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Theory and practice

# Improving patient safety: implementation of falls prevention strategy in hospital

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### Abstract

Fall occur in all types of healthcare institutions and to all patient populations. Falls are the most common adverse event reported in hospitals. To implement appropriate fall prevention strategy in hospital quite great challenge for hospital administration and quality improvement team, especially if strategy never used before.

*The purpose* of this article was to describe the background of fall prevention strategy implementation in acute care hospitals.

Patient Safety Goals specify that health care organizations must reduce the risk of patient harm resulting from fall. Hospitals are required to implement a program of fall risk reduction. All hospital staff is responsible for reducing fall risks and ensuring a safe environment free from hazards. The fall risk assessment tools are methods for identifying patients who are at risk for falling. Universal fall interventions should be present for all patients regardless of risk of falling. A postfall analysis should lead to an interdisciplinary professional care plan to reduce the risk of future falls, recurrent falls and injuries.

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Department of Nursing and Care Lithuanian University of Health Sciences Mickevičiaus str. 9, 44307 Kaunas, Lithuania E-mail: lina.spirgiene@gmail.com An important role possessed fall prevention management team in acute care hospital. Education is ongoing and includes brief understanding of the assessment tool and the implications and strategies for fall prevention.

*Conclusions.* First steps are quite challenge for staff to start prepare fall prevention strategy in hospital. Although some high quality documents or requisitions require implement fall prevention strategy in health care facilities however there is an expanse for staff to establish program for individual hospital priorities. Interdisciplinary team work, literature review, sharing knowledge's with other with more experience colleagues and time would be of great help in establishing well designed program.

### Key words:

fall prevention, hospital policy, fall, patients, interventions, education

### Introduction

Fall occur in all types of healthcare institutions and to all patient populations. In hospitals, fall consistently make up the largest single category incidents. Falls are the most common adverse event reported in hospitals [1].

There is no universal definition of falls, thereby falls are defined and reported in different ways. In the study *Preventive falls in acute care* the fall prevention team developed their own fall definition as being: "An unintentional descent that may or may not be assisted, that may or may not result in an injury, and in which any motion of descent may not necessarily result in a landing" [2].

Falls are a leading cause of hospital-acquired injury, and frequently prolong or complicate hospital stays. Evidence suggests that for various reasons hospital patients are at greater risk of falling than people in the community [3-4]. They may have recently undergone surgery that affects their memory or mobility, may have cardio-vascular problems, need sedation, pain relief or other medication which may increase risk of falling. Patients may have delirium which leads to a much higher risk of falling. Research has shown that the risk factors which are most significant in hospital patients are walking unsteadily, being confused or agitated, being incontinent or needing to use the toilet frequently, having fallen before, taking sedatives and sleeping tablets [5]. According to Sherood and Good (2006) study, the most falls in the medical-surgical unit (26%) occurred in those between 50 and 59 years of age-contrary to the general assumption that falls occur in those 65 years and older; 79% of patients fell unattended in their rooms and 10% of them fell on the bathroom [6].

Studies in acute care hospitals show that fall rates range from 1.3 to 8.9 falls/1,000 patient days and that higher rates occur in units that focus on eldercare, neurology and rehabilitation (Oliver, 2010) [7]. Falls lead to 20–30% of mild to severe injuries, and are underlying cause of 10-15% of all emergency department visits [8]. More than 50% of injury related hospitalizations among people over 65 years and older [9].

A retrospective cohort study of nine Midwestern hospitals stated that injury was associated with older age, unassisted falls, bathroom falls and in patient care areas outside of the patient's room [10]. Fall were related to problems with the fall risk assessment process, including inconsistent application of interventions to the patient's fall risk, miscommunication of fall risk, or failure to properly assign patients to high risk [11].

Falls are reveal problem in health care units. To implement appropriate fall prevention strategy in hospital is a quite great challenge for hospital administration and quality improvement team, especially if strategy never used before. Administration and staff in hospital first must recognize and understand importance of fall prevention in hospital. Interdisciplinary team must think about implementation of the whole fall prevention strategy to implement just one or some principles for prevention and quality management not enough.

**The purpose** of this article was to describe the background of fall prevention strategy implementation in acute care hospitals.

