DOTmed®
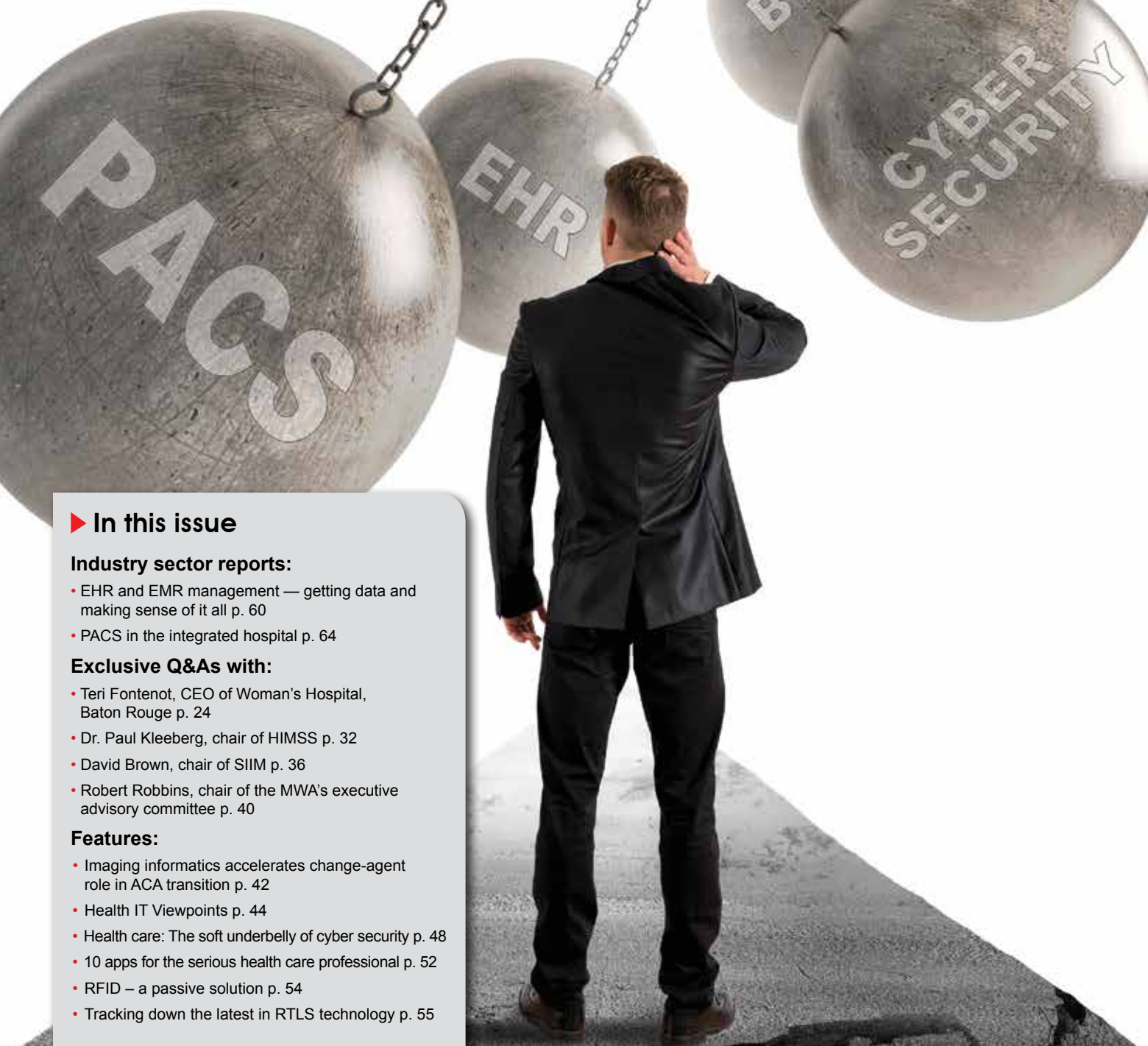
Your Industry Source for Health Care and Equipment Coverage

April 2015

HealthCareBusiness ℠
news

Facing the Health Care IT
Challenge

▶ In this issue

Tracking down the latest in RTLS technology

Just a few years ago, the vast majority of real time location systems (RTLS) installed in hospitals had one primary and critical role – locating assets. Secondary to the tracking of high-value mobile equipment was often the location of personnel and patients. Such systems are installed now in as many as one in five health care facilities, but the latest generation of RTLS solutions is aimed at a whole new set of pain points. RTLS still answers the question, "Where's my stuff?" but the technology has grown exponentially for tracking other information.

Over the past decade or more, RTLS went through the usual growing pains of new technologies – hospitals piloted and deployed the systems in limited installations. Since that time, those early adopters are finding new ways to benefit from RTLS data, while at the same time technology prices have dropped. The result is that today's systems are growing in scope and variety.

