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REDUCING HOSPITAL-ACQUIRED CONDITIONS, PATIENT FALLS: CAN A POINT OF CARE PROGRAM PROMOTE SUCCESS?

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Hospital falls are common among a wide range of patient groups. They represent a significant problem for any medical facility. Serious patient injuries resulting from hospital falls are consistently among the top 10 events reported to The Joint Commission's *Sentinel Event Alert (2015).*

Falls present not only major patient safety issues but also legal, regulatory and economic problems. The average cost of treatment for a fall with injury is $14,000. The Centers for Medicare and Medicaid Services (CMS) no longer reimburse facilities for patient care involving hospital fall-related injuries *(Sentinel Event Alert, 2015).* Evidence-based guidelines for effective fall prevention programs are lacking, and the problem is expected to grow with an aging population.

This paper explores a methodology for using new, connected technologies to enable more frequent fall risk assessment, faster intervention and enhanced compliance with fall reduction safeguards that can potentially reduce patient fall rates at the point of care (POC).

PATIENT FALLS: AN OVERVIEW

Every year in the U.S., hundreds of thousands of patients fall in hospitals, with 30-50 percent of falls resulting in injury *(Sentinel Event Alert, 2015).* Injured patients require additional treatment and sometimes prolonged hospital stays. While prevention and reduction of hospital falls have long been a research topic, solutions to this prevalent safety problem remain scant.

According to data from the Joint Commission's Sentinel Event database, since 2009, falls with serious injury are consistently among the top sentinel events reported, with the majority of falls occurring in hospitals. Approximately 63 percent of these falls resulted in death, while the remaining patients sustained injuries *(Sentinel Event Alert, 2015).* In a study on cost, a fall with injury adds 6.3 days to a hospital stay (Wong et al., 2011). Emergency Care Research Institute, the nationally recognized nonprofit dedicated to improving patient safety, also reports a significant number of falls occurring in non-hospital settings such as long-term care facilities (ECRI, 2017).

However, minimal research on patient fall prevention programs has been done, and evidence-based guidelines for effective fall prevention programs are lacking. This makes it difficult for hospitals to address the problem effectively. For example, focusing specifically on older and/or high-acuity patients may mean that hospitals miss other patients who face a fall risk.

" The elderly and frail are particularly susceptible to falls and fall-related injuries; they are by no means the only population vulnerable to falling in health care facilities. Patients of any age or physical ability may be at risk due to the physiological changes of a medical condition or procedure, drugs, surgery and diagnostic testing that can leave them weakened or confused"

— Sentinel Event Alert, 2015

HOSPITAL FACTORS CONTRIBUTING TO PATIENT FALLS

The Joint Commission's Sentinel Event database reveals the most common hospital factors contributing to falls involve the following *(Sentinel Event Alert, 2015):*

- Inadequate patient risk assessment
- Failure to communicate patient fall risk profiles and required fall safeguards
- Lack of clinician adherence to hospital fall protocols and safety practices

- Inadequate staff orientation, supervision, staffing levels or skill mix for fall prevention
- Deficiencies in the physical environment that make patients vulnerable to falling
- Lack of hospital leadership support for fall prevention programs

Perhaps surprisingly, a recent article suggests that the practice of blaming and shaming providers for high fall rates can actually elevate fall rates. Hospital staff typically reacts by restricting patient mobility, which results in patient deconditioning and greater fall susceptibility (King et al., 2016).

IMPACT OF CMS PENALITIES

While CMS penalties relating to falls as hospital-acquired conditions were created to drive implementation of fall prevention programs, a recent impact assessment suggests these penalties have not created the desired reduction in rates of hospital falls. "The failure of these penalties may be due to the lack of evidence-based practice guidelines for fall prevention and the limited number of intervention studies conducted in hospital settings" (King et al., 2016). The failure may also be because 2017 was the first year that the entire spectrum of federally linked financial incentive programs was in full enforcement for falls.

CURRENT FALL PREVENTION PRACTICES

Most fall prevention programs are based on a multi-faceted approach. Typically, they begin with an assessment to identify patients most at risk for falls and fall injuries. Identified patients are then subject to hospital-defined protocols to address risks. Interventions typically include strategies addressing management of medical conditions and diseases related to fall likelihood, specialized nursing care, rehabilitation to improve strength and agility, hospital environment simplification and fall-prevention equipment use. Most programs rely on well-known standardized fall assessment tools such as the Morse Fall Scale, Hester Davis Fall Risk or Hedrich II Fall Risk Model, complemented by hospital-specific assessments for risks not captured through initial evaluation (Currie, 2008).

These standardized fall risk assessments are detailed, complex and time-consuming for clinicians to perform. To date, these assessments are done manually without any automated components. Therefore, they are typically implemented once every eight hours in most care areas, though they may be performed more frequently in the intensive care unit (Currie, 2008).

THE PROMISE OF AN AUTOMATED POINT-OF-CARE ASSESSMENT OF FALL RISK

Using automation to measure and address fall risk at the POC would enable more frequent patient assessment and speedier interventions. This can potentially prevent falls and subsequent injuries while promoting greater patient mobility.

