RTLS — Nurse Call Integration

Automating processes and improving care

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Nurses are the backbone of patient care. They are the faces of the hospital to the patients, and they administer most of the bedside care. In spite of this, nurses are increasingly forced to handle an increasing number of non-caregiving activities. Electronic documentation, care coordination, and other activities are taking the nurses away from the patients.

The Concern

While trying to focus on the actual work of caring for patients, however, nurses can often be stifled. Assets such as diagnostic equipment, for example, are often difficult to locate, and procedures for collaborating with doctors to assess individual patient needs can be frustratingly inefficient.

Efficiency is, for a number of reasons, crucial. "The Journal of Patient Safety reviewed multiple studies and is estimating that between 210,000 and 400,000 deaths per year were associated with preventable harm in hospitals." (Journal of Patient Safety, September 2013, Volume 9, Issue 3).

For hospitals, the reduction of these procedural errors is a deeply felt concern. It is also an important financial one. One component of the Patient Protection and Affordable Care Act, signed into law in 2010, ties hospital payment to quality performance on high-cost, high-frequency procedures. If hospitals are to improve the efficiency of patient care (and maximize payments for their work), they must implement systems that enable nurses to succeed in their bedside work with patients.

The Goal—Improving Workflow

In order to facilitate the success of nurses and thereby improve patient care, the nurses' workflows must be evaluated and made more efficient. How quickly are patients' concerns addressed? Is every asset the nurse requires for a given patient readily available? How open are the channels of communication between nurses, doctors, and staff?

To answer these questions, hospitals need data regarding the location and performance of key staff. Automating this data collection, rather than assigning it to hospital employees, keeps nursing and staff mobile and working where people are needed, while dramatically increasing the accuracy and efficiency of the data collection.

Once this data can be collected, new insights are at hand and specific process improvements can be identified. These new processes frequently include automating basic tasks that do not involve time spent with a patient, thereby increasing the time caregivers can spend with patients.

Real-Time Locating Systems

Real-time locating systems (RTLS) are gaining traction as technologies that automate a number of tracking tasks vital to hospital operations. KLAS research reported that 10 – 15% of hospitals were employing RTLS technology, with 95% reporting gains in operational efficiency. (KLAS, December 2011)

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Using RTLS technology, locating tags on people or objects can communicate with a series of sensors strategically placed throughout the RTLS environment. The tag's position relative to these sensors is visible on digital maps for reference and tracking.

RTLS technology is commonly employed in hospitals to track assets. Nurses can spend hours trying to find diagnostic equipment, properly sterilized instruments, and other assets. One recent study estimates that, on average, a nurse spends one hour per shift simply trying to find things. In a hospital with well-integrated RTLS technology, nurses can find what they need quickly. All that's required is a search on a nursing-station computer or a portable device, such as an iPhone. Less time looking for equipment can mean more time spent actually caring for the patient.

Another common RTLS implementation strategy enables the tracking of patients. Each patient is given an RTLS tag, and the patient's location information can be linked with other patient information, enabling workflow solutions and providing key data for the electronic medical record. The location can be used by other systems to infer the status of the patient and help drive patient flow.

Nursing staff, too, are increasingly using RTLS tags to help facilitate patient care. Sophisticated nurse call systems like Rauland Responder can facilitate a direct patient-to-nurse communication, and these systems are one of the most important tools a hospital has for ensuring excellent patient care. Linking nurse call with RTLS locating technology gives the hospital a powerful tool for increasing workflow efficiencies and, ultimately, improving patient care.

How RTLS-Nurse Call Integration Works

Each patient's bedside is equipped, at the very least, with a button that triggers a light and/or a notification sound, both at the nurses' station and above the patient's room.

However, these older, more basic systems, omit much important information, including the urgency of the call. One patient may simply need a shower or a glass of water; one may require restroom assistance; and yet another may be experiencing an emergency episode. In addition, nurses are often away from the nursing station, so finding the specific nurse assigned to a patient at any given time can be difficult.

Another nurse call development is the ability to communicate hierarchical concerns. Instead of one general "concern" button, the patient has access to buttons specific to the urgency or nature of his or her need, with corresponding lights and sounds.

Mobile technology, too, such as cell phones and tablets, can now be equipped with the ability to receive nurse calls from systems like Rauland Responder directly from the room. With this technology, nurses can gather information on the nature of the patient's concern, speak directly with the patient as well as with other hospital staff, access patient records

> "KLAS reported that 10% to 15% of the healthcare market is currently utilizing RTLS with 95% of those citing operational efficiency gains."
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and files, and so on, no matter where they are in relation to the patient's room or a nursing station.

By integrating RTLS with a sophisticated nurse call system like Rauland Responder, the nurse doesn't need to turn off the nurse call light manually. The nurse's tag provides location, and once the nurse enters the room, the location of the nurse can be transmitted from the RTLS to the nurse call system. The nurse call system then knows to switch off the call light as well as other notifications.

Integration, Tracking, and Reporting

This time lapse between the patient's call and the nurse's response is an important metric for determining how efficient a hospital's operations are, and RTLS technology makes this data more accessible and more accurate. More importantly, when the nurse doesn't have to think about the nurse call button, he or she is able to address the patient's concern more quickly.

RTLS technology can also enable the collection and interpretation of new categories of workflow data. With RTLS,

the amount of time a nurse spends in particular rooms can be accurately documented, and this data that can be analyzed in a number of ways.

Administration can use advanced reporting packages to identify how long nurses take to perform certain kinds of procedures–time that could be reduced with further training. Timestamps can be automatically captured when a caregiver is in a room, helping to address complaints about lack of time spent with a patient and whether those complaints are valid.

Nurse call/RTLS integration satisfies all parties involved: patients, floor staff, and administrators. Patients receive the direct, unmitigated attention of staff. Nurses are able to focus on important care-taking tasks as they arise, instead of focusing their energy on the technology that is supposed to be aiding them. Administrators have better data regarding workflow, productivity, and patient care. They are then able to make well-informed decisions regarding how best to address specific shortcomings and reward good practices.

Technology and Nursing Care

With a fully-integrated real-time locating system, nurses also gain direct access to patient concerns. Through nurse-call technology like Rauland Responder, nurses can receive patient communications and alerts, access relevant data, and locate relevant tools

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or instruments on the same mobile device. There is no need for the nurse to manually log that the equipment has moved, given that it's an asset being tracked. If the nurse forgets to put the device back or is using it on a longer-term basis, other interested parties can locate it in less time than a walk to the storage closet would take.

New advances in nurse call system technology and innovations such as RTLS present tremendous opportunities for both caregivers and administrators. The integration of these two sophisticated systems can provide extensive, and extremely accurate, data

for reporting, analysis, and workflow improvements. Hospitals can better examine how care is delivered and identify new ways to improve processes and procedures.

Even more importantly, caregivers are able to focus more time on the patient as basic, non-patient-centered processes are automated.

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This white paper was prepared for Rauland-Borg.