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FALLS PREVENTION IN HOSPITAL SETTINGS FOR OLDER ADULTS: A NARRATIVE REVIEW

Short Running Title: Falls Prevention in Hospital

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ABSTRACT:

Falls among older adults in hospital settings are a significant concern for patient safety, leading to increased morbidity, prolonged hospital stays, and higher healthcare costs. This narrative review explores current practices and strategies for falls prevention in hospital environments, emphasizing policy development, risk assessment, and multidisciplinary approaches. Risk factors for falls include intrinsic factors such as impaired mobility and cognitive decline, and extrinsic factors such as poor design and environmental hazards. Effective fall prevention begins with structured screening and assessment processes, shifting from predictive scoring tools to individualized risk management.

A safe environment with adequate lighting, non-slip flooring, and ease of access to appropriate assistive devices is important to minimize fall risks. Universal fall prevention strategies such as patient education and proper bed positioning are necessary but should be complemented by targeted interventions for high-risk patients. A multidisciplinary approach incorporating nurses, physiotherapists, occupational therapists, pharmacists, and geriatricians ensures a comprehensive strategy for fall prevention. Hospital-wide policies aligned with international safety standards are also needed to support the standardized implementation of falls prevention initiatives. A proactive and evidence-based approach to falls prevention improves patient safety, optimizes healthcare resource utilization, and enhances the quality of care for hospitalized older adults.

Keywords: aged, falls, inpatients, hospitals, risk assessment

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INTRODUCTION

Falls are the second leading cause of unintentional injury deaths worldwide, with older adults being particularly vulnerable. According to the World Health Organization, up to 35% of those aged 65 years and older fall each year, increasing to 42% for those over 70 years old

[1]. Falls and associated injuries occur commonly in older people and are a major cause of pain, disability, loss of independence and death. The impact of falls in hospital settings extends beyond immediate physical harm. While falls can lead to fractures, head injuries and reduced mobility; psychological distress,

including fear of falling again further limits a patient's functional independence and put the older person at risk of admission into residential care [2].

Falls-related injuries also contribute to increased hospital costs due to longer hospital stays due to additional treatment and rehabilitation needs [1,3]. A hospital registry found that one-third of falls caused injury, with a large proportion of falls happening at the beginning of the admission into hospital, suggesting a need for early preventive approaches [4]. Hospitals must, therefore, implement comprehensive falls prevention programs to ensure patient safety and optimize healthcare resources.

The Joint Commission International (JCI) Accreditation Standards for Hospitals requires hospitals to achieve International Patient Safety Goal (IPSG) 6 to 'reduce the risk of patient harm resulting from falls. The measurable elements to achieve this goal are to ensure there is a process for assessing falls risk in inpatients and outpatients using appropriate tools, a process for reassessment of inpatients at risk due to existing risk factors or a change in condition, and interventions to reduce fall risk for at-risk patients are implemented and documented in a fall prevention plan [5].

This paper reviews the best practices and strategies for falls prevention in hospitals, emphasizing the need for policy formulation, risk assessment, and multidisciplinary involvement.

Definition and Risk Factors for Falls

A fall is defined as an event that results in a person unintentionally coming to rest on the ground or a lower level, not caused by a major intrinsic medical event such as a stroke [6]. Falls in hospitals are often linked to intrinsic factors, such as impaired mobility, cognitive impairment, medication side effects, and frequent toileting needs. Extrinsic factors include poor hospital design, inadequate lighting, cluttered spaces, and lack of assistive devices. Understanding these risk factors is essential in designing effective falls prevention strategies [7,8].

In one study, falls occurred more frequently in older females in medical wards, with adverse events usually occurring during the night shift [9]. Another study found that a significant proportion occurred at the bedside with around half of all falls related to elimination [10]. A review of falls screening tools, such as STRATIFY, Tinetti, Morse and Hendrich found that the predominant risk factors for falls varies depending on the study and type of patients in the clinical service. Thus, there is a need for each locality to validate the tools and ensure its predictive ability [11]. There is a move away from scoring tools that allocate points to predict an older person's risk for falls; instead, healthcare professionals should identify patients at risk for falls, identify modifiable risk factors and manage them to reduce future falls risk [11].

Falls Risk Screening and Assessment

Effective falls prevention begins with identifying patients at risk. The hospital may incorporate visual triage screening to identify at-risk patients upon arrival. Trained health staff, including front counter personnel and nurses, should be able to observe a person's gait and highlight those at possible risk of falls. For example, if a staff member observes an abnormal gait or posture, such as ataxia, proactively offering support with assistive devices or referrals to physiotherapy may reduce the risk of subsequent falls [11].

