Preventing Patient Falls:
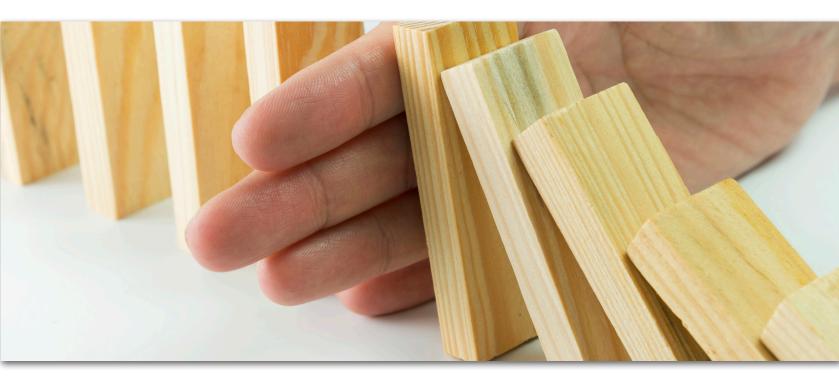
A Systematic Approach from the Joint Commission Center for Transforming Healthcare Project

October 2016

Table of Contents

Executive Summary

It is estimated that between 700,000 and 1,000,000 people fall in U.S. hospitals each year.[1] From 30 percent to 35 percent of those patients sustain an injury as a result of the fall, and approximately 11,000 falls are fatal.[2-6] Injuries related to falls can result in an additional 6.3 hospital days[7] with the cost for a serious fall with injury averaging $14,056 per patient.[8,9] Due to the multitude of factors that play a role in patient falls and falls with injury, most successful fall reduction programs have implemented multiple 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.

As part of the [Joint Commission Center for Transforming Healthcare preventing falls with injury project](#), seven U.S. hospitals started the journey of using Robust Process Improvement®, which incorporates tools from Lean Six Sigma and change management methodologies, to reduce falls with injury on inpatient pilot units within their organizations. The units chosen included four medical-surgical units, one medical oncology unit, a cardiology unit, and a medical-surgical/stroke/telemetry unit. The project was then pilot tested with five additional hospitals in order to validate the measurement system and solutions. Each organization identified the specific factors that led to falls with injury and developed solutions targeted to those contributing factors. The organizations identified 30 root causes and developed 21 targeted solutions to address those root causes. The combination of contributing factors was different for each organization, leading to different solution sets.

The seven participating hospitals set a goal to reduce the rate of falls with injury on the designated inpatient units (aggregated) by 50 percent and to decrease the falls rate by 25 percent. Organizations began with an aggregate baseline falls with injury rate of 1.310 (falls with injury per 1,000 patient days) and an aggregate baseline falls rate of 4.001 (falls per 1,000 patient days).

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 other hospitals have tested the original work with similar results.

This report describes the types of risks that lead to patient falls and falls with injury, the root causes for those risks, and the solutions designed to reduce them. Also included are examples and lessons learned from five of the participating and pilot health care organizations. The case study section highlights individual hospital and system experiences preventing falls with injury.

Background

Despite long-term and widespread attention to fall prevention, patients continue to fall, and many of these falls result in injury. Their experience is not unusual. It is estimated that between 700,000 and 1,000,000 people fall in U.S. hospitals each year.[1] From 30 percent to 35 percent of those patients sustain an injury as a result of the fall, and approximately 11,000 falls are fatal.[2-6] Injuries related to falls can result in an additional 6.3 hospital days,[7] with the cost for a serious fall with injury averaging $14,056 per patient.[8,9] Falls have been identified by the Centers for Medicare & Medicaid Services (CMS) as a preventable event that should never occur.

While much work has been done in the hospital setting, patient falls continue to be a problem. Preventing patient falls is a complex issue that requires using robust methodology to measure all of the potential contributing variables and then analyzing the data to determine the primary contributing factors. This process allows for implementing targeted, sustainable improvements.

Previous articles have suggested that focusing interventions on individual components of falls and fall risks has been unsuccessful in significantly reducing falls.[10] 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.[10]

This project utilized Robust Process Improvement® (RPI®) methodology to identify the various contributing factors for inpatient falls and develop and validate improvements to achieve sustainable results.

