

HUB Tech Delivers Healthcare Wireless Solutions



New England Sinai Rehabilitation Hospital deploys Cisco wireless network to support clinical application

Business Challenge

New England Sinai Rehabilitation Hospital (Sinai), located in Stoughton, Massachusetts, has been providing expert medical care for more than 75 years. Its 212-bed hospital offers a complete array of services including 24-hour on-site physician coverage, more than 250 full-time and consulting physicians, a full-service clinical laboratory, and pharmacy and radiology services that are available 24 hours a day.

Fran Sousa, director of MIS and communications for Sinai, wanted to implement a solution that would address medication safety with hospital patients.

"There is a saying in the health world: right dose, right patient, right time," says Sousa. "I wanted to implement a solution that would help ensure accuracy in getting the right medication in the right dose to the right patient at the right time." To accomplish this, Sousa wanted physicians and clinicians to be able to bring a computing device right to a patient's room. Patient identification could be done via a barcode scanner that would read the patient's admission bracelet. By having a portable computing device, the screen, the scanner, and the patient all in the same room at the same time, the chance for inaccuracies is minimized. Sousa chose to implement a client/server solution from MediTech, and needed a wireless network to more fully take advantage of the product's capabilities.

Sousa reached out to HUB Technical Services of South Easton, Massachusetts. HUB Technical specializes in network design, implementation and support, and is a Cisco® Registered Partner and SMB Select Partner. HUB Technical has supported Sinai for more than 10 years, and Sousa was very confident that it would successfully design and implement this newest project.

Network Solution

HUB Technical has built an impressive record of service supporting IT infrastructure in several key vertical markets, including hospitals and medical practices. Joseph Lovetere, president of HUB Technical, assembled a team and conducted several technical meetings with Sousa and her staff to outline the existing network. They also outlined the initial project parameters after learning the needs of the hospital, and determining the specifics of exactly what it wanted to accomplish.

"Once we had that information, our lead engineers used blueprints of the hospital to create a network analysis and perform a wireless feasibility study," says Lovetere. "There are many things to consider in designing a wireless network solution, including the geographic location of the hospital, the area that needs to be covered, the power availability, the placement of the wireless access points, and the need to run cable to those access points."

Executive Summary

Business Challenge

- Provide highest level of patient medication accuracy

Network Solution

- Wireless network to support clinical solution for improved medicine dispensing for patients

Business Results

- Improved patient interaction and care
- Improved accuracy in medication
- Ability to track mobile hospital equipment

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The Sinai building itself is unique and presented some challenges. Many hospitals are built with a conventional block design, making it easy to locate equipment closets and access points at the same place on each floor. However, Sinai was designed with three separate wings connected to a main central hub.

"We needed to make sure wireless coverage extended out to the end of each wing, but did not provide extra coverage outside of the building," says Lovetere. Sousa also wanted flexibility to one day be able to offer wireless Internet access to hospital guests and patients' families. Network security needed to be implemented to help ensure that when this capability was implemented, guests could not access any medical records, and that all patient data met the stringent federal requirements of HIPAA (Health Insurance Portability and Accountability Act).

The hospital had existing Cisco Catalyst 6500 Switches. "Considering another network vendor was never an issue," says Sousa. "We have always had a Cisco-based network. Although Cisco equipment does not have the reputation of being the least expensive, it is the most reliable, and that is what is important to us."

The HUB Technical team designed a Cisco Unified Wireless Network solution, utilizing 36 Cisco 1030 Lightweight Wireless Access Points in a controller-based architecture. The heart of the network is two Cisco 4402 Wireless LAN Controllers associated with a 2710 Location Appliance, and a Cisco Wireless Control System (WCS) provided the management platform for the Cisco Unified Wireless Network.

"The Cisco 4402 Wireless LAN Controller would provide us with the flexibility to deliver overlapping coverage over the uniquely-shaped building," says Lovetere. "It can also automatically and centrally configure and manage multiple access points. Given the design of the building, the Cisco 4402 Wireless LAN Controller allowed us to locate a secondary unit to provide redundancy."

HUB Technical also incorporated the Cisco 2710 Location Appliance, which would provide the hospital and its IT staff with the ability to locate not only the wireless network users, but potentially any mobile hospital equipment by Wi-Fi tracking tags, a capability Sousa plans to implement in the future. The Cisco 2710 can also locate rogue access points and clients, helping safeguard the network from anyone attempting to launch attacks on the system. According to Lovetere, the Cisco Unified Wireless Network that HUB Technical chose for the Sinai project is particularly suited to a highly secure environment such as a hospital, because the network can be monitored and IT staff can see what is happening with it at anytime.

"This Cisco equipment, in my opinion, provides the best level of security from an IT standpoint," says Lovetere. "That is why we chose it."

Once the network was built and the wireless signal strength was confirmed throughout the hospital, HUB Technical then began deployment of wireless carts. These rolling carts would be outfitted with a power supply, laptop computer, monitor, and potentially can be outfitted with a barcode reader. With the mobile cart, a nurse or physician can scan the wristband of admitted patients, and quickly retrieve their hospital health record, which would include their current health record, and recent changes such as test results and which physician had most recently seen the patients.

Business Results

"When you look at the space available at any nursing station, you can instantly see that counter space is at a premium," says Sousa. "There is no room for more hardwired devices with more power cords going everywhere. This solution not only enables us to provide an even higher level of care for our patients, but the portable units are where our healthcare staff really needs them, and that is next to the patient. Our staff can enter medical information right at the patient's bedside. They no longer need to go back to a nursing station and constantly fill out paperwork."

Sousa says the nursing staff and the hospital's physicians really embraced the new system because it drove better interactions with patients and better care for the patients. With medication safety at the top of the hospital's priority list, the Cisco mobility solution is helping achieve the hospital's goal of "right person, right medication, right dose, at the right time."

"HUB Technical delivered this solution on time and on budget," says Sousa. "Not only does the wireless solution give our staff mobility and thereby enable improved patient care, we now have a sense of redundancy in our network. Should a segment of the hard-wired network fail, we can maintain systems access through the wireless network."

Next Steps

The first phase of the Cisco Unified Wireless Network and mobile cart deployment at New England Sinai Rehabilitation Hospital was so successful that Sousa is looking forward to the second phase of the deployment. This will involve deploying Wi-Fi tags to the hospital's mobile assets such as respirators, fluid pumps, pharmaceutical dispensers, wheelchairs, and gurneys. Staff will be able to easily track and locate critical hospital equipment. A secure wireless guest access can be offered through a Webpage to capture guest username and password and provide Internet connectivity while protecting the hospital Intranet and confidential information. This can be enabled on the hospital's Wireless Control System using the "Lobby Administrator" feature.

HUB Technical will be up to the task due to its understanding of the healthcare market and its successful relationship with Sinai.

"Anytime that a healthcare provider has contractor personnel in their hospital environment, privacy and security of the patient information is paramount," says Lovetere. "We were successful with Sinai because we know this technology, and we understand the daily operational needs of the hospital."