### **Risk factors**

Morse suggests that fall could be classified as accidental, unanticipated physiological or anticipated physiological falls [12].

• *Anticipated physiological falls* (78% of falls) occur in patients who score a high risk of falling on the Morse Fall Scale.

• *Accidental falls* (14% of falls) are caused by environmental factors such as water or urine on the floor or because of a failure of equipment.

• Unanticipated physiological falls (8% of falls) occur when the physical cause is not reflected as a risk factor for falling. They cannot be predicted before the first fall occurrence. Anticipated physiological falls (78% of falls) occur in patients who score a high risk of falling on the Morse Fall Scale.

**The risk factors** of fall may be grouped into two categories – intrinsic and extrinsic factors. Related to the Person's Condition – this includes factors that address a person's physiological condition (intrinsic). Related to the Environment – this includes factors that address the physical environment (extrinsic).

Intrinsic risk factors. There are many intrinsic fall risk factors associated with medical condition, nursing problems. Circulatory disease, chronic obstructive pulmonary disease, depression and arthritis are each associated with an increased risk of 32% [13]. When strength, endurance, muscle power and hence function declines sufficiently, one is unable to prevent a slip, trip or stumble becoming a fall. Previous fall, postural instability, muscle weakness, cognitive impairment, delirium, disturbed behavior, urinary frequency, incontinence, postural hypotension, medications (e. g. psychoactive medications), visual impairment are the most common intrinsic fall risk factors in hospitalized [14].

**Environmental Rounds.** All clinical and non clinical staff is aware of high fall risk patients, and must work within their scope of practice to prevent patient falls.

Well-known environmental safety measures for all types of patients include lighting, assistive devices, furniture, clinical alarm systems, properly fitted shoes and clothing, personal assistance when needed to enable safe transfers and patient movement, keeping patient rooms and hallways free of clutter, and keeping objects within reach of the patient. The authors identified as among common activities associated with falls in hospital were toileting (33%), altered mental status (28%), and ambulating (25%) [6].

Visual identifier clues (ruby slippers, falling stars, wristbands, etc.) should be active and prominent so every department that is dealing with the patient should be able to relate to the high-risk status of the patient.

Beds that have low height have recently been associated with falls reduction. These beds have various features but must be able to get within 8–10 inches off the floor (1 inch = 25.4 mm). One large health care system reported that integration of beds with features of pressure redistribution surfaces, built-in alarms and ability to get within 8–10 inches off the floor was linked to a 9% falls rate reduction within five months. The average falls rate after bed integration of 2.43 falls/1,000 patient days is on the lowest end of reported falls rates in the literature to date [15].

Older adults considered to be at higher risk of falling should be assessed by an occupational therapist for specific environmental or equipment needs and training to maximize safety as required [16].

Environmental risk factors for fall need to be identified through initial and on-going observation and inspection. This is best accomplished through the use of an environmental checklist and an equipment safety checklist. These checklists will provide staff with guides to assess the environment and equipment for potential to cause falls. Standardized checklists should be adopted [20]. All hospital staff is responsible for reducing fall risks and ensuring a safe environment free from hazards.

### Fall risk Assessment

The fall risk assessment tools are methods for identifying patients who are at risk for falling, so that fall prevention resources can be directed where they are the most needed. The literature provides a variety of risk assessment tools that guide the development of a fall prevention program. The assessment of risk factors usually is performed by nursing staff. The degree of risk and fall prevention measures are then instituted based on patient's scores. Usually in acute care setting patient risk assessment is completed: on admission, when changes intervene in patient's status, whenever a fall occurs, when transported or transferred to another patient care unit. A number of fall risk assessment instruments (the Hendrich I and II, Johns Hopkins, Innes, Morse, STRATIFY, Downton, Tinetti and Schmidt) have been developed and validated. Many of these tools may take four to seven minutes per patient to complete, straining nursing resources [18].

Incontinence should be screened in hospital as part of a fall risk assessment [16]. Application of fall risk tool or prevention protocol by itself will have little impact on rates of fall and fall with injury. Organizational support for making fall injury prevention a highly prioritized, well-publicized organizational aim that touches all disciplines and departments is necessary for achieving best results [11].

