

Emory Healthcare Tracks Its Pumps

Georgia's largest health-care system is using active RFID tags to track the status and location of 2,400 infusion pumps, on and off the premises.

By Mary Catherine O'Connor

May 15, 2007—Emory Healthcare, Georgia's largest health-care system, is deploying GE's IntelliMotion RFID asset-tracking system to improve management and utilization of infusion pumps and other high-value equipment.

IntelliMotion is comprised of 2.45 GHz active RFID tags compliant with the newly ratified ISO 24730 standard (see ISO Ratifies 2.4 GHz RTLS Standard). The platform is manufactured by real-time location system platform provider WhereNet, along with WhereLAN location sensors, which act as tag interrogators and locators, and WherePort exciters, which serve to wake up WhereNet tags in a dormant, energy-saving mode. GE sells the WhereNet hardware under its IntelliMotion brand, coupled with GE's IntelliMotion Web-based asset-tracking software.

Emory University Hospital, Emory Crawford Long Hospital and Wesley Woods Geriatric Hospital each have 800 infusion pumps that have already been tagged and are presently being tracked. Arnold Barros, director of Emory Healthcare's anesthesia services, says that before using RFID to track the items, the hospitals knew only, after performing regular manual inventory counts, how many used pumps were in the soiled-utility areas of each hospital, and how many cleaned pumps were in stock and ready for issuing to patients. What they didn't know was how many pumps were being used, how many had been used but had not yet been brought to the soiled-utility area or how many might have been removed from the facilities (which is not supposed to happen, but does).

This information was inadequate for hospital staff to feel confident they had all the infusion pumps they might need. As a result, inventory managers often rented additional infusion pumps to supplement their in-house stocks, so they would be ready to respond to nurses' requests for the pumps. Under the new system, RFID interrogators installed at the doorways to the soiled-utility rooms record when tagged pumps enter or leave the rooms. IntelliMotion pulls this data into inventory lists detailing how many pumps are in the utility areas at any given time. Location sensors are also installed in the entrance and exit points of the inventory areas, providing an inventory of tagged pumps available for use. This, says Barros, helps keep the hospitals' inventory records more accurate and more quickly updated.

The hospitals now have a level of asset visibility they never had before. Location sensors installed at chokepoints and other strategic locations across the hospital wards read the WhereNet tags as the pumps are brought into service in those wards. Location sensors also read the tags as the pumps are removed from those areas.

Armed with this new data, Barros and his team can cross-reference lists of infusion pumps and registered patients in each ward.

"Say all soiled areas are empty [of infusion pumps]," Barros explains. "I can look on each floor and see how many are on each. Say there are 50 pumps in a certain wing but only 30 patients...that tells me that there are some used pumps there that need to be brought to the soiled utility and back into available inventory."

Occasionally, ambulance personnel remove an infusion pump used to support a patient being transferred to another facility. These technicians are supposed to bring their own infusion pumps for use while the patient is in transit, says Barros, but they sometimes forget to do so and often fail to return the infusion pumps they take. WhereNet location sensors have now been installed at the hospitals' exits, however, so when someone takes an infusion pump, the system can quickly remove it from available inventory.

Eventually, these sensors will trigger alerts sent to pagers worn by Barros and his team, enabling them to know as soon as an infusion pumps leaves the premises. The alerts will remind the team to check which ambulance services were removing patients at the time the location sensors read the pump's tag. Later, they can call the ambulance company and request the device be returned to the hospital.

The IntelliMotion software updates the inventory lists each time tagged devices are brought into or out of the doorways, or other chokepoints where location sensors have been installed.

RELATED_ARTICLES Currently, the hospitals have not placed location sensors in each patient room in the wards being monitored, so staff must search for used pumps within the wards or hospital wings. Still, says Barros, the new system is an improvement over the old, though he does not yet have any specific data regarding how much time and money the hospitals are saving.

Barros says he looks forward to gaining enough data regarding pump utilization to determine whether the hospitals will end up renting additional infusion pumps, either because they are poorly managed—by failing to send used pumps to the soiled utility area in a timely manner, or through the hoarding of sterile pumps among nurses who worry they won't be able to access a clean pump when they want one—or because the hospitals' inventory of pumps is genuinely inadequate to meet demand.

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