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Management Team Perceptions of Risks and Strategies for Preventing Falls among Short-stay Patients in Nursing Homes

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Abstract

Background—We sought to understand strategies reported by members of the nursing home management team are used to prevent falls in short-stay nursing home patients.

Design, Setting, and Subjects—Using Donabedian’s model of structure, process, and outcomes we conducted interviewed six-teen managers from four nursing homes in central North Carolina.

Results—Nursing home managers identified specific barriers to fall prevention among short-stay patients including: rapid changes in functional and cognitive status, staff unfamiliarity with short-stay patient needs and patterns, and policies impacting care. Few interventions for reducing falls among short-stay patients were employed at the structure-level (e.g., specialized units, workload ratio, and staffing consistency); however many process-level interventions were employed (e.g., patient education on problem-solving, self-care/mobility, and safety).

Conclusion—We described several barriers to fall prevention among short-stay patients in nursing homes. From these descriptions, we propose three interventions that might reduce falls for short-stay patients and could be tested in future research: 1) clustering short-stay patients within a physical location to permit higher staff-patient ratios and enhanced surveillance; 2) population-based prevention interventions to supplement existing individually-tailored prevention strategies (e.g., toileting schedules, medication review for all); and 3) transitional care interventions that transmit key information from hospitals to nursing homes.

Keywords

Administrative personnel; quality of care; nursing home; falls; qualitative research methods

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Introduction

Nursing home falls frequently result in functional decline, disability, and reduced quality of life for older adults. However, evidence from previous studies has focused mainly on the long-stay resident population and not the short-stay patient population. Short-stay patients are admitted to nursing homes for skilled nursing and post-acute rehabilitation for an injury and/or worsening illness. One observational study reported 21% of newly admitted nursing home residents (a mixture of short and long-stay residents) who remained in the facility for a minimum of 30 days experienced at least one fall as indicated in the follow-up assessment (median time to follow-up assessment 53 days), suggesting that short-stay patients are at high risk.¹ However, no information was reported on short-stay patients who were discharged in fewer than 30 days or on the processes used to prevent falls among this population. As a result, little is known about what unique fall risk factors exist among short-stay patients in nursing homes or how traditional fall prevention strategies could be modified to meet their needs.

It is important to consider fall risks among short-stay patients as distinct from long-stay residents for 3 reasons. First, delirium among short-stay patients is estimated to range from 6% to 25% and is associated with a high risk of falls.^{2,3} Second, many older adults experience marked deficits in physical function secondary to an acute hospitalization⁴ and yet, functional outcomes improve in more than 60% of patients admitted to nursing homes for post-acute rehabilitation.⁵ Therefore, staff members are constantly adjusting their activities according to the patient's changing needs and functional abilities. Moreover, patients may not have a clear understanding of their current capabilities and need for assistance. Finally, since short-stay patients are encouraged to be as active as possible in order to regain functional independence, they have greater opportunity for experiencing falls compared to long-term residents.^{6,7} Altogether, these factors result in a distinct falls risk profile for short-stay patients and impact what fall prevention interventions are likely to be most effective.⁸

The goal of this study was to describe nursing home management team members' (nursing home manager, director rehabilitation, director of nursing, and minimum dataset coordinator) perceptions of barriers to fall prevention among short-stay patients, as well as the structure and process-level interventions used to prevent falls among this group. While it is widely understood that direct care staff (nurses, therapists, or certified nursing assistants), implement actual fall prevention measures in nursing homes, we purposefully targeted managers because it is their responsibility to develop and evaluate the effectiveness of fall prevention efforts in their facilities. Using Donabedian's model as a guiding framework, we were interested in answering two questions: 1) What are the perceived barriers to preventing falls among short-stay patients? 2) How do fall prevention strategies reported by members of the nursing home management team differ between short-stay patients and long-stay residents?

Methods

Design

Data were collected using semi-structured interviews of selected managers including nursing home administrators (NHA), directors of nursing (DON), directors of rehabilitation (DOR), and minimum data set (MDS) coordinators across four nursing homes located in central North Carolina.

