



Manage Accountability, Measure Success

Clinicians are discovering new ways to apply the point-to-point knowledge that a granular location information system provides.

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Vol. 13 • Issue 4 • Page 33

The hospital is not an island unto itself. As executives in health care management, we must commit ourselves to responsibility beyond the walls of our own hospitals - to patients and staff, and in service to the community and country, and, yes, even the global health care cooperative. It is our responsibility to marry the resources available to us: capable and caring staff, and the most advanced technology and innovative ideas. We must be willing to turn from antiquated health care delivery systems, embrace new mechanisms for process improvement and document our discoveries.

Challenges to the delivery of care are innumerable. Some factors are external: fewer facilities to serve more patients, a nationwide nursing shortage, the uninsured or underinsured, and costly liability coverage. Other causes are internal, such as lack of standardization, communication and follow-through. Sometimes challenges stem from equipment being misplaced, misused or mis-maintained. Oftentimes, however, challenges are people-related: demanding family members, self-diagnosing patients and unwillingness to adopt a new model of care. Very often barriers to care delivery are a simple matter of logistics: Patient A is missing a consent form, Patient B is missing his dentures and Patient C is just plain missing.

How do we control costs and account for the many variables that affect the right care to the right patient at the right time?

The lexicon of our discussion must begin with real-time location systems (RTLS), which are helping hospitals to overcome challenges to the delivery of high-quality care with innovative, substantial and timely solutions. It is in this vein that we will orchestrate continual improvements to the health care landscape. We can deliver a remarkable patient experience and support a "Magnet status" professional practice environment. And we can do so while improving safety and satisfaction for patients and staff alike.

Investigate and improve

Technology purchases are essential in order to keep up with the ever-changing pace of health care and the

improvement initiatives upon which we must deliver. But it is hard to know where to invest those dollars. Is the technology going to become obsolete? Will I be able to demonstrate a substantial return on investment? How will I even measure the benefit of my investment?

RTLS offers an answer because the known location of patients, staff and critical assets provides immediate benefit to the organization in and of itself. However, the integration of location information to existing clinical information systems further enhances applications that already have been deemed worthy of investment.

Today, it seems that every RTLS vendor is touting its technology or ease of installation over every competitor system. The basic components of the many active RTLS systems are essentially the same: A badge (for people-tracking) or a tag (for equipment-tracking) is affixed to mobile resources and emits signals picked up by a reader network. However, the technology options that power RTLS seem endless: infrared (IR), ultra-wide band (UWB), radio frequency identification (RFID), ultrasound, Zigbee, Rubees, even Bluetooth.

When evaluating the many RTLS technologies, it is wise to first undertake a needs assessment, noting specific challenges each department faces. Clearly outline goals and desired functionality. Then, to determine whether the technologies you are evaluating fit your action plan, weigh each RTLS application against three key criteria: (1) accuracy, (2) timeliness and (3) reliability.

Accurate RTLS systems provide room- and bed-level location information. A system that does this at least every 3 seconds fulfills the timely requirements of nurse call life safety applications. Reliability should be your top concern. If your clinicians and the clinical information systems they rely on cannot depend on accurate location information, would-be achievable benefits will not be realized.

Technologies such as infrared offer highly granular location reads every 3 seconds or better. Additionally, as IR produces location data only where the signal is seen, issues with reads in other rooms - or even on other floors - will be nonexistent. With high-quality data, produced in a timely fashion, rules can be written that provide automation for many functions that your staff would have to manually perform. An accurate RTLS system can automate nurse call registry lights, turning them on and off based on the presence of a nurse's badge. Accurate data also allows facilities to create rules related to bed assignment, milestone reporting and alerts, EKG orders and completion, as well as an array of other tasks that either wouldn't occur in timely fashion or wouldn't be communicated without the RTLS system in place.

RTLS systems offer granularity and accuracy consistently exceeding expectations, allowing facilities to move toward automation, reduced workloads and improved patient flow.

