

Improving Hospital Security with Integrated Two-way Radios

Two-way radio systems can now be leveraged in ways that weren't considered possible only a few years ago. Adopting digital radios and combining narrowband radio networks with Wi-Fi and cellular networks enable healthcare facilities to better protect their campuses and integrate their digital two-way radios with smartphones, alarm systems and PCs.



Research shows that hospital employees, particularly those working in emergency departments and behavioral health units, experience much higher rates of workplace violence than individuals working in other occupations. According to the Occupational Safety and Health Administration, between 1993 and 2009, healthcare workers had a 20 percent overall higher rate of workplace violence than all other workers, and workplace violence in medical occupations accounted for more than 10 percent of all workplace violence incidents in America.

Emergency nurses often are the victims, with more than half reporting they've experienced physical violence on the job, according to the Emergency Nurses Association. Additionally, research by the International Association for Healthcare Safety & Security Foundation has found that on average, two forensic patients escape every week from U.S. hospitals. The IAHSS has also found that from 2012 to 2014, the rate of violent crime reported at U.S. healthcare facilities increased 40 percent.

The need for better security at hospitals, then, is obvious, and a digital two-way radio

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“My favorite aspect of the MOTOTRBO™ radio system would have to be the versatility that they provide my department. The MOTOTRBO system offers my protective services officers the ability to text, have real time GPS location, utilize the built in Bluetooth® system, and communicate via radio traffic in environments that range from peaceful and quite to loud and tumultuous.”

— Garry Kimble, Protective Services Manager for Indiana University (IU) Health North Hospital and IU Health North Central Region

system is a critical tool that can be adopted by healthcare facilities that want to provide optimal security and safety for their patients, visitors, staff, clinicians and security officers. With recent technological advances, these radios are used for more than simple voice communications. They can also support text messaging, GPS, location mapping and work order ticketing. In addition, they can integrate with fire, duress, heating and ventilation (HVAC) and other alarm systems, as well as smartphones, tablets and PCs. All of this interoperability provides a whole-campus approach to protection and communication.

Healthcare facilities that adopt advanced digital two-way radio technology are poised to not only improve response during major emergencies, but also mitigate incidents and improve productivity of security staff and other hospital workers.

TWO-WAY RADIOS HAVE EVOLVED

Most hospital protection professionals are familiar with basic two-way radios. Often referred to as the “brick” that sits on a security officer’s duty belt, these analog units are used as a way security, custodial and maintenance staff can talk to each other and to the

hospital campus command center.

Although this basic functionality continues to be extremely important, today’s more advanced digital radios have many more features than their analog predecessors. For example, the MOTOTRBO digital communications system from Motorola allows security officers and other hospital workers to send text messages. Additionally, the radios have GPS and location mapping, as well as a panic alarm so a security officer or hospital worker can call for help and be located quickly should they experience an emergency.

Digital radios can track the movement of a security officer or maintenance worker to determine if he or she is in trouble. If the security officer stops moving or falls over, dispatch is notified so they can send help to the individual in crisis.

Some digital radios can even identify when a security officer or worker carrying the radio is entering a hazardous area on campus. MOTOTRBO’s Connected Lone Worker feature, for example, can identify when a maintenance worker enters a boiler room where there is a greater chance the employee could be injured. The Connected Lone Worker feature requires the maintenance staff member to

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touch a button on the radio periodically to let dispatchers know he or she is okay.

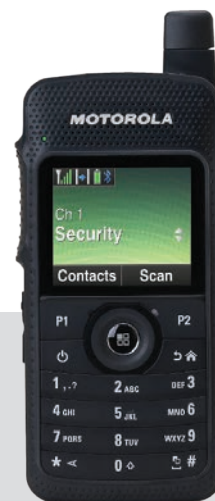
Another benefit of digital radios is Health Insurance Portability and Accountability Act (HIPAA) compliance. The encryption and scrambling capabilities of these devices ensure hospital staff can securely transmit confidential patient information.