Performance of fall risk assessments will allow organization to identify individuals at risk for falling and their individual risk factors. Individual risk factors can then be examined more closely and prevention strategies put into place. An organization must decide who will be assessed, designate when assessments will be performed, decide on who will perform the assessments, and determine where the assessments will be stored [17].

In the pediatric inpatient setting, fall rates range from 0 to 0.8 per 1,000 patient days [19]. These rates are very low compared to adult inpatient and long-term care rates. The factors that limit the number of fall in this population are unclear, but may be related to increased supervision of pediatric patients via higher nurse-to-patient staffing ratios and the common practice of parents staying with pediatric inpatients.

### Interventions and post fall management

Intervention strategy can be based on level of risk and/or area of risk. It is helpful to provide the available strategy. Universal fall interventions should be present for all patients regardless of risk of falling.

Low Fall Risk Interventions could focus on: orientate resident to unit (e. g. washroom) and mechanisms (e. g. call bell, phone), place resident's bed at lowest position, wheel locks on chair are on chair and bed and are operational, ensure mobility aids (canes, walker), ensure proper footwear, ensure proper transfers etc.

High Fall Risk Interventions could focus on all strategy listed for low risk rate and review medications for potential fall risk, conduct balance and strength assessments, recommending involvement in an exercise program etc. It's important to ask staff to make hourly rounds to ensure that the patient's possession, assess pain, position, pumps, potty etc. Depending on the patient's underlying risk factors, referrals could be made to physiotherapy (needed for nearly all patients as problems with mobility, strength and balance are the most common risk factors for falls), occupational therapy (needed for most patients who will be discharged to anything other than high level residential care), dietitian, continence specialist, geriatrician or rehabilitation physician, podiatrist, pharmacist. Encourage older adults to wear proper fitting footwear when mobilizing in hospital [16].

Malnutrition and its potential effects such as frailty, impaired mobility, immune disorders, and cognitive impairment can increase the risk for fall. It is recommended that patients are screened for risks and evidence of malnutrition and treated appropriately [20]. Vestibular dysfunction as a cause of dizziness, vertigo and imbalance needs to be identified in the hospital setting [16].

Medications are linked with fall and must be reviewed for all patients at increased risk of falling. Drugs Medications have been graded as a high risk in terms of their 'potential to cause falls' are: Antidepressants, antipsychotic, Anti-muscarinic drugs, Benzodiazepines & Hypnotics, Dopaminergic drugs used in Parkinson's disease [21].

Research reports that the most significant risk factors for hospital patients are: walking unsteadily, being confused or agitated, being incontinent or needing to use the toilet frequently, having fallen before, taking sedatives and sleeping tablets [5]. Well organized and appropriate fall risk prevention strategy in acute care hospital can improve quality of care of patients.

All patients fall must be noticed by staff even if patient hadn't serious physical injuries. When patient recently had a fall in community or fell in hospital risk of recurrent fall increasing. Some of patients have multiple falls during hospitalization. After patient fall medical staff must follow such actions as:

• Obtain vital signs of patient.

• Assess for any injury (e. g. abrasion, contusion, laceration, fracture, head injury).

• Assess for change in range of motion.

• Monitor patients as condition warrants/per hospital policy.

• Document fall fact in the medical record special developed form.

• Report the fall to the charge nurse and at shift reports.

• Modify the interdisciplinary plan of care as patient conditions warrants.

After the immediate follow-up of a fall, determine how and why a fall may have occurred, and implement actions to reduce the risk of another fall. If an older adult with cognitive impairment does fall, reassess their cognitive status, including presence of delirium (e. g. using the Confusion Assessment Method Instrument) [22–23].

Analyzing fall is one of the key ways to prevent future falls. Organizational learning from this analysis can be used to inform practice and policies, and to prevent future falls [21]. A post fall analysis should lead to an interdisciplinary professional care plan to reduce the risk of future falls, recurrent falls and injuries, and address any identified co-morbidities or falls risk factors.