Conceptual Model

We applied Donabedian's model of structure, process, and outcomes⁹ to guide the directed content analysis¹⁰ of falls prevention approaches. *Structures of care* were defined as organizational attributes of the nursing home; for example, the materials, equipment, technology, services, and personnel available for care (i.e., credentials, staff mix). *Processes* were defined as the fall prevention strategies utilized in nursing homes to improve patient safety and promote functional recovery, both direct patient care interventions and unit-level procedures and treatment planning routines. Examples of direct patient care interventions include use of fall mats, alarms, and psychoactive medication reduction. Examples of procedures pertinent to fall prevention in skilled nursing facilities include coordination of care across staff, use of practice guidelines, and other systematically developed statements for informing care. Examples of treatment planning include care plan meetings and post-fall huddles. *Outcomes* were defined as the end product of care process implementation and were categorized as either clinical (i.e., reduced fall rates) or nonclinical (i.e., improved communication).

Setting and Sample

Participating nursing homes (n=4) were free-standing Medicare-certified facilities in North Carolina that provided skilled nursing and rehabilitative care. We excluded hospital-based nursing homes, intermediate care facilities for the developmentally disabled, pediatric sub-acute care facilities, and congregate living facilities.

Sixteen nursing home managers were interviewed. All participants were of working age, English speaking, and provided informed consent to be interviewed. Study procedures were approved by the Duke University Institutional Review Board.

Data Collection Procedures

The investigator conducted in-depth interviews with participants, using an interview guide shown in Table 1. The interviews ranged from 15–45 minutes and began with a grand tour question “Talk with me about fall prevention strategies employed in your facility”. Probes were used to elicit differences between short-stay patients and long-term residents. Interviews were audio-recorded and transcribed; the investigator verified the accuracy of each transcript.

Data Analysis

A five-step framework analysis was used to interpret the data¹¹ – each step of the framework method is explained below. This methodology provides a systematic,

reproducible process for summarizing data within groups and facilities, thereby fostering cross-setting comparisons. The software ATLAS.ti supported all data analysis.

Step 1: Familiarization—Familiarization with each interview entailed understanding the story told by the nursing home management team member in order to get a sense of the whole interview. Complete transcribed interviews were read over several times by investigators.

Step 2: Coding—We began with *a priori* codes from Donabedian's model and interview guide questions. As new codes were proposed by team members during the indexing stage, they were added to the code book in an iterative process as a structure-, process-, or outcomes-related code. The code book was used to provide consistency across coders.

Step 3: Indexing—Using *a priori* codes, at least two coders, indexed transcripts under the appropriate themes. Also, open coding was done on the first four transcripts, which allowed us to identify any new themes that were relevant but not among the constructs identified by the Donabedian model. The team of coders met weekly to review coding issues. Any disagreements were discussed until a consensus was reached. Key themes from this step are provided in Table 1.

Step 4: Charting—All indexed data were grouped by code. Coders created brief summary statements for each quotation within the code. These summary statements were organized into tables (charts) by facility and management team position. Findings were compared with current quality improvement and fall prevention literature.

Step 5: Interpretation—Lastly, the charts were used to review all of the coded data, which included checking all summaries on the charts against the original data and comparing these with each other. We used charts to describe subthemes and compare these between nursing homes and role (i.e., NHA vs. DOR); counts for each subtheme were generated.

Results

All facilities were for-profit; the average size of each facility was 111 beds; two facilities were located in rural areas and two facilities were located in urban settings. Table 2 displays characteristics of the managers who participated in the study. Below, we describe managers' perceptions of factors affecting fall prevention among short-stay patients. These factors were organized into the following categories: perceived barriers to fall prevention, reported and proposed structural-level interventions, and reported and proposed process-level interventions used to prevent falls among short-stay patients.

Perceived barriers to fall prevention among short-stay patients

In Table 3, we outline four manager-reported barriers to fall prevention among short-stay patients along with structural and process interventions that they reported to address them. One barrier was that patient abilities, daily patterns, and needs were not known to staff when they were first admitted to the facility. Until this critical information was determined, the

frequency and type of fall prevention care delivered to short-stay patients might be limited or delayed.

NHA: “We don’t immediately implement prevention measures besides explaining the call bell and how to ring for assistance and tell patients to wait for someone to assist them to the bathroom until we get to know them better.”

