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Reducing Falls Through Enhanced Staff Compliance with the Fall Bundle

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DNP Final Report

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Patient falls are preventable yet impactful events, reflecting the quality of nursing care and calling for dedicated interventions. This DNP project addressed a fall prevention issue in an inpatient medical-surgical unit, where the fall rate exceeded the national average. The aim was to enhance staff compliance with the fall prevention bundle to reduce the incidence of falls. The project employed audits and feedback mechanisms led by fall champions to promote adherence to the bundle elements. The project resulted in a marked improvement in staff adherence and a 100% reduction in the fall rate during the project period, demonstrating the effectiveness of these targeted interventions in enhancing patient safety. The final DNP Project Report presents a comprehensive overview of the project, problem identification, gap analysis, evidence-based interventions, data collection, and outcomes and implications for nursing practice within the facility and beyond.

Problem Statement and Gap Analysis

In 2023, an inpatient medical-surgical unit reported a high incidence of falls, resulting in patient injuries and prompting the need for targeted interventions. The unit recorded a fall rate of 4 falls per 1,000 bed days (Unit Manager, personal communication, July 2, 2024). For comparison, the national average for falls in medical-surgical units is 3.44 falls per 1,000 bed days (Venema et al., 2019). This discrepancy underscored the organization’s urgent need for a comprehensive fall mitigation plan. Addressing this issue is critical not only for improving patient safety but also for enhancing overall care quality.

A gap analysis was conducted to assess the organization's performance concerning its fall prevention program. The hospital had existing fall prevention measures, or a fall bundle, that promotes evidence-based interventions, including environmental modifications, fall risk

assessments, and the identification of high-risk patients through the use of yellow bands and socks. Despite having this program, the organization continued to experience an above-average incidence of falls. An internal root-cause analysis identified that failure to implement elements of the fall bundle was a primary contributor to patient falls (Unit Manager, personal communication, July 2, 2024). The analysis revealed several gaps in care, including inconsistent rounding, failure to activate bed alarms, unassisted toileting, and call lights and personal items being out of reach. In response to these findings, the project aimed to implement evidence-based interventions designed to enhance staff compliance with the fall bundle.

Background and Significance of the Problem

The following sections provide a comprehensive examination of the background of the problem, outlining the current fall rates, patient safety concerns, and existing interventions. In addition, the report describes the significance of falls in terms of their health and economic repercussions, exploring how they affect patients, healthcare providers, and organizations alike. By analyzing the multifaceted nature of this issue, this report underscores the importance of effective fall prevention strategies in enhancing patient safety and quality of care.

Background

The unit continued to experience an above-average incidence of falls throughout 2023. This ongoing issue has resulted in patient injuries and has led patients and their families to express dissatisfaction with the overall quality of care to both staff and leadership (Unit Manager, personal communication, July 2, 2024). In response, the facility prioritized falls as a focus for a quality improvement project, with the ultimate goal of achieving zero falls. A fall prevention program aimed at safe patient mobility ensured the availability of assistive devices, including walkers and gait belts, in every patient room. These interventions helped reduce the

unit's fall rates to 3.3 falls per 1,000 bed days. Despite this progress, the facility aimed to further enhance safety measures and achieve a goal of zero falls.

Significance of the Problem

Falls among patients in healthcare settings are a critical safety concern, significantly impacting patient outcomes and healthcare quality. This section will examine the devastating health and economic effects of falls, including adverse impacts on patients, providers, and healthcare organizations. Requirements and recommendations from accrediting bodies and national healthcare agencies are also addressed.

Falls present with serious implications for health outcomes and healthcare costs. Falls may prolong hospital stays by 6 to 12 days and incur an annual cost of approximately $50 billion (Dykes et al., 2020). Falls are the leading cause of injury among adults aged 65 years and older in the United States (Moreland et al., 2020). In 2020, falls and fall-related injuries resulted in three million visits to emergency departments and 36,000 fatalities (Centers for Disease Control and Prevention, 2023). The impact of falls does not end with its devastating health and economic effects.

