WebM&M

Morbidity and Mortality Rounds on the Web

Spotlight

Failure to Ensure Patient Safety Leads to Patient Falls in Nursing Homes

AHRQ Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

PSNet PATIENT SAFETY NETWORK

Source and Credits

- This presentation is based on the April 2023 AHRQ WebM&M Spotlight Case
  - See the full article at https://psnet.ahrq.gov/webmm
  - CME credit is available
- Commentary by: Barbara Resnick, PhD, CRNP, and Maria Boltz, PhD, CRNP
- AHRQ WebM&M Editors in Chief: Patrick Romano, MD, MPH and Deb Bakerjian, PhD, APRN, RN
  - Spotlight Editors: Amy Nichols, EdD, RN, CNS, CHSE, ANEF and Deb Bakerjian, PhD, APRN, RN
  - Managing Editor: Meghan Weyrich, MPH

Acknowledgements

The long-standing process for submitting PSNet WebM&M case submissions is anonymous. Users may contribute by submitting a case at the following link: https://psnet.ahrq.gov/webmm/submit-case

The details of these cases were provided by Candello. Candello, established as a division of the Risk Management Foundation of the Harvard Medical Institutions Incorporated and CRICO, pools medical malpractice data and expertise from captive and commercial profFailure to Ensure patient safety leads to patient falls in nursing homesessional liability insurers across the country to provide clinical risk intelligence products and solutions. Copyrighted by and used with permission of The Risk Management Foundation of the Harvard Medical Institutions Incorporated. All rights reserved.

Objectives

At the conclusion of this educational activity, participants should be able to:

- Recognize the risk factors for falls including any cultural considerations that may impact care planning.
- Compare five interventions relevant for fall prevention in long-term care settings.
- Describe optimal fall prevention care processes in long-term care settings.
- Summarize the ways in which the interdisciplinary team can and should work together to prevent falls in long-term care settings.

FAILURE TO ENSURE PATIENT SAFETY LEADS TO PATIENT FALLS IN NURSING HOMES

Two cases of falls in older patients in nursing homes highlight how risk factors for falls should be considered in care planning and the importance of fall prevention in long-term care settings.

Case #1 Details (1)

- An 88-year-old woman with a history of dementia, hypertension (treated with a beta blocker), chronic obstructive pulmonary disease (COPD), and known high risk for falling was admitted to a nursing home.
- During the first two months of her stay, she remained confused, but the nurses were able to redirect her most of the time.
- She was not ambulatory and transferred from bed to wheelchair with assistance.
- She was not enrolled in a fall prevention program because she was not ambulatory.

Case #1 Details (2)

- During this time, she fell when trying to get out of bed and was transferred to an acute care hospital and diagnosed with a hip fracture. The next day, she underwent open reduction and internal fixation of the left hip.
- Subsequently, the patient was diagnosed with sepsis, presumably from a urinary tract infection (UTI), and died less than one week later.
- The cause of death was documented as hip trauma from the fall at the nursing home.

Case #2 Details (1)

- A 78-year-old woman with a history of obesity, diabetes mellitus, anemia, anxiety, end-stage dementia, and falls was admitted to a nursing home.
- Two days after admission, she was seen by the primary care provider (PCP) who completed a new patient assessment. Subsequently, the patient suffered multiple falls despite the nursing staff implementing “fall precautions” including moving the patient to a room close to the nurse’s station, which was the only specific precaution documented.
- Unfortunately, the patient could not follow instructions and did not understand that she was unable to walk unassisted. State law prohibited soft restraints to prevent falls.

Case #2 Details (2)

- The primary care provider was aware of the falls, came to examine the patient multiple times, and ordered physical therapy evaluation and treatment.
- Medications were given to assist with agitation secondary to dementia and a psychiatric evaluation was ordered to review the medications. The patient was noted to be consistently confused.
- Over the six months following admission, the patient had 16 falls noted in her chart. In response, the PCP completed a second evaluation and recommended a trial of discontinuing oral quetiapine, lorazepam, and tramadol, but continuing a compounded topical gel containing lorazepam, diphenhydramine, haloperidol, and metoclopramide.