A second reported barrier was the rapid changes in functional status experienced by many short-stay patients.

DON: “On admission they [short-stay patients] need extensive assist or total assist with mobility. A week later they might [need] limited assist so their care planning and what the staff needs to do for them also changes... it [functional status] can also change in the same day...in the morning they might need less help, but that evening they need more help.”

One manager described how patient and family expectations can be challenging to staff, particularly when they have unrealistic goals for recovery.

DON: “But [families] want us to have mama ready by June 1st [in a few weeks after admission] and we just have to get social work in and go ‘listen, that may not be realistic for her; yes, we push them, but you can’t take her past her limits and we won’t.”

A third reported barrier was that delirium and rapid changes in cognitive status related to pharmacological and/or environmental factors are common in short-stay patients. Managers reported that fall prevention efforts are very challenging among delirious short-stay patients who may experience hallucinations, impulsivity, and disorientation.

DON: “We do have some [short-stay patients who fall]. A lot of the times it’s because they’re confused because they’ve had surgery and there’s some anesthesia still hanging around in their system.”

Payment and policy regulations represent a fourth barrier. Specifically, managers worried that the short amount of covered rehabilitation time they have to work with short-stay patients is insufficient to ensure their safety, and may lead to increases in falls at home.

MDS: “After day 20 Medicare changes what they pay so a lot of patients can’t afford to pay that extra 20% if Medicare is only going to pay 80%, so they’re forced to go home whether they’re ready to or not...that’s usually our short-term people.”

Reported organizational structure to facilitate fall prevention for short-stay patients

Most managers stated that the organizational structure of their facilities was largely the same for short-stay patients and long-stay residents. However, two structure themes were reported to facilitate fall prevention for short-stay patients. First, one manager highlighted the design of **specialized “units” or “wings”** for post-acute rehabilitation services.

DOR: “[The floor layout of the rehab unit is] basically like three spokes and the nurse’s station and the therapy gym are in the middle of it. So it’s [rehab wing]

designed to increase access to staff and equipment. Also, there's not as many folks [patients], if you get to the main nurse's station where the long-stay residents [are all located in a separate wing] you don't have a therapy gym and you only have a nurse's station."

The same manager suggested that because his office was located within the rehabilitation wing, he was able to spend additional time with patients and educate them on the importance of safety with the goal of preventing falls while in the facility and at home.

DOR: "So I ended up talking to them about [preventing future falls and overall safety]. I'd say over 90% of the time we'd prevent another fall... because they realize that yes I need to ring that call light and wait for the staff member because obviously I just fell and I don't want to suffer another injury."

Second, managers from the same facility suggested workload and staffing patterns differed between short-stay and long-stay residents. Specifically, **workload ratio** and **staffing consistency** differed to accommodate the higher needs of the short-stay population.

DOR: "So if you can imagine how many more people they have to watch over there [long-stay wing] compared to [rehabilitation wing] when you're looking at staff and patient ratio, well if you add the therapy staff with the nursing staff from the rehab side, the ratio's incredible. It's probably a two to one, two patients for every one staff member on the rehab side. But if you get on the nursing home side you know...maybe ten for sixty four residents. So it's a big difference, it's a real big difference."

Proposed structure-level interventions for fall prevention among short-stay patients

Current hospital electronic health systems produce voluminous discharge summaries which make it difficult and time consuming for staff to locate relevant information and inform fall prevention efforts. Developing standardized health records with information specific to falls is one structural change that would enable more timely communication of accurate data.

NHA: When we get a fifteen page [proprietary electronic medical record name] discharge summary it's hard for a nurse to take the limited amount of time that she has or the therapist to read thoroughly all fifteen pages. And so they're catching the high points, they're getting through them as best they can with the limited amount of time that they have. And if something's buried deep in page fourteen hopefully we catch it."

Reported process-level interventions to facilitate fall prevention among short-stay patients

Although admitting procedures were described as similar between short and long-stay patients, managers identified two additional process interventions identified by members of the management team.

First, many managers suggested a great deal of time is spent educating short-stay patients and families on functional limitations and realistic goals for recovery; education is concentrated on problem-solving, self-care and mobility, and safety.