For those without obvious gait abnormalities, a simple screening tool recommended by the Centre for Disease Control and Prevention (CDC) consists of three screening questions:

- Have you fallen in the past year? (a) If yes, how many times? (b) Were there any injuries from the fall?
- Do you feel unsteady when standing or walking?
- Do you worry about falling?

If the person answers 'Yes' to any of these questions, an assessment to identify modifiable risk factors will be initiated, including evaluation of gait, strength and balance. Those who had multiple falls or sustained injuries from a fall should be assessed and managed sooner, given their higher risk of subsequent injurious falls [12]. For patients who did not have their gait observed as part of the visual triage screening, the Get-Up-and-Go test can be performed [13]. Essentially, the patient is asked to stand up from

a chair or bed, walk a short distance, turn around and return back to the seated position. The assessor should observe for indicators of possibly falling, such as undue slowness, hesitancy, abnormal movements of trunk or limbs, staggering or stumbling [13].

In some settings, it is reasonable to assume that all patients are high falls risk and implement fall prevention interventions as well as assessments for modifiable risk factors. This may include locations such as Geriatrics rehabilitation wards or orthogeriatric wards for patients who sustained neck of femur fractures [14,15], or specific subgroups of patients, such as frailty or delirium [16,17]. While it should be intuitive that patients with neck of femur fractures are high falls risk, audits of patients with neck of femur fractures show that falls assessment are sub-optimally performed [15,18]. Thus, a consistent approach for falls prevention incorporated into a Standard Operating Procedure may be effective in reducing falls risk in these high-risk settings.

Environmental Modifications

Creating a safe hospital environment is important for preventing falls. Key environmental interventions include installing handrails and ramps where necessary, providing wheelchairs at strategic locations, using non-slip flooring, and securing loose rugs or carpets. Marking visible indicators for steps and uneven surfaces, installing emergency call bells within patient reach, and maintaining hospital equipment are

also essential measures. Ensuring that hospital furniture, such as beds and chairs, is adjustable to accommodate older adults' needs can further reduce the risk of falls [19].

In addition to structural modifications, staff should be trained to assess the environment regularly and identify hazards that may increase fall risks. Hospitals can implement regular safety checks, ensuring that areas frequently accessed by older adults remain clear of clutter and tripping hazards. Hospital corridors should have clear signage and resting areas with chairs to support older adults who may experience fatigue when moving around.

Environmental audits carried out periodically may be useful to identify providing insight into areas that may cause falls risk. For example, in a hospital that assessed the adequacy of lighting as a safety consideration, it was found that poorly lit areas were potential hazards, such as sinks, toilets and hot water dispensers. In addition, while the wards were well-lit, luminance fell below recommended levels when the curtains were drawn [20].

An audit of bathrooms in medical wards identified that shower chairs had to be repositioned to avoid users unnecessarily reaching out for different items, such as the shower head, soap and clothes [21].

Standard Safety Measures

All older patients, regardless of fall risk, benefit from standard safety measures. Keeping beds at a low height with brakes engaged, ensuring easy access to personal items such as water and mobility aids, and educating patients and caregivers on the importance of fall prevention are necessary. Staff should review the patients' footwear, ensuring they wear non-slip, well-fitted shoes to reduce fall risk. Patients receiving sedation or general anesthesia should be closely monitored, as they may be temporarily unsteady. Universal fall precautions are listed in Table 1.

While universal fall prevention approaches make sense, evidence for their effectiveness is limited. However, the literature supports determining specific risk factors and individualized intervention towards multifactorial fall risk factors [22]. These care plans should incorporate fall prevention strategies tailored to the specific needs of the older adult, including scheduled toileting assistance, use of mobility aids, and physical therapy interventions [23]. Table 2 shows an example of a management plan based on falls risk factors identified.

Multidisciplinary Involvement

An effective falls prevention program requires a collaborative approach involving various healthcare professionals. Nurses play a primary role in patient monitoring, risk assessment, and

education. Physiotherapists and occupational therapists assist in mobility training and recommend assistive devices. Pharmacists review medications that may contribute to falls risk, such as sedatives and antihypertensives. Geriatricians provide specialized care for older patients at high risk of falls.

Hospital administrators ensure the implementation of hospital-wide policies and staff training programs. In addition, other specialties who care for patients with high falls risk such as post-surgery recovery may need specific discussions and falls prevention plans for their population. For example, diabetes nurse educators encounter patients who may have diabetes-related complications such as peripheral neuropathy and retinopathy, resulting in falls risk [24].