Delivering on great expectations

Many hospitals utilize certain RTLS technologies to track assets to general areas. In these instances, the hospital is simply identifying the presence of equipment. For other hospitals, such as Womack Army Medical Center, in Fort Bragg, N.C., general location is not enough. Property accountability, asset-density requirements, mass-casualty patient tracking and theft deterrence are other practical uses for the system.

The IR-RFID technology that provides room-specific location information at Womack is also the main driver for patient flow applications, as well as nurse call and other HIS integrations. Patient flow and increased turnover times have been hot topics over the last few years. Multiple studies support what we know to be true: Short wait times, time to disposition and discharge all affect patient satisfaction, which in turn affects revenue.

Memorial Hospital Miramar in Miramar, Fla., implemented its RTLS from Versus Technology house-wide in 2005. With infrared locating, the hospital has simplified clinical functions; through automation, it has eliminated tasks such as manual updates to patient milestone status, printer selection and manual overrides to medication dispensing units. In addition, Memorial Miramar has seen dramatic declines in its emergency department (ED) in adult throughput times: over 18 percent for treat-and-release patients and 36 percent for admissions. An unintended result of new discharge protocols, which include the return of RTLS badges: Memorial Miramar increased cash collections by as much as 60 percent following RTLS installation.

By tracking patients from the moment they arrive in the ED, left-without-treatment rates at Christiana Care Health System in Wilmington, Del., have declined by 24 percent. Staff also have a chance at service recovery because an

alarm notifies staff when a patient wearing a badge attempts to leave. The Christiana Care service-recovery program contributes to patient safety and satisfaction.

Linda Laskowski-Jones, vice president of emergency, trauma and aeromedical services, was responsible for bringing the Amelior EDTracker RTLS to Christiana Care. "The IR-RFID system is mission-critical technology," she said. "The system is used to move patients through emergency services, support patient flow and provide access to timely treatment. It allows the organization to see the location of emergency department patients, the kind of patient and acuity level."

Safe and secure

Beyond enhancing patient care and reducing workloads, RTLS provides personal safety measures. This is due in part to the call capabilities available on some RTLS badges. At Sprucedale Care Centre, a long-term care facility in Strathroy, Ontario, residents wear personnel alert badges. According to Administrator Darren Micallef, "It has given our residents the freedom and independence they deserve, as they are able to call for assistance anywhere in the home by simply pressing the button on their badge." Because location is communicated with the alert message, staff can respond quickly to where the resident is located.

According to Laskowski-Jones of Christiana Care, "Staff feel protected as an outcome of tracking their interaction with patients. Let's say, for example, that a staff member may have been unknowingly exposed to a toxic or harmful substance. The RTLS allows every [badge-wearing] person that has come into contact with a patient or an exposure to be identified."

Henry Tenarvitz, president of Versus Technology, commented, "When RTLS first came about for use in health care, it was really about getting patient calls directly to the nurse as quickly as possible. We did that, reducing response times by about 75 percent on average. It turned out, though, that the benefit went as much to the nurse as to the patient."

Everyday or extraordinary options

Many facilities choose to optimize their nurse call life safety applications with clinical-grade RTLS. Integrations such as these eliminate nursing's most seemingly incessant frustration: the struggle to get to the headwall in order to hit a button to cancel a patient call. With RTLS, the patient call is canceled when the appropriate nurse enters the room. "It's not that tripping over patients, pumps, family members, chairs, tables and nightstands is the most strenuous task we ask of our nurses," Tenarvitz said, "But when they have to repeat the same process, over and over, day in and day out, well, if we can make their lives easier, we should. A system like ours actually helps eliminate over a half mile of unnecessary steps in a nurse's day."

In addition, RTLS can be used to validate lean sigma or business processes. Facilities utilizing clinical-grade RTLS capture custom data for process improvement. Data is captured based on business intelligence, and is available for real-time and historical reporting. Because it is accurate and reliable, clinicians can depend on it for patient care improvements. Health care facilities can evaluate based on historical, real-time and "what-if" scenarios.

Accuracy, timeliness and reliability

The benefits of an RTLS are quantifiable and reverberate throughout the organization. Every day, clinicians are discovering new ways to apply the point-to-point knowledge that a granular location information system provides. Isn't it time to see what RTLS can do for you?

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