There are a variety of commercially available scoring and decision support technologies that can be customized for measuring and monitoring fall risk. These technologies can potentially become the centerpiece of an effective, streamlined point of care (POC) fall prevention program. Medical device information systems (MDIS), for example, provide a unique combination of capabilities that further this goal. These systems support configurable Question and Answer (Q/A) screens that can be customized to capture and store patient fall risk information.

For example, caregivers taking vital signs might be required to respond to a variety of questions:

- Is the bed in the low position?
- Are the wheels locked?
- Has the patient been educated on fall risks?
- Has the patient been toileted in the last 1, 2, 3, 4, 5 hours?
- Have you communicated any changes to the nursing staff/doctor?
- Is the patient call light, phone, and bedside table in the correct position?

These automated POC technologies capture and populate standard fall-risk assessment tools with relevant device data, such as heart rate and blood pressure. Together, the information gathered relating to bed position, patient fall education and the biometric data can create a score. The score demonstrates the risk of fall for the patient. Appropriate hospital protocol interventions and communication can assist the bedside provider at the POC. This information may also be transmitted to downstream systems. The sharing of the data with downstream systems such as the electronic medical record (EMR) or other clinical decision support tools can result in a robust pool of information for analysis by specialized built-in algorithms that can be optimized to help monitor compliance with patient fall programs and initiatives as well as efficacy of current patient fall protocols.

Using MDIS technology, relevant physiologic information such heart rate and blood pressure will flow automatically into this data pool. When connected to a smart bed, the MDIS will help track compliance with prescribed fall prevention safeguards by monitoring bed height, side rail position, locked wheels and bed alarm settings.

Risk scores can be associated with hospital-specific guidelines for caretaker response. Bedside nurse extenders can intervene immediately as permitted, while data flowing to an alarm management system can provide remote notification to nurses who return to the POC to implement higher levels of assessment and intervention. This allows bedside nursing teams to work at the top of their practice to make the most of staff time and hospital budgets, while optimizing care.

An additional benefit of this approach is providing automated patient data such as relevant vital signs and risk score documentation, which are then transmitted to the EMR. Later, this information can be pooled across patients to measure the program's effectiveness in fall prevention and improve quality.

KEY STRATEGIES FOR MINIMIZING FALL RISK

Along with risk assessment and the other strategies discussed above, hospitals may employ the following key fall prevention interventions (Currie, 2008):

- Monitoring medication side effects and adjusting as needed
- Adjusting environment (e.g., design rooms to promote safe patient movement)
- Implementing exercise programs, such as Tai Chi, for long-term care patients
- Providing toileting regimen for confused patients, including patient checks every two hours
- Monitoring and treating calcium and vitamin D levels for long-term care patients
- Treating underlying disorders such as syncope, diabetes and anemia
- Limiting restraints use to promote ongoing patient mobility
- Lowering bedrails to facilitate easier patient movement
- Using hip protectors for geriatrics and long-term care
- Employing floor mats
- Monitoring prothrombin time, international normalized ratio (PT/INR) for patients at risk for falling
- Conducting post-fall assessment to determine the reason for a fall
- Treating patients with documented osteoporosis with bisphosphonates

POC monitoring devices and decision support tools can be used to support fall-prevention initiatives. A device that supports patient intervention documentation and then scores the documentation provides immediate feedback. The score generates specific care-area protocols, presenting interventions to the POC clinical user.

EARLY EFFORTS

" Due to the multitude of factors that play a role in patient falls, most successful fall reduction programs have implemented simultaneous strategies such as improving the fall risk assessment process, using visual cues or systems to alert staff to patients at high risk for falls, improving communication among staff regarding fall risk status, ensuring safe patient transfers while toileting, using equipment such as low beds and mats and improving staff and patient education to successfully reduce patient falls"

— *Health Research & Educational Trust, 2016*

In a Joint Commission Center for Transforming Healthcare's preventing falls with injury project, seven hospitals participated in an inpatient pilot. The hospitals used the Robust Process Improvement RPI® Methodology, a fact-based systematic and data-driven problem-solving method, incorporating tools and concepts from Lean Six Sigma and change management. Using the top contributing factors of falls and falls with injury, participating hospitals developed assessment tools, training programs, communication tools, interventions, patient education programs, reports and clinical alerts to reduce falls (Health Research & Educational Trust, 2016).

As a result, "five of the participating organizations submitted data throughout the project timeline. In aggregate, these organizations demonstrated a 62 percent reduction in the falls with injury rate and a 35 percent reduction in the falls rate. Five additional hospitals have tested the original work with similar results (Health Research & Educational Trust, 2016).

CONCLUSION

Properly implementing a fall prevention program is a major step toward reducing patient falls in hospitals and other medical facilities. Automated POC solutions enable lower costs, more frequent risk assessment and monitoring compliance. The quick and automatic communication of patient fall risk through customer-chosen alarm systems and the EMR allows for the right level of intervention at the right time, enhancing patient safety while maximizing staff utilization. Data trends over time can measure the program's effectiveness. With proper training and buy-in from all departments and staff levels, a multi-faceted POC fall prevention program can lower costs, shorten hospital stays, reduce preventable injuries and even save lives.

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