Case #2 Details (3)

- Less than one week after the second evaluation, the patient was found face down on the floor and was unresponsive for two minutes, then began vomiting.
- She was taken to an acute care hospital where she was diagnosed with a traumatic subarachnoid hemorrhage.
- Her family requested comfort care and hospice; the patient died due to complications of her hemorrhage.

FAILURE TO ENSURE PATIENT SAFETY LEADS TO PATIENT FALLS IN NURSING HOMES

THE COMMENTARY

By Barbara Resnick, PhD, CRNP, and Maria Boltz, PhD, CRNP

WebM&M
Morbidity and Mortality Rounds on the Web

FALLS IN NURSING HOME COMMUNITIES

Falls in Nursing Home Communities (1)

- It has been reported that over half of nursing home (NH) residents fall every year, which is about double the rate reported among community-dwelling older adults.[1]
- Although only 10-35% of these falls result in serious injuries,[1] such as fractures or head trauma, falls can have important psychological impacts on individuals such as increasing their fear of falling or causing depression.[2]
- Subsequent falls are the most common reason for filing malpractice claims against NHs, and the average costs of these claims, involving allegations of improper care, are increasing.[3]

Falls in Nursing Home Communities (2)

- For NH residents, there are many factors associated with the risk of experiencing a fall.
- These include internal individual patient factors and external factors, such as the physical environment and culture of care in the community.[4-6] Internal functional factors include gait changes, and loss of strength, balance, muscle mass, and underlying functional capability.

Falls in Nursing Home Communities (3)

- Additional internal factors include:
  - mental health issues such as fear of falling, cognitive impairment, behavioral symptoms associated with dementia, and delirium
  - acute illnesses such as infections; complications of chronic diseases such as stroke, neuropathy or osteoarthritis
  - cardiac diseases causing orthostasis or syncope, vertigo, deconditioning, or pain
  - use of medications that impact the central nervous system such as opioids or psychotropic medications

Falls in Nursing Home Communities (4)

- External factors include the culture of safety—described as the positive and negative ways safety is addressed within the NH[6,7] – include:
  - controversial use of bedrails
  - cluttered hallways
  - unfounded beliefs and limited knowledge about falls and fall prevention among the staff
  - insufficient staffing
  - poor skill mix of nursing staff (e.g., registered nurses versus licensed practical nurses or certified nursing assistants)
  - limited availability of resources to optimize physical activity among residents such as the use of rehabilitation nursing assistants, supervised exercise rooms, appropriate seating devices, or access to commode chairs.[7]

Falls in Nursing Home Communities (5)

- Regarding the first patient case above, the patient's dementia, possible medication side effects (e.g., hypotension from the beta blocker), and history of previous falls all provided evidence that she was at high risk for falls during her NH stay.
- Likewise, in the second case above, the patient's dementia, history of falls, and use of psychotropic medications increased her risk of falling during her NH stay.
- There was no compelling need to complete a formal falls risk assessment as the history alone for these two residents provides sufficient information to highlight their risk for future falls. However, even in cases where there is no history of falls, resident fall risk assessments should be done for residents with cognitive impairment.
- For both individuals, an interdisciplinary person-centered care plan for fall prevention would be appropriate.

