Reducing the Rate of Falls with Moderate or Major Injury by Identifying Causes of Falls Prior to Admission

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Background

Montero-Odasso et al assert the world's population is aging and that falls are inevitable in the health care setting (2022). Falls may result in a minor, moderate, or major injury. Minor injuries usually incur the least amount of stress on the patient and the health system, as they may be treated with basic interventions like a band-aid for a skin tear or an ice pack for pain. Moderate and major injuries, such as a fracture or subdural hematoma, can have a much more serious impact on the patient's hospital stay. Falls with injury have led to lost years of life and account for 1% of all health care costs in high income countries (Montero-Odasso et al, 2022).

On 5/11/2023 a patient on a general medicine unit in an urban hospital fell and sustained a major injury—a facial fracture. Per the Johns Hopkins Fall Risk Assessment Tool (JHFRAT) , he had been classified as "High fall risk: More than 1 fall prior to admission" (The Johns Hopkins Health System Corporation, 2022). On the day he fell he was scheduled to be discharged; after the fall he stayed more than a week in the hospital and was finally discharged on 5/19/2023.

The National Database for Nursing Quality Indicators (NDNQI) collects data on falls and falls with injury and issues a monthly benchmark that nursing units can use to measure their performance in the prevention of falls and falls with injury. The hospital's quality metrics server, Tableau, provides reports that compare a unit's performance in falls against the NDNQI mean. Table 1 shows that for FY2023, the unit was below the NDNQI mean for 8 out of 12 months. The monthly NDNQI benchmark for falls with injury on general medicine units ranged from .62 to .68 falls with injury per 1000 patient days. This falls with injury rate includes falls of all levels: minor, moderate, and major. The last fall with major injury had been more than a year ago, in January of 2022, and there had only been one moderate injury in August of 2022 (Post Fall Report, 2024).

After the fall with major injury on 5/11/2023, a root cause analysis was held. It was noted that the patient had a history of multiple falls prior to admission but different members of the health care team had identified different causes for these falls. A lack of communication between these team members, including a lack of documentation regarding the causes of these falls in the medical record, led to this fall with major injury. In order to prevent a recurrence, a coordinated effort would be needed to improve team communication to identify the causes of falls for patients in this specific high fall risk category.

Aim of the Project

The specific goal of the project was to prevent falls resulting in moderate and major injury, which can lead to increased health care utilization (AHRQ, 2013). Based on the analysis from the unit's most recent fall with major injury, identifying causes of falls for patients in the category of "High Fall Risk: More than 1 fall prior to admission" and communicating this information among the health care team, would provide an effective strategy to prevent falls with major to moderate injury. The original plan was to ensure after 3 months of implementation that the unit had no falls with moderate to major injury. After this initial period, with a successful outcome, an additional 3-month observation period was added.

Description of the Intervention

Effective fall prevention requires a multi-disciplinary approach (AHRQ, 2013). The existing multi-disciplinary meetings provided the right forum for this intervention. Day shift multi-disciplinary team meetings included nurses, a resident, a case manager and/or social worker, and other health care team members on weekdays. Night shift had a similar multi-disciplinary team meeting between nurses and the on-call resident.

- Prior to meeting charge nurse would identify the patients in the category ahead of time using a list generated by the electronic medical record.
- During meeting charge nurse would notify team if a patient was "High Fall Risk: More than 1 fall prior to admission" and review causes of falls with the team
- Charge nurse would mark compliance with the measure on the unit's LEAN huddle board
- Documenting the findings in the medical record was recommended, but not required

Description of Data Collection and Analysis

The project began on July 18, 2023. Table 2 breaks down the actual count of falls and falls with injury by month (not the rate). At

- 3 months after implementation
  - No falls with ANY injury
- 6 months after implementation
  - November and December had 1 fall with injury
  - January had 2 falls with injury
  - Fall rates (Table 1) rose above the NDNQ1 mean
  - None of these injuries were moderate to major.

At the 3 months mark, with no falls with injury, it appeared that the intervention was actually exceeding its goal. Not only were there 0 falls with moderate to major injury, there were also 0 falls with minor injury. However, at the 6 month it was clear that this one intervention was not enough to prevent all falls with injury.