TECHNOLOGY ADDRESSES NOISE AND PRODUCTIVITY ISSUES

Improved security officer and worker accountability and productivity can also be achieved with digital radio systems because dispatchers or supervisors can assign tasks more efficiently. For example, using MOTOTRBO, a dispatcher who identifies some suspicious activity can assign the nearest security officer to investigate the situation by sending him or her a time-stamped ticket. When the issue is resolved, the security officer closes the ticket, which can be reviewed later for auditing and productivity reviews.

Another challenge faced by both security officers and other hospital employees is noise, which can make it challenging for them to understand what is being communicated on their two-way radios. However, according to Garry Kimble, who is the protective services manager for Indiana University Health North Hospital and IU North Central Region, MOTOTRBO has addressed this issue for his security staff.

"My protective services officers operate in noisy environments that are constantly changing," he says. "The MOTOTRBO operating system has filtered out unnecessary background noise to allow the officers to communicate with dispatch. We have also utilized the ability to text individual officer



8 BENEFITS OF DIGITAL RADIOS

- 1 Can survive minor and major disasters when Wi-Fi and cellular networks often become overloaded or stop functioning
- 2 HIPAA compliant with advanced encryption and scrambling capabilities
- 3 Connect via IP and cellular networks under normal, non-catastrophic circumstances, enabling them to communicate with onsite and remote PCs and smartphones, as well as monitor alarms emanating from fire, intrusion, panic, HVAC and other systems
- 4 Filter out unnecessary background noise for clearer communications
- 5 Provide advanced features such as text messaging, GPS and location mapping
- 6 Offer enhanced safety features such as panic alarms and lone worker monitoring
- 7 Improve hospital security officer and staff accountability and productivity with work order ticketing
- 8 Provide greater coverage in hard-to-reach areas, such as basements

WHY YOU SHOULD CONSIDER ADOPTING THE HYBRID NETWORK APPROACH

Hospitals should not rely primarily or solely on cellular networks and the Internet for safety and security communications. Minor events could affect coverage. For example, mobile phone service could be disrupted because a vehicle has crashed into a local cell tower. The Internet might go down because of malware.

The events causing disruption could also be significant, such as an active shooter in the emergency room or a tornado striking three blocks away, prompting an overload of both networks because everyone in the hospital and surrounding community is texting, emailing and calling their friends and family to check on them.

Fortunately, narrowband networks that support digital two-way radios offer a viable solution to this challenge because they are hardened, redundant and designed to survive and continue working during both minor disruptions and major disasters.

Motorola has developed a hybrid approach with MOTOTRBO that combines digital radio networks with cellular and Wi-Fi. This enables hospitals to leverage their Internet and mobile phone networks under normal circumstances, while using the digital radio network during both normal business operations and when cellular and Wi-Fi services are disrupted.



CAN YOU RELY ON YOUR NETWORK?

	DIGITAL RADIOS	CELLULAR	INTERNET/WI-FI
All systems functioning optimally, normal business functions	Yes	Yes	Yes
Communications to staff in basements or other hard-to-reach areas on campus	Yes	Not reliable	Not reliable
Cell service down	Yes	No	Yes
Internet/Wi-Fi service down	Yes	Yes	No
Workplace Violence Incident	Yes	Might or might not be reliable	Might or might not be reliable
Natural disaster	Yes	Not reliable	Not reliable

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radios when we needed to send specific officers messages.”

SOLUTION CONNECTS RADIOS TO SMARTPHONES, PCS AND MORE

For healthcare organizations with multiple off-site campuses or offices, MOTOTRBO has several different system architectures that allow remote facilities and campuses to be connected via an IP network. With the right console, there also are opportunities to coordinate more closely with local law enforcement and emergency service agencies.