APPROACH TO FALL PREVENTION AND IMPROVING RESIDENT SAFETY

Approach to Fall Prevention and Improving Patient Safety (1)

- Repeatedly, through individual randomized controlled trials, systematic reviews, and clinical practice guidelines, it has been recommended that fall prevention interventions comprise a multicomponent approach[5,8-10] and incorporate input from all members of the interdisciplinary team.[11,12]

Approach to Fall Prevention and Improving Patient Safety (2)

- These approaches to fall prevention generally include:
  - education of staff on the topic of risk reduction
  - interventions to optimize physical activity among residents with a focus on certain exercises known to effectively decrease fall risk or prevent falls (e.g., Tai Chi or other exercise programs that improve balance, resistance exercises, or dual-task activities)
  - focused deprescribing especially of psychotropic medications and opioids, decreasing environmental risks (e.g., removing clutter, providing appropriate seating)
  - addressing pain, sleep, delirium, and sensory changes

Approach to Fall Prevention and Improving Patient Safety (3)

- Although inconsistent, some limited evidence supports the use of low bed heights in the prevention of falls, acknowledging that low bed heights may also limit function.[13]
  - Two recent systematic reviews on falls,[9,15] one with a meta-analysis,[15] did not find any evidence to support the use of chair or bed alarms, while a 2022 Clinical Practice Guideline included a weak recommendation only because an alarm might cause more rapid treatment after a fall.[14]
- The evidence for use of, or avoidance of, bedrails is inconsistent as is the use of restraints for fall prevention.[9,14]
  - Some studies have indicated that bedrails have been associated with loss of dignity and autonomy and greater injury and mortality, [9]
  - The Centers for Medicare and Medicaid Services have recommended significant restrictions on the use of bedrails as a restraint.[15]

Approach to Fall Prevention and Improving Patient Safety (4)

- Further, there is no significant evidence to support the use of Vitamin D supplements to prevent falls in NH, although there are recommendations for community dwelling individuals.[16]
- Lastly, there is no evidence that focusing on improving patient cognition or solely providing education about fall prevention for patients/residents, staff, or informal caregivers reduces falls or the risk for falls.[10]
- Staff and patient education should always be combined with other personalized interventions.

Approach to Fall Prevention and Improving Patient Safety (5)

- In addition to using a multicomponent approach to falls, it is important that interventions are individualized for each resident and focused on his or her individual fall risk factors.
  - That might mean deprescribing certain medications, facilitating an exercise program, or addressing sensory defects, or it might include alterations in their environment and interventions to reduce anxiety.
  - Individualized deprescribing has been particularly effective for residents taking sleeping-related medications[4] and when adding drugs such as gabapentinoids to a regimen that already includes opioids, as gabapentinoids may potentiate the effect of opioids on the central nervous system, increasing fall risk.[17]
  - Likewise, particularly for individuals who are deconditioned, exercise interventions that focus on resistance and balance exercises can decrease falls and the risk of falling.[18,19]

Approach to Fall Prevention and Improving Patient Safety (6)

- There was no mention of fall prevention interventions provided for the resident in the first case above.
- The rationale for not addressing her risk of falling was that she was not functionally ambulating; however, non-ambulatory status does not always prevent a confused resident from attempting to get out of bed or falling.

Approach to Fall Prevention and Improving Patient Safety (7)

- In the first case, it was also not stated whether bed rails were present on the bed. While there is still some controversy on the use of full bed rails, if they were present, they may have contributed to her ability to get to up herself and increased her risk of falling.
- Likewise, her blood pressure recordings, lying, sitting or standing, were not noted so we don't know whether she also may have suffered a drop in her blood pressure and experienced lightheadedness or dizziness upon standing, which could have contributed further to her risk of falls.
- No report of recent lab work related to her remote history of anemia was provided, which could indicate if this was currently a problem; anemia can contribute to weakness or dizziness and thus increase the risk of falls.
- Lastly, she was simply at risk for falling because of her impaired cognitive status, as she may have attempted to get out of bed while she was alone, despite her inability to ambulate independently.

Approach to Fall Prevention and Improving Patient Safety (8)

- A person-centered approach to risk reduction for this resident might have been:
  - to evaluate and monitor lying and standing blood pressures,
  - to determine her anemia status via lab work, and
  - to evaluate her environment and determine the associated benefit or risk of using quarter bedrails, for example, depending on her functional status.
- Additionally, it is possible that ensuring the resident was supervised in her room, perhaps by having a family member or sitter in the room, may have been helpful but has not been well studied in NHs.