Participating Hospitals

Seven hospitals began participation in the Joint Commission Center for Transforming Healthcare's preventing falls with injury project. Hospital size ranged from a 100-bed community hospital to a 1,700-bed academic medical center. Each participating hospital identified an inpatient pilot unit for the purposes of this project. The units chosen included four medical-surgical units, one medical oncology unit,

a cardiology unit, and a medical surgical/stroke/telemetry unit. In addition to the seven participating hospitals, the project was pilot tested with five additional hospitals to validate the measurement system and solutions.

Case studies from five participating and pilot hospitals are highlighted in this guide:

- » Bassett Medical Center, Cooperstown, New York
- » Baylor Scott & White Medical Center – Garland, Texas
- » Kaiser Permanente Zion Medical Center, San Diego, California
- » Memorial Hermann Memorial City Hospital, Houston, Texas
- » Wake Forest Baptist Medical Center, Winston-Salem, North Carolina

Robust Process Improvement

The participating hospitals used the RPI® methodology to identify contributing factors and develop solutions to prevent patient falls and falls with injury on their designated units. RPI is a fact-based, systematic and data-driven problem-solving methodology that incorporates tools and concepts from Lean Six Sigma and change management in an effort to solve complex problems in health care. The participating organizations adhered to the Six Sigma DMAIC (Define, Measure, Analyze, Improve, Control) framework to uncover the contributing factors and root causes for falls and falls with injury in their designated units.

While all types and ages of patients admitted to a hospital may be at risk for falls, the scope of this project was limited to adult patients 18 years of age and older who were admitted and discharged from the designated pilot units. The process began when a patient was admitted to the unit, and the process ended when the patient physically left the inpatient unit—

e.g., for testing, rehabilitation, released after discharge. Only falls that occurred while the patient was physically on the designated pilot units were included in this project and were identified as a fall "on the unit," consistent with the National Database of Nursing Quality Indicators (NDNQI) recommendations.

For the purposes of this collaborative, a *fall* was defined as a sudden, unintentional descent, with or without injury to the patient, which resulted in the patient coming to rest on the floor, on or against some other surface, another person or on an object.[10] Falls considered to be *intentional*, in which the patient descends to or comes to rest on the floor, another surface or object within his or her control (i.e., sitting, kneeling, or laying down), were not a part of the scope of this project and, therefore, were not included in the analysis.[11] *Injury* was defined using the following NDNQI definitions and classifications:

» *No injury (0)* - fall resulted in no signs or symptoms of injury as determined by post-fall evaluation

» *Minor injury (1)* - fall resulted in application of ice or dressing, cleaning of a wound, limb, elevation, topical medication, pain, bruise or abrasion

» *Moderate injury (3)* - fall resulted in suturing, application of steri-strips or skin glue, splinting or muscle/joint strain

» *Major injury (4)* - fall resulted in surgery, casting, traction, bone fracture or consultation for neurological injury or internal injury

» *Death (5)* - the patient died as a result of injuries sustained from the fall (not from physiologic events causing the fall)[11]

Top Contributing Factors of Patient Falls and Falls with Injury

Five of the seven participating hospitals identified and validated contributing factors for why patients were falling in their organizations. The top 10 contributing factors—conditions identified most frequently by hospitals—for falls and falls with injury were grouped into six categories: 1) fall risk assessment issues, 2) handoff communication issues, 3) toileting issues, 4) call light issues, 5) education and organizational culture issues and 6) medication issues. Each organization discovered a different set of contributing factors that were important at that organization. Different organizations required different solution sets, based on the measurement and analysis of the contributing factors at their organization. The measurement of the contributing factors was critical to implementing sustainable solutions for the local project area.

Fall Risk Assessment Issues

Contributing Factors	Solutions
Risk assessment tool is not a valid predictor of actual fall risk	» Implement a "validated" fall risk assessment tool » Implement a standardized cognitive assessment tool and integrate into fall risk assessment tool if cognitive assessment is not included in current fall risk assessment
Inconsistency in ratings by different caregivers	» Standardize assessment tools used between nursing staff and ancillary staff (e.g., physical therapy); allow both service areas to access each other's charting detail in the electronic medical record (EMR) » Ensure staff is adequately trained on the fall risk assessment tool and test inter-rater reliability between different caregivers on staff

