

Rx For Healthcare Requirements



User Profile

HealthAlliance Hospital is a full service, acute care hospital serving the communities of north central Massachusetts and southern New Hampshire. The HealthAlliance system includes a hospital with services on two campuses in Leominster and Fitchburg, Massachusetts, a visiting nurse association and several physician practices.

In December 2005, HealthAlliance Hospital went live on its Leominster campus with a new workflow-engineered information system, which provides clinical, financial, and health information management applications. The solution brings together images and data seamlessly into one location and helps facilitate more informed decision making.



Deployment of the new information system provided an impetus for hospital officials to reexamine the wireless interface that provides the data for that system, as well as the other wireless voice communications systems. To be more effective, the new information system would need ubiquitous wireless coverage to provide and receive information from hospital personnel as they interact with its patients. As with most hospitals, HealthAlliance needed to pay attention to all constituencies, which provide the driving force behind how wireless technology is deployed, including patients, doctors, nurses, clinical technicians, facility support staff and families.

Business Drivers

HealthAlliance had several strategic wireless initiatives, all of which supported safety and customer service projects and goals for productivity and workflow gains.



The hospital had dead spots where a physician or nurse could not receive a call over a wireless device. "We wanted 100 percent wireless coverage. If you can contact doctors when they are making their rounds, you have better patient quality of care and more productivity," says Richard Mohnk, Vice President and Chief Information Officer at HealthAlliance. "We are looking at it from the viewpoint of the patient's safety and the quality initiatives that were generated from a survey of our medical staff."

To meet the hospital's wireless coverage needs, Mohnk and Dave Duncan, Vice President of Facilities, looked at two options: implementation of individual wireless networks and the deployment of a single distributed antenna system that would handle all of the current wireless systems and future technologies. They also considered the impact of wireless infrastructure installation on hospital infrastructure as well as infection control needs, data closet access, future expansion and wireless upgrades.

They made the decision to look at wireless strategically by analyzing how it could help the hospital meet its current initiatives and their wireless needs for the foreseeable future.

The Solution

HealthAlliance chose the medical-grade Wireless Utility™ in-building wireless system from InnerWireless. It is a physically passive infrastructure engineered to enable RF coverage throughout the facility. It consists of coaxial cable and antennas throughout the hospital. The Wireless Utility is designed to handle a broad range of wireless services (from 300 MHz to 6 GHz). New services can be added to the network by upgrading a centralized, secure location or nerve center, which provides both security and accessibility with little disruption to patient care.

"Rather than repeatedly installing and disrupting patient-care areas to maintain multiple, discrete wireless systems, we chose the InnerWireless product to distribute



several wireless services and applications, including access to clinical data, computerized physician order entry (CPOE), paging, public cellular services, nurse-call systems and future monitoring applications," says Mohnk. The system was designed to provide in-building coverage for two-way radio for security and maintenance, as well as for Wi-Fi and cellular phone access.

In-building Wireless Enables Multiple User Benefits

HealthAlliance is looking for a return on its wireless investments to support several initiatives: patient safety/quality of care, customer service and productivity/workflow.

Safety Initiatives

The hospital is updating the paging and two-way radio systems and will also accommodate the communications needs of the public safety employees of the fire department and ambulance services within the building. To ensure in-building cell phone coverage, the hospital is negotiating contracts with cellular carriers — including Verizon Wireless, Cingular/AT&T, Sprint Nextel — to connect them to the system.

Along with the stairwells, coverage will be extended to elevators to ensure coverage for paging, cellular and two-way radios. "You can't do that with a traditional wireless network," Mohnk says.

Clinical Documentation

Currently, the only way for a clinician to enter a patient's vital signs into the hospital's computer database is to write it down and go back to the nurse's station. Clinicians need mobile access to clinical information systems and this requires mobile computers on carts accompanying personnel as they go from room to room.

If the clinician or doctor can log vital signs or order a prescription at the bedside, known as CPOE, it saves them from going back to a wired device. It has not been implemented yet at HealthAlliance, but with appropriate coverage, outpatient pharmacy scripts can be integrated into the patient safety initiative. "We have to implement these pieces of the clinical system, probably next year," says Mohnk.

Wireless Medical Telemetry Systems (WMTS)

Currently, InnerWireless is working with HealthAlliance and one of the primary medical device vendors to integrate wireless monitoring into the system. A beta test of the

wireless telemetry system will be set up to ensure it passes all the federal medical device requirements in order to go wireless. This allows patients whose vital signs are being monitored to be mobile as opposed to being tethered to a stationary monitor.

Customer Service Initiatives

Voice over IP

Currently, HealthAlliance has in-building wireless phone capability, but the coverage is limited to the Emergency Department and the Cancer Center. The in-building facility supports telecommunications with voice over Internet Protocol (VoIP) throughout the hospital, and it is currently updating its telecom system to support VoIP handsets.

"The train of thought is to provide the caregiver with a wireless VoIP device that they will have with them when they are with the patients or if they are at lunch. It makes the nurses easily accessible to the doctors or the patients. It improves communications," says Mohnk.

Customer Access to Internet

Customer access to the Internet is not perceived as a pressing need at this time, according to Mohnk. In the hospital's surveys, different constituents have had diverse opinions as to its importance. "It's been all over the map. It seems like it is more important for the family members visiting the patients, as opposed to the patients," says Mohnk.

Bedside Registration

Ubiquitous wireless coverage makes bedside registration and documentation possible so registrars can go straight to the bedside and begin ordering tests immediately, if someone has been transported to the hospital in an ambulance and taken directly to their room.

Productivity, Workflow Gains

HealthAlliance has discovered that the key to productivity gains is to stop depending on landlines for communications in the mobile environment of the healthcare facility. Clinicians work in a mobile environment and wireless data systems allow them to take their care straight to the bedside. The clinicians can submit their documentation over the network from the patient's bedside, instead of writing it down and going back to a computer.

"We are not totally there yet, but we have several nurses doing it. Doctors will borrow the carts and take them to the bedside to show a CAT (computed tomography) scan to the patient, which helps to educate them on their care," says Mohnk.

Radio Frequency Identification (RFID)-Enabled Equipment

RFID-enabled equipment is currently a big buzzword in the hospital communications industry. "Some feel that RFID is the lifeblood of the next wave of savings in healthcare, but I keep asking the questions, 'Will it reduce staff if we can locate this equipment? Where will the

savings come from?'" Mohnk asks. He has yet to hear satisfactory answers as to how this technology is going to fit, but he is studying it.

Challenges for the Future

HealthAlliance's initial benchmark for success — 100 percent wireless coverage throughout the hospital — has been met. The next series of challenges is lining up vendors to deploy a variety of wireless applications after testing and then training the staff. "We have the infrastructure in place," says Mohnk. "The challenge we face is making it happen."

Another challenge is measuring return on investment. It is too early for HealthAlliance to track the savings of its passive in-building wireless system. With a single infrastructure running throughout the facility, however, the hospital will definitely save money on the redundant costs and disruptions to patient care that occur from the installation of separate, dedicated wireless systems. Equipment upgrades are less expensive, as well.

Through the deployment of various wireless systems, Mohnk expects a return on investment that will positively impact the hospital's strategic initiatives. This means gains in patient safety and quality of care, reducing the cost of care; better customer service, possibly translating to repeat customers; and improved productivity/workflow, which frees up nurses to spend more quality time with the patients or to serve more patients. □