RTLS wireless solutions bring location data to users via Wi-Fi, infrared, ultrasound, Zigbee, active RFID and ultra wideband transmissions. While RTLS growth has been steady, it's expected to be accelerating in coming years. The numbers illustrate the overall growth: RTLS health care technology sales are estimated to reach more than $2 billion annually by 2020, according to a 2014 study by sales and marketing analyst firm MarketsandMarkets – a growth rate of 32.9 percent from 2014.

In addition to the dropping cost of hardware and software, new standards have been a major driver (such as standardization of technologies like ISO/IEC, ANSI, ETSI, and IEEE). Government authorities are also taking initiatives to support the adoption of RTLS by the health care industry. For instance, Veteran Affairs (VA, U.S.) and Hewlett-Packard (U.S.) have signed a five-year contract for installing RTLS systems in VA hospitals.

But the greatest change for RTLS is the broadening scope of applications. At the center of nearly all of them is a quest for improved patient safety, according to Nupoor Joshi, research associate at MarketsandMarkets. Safety, she points out, can include helping prevent infections, ensuring patients are moving properly through processes such as surgery, and that equipment is being properly cleaned and maintained before being used on another patient. With this in mind, many

new RTLS applications focus on automated hand hygiene, blood tracking, laboratory and operating room management.

Safety and efficiency in the OR

Tracking patients through the operating room can both boost safety and improve efficiency, thereby enabling a higher volume of surgical procedures. RTLS technology tracks patient progress throughout their perioperative journey. So if it's deployed properly, a system can bring visibility regarding patient location and key clinical milestones, explains **Melissa Sminchak,** STERIS Product Manager. STERIS offers a software solution known as RealView Visual Workflow Management software designed to accomplish this and quite a bit more — identifying, for instance, when a room is available for cleaning, when a potential delay is occurring, or when a piece of equipment has been moved to the wrong location.

And the greater visibility into the status of operating rooms – based on movement of patients, staff and equipment – allows more efficient scheduling of all cases, says Lena Fogle, RN and perioperative consulting director at STERIS. This enables quick turnover in rooms for sequential cases.

Using the software, families can also get automated, up-to-the-minute messages about their loved ones. Additionally, family members can receive these messages via mobile devices, which means they don't need to be tethered to the waiting room to get updates.

Software platforms that combine patient flow automation technology with real time awareness and analytics can be key. For instance, TeleTracking offers its Real Time Capacity Management solutions to automate as many of the physical functions of the hospital as possible and monitor them in real time to increase efficiency in the delivery of care, says **Jason Harber**, vice president of product management at TeleTracking Technologies, Inc.

"Managing virtually all operational functions online eliminates time lags in those processes that account for most hospital overcrowding problems," says Harber, including prolonged length of stay, OR underutilization, diversions and delays in providing

access to the proper level of care, and needy patients waiting in hallways for beds.

PinnacleHealth System is an example of a health care facility that initially launched its RTLS system for asset tracking, but has since built a fully automated solution for improving OR efficiency and safety. Recently it installed a Sonitor system combined with the STERIS RealView management system to track the movement of patients through the surgical process from the waiting room through to discharge. Because the system is designed to identify whenever something happens outside of the predetermined sequence, staff can receive an alert if anything goes wrong.

"I think our main objective was to give a broad view of where our patients were at any given time," says **Angela R. Whyte**, surgical services IS coordinator at PinnacleHealth.

At the beginning of a new patient case, the software allows the hospital to alert an orderly, anesthesia technician or other health care provider that a patient is in the operating room and therefore ready for the necessary services. "They come to the room and it eliminates a whole lot of phone calls and overhead paging," Whyte says. "It's very quiet and calming back in the OR suites because you're not having that disruption. It's amazing how quiet it is because the phone is not ringing."

PinnacleHealth's RTLS system also enables the scheduling of additional surgeries per day by making each step of the surgical process more efficient. And the technology is also providing the health system with analytics. "You can measure any kind of milestone that you want as far as: Nurse A takes this amount of time to process patients, Nurse B takes this amount of time, so what's the difference in their processes that one's taking more or less time than the other?" says **Bonne DuCharme**, IS Coordinator

The hospital is using the technology to determine the quality of a visit based on how the patient's time was used. "One of the things that they're looking at right now is total length of stay (measured against the length of stay through the preoperative phase) to make sure that the patients aren't here too early, to make patient satisfaction higher," says DuCharme, "so you can quan-

tify and measure all of these different milestones throughout the process."