In addition to connecting with other radios, Motorola’s MOTOTRBO and WAVE™ interoperability and broadband push-to-talk solution can securely connect radios to smartphones, tablets and PCs. Using the public cellular network, a smartphone can use MOTOTRBO and WAVE to emulate a two-way radio that will work anywhere there is cellular or Wi-Fi coverage.

This solution is appropriate for hospital administrators and executives who don’t normally carry a radio but need to be able to talk to members of the security department during an emergency. It’s also appropriate for hospital security supervisors who might be off-site on a business trip or training event but need to communicate during an unexpected incident. They just log into the app on their smartphone, select the person or team they need to contact, and they are immediately connected as if they were talking on a two-way radio.

SYSTEM ALSO MONITORS ALARMS

Hospitals deploy many different types of security and life safety technologies, including panic alarms, fire alarms and intrusion detection systems, but managing all of these



signals in an effective manner can be extremely challenging. Fortunately, digital radio technology can help.

MOTOTRBO can monitor these alarms, as well as alarms from other systems, such as HVAC, creating an interoperable ecosystem that meshes disparate systems into a more manageable and effective approach to overall safety and security.

For example, if a nurse working in the emergency department activates her mobile duress pendant, MOTOTRBO notifies security personnel so they can promptly respond. If the alarm is high priority, dispatch can make a broadcast call to all of the radios, interrupting the less important conversations in progress. The broadcast call can then alert everyone that an emergency is taking place and provide instructions on how security officers should respond to the situation.

RADIO NETWORKS ARE HARDENED, MORE SECURE

The concept of integrating the digital radio network with Wi-Fi and cellular may be new to some, but the benefits of this hybrid approach are many. Digital radio networks have battery backup and are hardened, dependable, redundant and designed to survive a major disaster. So, during a major hurricane,

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tornado, earthquake or other emergency when the cellular network and Internet don't work, a hospital's digital two-way radios can continue to function.

Under normal, non-catastrophic circumstances, however, Wi-Fi and cellular networks can be used to supplement the narrowband radio system.

With this in mind then, the best approach to achieving the dependability of the digital radio network with the ease and flexibility of Wi-Fi and cellular coverage may be to combine all three networks. This hybrid approach has been adopted by MOTOTRBO.

HOW THE HYBRID APPROACH WORKS

Under normal circumstances, the Wi-Fi and cellular networks are used to integrate radios with smartphones, PCs and alarms. Should a major disaster occur, however, and the Wi-Fi and cellular networks go down or become clogged, security officers can still rely on their digital radios for emergency communications because the radio network has been hardened with redundant controllers and repeaters. Even if the power goes out and repeaters stop working, the radios can still talk to each other.

Also, because the radio network is private, only security officers or workers with authorized radios tuned to a hospital's frequency will be able to access the network. Unlike cellular networks that get clogged during emergencies with people calling and

texting family members to tell them they are okay, a private two-way radio network will remain up and running so that hospital campus protection professionals can communicate and respond to the emergency at hand.

Additionally, digital two-way radio networks provide better coverage than Wi-Fi and cellular networks. For example, in a large hospital, a traditional cell or Wi-Fi network often can't reach shielded rooms and basements, even when the Wi-Fi and cell networks are fully operational. Digital radios, however, can be engineered to provide complete coverage of a campus.

LOOK FOR FLEXIBILITY AND FUNCTIONALITY

Today's digital two-way radios have more functionality and flexibility than ever before. Kimble gives a key piece of advice so that hospitals can make the most of these advances: "Work with your IT department so you can maximize the full potential of the MOTOTRBO platform," he says.

Healthcare facility protection stakeholders who follow his advice and adopt advanced two-way radio technology will be able to not only get the most out of their digital radios, but their other technologies as well, such as their PCs, smartphones and alarms systems for a more integrated and interoperable approach to safety and security.



For more information on how integrated communications can improve safety and efficiency at your healthcare facilities, visit www.motorolasolutions.com/healthcare