Outcomes & Measures

Table 1: Falls and Falls with Injury compared with NDNQI data

Falls by Unit

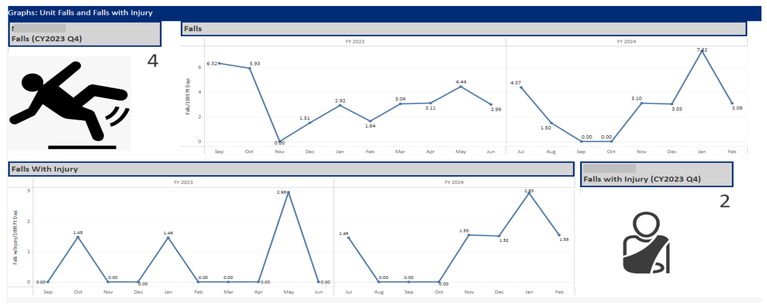
	2022				2023												2024	
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Patient Days/Patient Visits	633	675	651	663	685	609	657	644	676	334	686	667	642	678	646	660	683	647
Falls	4	4	0	1	2	1	2	2	3	1	3	1	0	0	2	2	5	2
Falls per 1000 Patient Days/Patient Visits	6.32	5.93	0.00	1.51	2.92	1.64	3.04	3.11	4.44	2.99	4.37	1.50	0.00	0.00	3.10	3.03	7.32	3.09
NDNQI Falls 10thPercentile	0.90	0.95	0.95	0.95	0.82	0.82	0.82	0.89	0.89	0.89	1.03	1.03	1.03					
NDNQI Falls Mean	2.98	3.01	3.01	3.01	2.77	2.77	2.77	2.75	2.75	2.75	2.93	2.93	2.93					
NDNQI Falls 90thPercentile	5.32	5.38	5.38	5.38	5.06	5.06	5.06	4.99	4.99	4.99	5.03	5.03	5.03					

Falls with Injury by Unit

	2022				2023												2024	
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Patient Days/Patient Visits	633	675	651	663	685	609	657	644	676	334	686	667	642	678	646	660	683	647
Falls With Injury	0	1	0	0	1	0	0	0	2	0	1	0	0	0	1	1	2	1
Falls w/Injury per 1000 Pt Days/Pt Visits	0.00	1.48	0.00	0.00	1.46	0.00	0.00	0.00	2.96	0.00	1.46	0.00	0.00	0.00	1.55	1.52	2.93	1.55
NDNQI Falls w/Injury 10thPercentile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
NDNQI Falls w/Injury Mean	0.67	0.68	0.68	0.68	0.64	0.64	0.64	0.62	0.62	0.62	0.68	0.68	0.68					
NDNQI Falls w/Injury 90thPercentile	1.63	1.60	1.60	1.60	1.45	1.45	1.45	1.45	1.45	1.45	1.55	1.55	1.55					

Falls Monthly Report | Unit | JHH: Metrics: Unit Falls and Falls with Injury - Tableau Server (jhmi.edu) (2024)

Figure 1: Graph of unit Falls and Falls with Injury



Falls Monthly Report | Unit | JHH: Graphs: Unit Falls and Falls with Injury - Tableau Server (jhmi.edu) (2024)

Table 2: Falls Count By Month

Month	Number of falls	Falls with injury	Notes
July (2023)	3 (7/1, 7/3, 7/4)	1 (minor)	1 patient fell twice
August	1 (8/3)	0	
September	0	0	
October	1 (10/12)	0	Intentional
November	3 (11/13, 11/29, 11/30)	1 (minor)	1 intentional
December	2 (12/11, 12/25)	1 (minor)	
January (2024)	5 (1/5, 1/7, 1/9, 1/23, 1/25)	2 (minor)	1 patient fell twice

Post Fall Report | Unit | JHHS: Fall Information - Tableau Server (jhmi.edu) (2024)

Implications for Practice

The idea that identifying causes of falls prior to admission for patients with a history of multiple falls can assist in prevention of falls and falls with injury is not new. It is already a recommended step in the institution's fall prevention policy (Johns Hopkins Health System Corporation, 2022). However, the electronic medical record system does not have a prompt to document these causes, which then limits the communication of the causes. Following the root cause analysis for the fall that prompted this quality improvement initiative, a recommendation was submitted to update the electronic medical record system to add a row where these identified causes could be documented. While waiting for this change to be implemented, a local practice change for this unit has led to staff becoming more accustomed to discussing and communicating the reasons why patients fell prior to admission.

At the end of January of 2024, a patient came to the unit who was a "High Fall Risk: More than 1 fall prior to admission." The patient was a poor historian and his primary physician team was located off the unit so they did not routinely participate in multi-disciplinary rounds on the unit. The patient's causes of falls prior to admission was not determined, and he ultimately fell twice during his stay, sustaining a minor injury after one of those fall events. These occurrences reinforced the importance of taking the step to identify what caused a patient to fall prior to admission. However, they also showed that preventing falls with moderate to major injury does not rely on this single step. He fell twice but fortunately only sustained 1 minor injury on one of those occasions.

Lessons Learned

- Identifying the causes of falls for patients with a history of multiple falls prior to admission can prevent falls with major to moderate injury.
- Preventing falls and falls with injury does not rely on a single intervention.
- Effective fall prevention combines
  - standardized processes
  - team collaboration
  - individualized prevention interventions

References

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Falls Monthly Report | Unit | JHH: Graphs: Unit Falls and Falls with Injury - Tableau Server (jhmi.edu) (March, 2024)

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Post Fall Report | Unit | JHHS: Fall Information - Tableau Server (jhmi.edu) (March, 2024)