DON: “You have to be safe and that’s one of the things that I think is helpful with falls is when you talk to those families the first couple of days they’re here and give them a realistic expectation of what their family member can do, what we can do, what they shouldn’t be doing, or what they can help with.”

Second, one manager reported the importance of modifying the approach from individual education toward more staff-based care processes like more frequent monitoring for short-stay patients with cognitive impairment.

NHA: “We look very closely at their history at home and in the hospital and if they’re a frequent faller...at home or in the hospital and especially if their cognitive abilities are diminished, if they have dementia we’re probably going to implement quicker prevention measures than we would normally.”

One manager suggested focused medication review, an important element in comprehensive care planning, as a means of improving cognitive functioning and improving overall patient safety.

MDS: “If I review the medications and see that they’re on a lot of things...two antidepressants, four or five different pain medicines, a lot of times I’ll leave the doctor a note to say please review [to] see if there’s any of this that can be weaned off or stopped or let’s say they had some delirium in the hospital and got put on something like Risperdal, but they’ve been really cognitively intact here, we ask if we can wean them from that.”

Proposed process-level interventions for preventing falls among short-stay patients

The timing of fall risk determination and care planning was described as critical for preventing falls among short-stay patients. Taking a population-based approach, managers stated that these evaluations should be completed within the first day, if not within hours, of admission.

The first population-based strategy (i.e., a strategy used routinely for all patients regardless of their specific care plan) for preventing falls cited by managers was the development of toileting schedules for all short-stay patients.

NHA: “The other things that I think are successful are toileting programs because again most of the time that’s what people are trying to do on their own instead of ringing the bell and asking for help or waiting for help.”

DON: “The second thing we do [when assessing for falls risks] is we evaluate everyone for scheduled toileting plans.”

One manager of a facility emphasized the importance of a second population-based strategy, which was to treat all short-stay patients admitted to the nursing home as “high risk”.

DON: “We say everyone [short-stay patients] is at high risk [for falls] on admission because they’re recently hospitalized, transitioning to a new environment, with new meds, [and] new diagnoses.”

Inadequate transitional care planning from the nursing home to the community can lead to adverse events. To ensure a safe transition, a third population-based strategy described was to prepare all short-stay patients for at-home recovery and safety upon leaving the nursing home.

NHA: “When we discharge short-stay people we try and discharge them with the equipment [i.e., walkers and wheelchairs] they need at home [to maintain their independence]. If they need continued physical therapy we do that through home health agencies, we’ll contact a home health agency for them and they’ll send someone in..”

Discussion

The majority of existing literature on preventing nursing home falls is directed towards long-stay residents. Since long-stay residents and short-stay patients are two distinct populations, we argue that the fall prevention structure and care processes employed for the two groups should also be different. In this qualitative study, we first identified several barriers to fall prevention among short-stay patients in nursing homes including: rapid changes in functional and cognitive status, staff unfamiliarity with short-stay patient needs and patterns, and policies impacting care (e.g., reimbursement/payor and regulations). Next, we identified structure and care processes that managers believe are critical to preventing falls among short-stay patients in nursing homes. Our findings suggest that few interventions for short-stay patients were employed at the structure-level (e.g., specialized units, workload ratio, and staffing consistency); however, many process-level interventions were employed (e.g., patient education on problem-solving, self-care/mobility, and safety). Based on the observations from our study, we discuss potential interventions and suggest additional research needs below.

Since newly admitted short-stay patients are largely unknown to staff and their functional status and mobility is changing rapidly, complementing individually-tailored strategies with population-based strategies might improve the effectiveness of fall prevention programs in nursing homes. In the current study, two nursing homes utilized population-based approaches to preventing falls among short-stay patients by including scheduled toileting programs and identifying critical periods of high risk across the entire population.

Prior literature suggests that bedrooms and bathrooms are among the most frequent locations for falls and fall-related injuries occurring in nursing homes.¹² As in our study, managers reported many short-stay patients attempt to transfer and/or use the bathroom, often times without requesting assistance from staff, places them at high risk for falling. Consequently, universal toileting schedules implemented for newly admitted short-stay patients offers promise in reducing falls. Studies using cueing with music played at regular intervals throughout the nursing home have been effective in reminding staff to turn residents and reducing pressure ulcer rates.¹³ Such an approach might be tested to prompt toileting for short-stay patients.