### Fall prevention education

Patient care providers (licensed and unlicensed) are educated on the fall risk program. Education for fall risk program includes how to identify patients at risk for falls, how to communicate the risk level to the patient, family and other members of the health care team, and the use of fall precautions and interventions. All staff must be educated on fall prevention indicators and post-falls protocols for specific organization. Education is ongoing and includes brief understanding of the assessment tool and the implications and strategies for falls prevention. All staff in hospital should be aware of environmental indicators that can be a potential hazard to patient safety/ fall.

Both patient and family should be informed and understand fall risk factors and agree on strategies to prevent the patient from falling. Patients and families should be educated about fall risk factors in the facility environment and continue their active involvement in all levels of safety education throughout the continuum of care.

All screening, assessments and interventions related to the patient's fall risk and risk factors must be documented in the patient's medical record and care plan (if kept separately). An organization must determine how often it will analyze fall data (for example, it may be monthly, quarterly). Measuring the success of a fall prevention program typically four steps are suggested [17]:

1. Determining what data will be reviewed.

2. Involves the determination of what type of measurement to perform. The basic types of measurement include outcome, process, and balancing.

3. Collecting baseline data to be used for comparison.

4. Collection of data after the program or preven-

tive strategy implementation and consequent analysis of that data.

The fall prevention program itself should be reviewed by the fall prevention team annually, updated throughout the year; data should be shared with staff.

The goals of the Fall Prevention Program are to identify individuals who are at risk for falling, to identify the specific risk factors that put each individual at risk, and to provide them with the services and education necessary to reduce their risk of falling.

## Interdisciplinary approach to fall prevention in patient safety improvement

In Hendrich's (2006) opinion "an effective fall prevention program requires that clinical practice groups, shared governance councils, interdisciplinary teams, and leadership work together to develop best-practice guidelines and adult-learning techniques and program components" [24]. In order to prevent fall from occurring the hospital's fall prevention policy should identify and implement interventions according to individual patients' needs. The fall prevention should be made a priority for all staff not just for the nursing staff [25].

Fall prevention management team in acute care hospital is responsible for making fall prevention standard care, adequately provide a safe environment in all units, notifying the units where more frequently patients assessed as high-risk for fall patients etc. Incorporate team-based success factors associated with the best reported reductions in falls and injury rates including [26]:

• Ensuring falls risk assessments, investigation of fall incidents, confronting problem issues, and accountability for missed opportunities.

• Interdisciplinary discussion of patient fall risk during daily rounding.

• Medication review for all patients at risk for injury and/or risk for fall.

• Nurse rounds to include reinforcement of education patients/families role in fall risk prevention (use of call light, assist with ambulation to bathroom, etc.).

• Implementation of interdisciplinary post-fall huddle to discuss action plan after patient fall event.

Fall Prevention Management Team possesses an important role in acute care hospital. Responsibility delivered as to making fall prevention standard care, provide a safe environment, notifies the units where more frequently patient assessed as high-risk, ensure education, evaluation etc. The Joint Commission's National Patient Safety Goals specify that health care organizations must reduce the risk of patient harm resulting from fall [27]. Therefore, hospitals are required to assess/reassess each patient's risk for falling. Moreover, hospitals are required to implement a program of risk reduction. Responsible the team for fall prevention should address best knowledge's in development of the fall prevention program strategy. This strategy must provide the framework for the fall prevention program and will serve as a resource for all staff.

Fall prevention strategy should provide the infrastructure and support essential to a comprehensive and integrated approach to falls prevention [28]. Fall prevention program should focus on factors associated with increased injury risk. The organization should not only implement standard interventions for fall prevention but also foster a culture to promote accountability, safety awareness and teamwork of the interdisciplinary team. This approach has been attributed to fall reduction rates [29].

The best guide to effective fall prevention strategy is effective adoption of the key common elements in better performing falls programs and hospitals. These strategies are then adapted and modified according to the characteristics and abilities of particular hospital.

### Conclusions

First steps are quite challenge for staff to start prepare fall prevention strategy in hospital. Although some high quality documents or requisitions require implement fall prevention strategy in health care facilities however there is an expanse for staff to establish program for individual hospital priorities. Interdisciplinary team work, literature review, sharing knowledge's with other with more experience colleagues and time would be of great help in establishing well designed program.

Fall prevention program have to be interdisciplinary and include broad approach including falls definition, management, environment, risk factors, documentation, education, assessment and evaluation and be incorporated in general patient safety improving goal.