Handoff Communication Issues

Contributing Factors	Solutions
Inconsistent or incomplete communication of patient risk for falls between caregivers	» Use a "ticket to ride" for when patient is moved throughout hospital indicating that patient is a fall risk and identify protocol for activating bed/chair alarms upon patient return to room » Utilize white boards to communicate patient fall risks to all staff » Incorporate alerts into EMR that alert staff to which patients are at risk for a fall and effectively translate fall risk information into useful tasks, reports and prompts » Initiate bedside shift report with patient that includes focus on fall risk concerns

Toileting Issues

Contributing Factors	Solutions
Patient did not seek help and fell while toileting	» Implement hourly rounding with proactive toileting for all patients and track and monitor to ensure success » Implement scheduled toileting for high-risk patients: get patient up for toileting on a regular schedule; track and monitor to ensure success
Medications that increase the risk of falls combined with toileting	» Educate patients on medication side effects and increased risk for falls » Schedule medication administration for at least two hours prior to "bedtime"

Call Light Issues

Contributing Factors	Solutions
Patient did not know, forgot or chose not to use call light	» Have patients sign an agreement indicating they understand why they are a fall risk and what they can do to ensure their safety (e.g., use a call light). Post signed agreement in patient room as reminder » Educate patient on the use of and indications for using the call light » Educate family on the need for using the call light for assistance at all times, especially when getting into and out of bed » Have protocol in place to address extra precautions needed for patients with dementia or other diseases that affect memory

Education and Organizational Culture Issues

Contributing Factors	Solutions
Lack of standardization of practice and application of interventions	» Implement organizationwide culture messaging around fall safety for all patients » Ensure strong organizational leadership and support from medical staff for preventing falls
Fall prevention education for patient and family is not used or is inconsistently used	» Revise patient and family fall precaution education packet and process; education should be targeted and individualized to patient-specific fall risks » Ensure all patients receive fall prevention education » Standardize ongoing staff education and ensure staff are providing it correctly and adequately enough; ensure process in place for training new staff on fall precautions and protocols
Patient awareness and acknowledgment of their own risk for falls	» Implement a patient agreement form to use call light for all ambulation; emphasize risk factors during education and signing of patient agreement

Medication Issues

Contributing Factors	Solutions
Patient on one or more medications that increase the risk of falls (e.g., diuretics, laxatives, narcotics, antipsychotics or anti-hypertensives)	» Educate patients on medication side effects and increased risk for falls » Schedule medication administration for at least two hours prior to "bedtime"

Ensuring Success

This project identified two keys to ensure success with a fall reduction program. These key elements were present in the organizations that saw the greatest success with reducing falls with injury.

The first key to ensuring success is to adequately measure and analyze the contributing factors. A common misperception among the organizations was the belief that specific contributing factors had already been addressed at their organization, such as having a fall risk assessment in consistent use, proactive toileting and educating patients. The health care organizations that took the time to measure and analyze their specific contributing factors were able to identify the contributing factors that mattered in their area and focus their time and resources on implementing solutions targeted to the critical few contributing factors that mattered in their area.

The time taken to measure and analyze the specific contributing factors at the health care organization led to sustainable success. For example, an organization may have a fall risk assessment in place, but through data-driven analysis that organization was able to discover 1) whether or not staff scored the fall risk assessment consistently, 2) whether or not the assessment captured those patients at the greatest risk for falls within the specific patient population cared for on that unit, and 3) whether or not the patients' falls assessment was updated with changes in clinical condition. This process of measurement and analysis led to discovery and new learning on each of the units that participated in the project, or what the teams referred to as "aha" moments.

The other key to ensuring a successful fall prevention initiative is to address culture change. It is imperative to have support for the initiative from leadership and staff, including the governing body, medical staff, and patient and family advisory council. Having support from leadership and key hospital groups will help ensure a strong fall prevention culture and will help raise expectations for fall prevention. The health care organizations that had the most success on the project were those that developed a culture of "zero falls" among all leadership and staff, from the CEO to the housekeeping staff and maintenance crews. Successful organizations developed a culture of pride and ownership about having zero falls, and preventing falls became a mission that resonated on each participating unit or throughout the entire hospital. Change management tools and approaches were critical to supporting the culture changes. In addition, engaging and partnering with patient and families is important to adopting an organizationwide commitment to improving safety and preventing falls.

Results

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. A typical 200-bed hospital that used this robust process improvement approach to reduce patient falls with injury could expect 72 fewer injuries and $1 million in costs avoided. Similarly, a typical 400-bed hospital could expect 134 fewer injuries and $1.9 million in costs avoided.