The timing of fall risk determination and care planning are critical for preventing falls among short-stay patients; recognizing this, one nursing home in our study instituted a 24-

hour high-risk period as a population-based intervention for preventing falls among all short-stay patients. A recent systematic review suggests a peak 24-hour pattern of fall incidence among sample cohorts in institutional settings.¹⁴ In addition, since many patients are admitted to the nursing home with newly prescribed medications (many of which increase fall risk), routine medication review and reduction is hypothesized to be critical for this population.

Transitional care interventions such as electronic health record [EHR] templates that transmit key information specifically related to fall risk (e.g., functional status, medications, lab results, orthostatic vital signs, and other fall risk factors) from hospitals to nursing homes may improve fall prevention. For example, a recent study merged EHR and MDS data for 5,595 residents of Veterans Affairs nursing homes aged 70 years and older to predict change in ADLs for nursing home patients following hospitalization.¹⁵ By extending this work into the fall prevention domain, future research could develop automated templates to extract relevant fall related data from the EHR for quick access by nursing home staff prior to patient admission. More research is needed to understand how innovative uses of EHR data can be used to predict and modify health outcomes across settings of care.

Implications for Management, Clinical Practice, and Research

Results from this study offer insights into how nursing homes have developed approaches to preventing falls among short-stay patients with important implications for healthcare managers, clinicians and researchers.

Respite Care Services and Guidelines—More studies on particular subgroups of short-stay patients are needed. Specifically, patients who are temporarily admitted into nursing homes for respite care services (housing, personal care, and/or chronic disease management), but are not prescribed rehabilitation therapy should be examined. Although anecdotal evidence and clinical experience suggest their care needs more commonly resemble that of long-term residents, descriptive studies have yet to be conducted on this specific population.

Joint Commission Accreditation and Certification requires facilities to implement a fall reduction program, which includes evaluating the effectiveness of the program. Currently, no guidelines target admission and/or safety protocols among short-stay patients admitted to nursing homes for respite care services. Focusing on methods that identify appropriate levels of care and fall prevention programs among this group would enhance the safety of nursing homes.

Alarm-free Facilities—Since the 1990s, use of pressure-sensitive devices and alarms in nursing homes have been growing in use partially due to the increasing prevalence of older adults with cognitive impairment, regulations that prohibit the use of physical restraints, and efforts to protect against state and federal penalties for inadequate fall prevention efforts. Nevertheless, alarms can create loud noise, fear, and confusion for older adults, while fostering a false sense of security for staff. Furthermore, recent literature suggests pressure-sensitive devices and alarms have little to no effect on fall-related events in hospitals.^{16,17} In the current study, most nursing homes use similar devices and alarms, however one nursing

home is currently pilot testing an alarm-free initiative, which seems to be a growing phenomenon.^{18,19}

Limitations

Our study had two main limitations. First, our study recruited nursing homes within a certain geographic proximity, thereby limiting the generalizability of this study. Second, this study included perceptions of a subset of nursing home managers only; we did not include other managers (e.g., dietary, maintenance), nor were perceptions of direct clinical staff (e.g., nurses, therapists, or certified nursing assistants), patients, or their family members included.

Conclusion

There are many research studies and quality improvement reports which describe a variety of fall prevention efforts implemented in nursing homes, yet no studies specifically target the growing number of short-stay patients. In our study, managers identified specific barriers to fall prevention among short-stay patients, as well as structure and process-level interventions to keep this population from experiencing falls. From these descriptions, we offer additional interventions that might strengthen fall prevention practices targeting short-stay patients and could be tested in future research.

