

The Springfield, Ill., medical center is using 100 RFID-enabled bracelets and a network of readers to secure three floors of its six-story facility.

By Beth Bacheldor

Mar. 9, 2009—[St. John's Children's Hospital](#), located in Springfield, Ill., is employing an RFID-enabled security system to protect newborns and children up to 18 years of age in its care. The system, provided by [RF Technologies](#), covers three of the facility's six floors, as well as an outdoor play area in the center of the hospital's fifth floor, which has a two-story-high atrium open to the sky. St. John's has 80 beds, and averages approximately 1,600 admissions each year.

The system, known as the Safe Place Infant/Child Security Solution, replaced St. John's previous RF-enabled security system, which had never worked properly since its installation in 1998, when the hospital opened, according to John Mosher, St. John's security manager. "There was radio interference, but no one could ever isolate it," Mosher says. "We would receive 200 alarms a day." The false alarms continued for approximately three months, until a decision was made to uninstall the system.

Mosher admits he was skeptical when he sat down more than a year ago to talk with RF Technologies about installing Safe Place. But Josh Lutzke, RF Technologies' senior account executive who worked directly with St. John's on the installation, says he reassured Mosher and others at the hospital that his company's system would not succumb to interference. "We have taken precautions with our hardware to build in filtering," he states, "so we are not prone to a lot of interference."

In addition to the filtering, Safe Place features dual-frequency transmitters—active RFID tags that periodically emit signals at 262 kHz and 318 MHz. The reusable transmitters are embedded in wrist or ankle bracelets, and RF Technologies provides customers with specialized sterilizing solutions to clean the tags. The doorway interrogators pick up the tags' 262 kHz transmissions, while readers deployed elsewhere within a facility receive their 318 MHz signals.

St. John's, which has utilized the system for a year, has had very few false alarms with Safe Place, Mosher says. What's more, he adds, the hospital has never had any incidents of patients being removed without authorization from the facility.

The bracelets are equipped with tamper-proof technology that transmits an alert if a band is cut, or if an individual attempts to remove it, effectively breaking the connection. As the connection is severed, the bracelet sends one last "dying signal" to the nearest reader, which then transmits that tag's ID number, along with the location of the receiver that picked up the dying signal, to a back-end server. RF Technologies' software then interprets that information, enabling the system to sound an audible alarm at nurses' stations, and to contact the staff's cell phones.

If someone attempts to take an infant or child wearing a bracelet through a protected doorway or other point of exit, the system will automatically trigger an audible alarm. Employees can then view computer

screens to determine in which zone the patient is located, as well as that person's identity.

Twenty-eight 262 kHz readers at St. John's were installed at doorways, as well as at entrances and exits to stairways and elevators. Eighty-three 318 MHz receivers, meanwhile, were installed throughout the other areas—three floors of the hospital that house labor and delivery, as well as the neonatal intensive care and pediatrics units. The 318 MHz receivers are used primarily to verify that the tags are functioning properly. "If there is any problem with an individual tag," Lutzke says, "we want to know that, rather than just assume that a baby or child is being protected."

The Safe Place system's ease-of-use is another feature that caught Mosher's attention and, ultimately, sold him and others at St. John's on deploying it. "I knew, from the day I saw Safe Place, that it was what I wanted," he says. "The nursing staff doesn't have to jump through a lot of hoops to use it—it is very quick and straightforward."

Hospital workers can log onto any computer—including bedside computers—by entering their user names and passwords, or by swiping their ID badges through a magnetic-stripe reader connected to the computer. Pediatric patients arriving at the hospital receive bracelets upon admission, at which point the tag's unique ID number is correlated with the child's last name, using the software's pull-down menu. When a baby is born at the hospital, nurses place a Safe Place bracelet on that child in the mother's recovery room, then log the information into the software without having to leave the room.

St. John's is employing 100 of the Safe Place RFID-enabled bracelets. The hospital does not currently use the bracelets on infants in the neonatal intensive care unit, however, because the babies are so small, and since the bracelets must be taken off too frequently in order to perform various tests on the children. Regardless, Mosher says, the hospital decided to implement the system in the ward anyway. "It is there if and when we decide we want to use it," he states.

RF Technologies has implemented its Safe Place system in other hospitals as well. Wisconsin's [Waukesha Memorial Hospital](#) has deployed the system throughout its women's and children's wing, located on the facility's third floor (see [Tamper-Resistant RFID Infant-Tracking System Improves Security](#)). And [Shawnee Mission Medical Center](#) (SMMC) upgraded from an earlier version of RF Technologies' system to the current, dual-frequency Safe Place system now in use, because the newer version reduced the number of false alarms (see [Shawnee Mission Medical Center Expands Pediatric Tracking](#)).