Targeted Solutions Tool

The Joint Commission Center for Transforming Healthcare collaborated with the health care organizations throughout the projects. Recognizing that every organization has its own unique combination of contributing factors, the Center team developed an online application called the Targeted Solutions Tool® (TST®), which guides organizations through a robust approach to fall prevention. Embedded within the application is the data collection tool that will help an organization measure and analyze the contributing factors for the project area. Once the data is entered into the TST, the tool provides all of the analysis and lists the organization's contributing factors that are responsible for patient falls and falls with injury. After the project lead has reviewed the analysis in the TST, the TST provides solutions that target the organization's top contributing factors for falls and falls with injury. The Preventing Falls TST is available to all Joint Commission-accredited organizations. There are also TSTs available for hand hygiene, hand-off communications and safe surgery.

Conclusion

Patient injuries related to falls continue to be an issue at U.S. hospitals even though many organizations have implemented projects or initiatives to try and address this problem. The contributing factors to falls are both varied and complex. While the solutions appear logical on the surface and many are thought already to be in practice, organizations found that common practices were not implemented consistently.

Health care organizations also found that leadership support was critical to success, especially ensuring that those involved in the project had the time to collect detailed data for accurate measurement and analysis. This leadership support was also important during the implementation of solutions. Complex issues like this one benefit from using Robust Process Improvement because this methodology requires each individual organization to measure and analyze the contributing factors that can lead to patient falls and falls with injury, in an effort to identify the best, targeted solutions for their organizations.

By targeting solutions to their own specific contributing factors, hospitals can be assured that they are 1) addressing the right problems within their organizations, 2) using time and resources for only those issues that are critical to quality at their organization and 3) avoiding using money and resources on implementing solutions that are not contributing factors for their organization. Using RPI to take a deeper dive into issues within each individual organization gave the hospitals the opportunity to implement targeted solutions that then contributed to the significant, sustained reduction in falls with injury and falls overall.

Bassett Medical Center
Cooperstown, New York

Background

Bassett Medical Center is a 180-bed, acute care inpatient teaching hospital. The medical center's preventing falls with injury project was set in its inpatient medical unit. After an initial assessment, the team decided to drill down to find root causes on a weekly basis and then focus on identifying interventions to rapidly address identified trends. The team concluded that human factors, including reluctance of patients to ask for help and of staff concerned with patients' privacy to proactively assist with toileting, were significant issues.

Intervention

The team developed a unitwide education effort for staff and patients. Patients, staff and family members together review a fall safety document that assesses the patient's fall risk and steps the patient and staff can take to prevent falls. The team also educates staff about the value of taking the extra time necessary to have a meaningful discussion of the document with patients and families and its potential to improve patient safety.

Bassett created a "Call, Don't Fall" campaign, with signs in patient rooms and common areas, to remind patients to call for help before leaving their bed. The medical center also purchased chair seat alarms that alert staff when seated patients get up from their chair; they had previously relied on pull tabs that patients could use to summon assistance. The hospital continues to use visual cues such as special gowns, nonskid socks and lap blankets to identify patients at risk for falls.

A significant step was a unitwide effort to address falls associated with toileting. The team instituted two daily huddles. In each, the team identifies patients at high risk of falling. These patients receive proactive assistance with toileting every two hours. This has led to a significant reduction in falls, especially during the night.

Results

Combined, these efforts led to a 43 percent reduction of falls in the medical unit. More recently, the techniques developed are being used hospitalwide.

Lessons Learned

Fall huddles are held immediately after a fall takes place to identify the cause of the fall and take any corrective actions that are needed. The team also began a weekly review to reevaluate trends, finding that taking small steps to address emerging issues on a continuous basis is an effective way to increase patient safety and reinforce the importance of preventing falls.

To ensure that this progress is sustainable and can be used by other hospital units, falls are included in the daily organizationwide safety huddle. For patients deemed at high fall risk, the nurse or provider can request consultation by a pharmacist to determine possible medication alternatives. Staff members who do not take proper steps to prevent falls receive counseling.