Approach to Fall Prevention and Improving Patient Safety (9)

- For the second case above, the only person-centered nursing approach documented was to move the patient closer to the nurse's station. Her PCP ordered physical therapy and a psychiatric evaluation for her dementia-associated agitation.
  - Oral administration of quetiapine, lorazepam, and tramadol were discontinued due to her history of falls, but the compound gel of lorazepam, diphenhydramine, haloperidol, and metoclopramide, which was continued for her anxiety, may have contributed to her confusion.

Approach to Fall Prevention and Improving Patient Safety (9)

- Whether team discussions were held to consider a more comprehensive personalized approach, involving input from the whole interdisciplinary team, was not noted, nor were results of evaluation of the underlying cause of the anxiety, evidence of pain, or other possible causes of agitation such as constipation given, and no additional environmental interventions were implemented.
  - Consideration should have been given, for example, to whether she should have had a low bed to prevent jumping or slipping to the floor when attempting to stand since she was not able to ambulate safely independently. Additionally, minimizing the time she spent unsupervised in her room, which enabled opportunities for poor decision-making could be helpful.
  - Engaging activities staff in personalized falls prevention interventions to help to get her out of the room to activities she might enjoy, and deprescribing the topical medication might also have been used as ways to decrease the risk of falls for this individual.

SYSTEMS CHANGE NEEDED/ QUALITY IMPROVEMENT APPROACH

Systems Change Needed/Quality Improvement Approach (1)

- A culture of safety is necessary to decrease falls and risk for falls among NH residents.
  - As described above, culture of safety is dependent upon leadership; it is pervasive and permeates through the nursing home affecting the way that care is provided.
  - A positive safety culture has a significant impact on the residents' care experiences as well as the experiences of the staff, enabling greater transparency, better communication, and greater awareness of patient safety risks.
  - Communication among the interdisciplinary team members about each fall in the nursing home is critical to maintaining a culture of safety as is a positive leadership style among supervisors.

Systems Change Needed/Quality Improvement Approach (2)

- There are many components that are essential to establishing a culture of safety:
  - teamwork
  - nonpunitive ways to address errors that do occur
  - effective leadership
  - appropriate staffing rate and mix of staff.[7]

Systems Change Needed/Quality Improvement Approach (3)

- While recent federal reforms are targeting improved standards for nurse staffing to be published by 2026,[20] currently, there are no clear guidelines on staffing requirements or mix of staff.
- There is some evidence that suggests that when there are more licensed nursing hours per day at a facility (i.e., hours worked by registered nurses or licensed practical nurses) falls with injuries among residents tend to decrease.[21,22]

Systems Change Needed/Quality Improvement Approach (4)

- NH staff also need to understand that education regarding implementation and use of interventions to decrease fall risk, while important, is not sufficient to change the behavior of either the staff or the residents.[23]
- Designing interventions based on social and cognitive theories may help staff and residents incorporate appropriate interventions into daily care.[24,25]
  - The Social Ecological Model and the Social Cognitive Theory focus on changing the behaviors of staff, residents, and families (or legally authorized representatives) to improve fall-prevention interventions.

Systems Change Needed/Quality Improvement Approach (5)

- The **Social Ecological Model** recognizes the interactions of individual factors, such as age, gender, attitudes/beliefs; interpersonal factors, such as staff/resident interactions; environmental resources, such as access to tools for distraction; appropriate bed and chair heights; and policies, such as policies around team approaches to fall prevention and management.
- The **Social Cognitive Theory** contends that the stronger an individual's self-efficacy and outcome expectations, the more likely that he or she will initiate and persist with a given activity. The four factors that influence self-efficacy and outcome expectations include:
  - (1) successful performance of the activity;
  - (2) verbal encouragement;
  - (3) seeing like individuals perform the activity; and
  - (4) elimination of unpleasant physiological and affective states associated with the activity.[26]

Systems Change Needed/Quality Improvement Approach (6)

- The **Evidence Integration Triangle** integrates these drivers of behavioral change through a participatory process, practical evidence-based interventions, and pragmatic measures of progress towards goals. Approaches incorporating these three models/theories can be deployed with facility staff, and staff providing care to residents can use them when engaging residents in fall-prevention activities.

