

Hospital System Improves Communications Coverage Throughout Five-site Hospital Network



With continuous expansion throughout the past 25 years, a multi-site hospital system in the Midwest tripled in size, putting severe pressure on its aging analog two-way radio system. Coverage both inside buildings and between its four remote sites was spotty and often nonexistent. Today, MOTOTRBO™ digital radios and IP Site Connect have brought instant, seamless communications throughout the coverage area, improving security and staff efficiency, and enabling a phased migration to an all-digital two-way radio system.

CHALLENGE: Analog system unable to keep pace with expansion

A member of one of the nation's largest not-for-profit healthcare organizations, the multi-site hospital system is the state's largest healthcare employer.

Built in the 1970s, the hospital system, which also covers a children's hospital, has gone through numerous expansions growing to three times its size within the past 25 years. In addition to the expansions, the buildings themselves offered unique challenges to the hospital's RF radio system. With no central hallway, varying rooflines, thick, impenetrable walls and numerous add-ons, the aging analog radio system was no longer able to cover the entire area. In addition, communications from underground areas, such as basements and tunnels, were also a challenge.

"We could receive audio down in the basement but we couldn't transmit," says the head radio technician.

At the same time, the main hospital system's maintenance and security staff wanted the ability to communicate with the other hospitals in the system, the farthest located about 20 miles away.

"We had been dealing with radio problems for about the last ten years," says the technician. "Each hospital, and even each department, had separate systems and each system had its own problems."

"We thought the difference wouldn't be extreme enough to spend the money," he said. "I knew we had RF issues but didn't really think anything could be done about it. But once I had these radios in my hand, I was amazed. The improvement over analog is a big plus and it's helped us out a lot."

- Head Radio Technician of the Hospital System

Products

- MOTOTRBO XPR™ 6550 portable radios
- MOTOTRBO XPR™ 4550 mobile radios
- MOTOTRBO XPR™ 4300 repeater
- IP Site Connect

Benefits

- Greater coverage that enabled business expansion
- FCC compliance to 12.5 kHz mandate
- Significant savings each year in cost avoidance



MOTOTRBO meets FCC Mandate for 12.5 kHz

To increase spectrum efficiency and accommodate more users, the FCC is mandating 25 kHz licensees to operate using 12.5 kHz efficiency by January 1, 2013. MOTOTRBO digital radios offer a seamless path to 12.5 kHz, allowing customers to transition at their own pace.

Interference from other users add to challenge

Although the radios used by the maintenance and ground teams worked well, there were still several areas inside the buildings where coverage wasn't available. Security was on a separate system, which was tied to the same frequency as a local school bus system on the east side of the city, causing interference and intermittent communications.

"We couldn't hear their traffic but if we tried using the security radios at the same time the bus company's dispatchers were using it, our transmissions wouldn't always go through," says the technician. "It was especially bad in the mornings and afternoons during bus runs."

The customer assessed several alternatives, testing each one in various trouble spots throughout the hospital. However none were able to transmit out from the mechanical rooms in the tunnel beneath the basement area.

Solution: MOTOTRBO digital radio system with IP Site Connect

The customer met with a local Motorola channel partner who recommended MOTOTRBO digital radios with IP Site Connect.

Using digital technology, MOTOTRBO radios provide expanded coverage, clearer audio, longer battery life and enhanced functionality. The addition of MOTOTRBO IP Site Connect software further extends communication by enabling the hospital to link the various single-site systems together while leveraging their standard IP network. IP Site Connect ties together the MOTOTRBO digital repeaters located in the basement and on the rooftop to seamlessly extend coverage throughout the tunnels and into other challenging areas of the hospital. IP Site Connect virtually eliminates the obstacles of physical barriers, limited coverage and lost functionality, providing extended coverage wherever it's needed and uninterrupted voice and data communication without geographical limitations.

The channel partner worked with the customer to re-use elements from the existing system, such as combiners, duplexers and repeaters. "We scoured that system to keep the cost down for them," says the channel partner.

The hospital system's new MOTOTRBO digital radio system includes 154 portables, four control stations and eight repeaters.