Contact

Jennifer Kubis
Nurse Manager, Inpatient Medical Unit
(607) 547-6942
jennifer.kubis@bassett.org

Baylor Scott & White Medical Center – Garland
Texas

Background

The preventing falls project started on the medical-surgical unit at Baylor Scott & White Medical Center – Garland, a 113-bed hospital in Texas. The medical center staff's focus on continually improving processes and outcomes led to their participation in the preventing falls project.

Intervention

Contributing issues identified at Baylor Scott & White Medical Center – Garland included fall risk assessment issues, toileting and call light issues, and issues related to educating patients and families.

The unit was using yellow socks and gowns to identify patients at risk for falling, but there were breakdowns in communication between staff regarding the patient's fall assessment. Staff began using a specific worksheet to incorporate common elements relevant for the nurse and primary care technician.

The unit also addressed call light and toileting issues. Unit stats showed that of the patients who fell, 60 percent of men and 40 percent of women were not using the call light for toileting. For men in their 50s, 60s and 70s, 77 percent did not use the call light. By talking with patients, it was discovered that though independence was part of the issue for older male patients not using the call light, a bigger issue was they did not feel comfortable being helped by young nurses, who reminded them of their daughters and granddaughters. In an effort to increase call light usage for this specific demographic, patients were advised that, if they preferred, a male member of the staff, when available, could assist them.

The medical center revised its educational materials, including the patient acknowledgment form. Materials were printed in English, Spanish and Vietnamese, with vocabulary at a third-grade reading level. The patient acknowledgment form includes a checklist with 16 different items, such as: *Use your walker, cane or brace. Use handrails in room, bathroom and hallways. Keep commonly used items within reach. Be a safety-conscious neighbor to your fellow patient*s. The nurse and patient discuss the checklist upon admission to the floor.

Results

The medical-surgical unit had already been doing well reducing falls with injury. Through the interventions developed by the unit and those shared through the collaboration, the unit was able to further decrease the falls rate. The medical center spread the project's solutions and ideas to other units throughout Baylor Scott & White Health, with improvements noted throughout the system.

Another benefit of the project was that leadership and staff became more aware of the benefits of having experienced Lean Six Sigma professionals well-versed in the plethora of performance tools.

Lessons Learned

Although the medical-surgical unit had a small population regarding falls and falls with injury, the unit was able to use post-fall assessments to identify contributing factors and drill down to root causes. Evaluating previous interventions, the project team was able to expand upon and implement process changes that led to significant improvements.

Contact

Christopher Shutts
Vice President, STEEEP Care Improvement Education
(214) 265-3720
Christopher.Shutts@BSWHealth.org

Kaiser Permanente Zion Medical Center
San Diego, California

Background

Kaiser Permanente Zion Medical Center is a 414-bed teaching hospital. The Kaiser Permanente San Diego team launched its falls prevention project in the medical center's stroke telemetry unit.

After analyzing such factors as room location, times of falls and medications, the team determined that most falls occurred when patients left their bed without assistance. An interesting finding was that older patients were not the only ones falling—younger patients fall too, especially men. The team investigated further and determined that such patients do not consider themselves to be at risk for falls, may be embarrassed to ask for assistance or may put a higher priority on privacy than on safety.

Intervention

The first priority was full engagement of front-line unit staff in this effort, going beyond nursing to include environmental services staff, physicians, nutrition and lab personnel, and others. The team credits this unit-based approach for the success in creating a culture shift that reinforced their "no one walks alone" approach.

Project team members decided that in the stroke telemetry unit, they must reverse the assumption that patients would not fall. Instead, every single patient is considered a fall risk, regardless of age or other factors. That means that every bed alarm must be set and all patients must be assisted each and every time they leave their bed for any reason.

The team began educating patients and families upon admission about the danger of falls, continuing to assess each patient's level of risk based on such factors as medical condition, medications and ambulation. The team introduced hourly rounding, when patients are offered bathroom assistance and help repositioning themselves. Staff work with patients who are resistant to help determine the cause of their reluctance and address their concerns.

Results

Kaiser Permanente San Diego saw significant results with the preventing falls improvements. The team and staff were effective in significantly changing the entire culture of their organization to be focused on falls prevention.

Lessons Learned

Unit huddles now take place at the beginning of each shift and two hours later to review any changes and observations. A falls committee with a broad membership across the hospital was created to instill ownership in clinical areas.

