5 Ways to Improve Safety in Healthcare with the Use of RTLS

As a patient you don’t go to a hospital or a clinic to feel worse. As a healthcare provider, you don’t go to work to feel unsafe – however these situations happen more often than they should.

> One in four patients admitted to a hospital will suffer some form of unintended harm.¹
> The number of medical device recalls in the US quadrupled over from 2009 to 2015, surpassing 3,000 in 2015.²
> Only 30% of hospitals have implemented World Health Organizations best practices for hand hygiene.³
> One in six patients admitted to a hospital will get an infection.⁴
> More than half of nurses who work in emergency departments report they’ve been physically assaulted on the job.⁵

These industry-wide statistics are a reminder of the need to strengthen safety efforts in healthcare. While there are many ways of tackling this growing problem, this whitepaper focuses on the use of technology, specifically Real-Time Location Systems (RTLS), to help accomplish this goal.

1. Gain Visibility into the Location of Equipment, Staff, and Patients

What happens when hospital staff cannot easily locate equipment that is required to deliver patient care? At a minimum, there will be patients annoyed by waiting and nurses frustrated by having to take time out to search for equipment. In more severe cases, there could be patients’ lives hanging in the balance while Code Blue care teams scramble to get crash carts, intubation kits or other life-saving devices in their hands. While possibly extreme, this scenario demonstrates the risk to not only patients, but also the hospital. This risk can be mitigated by tagging equipment to provide real-time location visibility.

In addition, an RTLS system can assist with preventing medical equipment from piling up in hallways. This enables healthcare organizations to meet The Joint Commission Standard for Life Safety, LS.02.01.20, which requires the hospital to maintain the integrity of the means of egress. With real-time visibility into equipment status and location, hospital staff does not need to keep equipment in the hallway for expected use. They can see where equipment is on a map and retrieve it when needed. They can also request delivery of the equipment by creating a task within the RTLS system. Real-Time Locating Systems also allow for the setting of rules to notify staff if a piece of equipment is close to violating The Joint Commission’s 30-minute “parking time” rule. For example, a notification can be sent automatically to transporters when a specific type of equipment, such as a bed, has been in any hallway or passageway for a defined number of minutes, e.g. 20 min., so they can promptly dispatch someone to pick up a piece of equipment and take it to a cleaning or storage area.

Best Practices from InSites Customers

The Environmental Services team at Infirmary Health receives automated notifications if any piece of equipment, which can potentially obstruct the 8 feet of corridor clearance, needs to be relocated.

The same goes for locating staff. During every shift, nurses need assistance from others on the care team to accomplish their work. Lifting a patient, transporting a patient to a lab or surgery, or finding another staff member for identity confirmation before administering medication are all examples of daily tasks that require assistance. Making it easy for team members to find each other not only improves efficiency, but also directly increases patient safety. Additionally, staff safety improves when a simple button press can automatically send signals to nearby colleagues, allowing for rapid response to staff distress situations.
A missing patient incident is likely one of the “what keeps me awake at night” moments for any healthcare provider. Articles such as “Body found in hospital stairwell” remind us of the sad reality that these occurrences do happen in the hospital environment. One way to prevent such patient elopement is by adding a location sensor to patient ID badges. Not only will staff have visibility into patient location at all times, but an RTLS-based system can also notify staff if a patient leaves a designated area, such as their assigned room or ward.

A locating badge can also be used by a patient as a way to request assistance. What makes it much more powerful than a typical nurse call system is that staff will know the exact physical location of a patient in need, not just their assigned room number, which might not be where they are when assistance is needed. In an outpatient environment, the ability to request help adds an additional safety measure, going beyond line-of-sight monitoring.

2. Ensure Damaged, Recalled, Expired or Non-Sterile Equipment Isn’t Used for Patient Care

Every piece of medical equipment requires regular preventive maintenance. But what happens when a bio-medical engineer cannot locate it or if it is still being used for patient care? Or, what if recalled equipment or expired supplies are used in the delivery of patient care? An RTLS-enabled asset and supplies tracking system provides healthcare organizations with the ability to quickly remove unsafe assets to ensure patient safety.