Falls negatively affect patients, staff members, and the organization. Patients are the primary victims of falls. Non-fatal related injuries can cause significant patient morbidity and loss of independence (Vaishya & Vaish, 2020). Falls can also bring psychological distress, such as depression, anxiety, feelings of helplessness, and a sense of isolation. Patient falls can increase the nurses' stress levels due to the increased workload resulting from falls and the fear of liability (Quadros et al., 2022). Nurses may feel anxious and guilty about patient outcomes; they may feel insecure if they view the incident as their failure to provide care. In addition, fall events pose a liability to the organization including financial damage through the loss of reimbursement, legal

costs, and increased patient lengths of stay and associated costs. Another consequence to the organization is the loss of public trust and reputational damage.

In addition to the scope and significance of the clinical problem, professional and accrediting healthcare agencies also require or recommend that organizations have effective fall prevention programs in place. The Centers for Medicare and Medicaid (CMS) stopped reimbursing hospitals for fall-related costs (Agency for Healthcare Research and Quality, 2019). The Joint Commission (2023) recommended that healthcare organizations have a fall prevention program and report falls with injuries. The Institute for Healthcare Improvement (IHI) (2023) suggested a multi-disciplinary approach to creating a patient fall prevention program. Lastly, healthcare organizations are tasked and entrusted by the public to keep patients safe.

Overarching Aim of the Project

The overarching aim of this project was to enhance staff compliance with the fall prevention bundle and, consequently, reduce the incidence of falls within the unit. To achieve these goals, the project implemented auditing with feedback and engaged unit-based fall champions, who led and modeled best practices for fall prevention (Loresto et al., 2020). Evidence suggests that audits and feedback are effective methods for improving staff adherence to care standards (Donati et al., 2020; Smiddy et al., 2019). Additionally, the involvement of fall champions in conducting audits has been shown to contribute to a reduction in fall rates (Loresto et al., 2020). Ultimately, the integration of these strategies was effective in reducing the incidence of falls within the unit, thereby enhancing patient safety.

Review of the Evidence

The PICOT question that guided this project was: “In adult patients within a medical-surgical unit (P), how does implementing an audit and feedback protocol (I) compared to the

current fall prevention program of a fall bundle (C) affect staff compliance with the fall bundle and the rate of falls (O) within 10 weeks (T)?" Due to site availability, the project duration was shortened to five weeks. This section reviews current evidence on the effectiveness of audits, feedback, and fall champions in improving staff compliance with care standards and reducing falls.

Key articles were appraised for their insights into audit and feedback impacts on fall rates and compliance with protocols. Assalone (2022) demonstrated that an evidence-based audit tool combined with real-time feedback reduced fall rates through ongoing staff education and auditing. Bunting and de Klerk's (2022) systematic review of 76 articles confirmed that audits and feedback enhanced clinical documentation and achieved compliance rates of 70% or higher. Donati et al. (2020) conducted a randomized controlled trial showing that infection control link nurses performing systematic audits improved hand hygiene compliance. Smiddy et al. (2019) found in a retrospective analysis that audits and feedback significantly boosted hand hygiene adherence. Vaismoradi et al. (2020) concluded that frequent education and feedback positively impacted nurse compliance with patient safety principles. Williams et al. (2022) linked consistent audit practices to improved compliance with fall protocols and increased staff awareness. These findings highlighted the importance of utilizing diverse strategies, such as audits and feedback, in conjunction with other interventions to enhance fall prevention efforts.

Research on fall champions also provided valuable insights. Loresto et al. (2020) conducted a pilot study using fall champions to audit fall prevention efforts in a medical oncology unit, showing a significant fall rate decrease through an interrupted time series analysis. Hall et al. (2021) reviewed 12 randomized controlled trials, noting that unit-based champions improved staff adherence to evidence-based guidelines in long-term care settings.

These findings suggest that incorporating unit-based champions can enhance staff adherence to care guidelines.

The synthesis of this evidence-informed the project's strategies. A notable limitation was that most studies did not exclusively focus on fall prevention. The final project approach included audits, feedback, and unit-based fall champions to enhance compliance with the fall prevention policy and reduce falls.

Project Design

This section outlines the quality improvement framework that was employed in the design of the project, specifically the Ohio Health Change Management Framework and the Plan-Do-Study-Act (PDSA) model. The quality improvement framework aimed to standardize structures and processes to achieve consistent results and enhance outcomes (Centers for Medicare and Medicaid Services, 2023). The Ohio Health Change Management Framework streamlined the quality improvement process by providing tools that identified stakeholders, clarified their roles and impacts, and assessed both the project team's and staff's needs and readiness (Brewer, Conner, & Armstrong, 2022). Key templates utilized from OhioHealth included the Case for Change, Leadership Alignment, and a Readiness Assessment Survey tool. By implementing this structured approach, the project fostered a culture of continuous quality improvement among staff and stakeholders.