"We've also installed five control stations up in the penthouse that we've direct-wired to the dispatch console in the security office," says the technician. "One goes to the hospital's Disaster Command Center; another one goes to the telephone operator. That way I don't have to provide portable radios to those locations and they can still transmit and receive radio traffic."

“MOTOTRBO not only met our coverage goals, it also helped us comply with the upcoming FCC mandate for narrowbanding, which we would have had to do anyway. This way we were able to upgrade our radios once and do it right the first time.”

– Head Radio Technician of the Hospital System

Results: Reliable communications, expanded coverage, reduced interference

When the channel partner first began discussing the potential of digital technology, the head technician wasn't immediately convinced. “We thought the difference wouldn't be extreme enough to spend the money,” he said. “I knew we had RF issues but didn't really think anything could be done about it. But once I had these radios in my hand, I was amazed. The improvement over analog is a big plus and it's helped us out a lot.”

Today, the hospital's security, maintenance, grounds and transportation teams all have access to reliable communications throughout the main hospital and the four remote sites. Radios were also provided to nurses, doctors and administrators for disaster response and to provide heightened security and safety in the event of an emergency.

“The audio path is so much better,” says the technician. “Our users are happy and they like the ability to call radio-to-radio and not broadcast out to 20 radios at one time.”

Increased efficiency with coverage between remote sites

Prior to the new system, coverage was nearly nonexistent between the main hospital and the facilities teams for the other hospitals. With all of the hospital system's sites connected through IP Site Connect, communicating is as easy as pushing a button. “Before, when the facilities team needed something, they would make a phone call, leave a message and wait,” says the technician. “Now all sites can talk to each other directly and get what they need right away. Everything runs so much smoother.”

Interference virtually eliminated

With MOTOTRBO digital radios, the risk of interference from outside users, including the local school bus fleet, has been virtually eliminated, ensuring that the hospital's security team has instant, seamless, reliable access to communications whenever they need it.

Cost-effective, phased migration to digital

MOTOTRBO radios are also dual-mode, which allow the hospital staff to continue using the radios in analog mode as needed, while moving one department or a single location at a time to digital technology, resulting in a phased, cost effective migration to all digital at their own pace.



Motorola MOTOTRBO XPR Digital Radios



Improved situational awareness for emergency situations

Because the municipal fire department provides fire protection services to the hospital, the customer has provided them with MOTOTRBO digital portables. In the event of an emergency, firefighters pick up the radios as they are exiting the fire station and can communicate enroute with the hospital for full situational awareness upon arrival. "At one point, we were talking about taking the radios back because of budget issues," recalls the technician. "The firefighters all protested, telling us that when they leave the fire station, they want the ability to call dispatch and immediately know what they're responding to."

Quiet, discrete communication when necessary

In a hospital setting, text messaging capability can also be a huge benefit when needing to communicate in the quiet areas or when discrete emergency communications are required. "We've talked about the value of using text messaging for various types of emergencies, such as if there's a suspected abduction or a bomb threat, where you don't want to key up the radio in case others are in the area," says the customer. "For example, Security can text the dispatcher that Area 1 is clear and dispatch can direct other security personnel to begin searching Area 2."

Compliance with FCC 12.5 kHz mandate

MOTOTRBO's TDMA digital technology provides the hospital with two time slots per repeater on existing 12.5 kHz licensed channels, doubling radio capacity while meeting the FCC's narrowbanding requirements. "MOTOTRBO not only met our coverage goals, it also helped us comply with the upcoming FCC mandate for narrowbanding, which we would have had to do anyway," says the head technician. "This way we were able to upgrade our radios once and do it right the first time."

Hospitals are dedicated to providing quality patient care, but adhering to that mission takes more than doctors and nurses. It takes a security team to protect safety, a maintenance team to keep the facility running, a grounds team to maintain a clean, safe, attractive environment. And it takes a communications system that enables an entire hospital staff, regardless of function, to work together to make it all happen. With the help of their new MOTOTRBO digital radio system, the hospital system continues to uphold the highest standards of patient care.

To learn how MOTOTRBO can help your business

www.motorola.com/mototrbo

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