In addition, real-time locating systems can help staff be more proactive when it comes to broken equipment. With an RTLS system, staff can automatically notify a bio-med shop when a piece of equipment needs repair by simply pressing a button on the asset's tag. The notification communicates the exact ID and location for rapid response.

The same process can be applied to prevent non-sterile equipment, such as an IV pump, from entering patient rooms. The sheer volume and mobility of medical equipment makes it difficult for hospital staff to keep track of where an individual piece of equipment has been and where it is going. With the use of the RTLS system, healthcare providers can see the location and status (e.g. clean, dirty) of each asset in the hospital, thus eliminating the risk of using a medical equipment, which has not gone through a proper cleaning process.

3. Prevent the Spread of Infectious Diseases

RTLS solutions can be instrumental for infection control. In the event a patient tests positive for a contagious disease, staff can instantly access reporting that identifies all of the locations, patients, staff, and equipment that the infected patient came in contact with. Care providers can then use this information to take appropriate actions to contain, decontaminate and get individuals potentially exposed in for preventive treatment.

Another advantage of using an RTLS solution is to gain instant access to meaningful real-time and historical information for analyzing infection patterns and assisting with compiling data requested by regulatory government agencies, such as the Centers for Disease Control and Prevention (CDC).
4. Increase Hand Hygiene Compliance

Low hand-hygiene compliance rates are a much bigger issue than one might think. Even if healthcare organizations conduct hand-hygiene surveillance through observation, this data represents only certain windows of time, and can be deceiving due to the Hawthorne effect, where those being observed display their “best behavior.” An RTLS-based hand hygiene monitoring solution will automate the recording of all hand hygiene events in a hospital and can remind healthcare workers to wash hands before interacting with patients.

The use of RTLS-based solution documents all hand-hygiene events in the hospital 24 hours a day, 7 days a week, providing infection prevention and process improvement specialists with accurate, real-time hand-hygiene data to affect changes in hand-hygiene behavior or to make adjustments in a quantity or positioning of hand-washing devices. Supported by an RTLS solution, healthcare organizations will not only be able to identify problem areas but also monitor if the applied changes make a positive impact. By choosing an RTLS solution offering enterprise-wide business intelligence, health system leaders can compare hand hygiene performance across units, facilities and even regions or divisions to identify best practices.

5. Ensure Proper Temperature Monitoring

A hospital may have hundreds of refrigerators, freezers, and warming cabinets which contain temperature-sensitive items such as pharmaceuticals, blood, specimens, blankets or food. A malfunction, human oversight, or something as simple as leaving the door ajar can cause temperatures to go above or below acceptable levels. The result can compromise patient safety, increase hospital expenses and even expose liability. To manage these risks, hospitals often apply manpower and task staff to monitor and log temperatures periodically every day. Though a workable solution, this takes caregivers away from their primary responsibilities and opens the door for human error.

With an RTLS solution, healthcare organizations can continuously and automatically monitor temperature without human error or time-consuming manual readings. Every few minutes the temperature readings are gathered by the RTLS system, which stores and processes information for each unit being monitored. If the temperature exceeds or drops below a pre-set threshold, an alert is transmitted so immediate corrective actions can be taken. Instant access to real-time and historical information regarding temperature readings and any corrective actions taken can also be used for compliance reporting required by The Joint Commission.

The above examples are just a few of the ways an RTLS system can improve safety in healthcare. There are many more opportunities to leverage location systems for the good of patients, staff and the community at large.

Best Practices from InSites Customers

With automated temperature monitoring, Wake Forest Baptist Health was able to identify many refrigeration units that were not able to maintain the required temperatures to sustain their contents; something that hadn’t been found with the previous, manual process.

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For additional information, please visit:
U.S. Department of Veteran’s Administration
U.S. Department of Health & Human Services

3. DebMed Poll
5. Emergency Nurses Association online survey.

About Intelligent InSites

Intelligent InSites helps transform healthcare with real-time operational intelligence that improves care, enhances the human experience, and increases efficiency. Through its open, real-time, healthcare platform, Intelligent InSites automatically collects and processes data from multiple data sources such as EHRs, financial systems, building systems, sensory and real-time location systems (RTLS), mobility solutions, and other healthcare IT solutions, and then provides actionable intelligence to achieve cost savings, operational excellence, and better care.