The case for change template was crucial in providing unit leaders and key participants, including the preceptor, nurse manager, and fall champions, with a comprehensive overview of the project's organizational significance. It highlighted the benefits such as improved patient safety, reduced injury risk, and potential cost savings, while addressing potential challenges, including resistance to change, training requirements, and the need for ongoing monitoring and

evaluation. A comparative chart underscored the advantages of implementing the change versus maintaining the status quo, emphasizing that the latter would hinder growth and sustain unsafe practices with elevated patient injury risks. The leadership alignment template further detailed participant roles, objectives, action steps, and potential issues, ensuring role clarity and structured accountability. Specific deliverables, including training fall champions, conducting audits, and analyzing data, were assigned with deadlines to facilitate coordinated efforts. A readiness survey confirmed team preparedness, supported by weekly check-ins to review progress and reinforce clarity and support.

Four Plan-Do-Study-Act (PDSA) cycles were conducted throughout the project to execute small-scale tests and evaluate changes effectively. Each cycle involved the unit's key stakeholders to iteratively refine and enhance the implementation process. This approach ensured continuous improvement and informed adjustments that led to better project outcomes.

The first PDSA cycle commenced during the initial week of implementation and aimed to improve staff compliance with the fall prevention bundle and reduce fall incidence using audit and feedback mechanisms. The data collection process focused on two primary metrics: staff compliance with the bundle and the percentage of falls. Initial results showed staff compliance at 20%, falling below the 70% target threshold, and revealed insufficient documentation of key prevention practices. This indicated a need for increased staff education. The team responded by implementing targeted re-education sessions to familiarize nursing staff with the updated processes.

In the second PDSA cycle, the project team selected and trained fall champions to utilize the audit tool effectively and provide timely feedback. Reinforcement strategies included sending reminder emails, conducting huddles, and holding weekly check-ins led by the unit manager and

fall champions. Weekly audit data during this phase showed incremental improvements, with staff compliance reaching up to 50%. These findings suggested that consistent feedback and engagement contributed to improved practice but highlighted areas needing continued attention.

During the third PDSA cycle, the project team identified a misalignment in the audit tool related to checking for fall signage on patient doors, which did not align with current fall prevention practices. This misalignment led to inaccurate data capture and reduced compliance scores. To address this issue, the audit tool was revised to better match the unit's established protocols. Staff were updated on the changes and retrained accordingly. Following these modifications, compliance rates rose to 100%, indicating a positive response to the adjustments.

The fourth and final PDSA cycle focused on sustaining the improvements made in the previous cycles. The project leader monitored the updated audit tool and feedback process to ensure long-term compliance. This phase confirmed that compliance rates consistently met or surpassed the target threshold, and fall rates continued to show a downward trend. The lessons learned from these iterative tests emphasized the importance of refining tools and maintaining active feedback loops to achieve sustained improvements in practice.

Project Implementation

This section describes the project's implementation process, including the setting, participants, interventions, and timeframe. The project was conducted in a 20-bed inpatient medical-surgical unit. The patient population in the unit consisted of adult patients with acute and chronic conditions, often accompanied by comorbidities, reflecting a high level of acuity that necessitated vigilant fall prevention measures. Key participants included the project advisor, preceptor, nurse director, nurse manager, fall champions, and nursing and clinical support staff. The project advisor and preceptor provided expert guidance throughout all phases of the plan,

while the nurse director authorized the project's implementation at the site. Fall champions received live training on utilizing an audit tool (refer to Appendix A) to assess staff compliance with the established fall bundle. The nurse manager and preceptor provided relevant data, including the incidence of falls and weekly staff compliance rates derived from completed audits. Importantly, the project did not impede current workflows or patient care processes.

