

Vixia, a provider of material-management services to health-care organizations, is using a real-time location system to help manage equipment at the California medical facility.

By Claire Swedberg

Dec. 20, 2010—[Vixia North America](#), a provider of solutions and managed services to insurance companies, financial companies and health-care organizations, is employing a hybrid infrared (IR) and RFID system at [Mission Hospital](#), in Mission Viejo, Calif., to track the location, cleaning and maintenance of its equipment. Following the system's installation at the 552-bed hospital, the equipment utility rate for tagged items rose by 7 percent, Vixia reports, while the rate of lost or stolen devices dropped from 13.8 percent to zero.

The system consists of [CenTrak's](#) IR monitors, RFID readers and battery-powered RFID tags, as well as Vixia's VixPort software, built on a [Patient Care Technology Systems \(PCTS\)](#) end-user asset-management platform known as Amelior Enterprise Visibility Suite. Vixia installed IR monitors within each of approximately 500 patient rooms, and in all hallways and public areas (the hospital's private sections are not monitored). It also installed RFID access points throughout the facility—providing 100 percent coverage throughout the building's public sections—and attached tags to mobile assets of high value. The entire system was deployed in only four weeks, going live on May 1, 2010.



*Andrew L. Halasz, Vixia
North America's president*

Vixia provides Mission Hospital, as well as other health-care facilities throughout North and South America, with material-management solutions and services that free up hospital staff members from tracking the location and condition of its medical equipment. Vixia employs a staff of eight to 10 people at Mission Hospital to manage its assets, including cleaning the items and delivering them to the appropriate departments' storage areas for clean equipment. Typically, hospitals that manage their own assets have a utilization rate of about 35 to 45 percent, says Andrew L. Halasz, Vixia North America's president. By outsourcing the task to Vixia, however, a medical facility can raise that figure to 75 percent or more.

Vixia either provides the RTLS solution without Vixia personnel to operate it, or offers its Equipment Distribution Service, whereby Vixia personnel manage the equipment without deploying an RTLS. Vixia has provided hospitals with RTLS solutions involving passive or active RFID technology, IR technologies and data-management software. Each hospital's own staff can then utilize the RTLS to help them manage equipment. In the case of Mission and a few others, however, Vixia's service includes both an RTLS and its own employees onsite, to physically manage the servicing and tracking of equipment. Mission Hospital chose this option in the hope that it could better manage the annual maintenance of its assets (to keep the hospital in [Joint Commission](#) compliance), lessen the build-up of assets that are brought to the storage areas for soiled equipment, and reduce the loss of equipment through the facility's exits.

The company selected the CenTrak Gen2IR solution because it offered room-level accuracy, and because the installation would not be disruptive to patients or staff members. The system's IR modules are battery-operated (requiring battery replacement every five to 10 years, depending on the beaconing settings), and thus required no additional wiring. Power over Ethernet (POE) is used for the RFID access points (all CenTrak access points can utilize POE). Vixia began providing its service to Mission Hospital on the same day that the RTLS went live.

Each room, hallway area and exit has an IR monitor attached to the ceiling, for a total of 659 monitors installed throughout the facility. The disc-shaped device is the size of a smoke detector, and can be attached directly to a rail in a dropped ceiling. Each monitor transmits an IR signal encoded with a unique identifier, explains Ari Naim, CenTrak's president and cofounder. The ceiling module transmits its signal in such a way that it fills a room with IR light (thereby reducing the likelihood of the module's signal being blocked by a physical obstruction). Each tag is equipped with an IR sensor that receives the monitor's ID number. Every one and a half seconds, the tag then transmits the monitor's ID, along with its own unique identifier, to the nearest of the hospital's 90 RFID access points, via 900 MHz RFID transmission. Those access points capture the data and forward it to Vixia's VixPort software via a cabled connection. VixPort links the IDs with the room-location data, and displays a particular item's location on a map of the hospital that Vixia's and the hospital's workers can access when seeking an asset.

VixPort also provides an alerting function. Every time a piece of equipment passes through an exit, for example, the software determines whether an activity of concern is taking place. If the situation merits attention, VixPort issues an alert to Vixia's staff and hospital security via text message and e-mail, in order to indicate what has occurred. Equipment loss frequently occurs when a patient is transferred to another hospital by ambulance, at which time the equipment often accompanies that patient out of the facility. Protocol dictates that ambulance employees remove the equipment and use their own, returning those items to the hospital before driving away. That, however, does not always occur. With the alerting system, Vixia's staff can walk to the exit in question and ensure that the assets do not leave with the ambulance.

Alerts are also issued if the quantity of a specific type of item—such as an infusion pump—falls below the acceptable threshold in the clean storage area, and if there is a pile-up of equipment in the soiled utility room. Finally, an alert is sent daily to Vixia's staff to indicate which items need to be retrieved for annual maintenance.

With the real-time location system, Vixia can not only address a potential problem before it occurs, but also provide historical data to the hospital, and to Joint Commission inspectors, such as preventative maintenance records for each asset.

By using IR-enabled monitors as well as RFID, Naim says, "We take the emphasis off foot-level accuracy [knowing where an item is within a few feet], for 100 percent certainty that an asset is in a

specific room." For example, he explains, one potential shortcoming for RFID is that RF signals can often be read through walls, sometimes resulting in unclear location data that indicates an item is within a few feet of a particular location, but not which side of the wall it is on. IR signals, on the other hand, can not pass through walls, providing simply the number of the room in which the equipment is located.

The hospital has tagged 1,750 items to date, Halasz says, though it has requested further tagging of more assets now that it is assured of the system's benefits. The system provides not only higher utilization rates and eliminates shrinkage, he adds, but also increases nurses' satisfaction since equipment is more often readily on-hand. "We also survey nursing teams," Halasz states, "and the satisfaction rates have increased since the system was installed."

Vixia received the CenTrak equipment it purchased on Apr. 10, and Vixia's staff installed a complete room-level infrastructure, initially tagging roughly 1,400 pieces of moveable medical equipment, in time for the start of the company's Equipment Distribution Service on May 1. Because the IR modules were battery-powered, Halasz says, "it took someone with a step ladder only a few minutes to install in each room." Vixia will maintain the system, he indicates, including replacing batteries in the modules and tags.