Systems Change Needed/Quality Improvement Approach (7)

- Finally, it is important that residents, families and staff all understand that the risk for falls can be decreased by optimizing the strength, function, physical status and environmental safety of all residents.
- Falls will, however, continue to occur as when an acute event or illness happens and as residents' capabilities change over time.
- Assessing residents for their risk of falls based on their fall history, medications, cognition, function, and environmental hazards, establishing an interdisciplinary person-centered fall risk plan, and assuring that staff implement the care plan is the best way to decrease the incidence of falls.

TAKE HOME POINTS

Take-Home Points

- Multiple factors contribute to the risk of falls, and fall prevention requires a multicomponent, interdisciplinary approach.
- A person-centered assessment and care plan for fall risk and prevention should be developed using input from all members of the interdisciplinary team.
- Education of residents, staff, or informal caregivers alone is not sufficient to prevent falls and should be combined with other individualized interventions.
- There is limited evidence for the use of restraints (e.g., siderails) to prevent falls.
- Exercise interventions, particularly those that focus on balance and strength, are effective in helping to prevent falls.

REFERENCES

References

1. Older Adult Fall Prevention. Center for Disease Control and Prevention (CDC). Accessed March 23, 2023. [Available at]
2. Liu M, Hou T, Li Y, et al. Fear of falling is as important as multiple previous falls in terms of limiting daily activities: a longitudinal study. *BMC Geriatrics* 2021;21(1):350. [Free full text]
3. CNA. Aging Services Claim Report: 11th Edition (2022). Accessed March 23, 2023. [Free full text]
4. Damanti S, Tresoldi M, de Souto Barreto P, Rolland Y, Cesari M. Z-drugs and falls in nursing home patients: data from the INCUR study. *Aging Clin Exp Res*. 2022 Dec;34(12):3145-3149. [Available at]
5. Rezola-Pardo C, Irazusta J, Mugica-Errazquin I, et al. Effects of multicomponent and dual-task exercise on falls in nursing homes: The AgeingOn Dual-Task study. *Maturitas*. 2022;164:15-22. [Free full text]
6. Kuhnow J, Hoben M, Weeks LE, Barber B, Estabrooks CA. Factors Associated with Falls in Canadian Long Term Care Homes: a Retrospective Cohort Study. *Can Geriatr J*. 2022 Dec 1;25(4):328-335. doi: 10.5770/cgj.25.623. [Free full text]
7. Abusalem S, Polivka B, Coty MB, Crawford TN, Furman CD, Alaradi M. The Relationship Between Culture of Safety and Rate of Adverse Events in Long-Term Care Facilities. *J Patient Saf*. 2021 Jun 1;17(4):299-304. [Available at]
8. Bruininks BD, Sage SK, Korak JA. Evaluation of short-term multi-component exercise programming on major variables that directly influence fall risk in older women: a pilot study. *J Women Aging*. 2022 Jul-Aug;34(4):415-428. [Available at]
9. Schoberer D, Breimaier HE, Zuschnegg J, Findling T, Schaffer S, Archan T. Fall prevention in hospitals and nursing homes: Clinical practice guideline. *Worldviews Evid Based Nurs*. 2022 Apr;19(2):86-93. [Free full text]
10. Montero-Odasso M, Kamkar N, Pieruccini-Faria F, et al. Evaluation of Clinical Practice Guidelines on Fall Prevention and Management for Older Adults: A Systematic Review. *JAMA Netw Open.* 2021;4(12): e2138911-e2138911. [Free full text]
11. Cefalu C. Knowledge and participation in the care planning process by physicians in the nursing home setting: the case of falls. *Ann Longterm Care.* 2009;17(5):25-27.
12. Patrick L, Leber M, Scrim C, Gendron I, Eisener-Parsche P. A standardized assessment and intervention protocol for managing risk for falls on a geriatric rehabilitation unit. J *Gerontol Nurs*. 1999 Apr;25(4):40-7. [Available at]
13. Fray M, Hignett S, Gyi D. Impact of ultra-low height healthcare beds on falls and moblity: A systematic review. *International Journal of Safe Patient Handling & Mobility* 2022;12(1):21-32. [Available at]