The duration of the project was five weeks, as described above. On the first week of implementation, the project was introduced to the unit via unit-wide email. The email included a brief synopsis of the project, its timeline, and its implications for individual roles and workflow. Additionally, it included a bullet-point summary of the unit's fall bundle, which covered documentation of fall risk assessments, identification of fall-risk patients, and environmental modifications as a reference for the staff. The nurse manager further communicated the project during huddles that week. The team leader organized a virtual session to train the preceptor and fall champions to use the audit tool, and to provide an opportunity to answer any questions. The fall champions, which included the nurse manager, clinical nurse leader, and charge nurse, were strategically positioned to serve as role models and educators (Reynolds, 2020). These individuals used the audit tool to measure staff performance against the fall bundle policy and provided feedback where needed.

The project's primary focus was on audits and feedback, conducted weekly from the second week through the program's conclusion. An audit tool was utilized with permission from the CAPTURE Falls program at the University of Nebraska Medical Center (Nebraska Medicine, n.d.). The audits assessed several critical items, including the documentation of fall risk assessments, identification of fall-risk patients, use of non-skid socks, availability of call lights within reach, maintenance of clear pathways, and activation of bed or chair alarms. The audit

tool was developed in a Microsoft Word ® format. The goal was to complete 10 audits per week, with audits scheduled during work hours, avoiding peak times such as medication administration, admissions, and shift changes to minimize disruptions in workflow. Staff members were informed in advance of audit occurrences for both day and night shifts to ensure transparency and cooperation.

Feedback accompanied audits when needed. The purpose of giving feedback is to provide education and review staff performance (Foy et al., 2020). Feedback was issued when audit items were not met, accompanied by actionable plans to support improvement. If an item was missed, like the bed alarm, the fall champions engaged with staff to identify and address any barriers contributing to the missed intervention. Discussions also facilitated learning by reinforcing care expectations and serving as reminders of best practices within the unit.

The following activities occurred weekly from the second week of the project until its conclusion. The fall champions conducted audits and provided feedback, while the project team performed data collection and analysis, as well as tracking fall incidents throughout the project duration. Staff compliance rates were calculated and recorded each week after the audits. The preceptor, project leader, and fall champions convened weekly via a virtual platform to discuss the program's progress, addressing any issues or successes and employing the PDSA cycle for necessary modifications. Lastly, the manager and fall champions regularly checked in with staff members to discuss the fall prevention initiatives.

Outcomes and Data Analysis

The project's outcome measures included improved staff compliance with the unit's established fall bundle and a reduced incidence of falls. The primary objective was to achieve a 70% compliance rate among staff with the fall prevention program within five weeks of project

implementation. In a systematic review by Bunting and de Klerk (2022), 10 of the studies that used audits and feedback achieved a post-intervention compliance rate of 70% or greater. The secondary outcome measure aimed for a 30% reduction in the fall rate within the same five-week period. Randell et al. (2021) estimated that a multi-modal approach to fall prevention can reduce falls by up to 30%. Achieving these outcome measures demonstrated the project's effectiveness. This section outlines data collection methods and analyses to evaluate the project's impact.

The staff compliance rate with the fall bundle was measured using the completed audits. A total of ten audits were conducted each week from the second to the fifth week of the project. The compliance rate was calculated weekly by dividing the number of compliant audits by the total number of audits and then multiplying by 100 to obtain a percentage.

For this project, the fall rate was documented as the average number of fall incidents per 1,000 bed days. This method was chosen for its uniformity and effectiveness in measuring care quality while accounting for variations in the patient census (Agency for Healthcare Research and Quality, 2017). Units with a lower census will naturally report lower fall rates compared to those with a higher census, which may not accurately reflect the overall quality of care.

First, the average monthly fall rate was calculated by dividing the total number of falls within the unit by the total number of captured months. Next, the fall incidents per 1,000 bed days were determined by dividing the average monthly falls by the average occupied bed days for the month and then multiplying by 1,000 (Kisacik & Cigerci, 2019). The average occupied bed days were determined by taking the median daily census of 20 patients and multiplying it by 30, the number of days in a month, resulting in a total of 600 bed days per month.

The team used the fall rate from the previous three months to directly compare the impact of the project, which lasted for five weeks. The average rate of falls during the three months

preceding the project implementation was 1.7 falls, equating to 2.8 falls per 1,000 bed days. In contrast, there were no falls reported during the project implementation and the month following its conclusion (July and August 2024), resulting in a rate of 0 falls per 1,000 bed days.

