamlessly and effortlessly transfer laboratory results into actual medical procedures. The new CRC was designed to be state-of-the-art and flexible to bridge the gap between laboratory research and life-saving clinical applications.

The CRC sees approximately 100,000 outpatients and 7,000 inpatients per year. More than 1,200 physicians, dentists and researchers work along side 660 nurses and 570 healthcare professionals at the CRC. Consequently, to streamline research and clinical procedures, the CRC needed a way to keep key staff and clinicians connected with one another. They also wanted to provide clinicians with the ability to update and access real-time patient information and research data from anywhere in the facility.

The NIH realized that one of the best ways to integrate the research and clinical sides was to implement wireless devices that would allow researchers and caregivers to easily communicate with each other without interruption. More specifically, the NIH wanted to deploy government-issued BlackBerry devices to enable immediate communication among the CRC staff. The NIH also

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desired guaranteed two-way radio communications for first-responders and 802.11 wireless data coverage.

Planned WISP Budgets

Diagnosing the Challenges of Wireless Communication at the NIH

Wi-Fi Hotspot Locator

The hurdle the NIH faced was ensuring that radio frequency (RF) signals could reach each staff member's interpersonal communication device, regardless of where they were in the building. Implementing wireless devices and applications seemed like a simple task, but the search and decision quickly became complex. Concrete, glass and other building materials can distort and block RF signals, making wireless communication spotty or even unattainable.

Wireless ISP Locator

With 14 stories and more than 7 million bricks covering the outside of the structure, it was no surprise that the building would not allow for the implementation of such devices without adding some sort of wireless infrastructure. The NIH determined that an in-building wireless system capable of evenly distributing RF signals would solve these communication woes. However, the traditional approach to installing multiple systems to support each wireless technology was expensive to maintain and install, and the systems could potentially interfere with each other.

Bulletin Board

Medical-grade Wireless Utility Cures Communication Quandary

Business Directories

In 2005, the NIH announced plans to install the InnerWireless Medical-grade Wireless Utility, a wireless broadband infrastructure designed to distribute multiple wireless signals and support a full range of wireless devices and applications on one system. Once installed, the Wireless Utility would allow for immediate deployment of BlackBerry devices and could support future plans to utilize the system for 802.11 wireless data and two-way radios for first responder communications.

Business Development

Business Leads

InnerWireless was a subcontractor on this project to prime contractor SRA International, Inc. (NYSE: SRX) of Fairfax, Virginia. SRA is a leading provider of information technology services and solutions to clients in national security, civil government, and health care and public health and has a long history of support for wireless technologies at the NIH. SRA was awarded the contract under the Chief Information Officer Solutions and Partners 2 Innovations (CIO-SP2i) contract.

Business Resources

Questions and Answers

The InnerWireless Medical-grade Wireless Utility is based on a passive antenna platform that is designed for the simultaneous transmission of multiple RF signals. The components that make up the antenna system require no electrical power, software or ongoing monitoring and have been designed for years of reliability and independent operation.

Marketing Options

Financial Investing

The CRC was designed to be flexible. For example, it was designed so that single-patient rooms can be turned into a larger room to accommodate multiple patients. Maintaining this type of flexibility required the wireless infrastructure that the NIH chose to be just as adaptable, which was attainable with the InnerWireless system.

Success Stories

An added benefit of having an in-building wireless infrastructure, such as the Medical-grade Wireless Utility, is that other applications and technologies can be easily deployed. For example, all major cellular carriers can plug into the system so that visitors, patients and staff members can use their wireless phones throughout the building, even in elevators, stairwells and underground parking garages. The Wireless Utility is also future-ready, meaning that it can support new wireless technologies and standards as they become available. This capability eliminates the need to install a separate system for each new technology or wireless need, thus reducing future costs, maintenance and total cost of ownership.

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With InnerWireless installed, the center has the capability to add applications, including wireless patient monitoring devices, asset management and tracking (RFID), and personal paging devices that allow patients to directly contact clinical staff. These applications and devices can be deployed without the need to install a separate system for each application and meet the center's future wireless needs. In fact, the Wireless Utility has never experienced an operational failure, so minimal maintenance to the system is required.

Media Kit

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"The National Institutes of Health's Clinical Research Center preserves the standard of quickly transferring biomedical findings from the laboratory into the mainstream of medical practice, and InnerWireless is delighted to be working with this leading medical facility by facilitating wireless coverage throughout the Center," said Ed Cantwell, president, CEO and chairman of InnerWireless. "The design of the Center reflects the corresponding priorities of patient care and clinical research, accommodating the physical requirements of the latest medical technology while providing a friendly atmosphere and efficient environment for patients and

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clinical investigators. Our InnerWireless distribution platform will aid in maintaining this environment, as it provides enterprise-wide and guaranteed wireless coverage, enabling instant access to vital data and resources through BlackBerry devices, cellular phones and other wireless applications.”

InnerWireless' Bedside Manner Exceeds Expectations

With the development of more wireless applications and the ever-increasing role they play in daily operations, making them fully functional and harmonized is becoming more complex. Few organizations have the know-how or the manpower to make this happen without outside assistance. InnerWireless' team of project managers oversaw every aspect of the system design, procurement, installation, testing and acceptance and worked closely with all involved parties to ensure a quality installation with minimum disruption to patients, staff and visitors.

The CRC needed to stay near 100 percent operation during the installation of the infrastructure because ongoing patient care and research could not be interrupted. The Medical-grade Wireless Utility lends itself to easy installation because of the unified antenna system, so maintaining full capacity was not an issue during the implementation of the system.

Even now that the installation of the InnerWireless Medical-grade Wireless Utility is completed, InnerWireless continues to help the CRC manage their wireless environment and provide cost-effective solutions to meet future wireless needs.

Installing the InnerWireless Medical-grade Wireless Utility into a healthcare facility not only benefits the hospital staff, but most importantly, it benefits the patients. InnerWireless improves patient care because it allows hospitals to bring multiple wireless communication devices together on one system. Wireless communication devices allow the caregiver to spend more time at the patient's bedside and significantly reduce patient errors.

InnerWireless is used in some of the country's most recognizable buildings, including the 2.8 million-square-foot Time Warner Center in Manhattan and New York City's Rockefeller Center Concourse. The NIH joins a distinguished group of more than 60 nationally recognized hospitals - including Children's Memorial Hospital of Chicago, the University of Chicago Healthcare and Hospital System's Comer Children's Hospital and the Bernard A. Mitchell Hospital – in using InnerWireless to create a 21st century wireless ecosystem in their facilities.

“The NIH is a leader in medicine and sets the standards in patient care for the rest of the healthcare industry,” said Rick Gentry, vice president of healthcare at InnerWireless. “InnerWireless is thrilled to be an integral part of that mission. Not only will the NIH prove to the rest of the healthcare industry how wireless communications significantly improves work function, but other industries will see the importance of having a wireless infrastructure.”