Contact

Darcy M. Allen
Director of Critical Care
(619) 528-3403
Darcy.M.Allen@kp.org

Memorial Hermann Memorial City Hospital
Houston, Texas

Background

Memorial Hermann Memorial City (MHMC) is a 444-bed hospital in southeast Texas. Although MHMC already had a team focused on preventing patient falls, the hospital was not content with the progress it had made and welcomed the opportunity to participate in the preventing falls with injury project.

The hospital chose to undertake the study in its cardiology unit. Over 20 months, an interdisciplinary hospital fall team, led by a dedicated process owner and Six Sigma Black Belt, identified 28 contributing factors to falls with injury. Through facilitated meetings and robust data analysis, the team narrowed these factors to address 16 root causes to fall injuries.

Intervention

Among the most important findings was the fact that the tool that staff had previously used to measure a patient's risk for falls allowed for too much subjectivity, providing inconsistent ratings and a great variation in assessment.

A second problem that was identified concerned the bed alarms used to alert staff when a patient leaves the bed. The unit had four different kinds of beds, each with its own method of setting the alarm, resulting in some good-faith failures to successfully set them. Connectivity also was an issue, with some beds unable to interface with the existing system. After applying Lean solution strategies, the team ensured the appropriate placement and awareness of beds on the unit through safety audits by an identified bed alarm champion. The unit also increased utilization of low hospital beds.

Data also revealed that the patients most likely to fall and experience an injury were older men (66 percent) who did not understand that they were at greater risk for falls than they had been before they were hospitalized. Many were reluctant to call for help when they needed to use the bathroom. The hospital realized that it had been inconsistent with patient education, so the hospital standardized fall safety messaging and focused efforts on older patients at a greater risk for falls on the cardiology unit. Staff also indicated they were desensitized to patients at risk for falls, so the fall team standardized the visual cues on the cardiology unit and spread them throughout the hospital.

To increase consistency in measurement of root causes and speed in implementing targeted solutions, the fall team created a post-fall huddle tool. Post-fall meetings not only occur on the unit but also with the chief nurse to review the findings, discuss immediate interventions and communicate lessons learned. Additionally, fall safety education and questions were incorporated into leader rounding and hourly rounding.

Results	The rate of falls on the cardiology unit decreased 50.5 percent in the course of the study, and falls with injuries decreased 49.2 percent. During one six-month period, the cardiology unit had zero falls—reaching the high-reliability level to which it was striving. The team credits the success of the program to three factors: robust process improvement, safety culture and leadership commitment.
Lessons Learned	To support rolling out the interventions to the rest of the hospital and ensuring their sustainability, the team made a video of best practices, including a checklist of critical steps to ensure patient safety. The team learned that preventing falls with injury is a continuous effort as health care professionals cannot always reliably account for the independent nature of patients and family members.
Contact	Christina Morrison Master Black Belt for Enterprise Quality, Patient Safety and Infection Control (713) 338-4306 christina.morrison@memorialhermann.org

Wake Forest Baptist Medical Center
Winston-Salem, North Carolina

Background

Wake Forest Baptist Medical Center includes a 1,004-bed academic medical center. The health system previously participated in the Joint Commission Center for Transforming Healthcare hand hygiene project before participating in the project to prevent falls with injury.

Wake Forest Baptist recruited a project team from across the organization, including members from pharmacy, nutrition, nursing, rehabilitation, legal, safety, and performance improvement. The team's assessment led to narrowing the risks identified to five root causes to address.

Intervention

Medication management was the first area of focus. Drilling down into the data, the Wake Forest Baptist team tested a hypothesis that more falls occurred when patients received "drug cocktails" of three or more medications or high-risk medications such as benzodiazepines. Team members found no statistical significance. However, they identified a "quick hit" opportunity to ensure that patients on diuretics receive this medication at least two hours before bedtime.

Second, team members confirmed their hypothesis that impaired mobility and impaired cognitive function are key risk factors for falls. Comparing a group of patients who had falls with a control group, the team found that 94 percent of patients who fell had impaired functional mobility and 62 percent had impaired cognition. In the control group, 33 percent had impaired mobility and 24 percent had impaired cognition.

A look at a small sample led the team to conclude that neither functional nor cognitive impairment seemed to be associated with increased length of stay in the hospital. Team members concluded that patient diagnosis, disease process, treatment, co-morbidities and behavior were all important factors.

The group found that only 35 percent of patients use their call light to get assistance when they plan to leave the bed to toilet, retrieve personal items or because they are restless. This figure increases to only 58 percent in patients who are on fall precautions.

