



At the East Tennessee Children's Hospital, about 1,900 full and part-time staff support nearly 6,000 inpatient admissions each year, including over 10,000 surgeries.

Radio Callbox System Bolsters Safety at Children's Hospital

In need of an emergency communication system for a new employee parking garage, a Knoxville hospital installs a two-way radio callbox system that fits time and budget constraints.

There are thousands of doctors, nurses, aids, technicians, and volunteers who provide daily care for hundreds of pediatric patients at East Tennessee Children's Hospital of Knoxville. Most park in the new employee parking garage – at all hours of the day and night. Regardless of when they come and go, Chief of Security, Steve Bohanan wanted them to not only be safe, but to know they were only moments from help should a need arise. A Ritron wireless callbox intercom system provides this peace of mind along with instant notification of security personnel.

Fast Response Time is Key

Whether an employee presses the callbox button to summon help because they have observed an unsavory character lurking nearby or because they left their lights on and now have a dead battery – response time is key. To speed response time, the moment that someone presses the “push-to-talk” button, several things happen simultaneously. All radio equipped security officers receive the distress call along with the location of the callbox, and a blue strobe light begins to flash – serving as a deterrent to nefarious people nearby.

Because all radio-equipped security personnel receive the same message, the closest officer can then respond back directly to the caller, along with their ETA. This is in contrast with other systems which alerts a “dispatch” officer who then determines which security officer is closest, then radios to the officer to respond. With immediate and direct notification to all officers, response time is reduced considerably.

In addition to faster response times, this “system-wide alert” system also allows all security officers to proceed with their normal activities, yet still be available for emergencies. The callboxes are linked to a conventional UHF narrowband repeater which is located atop the hospital, and dedicated solely to the callboxes. This provides clear messaging to all radio-equipped security officers no matter where they are located throughout the campus. Security personnel are actively engaged in their normal activities – yet still responsive when a callbox call comes in. This effective use of manpower without compromising safety helps keep costs down – e.g. no additional people or services are required to man a dispatch desk.

Like Deja Vu All Over Again

When Children's Hospital of Knoxville personnel decided that they wanted a security system for the then under-construction employee parking garage they had plenty of local installations to look at. The facility is adjacent to Fort Sanders Regional Hospital and within a mile of the University of Tennessee Hospital – so they could literally walk to see how others were addressing the same situation.

One of these facilities has a telephone-based emergency call system which Bohanan did not like for several reasons. From an operational standpoint, the telephone wires can be cut – if that happens, then the system is useless. From an ongoing maintenance standpoint, this type of system would be owned by the telephone/IT department and then rented out to the individual departments where the phones (or security phone

systems) are located. With a total of 20 callboxes, even moderate charges per line can add up quickly, plus the project is then out of Security Services control, which is problematic in and of itself.

While it can be helpful to see how other facilities are handling similar situations, there is nothing quite like your own experiences to guide you. In the year 2000, Children's Hospital had installed 13 Ritron callboxes in their patient parking garage. This structure included two callboxes per floor – one on the east wing and one on the west, with a single callbox on the top floor.

These have performed flawlessly for the past 13 years – but were in the process of being updated to comply with the new narrowband initiative. Since he was very pleased with their performance, replacing them with the newer, narrowband version of the same product was a no-brainer for Chief Bohanan.

When selecting callboxes for the employee garage, Bohanan figured it was going to be difficult improving on what he already had, so he opted for a similar system for the employee garage.

How the System Works

The Ritron callbox is a specially designed two-way radio transceiver (which allows the user to talk back to the security officer) with designed-in, application specific features. The callbox is rugged, weather-proof and includes an internal vandal-proof antenna. Although the radio can be powered by alkaline batteries, the Children's callboxes are externally powered - each is powered by a 50-amp Astron power supply. Installation time for each callbox was approximately an hour/callbox.

Metro Communications, a full service radio communications dealer in Knoxville, designed, sold and installed the callbox systems. The Ritron radio callbox has some Metro Communications-installed options specifically tailored for the Children's Hospital installation.

"We install a blue strobe light and a key switch with every callbox, we use the built-in DTMF encode feature of the callbox to send a unique DTMF code (location ID) for each callbox" explains Metro Communications Vice President Jimmy Hayes. "Then we install a DTMF decode board into each of the Motorola HT1250 portable radios that the security officers use."

When the push-to-talk button on the callbox is pressed, the DTMF signal is sent by the callbox, and decoded by the portable radio – indicating the location and floor of the originating callbox. Concurrently, the blue strobe light begins to flash – and continues to do so until the security officers arrive on scene with the proper key to turn off the strobe.



The new employee parking garage at the Children's Hospital is equipped with the Ritron wireless callbox intercom system. The system provides instant notification to security personnel of potential problems.



The system is very similar to the one already in place in the patient parking garage. A single callbox is installed in the center of each floor, near the stairs and elevator. A total of 8 callboxes are in-service in the employee garage. The callboxes communicate campus-wide, utilizing the 40-watt repeater and 50-foot antenna mounted on the hospital's roof.

Safety Has Never Been So Cost Effective

Because it significantly speeds response time, Ritron Callboxes provide an extremely effective security measure for Children's Hospital of Knoxville. Sending the distress signal to all radio-equipped security officers and allowing the closest one to respond means that fewer officers are needed – there is no need for a "dispatch officer" manning a desk and waiting for calls to come in. In addition, because the repeater provides excellent coverage across the campus, officers are able to more confidently perform patrol duties knowing they are still accessible from anywhere and able to respond quickly when called. This effective use of manpower further streamlines their costs.

From an ongoing maintenance standpoint, there are no recurring costs for the callbox system, this is in contrast to telephone-based security systems which charge monthly or quarterly fees.

Regardless of cost, the system would not be considered a success if it did not work – and since 2000 the Ritron system has proven its worth. Officials estimate that the patient garage generates about two calls a week – everything from suspicious characters, feeling unsafe, to locked keys in car, dead vehicle batteries, and more. Whether it is a major emergency or a minor inconvenience, Bohanan and everyone who use the Children's Hospital parking facilities can rest assured that help is just a push-button away.