The reduction rate was calculated by subtracting the current average fall rate (0) from the previous average rate (2.8), dividing the difference by the previous rate, and then multiplying by 100 to express the reduction as a percentage. A negative percentage indicates a reduction, while a positive percentage indicates an increase in the rate of falls. By applying the fall rates (0 and 2.8) to this formula, the reduction rate was determined to be 100%. This outcome exceeded the goal of achieving a 30% reduction rate.

Results/Findings

This section presents the results and findings related to the primary and secondary outcome measures of the fall prevention project. The analysis focused on compliance and fall rate metrics to evaluate the effectiveness of the implemented practice change and to determine the extent to which the desired outcomes were achieved. Additionally, the discussion includes an examination of the return on investment and the overall value of the project.

A total of ten audits were conducted each week from the second to the fifth week of the project. For an audit to be considered compliant, all items on the audit tool must be met (Healthcare Quality Improvement Partnership, 2020). An item was also deemed compliant if there was a valid reason for its absence; a bed alarm that was not activated was considered compliant if the absence was due to patient or family refusal or if it was a result of equipment malfunction, provided there was an intention to repair or replace the equipment.

The compliance rates achieved during weeks two through five were as follows: 20%, 50%, 100%, and 90%, respectively. The team convened at the end of weeks two and three to

evaluate the data. The review revealed that the initially low compliance rates were attributed to inadequate data capture. One item in the audit tool, which checked for door signage to identify high fall-risk patients, was not mandatory, likely contributing to staff members not meeting this requirement. Based on this feedback, the audit tool was revised (with permission, see Appendix B) to more accurately reflect the unit's required practices. The item was modified to include the identification of high fall-risk patients using visual indicators, such as yellow bracelets, yellow socks, or door signage. Using the modified tool, the team achieved high compliance rates during weeks four and five.

The project exceeded its target goal of a 70% staff compliance rate. The results were consistent with evidence indicating that audits and feedback improve staff adherence to care standards (Bunting & de Klerk, 2022; Donati et al., 2020). The results indicate the interventions were successful in increasing the compliance rate with the fall prevention measures.

The nurse manager and preceptor tracked each fall incident throughout the project's duration. No falls were reported during the implementation phase and the month following project conclusion, resulting in a documented rate of 0 falls per 1,000 bed days. In comparison, the average fall rate for the three months preceding the project was 1.7 falls, or 2.8 falls per 1,000 bed days. Applying the reduction rate formula, the project achieved a 100% reduction in falls after implementation.

The project did not require additional funding from the site. All project-related activities were integrated into regular work hours or performed voluntarily. Training for fall champions was conducted virtually using the Microsoft Teams® platform, while all team correspondence and meetings took place via phone, text, email, or Teams. Audits and feedback were incorporated during work hours. Although team members undertook their responsibilities

voluntarily, including training, meetings, and the collection and analysis of data and findings, the project still incurred costs related to scheduled training hours and the use of technology for virtual meetings. Another benefit of this project is the unit utilized an audit tool to complement their fall initiatives, without the need to invest in designing, building, and planning for its implementation.

Discussion

The project successfully met its desired outcomes of enhancing staff compliance with fall prevention measures and reducing the number of falls in the unit. The nursing director and nurse manager provided strong support for the initiative and reinforced the use of the audit tool to monitor staff compliance with fall prevention measures. Notably, the project was implemented without the need for additional budget approval from the organization.

Several factors contribute to sustainability, including alignment with organizational goals, strong leadership support, involvement of fall champions, and the tool's ease of use and integration into existing workflows (Moon, Hodgen, & Eljiz, 2022). The project was aligned with the organization’s objective of ultimately achieving zero falls in the inpatient setting. Ongoing support from the unit’s leadership team can further enhance the program’s sustainability by fostering stakeholder buy-in, establishing standards of care, and promoting accountability among staff members (Agency for Healthcare Research and Quality, 2018). Fall champions expressed a willingness to conduct additional audits even after the project’s conclusion (personal communication, nurse manager, August 14, 2024). Moreover, auditors reported that the audit tool was user-friendly, as it directly reflected their practice expectations, facilitating its seamless integration into the workflow. Collectively, these factors may significantly enhance the project’s sustainability.