The task for fall prevention team is to assess implementation of fall prevention program carefully during time and to improve knowledge, and to find the best recourses. In other words, falls prevention team must find the best way to warn and to prevent patients from falling.

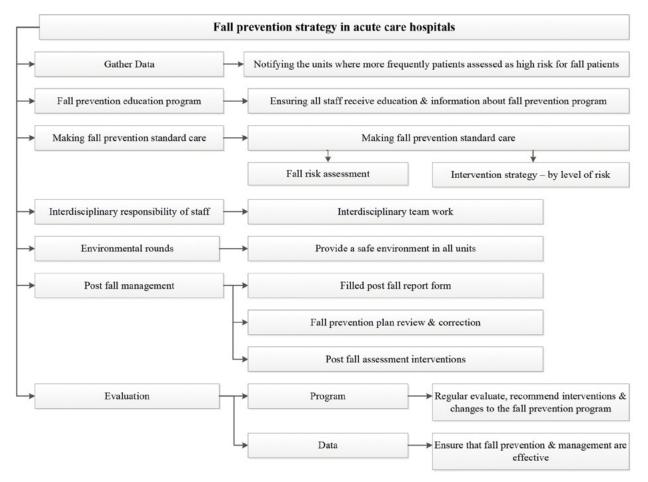


Figure. Suggested fall prevention strategy model in acute care hospitals

### Recommendations

Fall prevention model (Figure) was developed out of the literature sources and practical observations but not yet tested in practice. Proposed fall prevention in hospital model may be used in acute care hospitals as background for fall strategy following with testing and further development of patient safety.

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### PACIENTŲ SAUGOS GERINIMAS: GRIUVIMŲ PREVENCIJOS ĮGYVENDINIMAS LIGONINĖJE

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### Santrauka

Griuvimai būdingi tiek visose sveikatos priežiūros institucijose, tiek bendruomenėje. Griuvimai dažnai įvardijami kaip nepageidaujami įvykiai ligoninėje. Tinkamos griuvimų prevencijos strategijos įgyvendinimas ligoninėje pakankamai didelis iššūkis ligoninės administracijai bei kokybės užtikrinimo komandai, ypač jei ši strategija prieš tai nebuvo taikyta.

Straipsnio tikslas – aprašyti griuvimų prevencijos strategijos pagrindus, kurie gali būti įgyvendinami ligoninėje.

Pacientų saugos tikslai apibrėžia, kad sveikatos priežiūros institucijos privalo mažinti griuvimų patiriamą žalą pacientams. Ligoninėms keliamas reikalavimas įgyvendinti griuvimų rizikos mažinimo programas. Visas ligoninės personalas yra atsakingas užtikrinant saugią, nesukeliančią rizikos aplinką. Griuvimų rizikos vertinimo klausimynai yra vienos iš priemonių, kurios nustato griuvimų riziką turinčius pacientus. Bendros griuvimų prevencijos intervencijos turi būti taikomos visiems pacientams, ne tik turintiems griuvimų riziką. Griuvimų analizė svarbi interdisciplininiams priežiūros planams, mažinant griuvimų riziką, vengiant būsimų, pakartotinų griuvimų bei susižalojimų.

Ligoninėse svarbus vaidmuo skiriamas griuvimų prevencijos valdymo komandai. Tolimesnis mokymas apima vertinimo priemonių supratimą ir griuvimų prevencijos įgyvendinimo strategiją.

*Išvados.* Pradėti griuvimų strategijos įgyvendinimą ligoninėje personalui pakankamai sudėtinga. Nors kai kurie oficialūs dokumentai reikalauja įgyvendinti griuvimų prevencijos strategiją, tačiau personalui suteikiama galimybė sukurti griuvimų prevencijos programas, atsižvelgiant į ligoninės specifiką. Interdisciplininės komandos darbas, literatūros apžvalga, patirties su patyrusiais kolegomis dalinimasis bei laikas, padės įgyvendinti pagrįstai sudarytas griuvimų prevencijos programas.

### Raktažodžiai:

griuvimų prevencija, ligoninės strategija, pacientai, intervencijos, mokymas