Results	The team undertook a successful intervention in the oncology unit that involved routine mobility and activity with an aide, physical therapy focused on balance, and progressive strengthening exercises. The average change from baseline to pilot period showed a 27 percent reduction in falls and 59 percent reduction in falls with injury. To help patients identified as being at high risk for falls, the group obtained funding to install a video monitoring system. Many of these patients previously would have needed sitters, which the group found could be problematic to schedule. A video technician monitored up to eight patients from the nurse's station 24/7. When a patient begins to move out of bed, the staff nurse is phoned and a page goes out to all staff on the floor. Patients being monitored had a 16 percent reduction in falls and a 41 percent reduction in falls with injury.
Lessons Learned	To sustain this progress, reporting on falls is now a part of the systemwide daily check-in, which discusses any quality and safety issues, is attended by leadership and uses corrective action resources to address problems. Unit-based huddles pass on critical information to staff.
Contact	Dave Davis Director, Service Line Project Management, Division of Perioperative and Surgical Services (336) 712-5868 davdavis@wakehealth.edu

Endnotes

1. Currie, L. (2008). Fall and Injury Prevention. In R. G. Hughes (Ed.) Patient Safety and Quality: An Evidence-Based Handbook for Nurses. (AHRQ Publication No. 08-0043). Rockville, MD: Agency for Healthcare Research and Quality.

2. Ash, K., MacLeod, P. & Clark, L. (1998). Case control study of falls in the hospital setting. Journal of Gerontological Nursing, Vol. 24, 7-15. doi: 10.1111/j.1525-1497.2004.30387.x

3. Fischer, I., Krauss, M., Dunagan, W., Birge, S., Hitcho, E., Johnson, S., . . . Fraser, V. (2005). Patterns and predictors of inpatient falls and fall-related injuries in a large academic hospital. Infection Control & Hospital Epidemiology, 26(10), 822-827.

4. Healey, F., Scobie, S., Oliver, D., Pryce, A., Thomson, R. & Glampson, B. (2008). Falls in English and Welsh hospitals: A national observational study based on retrospective analysis of 12 months of patient safety incident reports. Quality and Safety in Health Care, 17(6), 424-430.

5. Hitcho, E., Krauss, M., Birge, S., Dunagan, W., Fischer, I., Johnson, S., Nast, P., Costantinou, E. & Fraser, V. (2004). Characteristics and circumstances of falls in a hospital setting. Journal of General Internal Medicine, Vol. 19 Issue 7, 732-739. doi: 10.1111/j.1525-1497.2004.30387.x

6. Schwendimann, R., Buhler, H., De Geest, S. & Milisen, K. (2006). Falls and consequent injuries in hospitalized patients: Effects of an interdisciplinary falls prevention program. BMC Health Services Research, 669-7. doi:10.1186/1472-6963-6-69.

7. Wong, C., Recktenwald, A., Jones, M., Waterman, B., Bollini, M. & Dunagen, W. (2011). The cost of serious fall-related injuries at three Midwestern hospitals. Joint Commission Journal on Quality and Patient Safety. February, Volume 37, Number 2. Oakbrook Terrace, IL: Joint Commission Resources.

8. Galbraith J., Butler J., Memon, A., Dolan, M. & Harty, J. (2011). Cost Analysis of a falls-prevention program in an orthopaedic setting. Park Ridge, IL: Association of Bone and Joint Surgeons. doi 10.1007/s11999-011-1932-9.

9. Haines, T., Hill, A-M., Hill, K., Brauer, S., Hoffmann, T., Etherton-Beer, C. & McPhail, S. (2013). Cost effectiveness of patient education for the prevention of fall in hospital: Economic evaluation from a randomized controlled trial. BMC Medicine. doi:10.1186/1741-7015-11-135.

10. Weinberg, J., Proske, D., Szerszen, A., Lefkovic, K., Cline, C., El-Sayegh, S., Jarrett, M. & Weiserbs, K. F. (2011). Joint Commission Journal on Quality and Patient Safety. July, Volume 37, Number 7. Oakbrook Terrace, IL: Joint Commission Resources.

11. National Database of Nursing Quality Indicators. (2013). Guidelines for data collection and submission on patient falls. Version 9.6. Silver Spring, MD: American Nurses Association.