RTLS can also contribute to a safer work environment. For example, Michigan hospital Memorial Healthcare launched its RTLS system several years ago with staff safety as its priority, while asset tracking followed as an additional use case. At Memorial Healthcare, staff members are equipped with Ekahau RTLS tags so that, in the event of an emergency in the hospital's psychiatric unit, they can immediately request help by pressing a button on the tag. The system automatically locates that individual within the facility so that aid can get to him or her fast.

Monitoring hand hygiene

Identifying hand hygiene compliance is an increasingly popular concern among health care facilities as well. RTLS systems monitor hand-washing events and can also track patients, staff, physicians and equipment that may have been exposed to infection.

The technology can bring monitoring data to hospitals that previously relied on manual audits. For example, New Cross Hospital in West Midlands County, U.K., is using a TeleTracking and CenTrak based system to boost hand hygiene compliance among its staff. Staff members can view their compliance rates at any time, via the touchscreens installed throughout the hospital. While the hospital did not expect rates of 100 percent compliance, it did find that during the first few months after the system was taken fully live, that compliance rates increased.

Any hand-hygiene based RTLS installation needs to be done with intelligence, and planning related to just how the large volume of data can be filtered and managed. It needs to do more than just generate numbers, points out **Colin Furness**, epidemiologist and director of research for Canadian infection control technology company Infonaut and adjunct professor at the University of Toronto.

Furness says the company found that simply providing data about how often nurses, for instance, wash their hands isn't, in and of itself, of great benefit. "The system tells you there is a problem, but does not offer enough information for a solution, now you have

something to keep you up at night," he says.

The company found that while tracking proper procedural behavior is important, these measurements require some intervention as well — educating staff, for instance, as to where problems occur. "RTLS is great for taking invisible problems and making them visible," Furness says. However, health care facilities then need to know what they will do with the data. "Our data gives you the starting point," he says. Infonaut conducted testing at a hospital in New York to determine whether equipment was staying in isolation rooms, as intended, or coming out. That information allows the hospital to view where the problems are and then train staff to ensure equipment does not move in unauthorized ways that could lead to an infection.

In addition, RTLS can enable hospitals to quickly access a history of who, based on the RTLS badges they wear, was in the vicinity of a patient who is found to have a dangerous, communicable disease, allowing the facility to take the proper actions for staff and patient safety.

The point, he says, is for RTLS to solve problems, but only if the user asks the right questions and knows what to do with "the fire hose of data" that they're presented with.

Reducing Delays

Delays are one of the most costly problems for health care facilities. The time between a patient's discharge orders and his or her actual departure from the hospital can be hours. RTLS systems such as Teletracking's create automated discharge alerts for those who need to know in real time when the patient actually leaves the hospital, triggering processes needed to admit another patient and ensuring that the room is ready.

The University Hospital of Valencia, (La Fe), in Spain is using RTLS to track both patients and assets to boost efficiency of its patient care and also reduce errors. The system includes tags for patients and assets, and RFID readers built into mobile carts, allowing the staff to identify each patient before providing them with services. Fixed readers ensure the hospital knows when patients are moved through the OR process, when rooms are

available and therefore when those rooms should be prepared for the next patient.

By taking inefficiencies out of the flow process (by displaying bed status — occupied, dirty, vacant — as well as providing status updates about patient delays), automated solutions add as much as 20 percent more usable capacity without adding a single bed.

Tracking of patient discharge is another function that RTLS offers to boost efficiency. Teletracking sells a solution displaying discharge milestones online to assure that all discharge procedures are conducted in a timely manner. "We also provide disposable wristband transmitters which trigger the throughput process for the next patient awaiting a bed when the discharged patient leaves the hospital," says TeleTracking Technologies' Harber.

Most waiting is waste when it comes to health care, says Tracy Faleide, corporate communications director for Intelligent Insites. Often physicians are waiting for resources, nurses are waiting for rooms to be available, and patients are waiting to be healed. And meanwhile, there is RTLS technology available to automatically sense the movement and proximity of people and equipment all

across the health system. "That kind of visibility uncovers the process bottlenecks, equipment shortages, or manual steps that drag out delays and pile on costs," she says.

RTLS providers are turning that visibility into operational intelligence that automatically drives efficient care delivery. The goal is to automate workflow steps and communications while providing in-depth visibility that fuels continuous improvement of the patient, staff, and family member experience.

In addition, environmental monitoring solutions track temperature, humidity and CO_2 levels and automate compliance logging to prevent spoilage and the subsequent waste of expensive vaccines, medications, nutrition and supplies.

"We expect to see rapid growth in the adoption of enterprise-grade operational intelligence," says Faleide, meaning RTLS technology will be embedded and leveraged across all aspects of health care operations and in all types of facilities. "We have seen a significant increase in inquiries, requests for proposals, and requests for meetings with our executives as health care delivery systems and technology providers attempt to gear up for rapid-but-informed implementation," she adds.

Share this story: dotmed.com/news/25239