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Table 1

Interview Questions, Charting Categories, and Domains from Step 2

Question	A priori codes	Definitions	Domain
Grand tour question			
Talk with me about fall prevention/injury protection strategies used in your facility for short-stay patients?			
Additional questions			
What has worked well in fall prevention/injury protection, or what are you most proud of in your facility?	• Successful strategies	Strategies used within SNFs that participants described as effective in preventing falls.	Processes
What has not worked well in fall prevention/injury protection or are you frustrated with?	• Unsuccessful strategies	Strategies used within SNFs that participants described as ineffective in preventing falls.	Processes
What roles and responsibilities do you have in preventing falls and fall-related injuries?	• Roles and responsibilities	Specific role and/or responsibility described by participants for preventing falls in SNFs.	Processes
Probes			
How is your approach different with the short-stay patients here for rehab, compared with your long-term care residents?	• Unique approaches	Examples of different approaches described by participants for preventing falls among short-stay rehabilitation patients versus long-term residents in SNFs.	Processes
Are there unique or different challenges with short-stay group?	• Unique challenges	Examples of different approaches described by participants that they faced in fall prevention efforts among short-stay rehabilitation patients versus long-term residents in SNFs.	Processes
What frustrates you when trying to prevent falls in short-stay patients?	• Frustrating circumstances • Patient care example	Patient and/or systems issues described as frustrating to participants when attempting to prevent falls in SNFs.	Processes
What strategies are particularly useful for short-stay patients?	• Useful strategies for short-stay patients	Strategies described by participants as useful in preventing falls among short-stay patients in SNFs.	Processes
What would help you to do a better job reducing falls in that group?	• Tools needed	Tools participants described that they thought might help improve fall prevention efforts in SNFs.	Structure/processes

SNF, skilled nursing facility

Table 2

Study Participant Characteristics

Participant characteristic	Participants, N (%)
Female	11 (68%)
Race	
White	11 (68%)
Black	5 (32%)
Management position	
Administrator	4 (25%)
DON	4 (25%)
DOR	4 (25%)
MDS coordinator	4 (25%)

DON, Director of Nursing; DOR, Director of Rehabilitation; MDS, minimum data set; SD, standard deviation; All other abbreviations can be found in Table 1.

Table 3

Manager-reported Barriers to Fall Prevention among Short-stay patients with Reported Structural and Process Interventions that Might Address Them

Barrier to fall prevention in short-stay patients	Interventions: structure	Interventions: process
<i>Rapidly changing functional status</i> leads patients and families to attempt unsafe activities	<ul style="list-style-type: none"> Cluster short-stay patients on units with higher staffing ratios Co-locate rehabilitation staff on the rehab units Medicare regulations require comprehensive care planning: periodic MDS assessments (5-, 14-, 30-, 60-, and 90-day) State regulations require staff to document different fall prevention strategies 	<ul style="list-style-type: none"> Early assessment of functional status within hours Patient/family education at admission Use your therapy staff as resources in falls prevention: therapy evaluation used to inform nursing staff of functional deficits Population-based strategies Scheduled toileting program
<i>Patient abilities</i> , daily patterns, needs are not known to staff	<ul style="list-style-type: none"> Improve EMR communication with hospital Improve effectiveness of technology used to determine when a patient falls Electronic systems used to collect and store fall-related incidents need to provide analytics (i.e., patterns, trends) 	<ul style="list-style-type: none"> Initially classify all short-stay patients as high fall risk Communication of falls risk occurs via multiple mediums: electronic (e.g., internal email, hallway kiosks), oral (e.g., nurse to nurse, therapist to nurse, team meetings), and physical (e.g., resident care cards, better signage, and easy to understand wording) Patient/staff assignment consistency Training to improve value and detail of incident reporting Increase frequency (e.g., orientation, after falls, and identified trends) and type of training (e.g., therapy educates nurses on strategies to prevent falls among short-stay patients: proper seating, safe transfers, and facilitate patient's movement through placing assistive devices in range for use). Environmental safety committee
High prevalence of delirium results in <i>rapidly changing cognitive status</i>		<ul style="list-style-type: none"> Focused medication review (admission)
<i>Reimbursement policies</i> result in discharge before residents are safe to be at home		<ul style="list-style-type: none"> Continuity of care: taking steps to transition the patient to a lower level of care Coordination with home health for continued rehabilitation services at home Patient education on use of assistive devices and maintaining safety while at home When discharge back to the community is unlikely: placement of short-stay patients within a semi-private room with anticipation of becoming a long-term care resident

EMR, electronic medical record; All other abbreviations can be found in Table 2.