Hospitals should also establish interdisciplinary falls prevention committees to review incidents and periodically update prevention strategies. These committees can meet regularly to discuss challenges in implementation, review fall-related data, and develop targeted interventions to address recurring risk factors [25]. Such discussions that reinforce fall prevention and awareness with clinicians are also useful in reducing falls incidence in hospitals [26]. Engaging caregivers and family members in discussions on falls prevention can also help reinforce hospital measures and improve adherence to safety guidelines post-discharge.

Policy Formulation and Stakeholder Engagement

A structured falls prevention policy is required to ensure consistent hospital-wide practices. Policies should include guidelines for falls risk screening and assessment, standardized safety protocols, training programs for healthcare staff, reporting and documentation procedures for fall incidents, regular audits with quality improvement initiatives. Key stakeholders such as hospital management, department heads, nurses, and allied health professionals should be actively involved in policy development to ensure practicality and adherence [25].

Hospitals should also develop clear protocols for responding to falls when they occur. These protocols should outline immediate medical assessment procedures, documentation requirements, and follow-up interventions to prevent recurrent falls. Staff training programs should include simulation exercises on fall response, enabling healthcare professionals to react swiftly and effectively when managing fall-related incidents [27]. It is also useful to introduce concepts such as fall prevention for healthcare related professionals as early as undergraduate level [28].

Special Considerations for Older Patients

Older adults are particularly vulnerable due to age-related physiological changes such as muscle weakness, impaired balance, and

cognitive decline. Additional interventions for elderly patients include encouraging mobility exercises to maintain strength and balance, providing bedside assistance during toileting, ensuring proper hydration and nutrition to prevent dizziness and weakness, and conducting regular medication reviews to minimize falls-related side effects [29,30].

Cognitive impairment further increases fall risk in hospitalized older adults. Patients with dementia or delirium may be unable to recognize hazards, follow safety instructions, or call for assistance when needed. Implementing close observation protocols, designating fall-safe patient areas, and using non-restrictive monitoring technologies can help reduce the incidence of falls in cognitively impaired older adults. Healthcare professionals should also be trained to recognize early signs of delirium and provide interventions that stabilize cognition, such as orientation cues and consistent caregiver assignments [31].

Table 1: Universal Fall Precautions

Familiarize the patient with the environment.
 Have the patient demonstrate call light use.
 Maintain call light within reach.
 Keep the patient's personal possessions within patient's safe reach.
 Have sturdy handrails in patient bathrooms, rooms, and hallway.
 Place the hospital bed in low position when a patient is resting in bed
 Raise the bed to a comfortable height when the patient is transferring out of bed.
 Keep hospital bed brakes locked.
 Keep wheelchair wheel locks in "locked" position when stationary.
 Keep nonslip, comfortable, well-fitting footwear on the patient.
 Use night lights or supplemental lighting.
 Keep the surface of the floor clean and dry. Clean up all spills promptly.
 Keep patient care areas uncluttered.
 Follow safe patient handling practices.

Challenges and Future Directions

Despite extensive research and guidelines on falls prevention, hospitals continue to face challenges in implementation. Barriers include staff workload, resistance to change, inadequate training, and limited funding for infrastructure improvements [32]. Future strategies should focus on integrating digital health solutions, such as sensor-based monitoring systems, implementing artificial intelligence for fall risk prediction, enhancing staff training through e-learning modules, and strengthening community-hospital partnerships to support post-discharge fall prevention. Innovations such as wearable fall detection devices and automated alert systems can provide real-time monitoring and improve response times to fall incidents [33]. Further research is needed to evaluate the effectiveness of emerging technologies and develop cost-effective strategies that hospitals can adopt on a scale.

Table 2: Management Plan for Falls Risk Factors		
√	Risk Factor	Management Plan for Falls Risk Factors
	Confusion / Impulsivity	Frequent checks and close to nurses' stations Encourage family to accompany Constant reorientation to time, person, place
	Depression	Assess mood Consider referral to Psychology / Psychiatry if required
	Dizziness / Vertigo	Check postural BP
	Limited mobility	Regular toileting - Schedule 2-4 hourly Supervise/Assist transfer or mobility Walking aid at bedside if needed Environmental Assessment Review for Falls Risks
	Frequent Toileting	
	Visual impairment	
	Medications	Nurses to advise doctor for medication review if patient is on Benzodiazepines, Sedatives and Antiepileptic medications

CONCLUSION

Falls prevention in hospitals is a crucial component of patient safety. Through systematic falls risk screening, environmental modifications, standard safety measures, and multidisciplinary involvement, hospitals can significantly reduce falls incidence and associated adverse outcomes.

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