References

15. Centers for Medicare & Medicaid Services. Medicare and Medicaid programs. Hospital conditions of participation: patients' rights: final rule. *Fed Register*. December 8, 2006; *71:71378–71428.* [Free full text]
16. Oliver D, Connelly JB, Victor CR, et al. Strategies to prevent falls and fractures in hospitals and care homes and effect of cognitive impairment: systematic review and meta-analyses. *BMJ.* 2007;334(7584):82. [Free full text]
17. Chen C, Winterstein A, Lo-Ciganic W, Tighe P, Wei Y. Concurrent use of prescription gabapentinoids with opioids and risk for fall-related injury among older US Medicare beneficiaries with chronic noncancer pain: A population-based cohort study. *PLoS Med.* 2022;19(3):1-18. [Free full text]
18. Mak A, Delbaere K, Refshauge K, et al. Sunbeam Program Reduces Rate of Falls in Long-Term Care Residents With Mild to Moderate Cognitive Impairment or Dementia: Subgroup Analysis of a Cluster Randomized Controlled Trial. *Am Med Dir Assoc*. 2022 May;23(5):743-749.e1. [Available at]
19. Zou Z, Chen Z, Ni Z, Hou Y, Zhang Q. The effect of group-based Otago exercise program on fear of falling and physical function among older adults living in nursing homes: A pilot trial. *Geriatr Nurs.* 2022;43:288-292. [Available at]
20. Centers for Medicare & Medicaid Services Medicare programs; prospective payment system and consolidated billing for skilled nursing facilities; updates to the quality reporting program and value-based purchasing program for federal fiscal year 2023. *Fed Register*. August 3, 2022;87:47502-47619. [Free full text]
21. Shin JH, Hyun TK. Nurse Staffing and Quality of Care of Nursing Home Residents in Korea. *J Nurs Scholarsh.* 2015;47(6):555-564. [Available at]
22. Stalpers D, de Brouwer BJ, Kaljouw MJ, Schuurmans MJ. Associations between characteristics of the nurse work environment and five nurse-sensitive patient outcomes in hospitals: a systematic review of literature. *Int J Nurs Stud.* 2015;52(4):817-835. [Available at]
23. keda-Sonoda S, Okochi J, Ichihara N, Miyata H. The effectiveness of care manager training in a multidisciplinary plan-do-check-adjust cycle on prevention of undesirable events among residents of geriatric care facilities. *Geriatr Gerontol Int*. 2021;21(9):842-848. [Free full text]
24. Resnick B, Boltz M, Galik E, Fix S, Holmes S, Zhu S, Barr E. Testing the Impact of FFC-AL-EIT on Psychosocial and Behavioral Outcomes in Assisted Living. *J Am Geriatr Soc*. 2021 Feb;69(2):459-466. [Free full text]
25. Resnick B, Boltz M, Galik E, Fix S, Holmes S, Zhu S, Barr E. Testing the Implementation of Function-focused Care in Assisted Living Settings. *J Am Med Dir Assoc*. 2021 Aug;22(8):1706-1713.e1. [Free full text]
26. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977 Mar;84(2):191-215. [Available at]