There are limitations to the generalizability of the project's results. First, the limited duration of the project may hinder the ability to fully quantify its effectiveness. Second, the team did not assess the impact of time and day on the results of the audits, specifically, differences between night and day shifts, and weekdays and weekends. Despite these limitations, the project's results align with existing evidence indicating that audits and feedback can enhance staff compliance with care standards and reduce fall incidents (Assalone, 2022; Bunting & de Klerk, 2022; Donati et al., 2020). Overall, the positive outcomes achieved in this project highlight the importance of ongoing evaluation and adaptation of fall prevention strategies in clinical practice.

The fall prevention project demonstrated positive implications for the practice site by enhancing staff compliance with established fall measures and achieving a notable reduction in falls. Relevant interventions through an easy-to-use audit tool that integrated seamlessly into existing workflows. Additionally, the project implemented effective strategies that supported organizational goals without incurring significant costs.

Summary

Falls prevention remains a high-priority issue within the organization. The project aligned with the organizational goal of preventing and reducing inpatient falls and was implemented with minimal additional operational costs. The introduction of audits and feedback correlated with improved staff compliance with fall prevention measures, resulting in no reported fall incidents during the project's duration.

The project successfully achieved its goals of attaining at least a 70% staff compliance rate with fall prevention measures and reducing falls by 100%. These results are consistent with current evidence indicating that audits and feedback can enhance staff compliance with care

standards and contribute to a reduction in falls. Ultimately, the project fulfilled the Institute of Medicine's Six Domains for Healthcare Improvement by decreasing fall incidence, thereby enhancing patient safety and overall quality of care.

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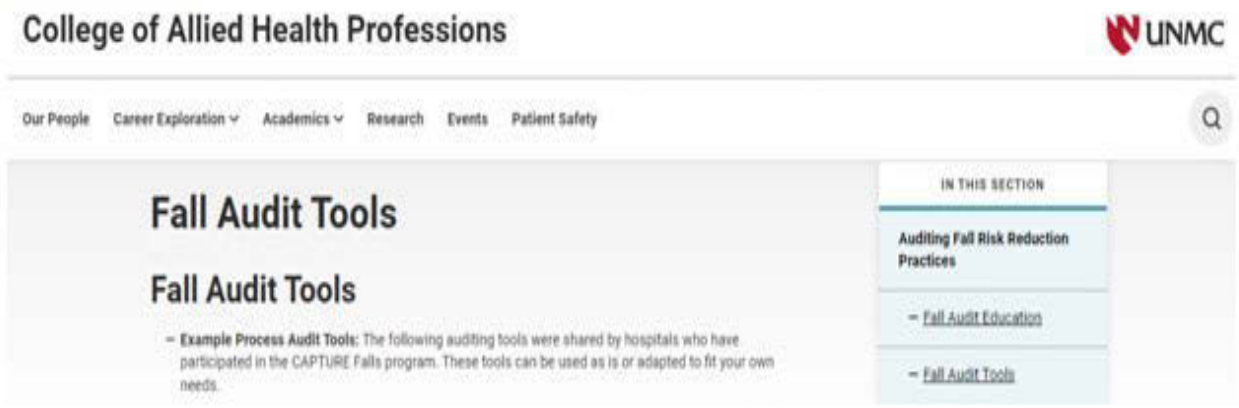
Appendix A: Audit Tool

Fall Risk Audit Form	Observation # Room			Observation # Room		
Reviewer: _____	Date: _____ Fall Risk Score = _____			Date: _____ Fall Risk Score = _____		
	Yes	No	N/A	Yes	No	N/A
Fall Scale documented						
Patients at risk for falls (score of 3 or >) identified. - Any of the following is present: yellow bracelet, yellow footwear, or visual identifier						
FALL RISK REDUCTION ACTIONS	Yes	No	N/A	Yes	No	N/A
Bed in low position.						
Call light is within reach.						
Pathways are free of clutter.						
Bed or chair alarms are in use (score of 3 or >)						

Appendix B: Permission to Use the Audit Tool

*Used with permission: https://www.unmc.edu/patient-safety/capturefalls/roadmap/fall-audit/tools.html



*Tool used in CAPTURE falls program by the University of Nebraska Medical Center: https://www.unmc.edu/patient-safety/_documents/roadmap/auditing-fall-risk-reduction-processes-handout.pdf