وزارة الصحة
Ministry of Health

General Department of Nursing,

PATIENT FALLS PREVENTION AND MANAGEMENT

A CLINICAL GUIDELINE FOR NURSES

Agency for Therapeutic Services
Ministry of Health
Saudi Arabia
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This is a living guidance that is subject to change as more evidence accumulates. A regular update will be considered whenever needed. The guidance should be used to assist nurses to the best available practice in regards to Patient Fall Prevention and Management according to the best available and current evidence.

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Terms and Definitions

A Patient Fall: Is defined as an unplanned descent to the floor with or without injury to the patient. A fall may result in fractures, lacerations, or internal bleeding, leading to increased health care utilization. Research shows that close to one-third of falls can be prevented.

A Fall: is an event which results in the patient or a body part of the patient coming to rest inadvertently on the ground or other surface lower than the patient, whether or not an injury is sustained.

Assisted Fall: when a staff member minimizes the impact of the fall by easing the patient's descent, or in some manner attempts to break the patient's fall.

Near Miss: a patient is in a situation at risk for fall, but fall did not occur, such as a bed rail left down, patient without safety belt, anti-tipper bars left up, safe keeper bed left unlocked. Patient transferring or ambulating without required assistance.

A Slip: is to slide accidentally causing the patient to lose their balance; this is either corrected or causes a patient to fall.

A Trip: is to stumble accidentally often over an obstacle causing the patient to lose their balance, this is either corrected or causes a patient to fall.

Hazard: Anything that has the potential to cause harm.

Risk: Likelihood that somebody or something will be harmed by a hazard (calculated by multiplying the probability of the incident occurring by the likely severity of the outcome).

Interventions: Steps taken that either eliminate or reduce/mitigate the potential to cause harm, and/or reduce the likelihood of that harm being realized.

Risk Assessment: Process for the systemic identification of hazards and evaluating (assessing) their risk levels, along with the control measures in place to ensure that the risk of harm to patients is either eliminated or reduced to the lowest level that is reasonably practicable.

Inpatient: The term inpatient refers to patients in both an acute and community hospital setting.

Community: The term community refers to patients on a community services caseload.

Anticipated falls - may occur when a patient whose score on a falls risk tool indicates she or he is at risk of falls.

Unanticipated falls - occur when the cause of the fall is not reflected in the patient's risk factor for falls, conditions exist which cause the fall, yet these are not predictable (e.g., the patient faints suddenly).

Accidental falls - occur when a patient falls unintentionally, usually as a result of tripping or slipping, as a result of equipment failure or other environmental factors. Patients cannot be identified as being at risk for falls prior to this type of fall.

Risk assessment tool - a conceptual framework involved a scale that organizes knowledge on the etiology of predicting falls.

OVR: Occurrence Variance Report is described as reporting incidents happens related to falls

Chapter 1

Introduction

Falls are a prominent cause of death and disability, resulting in loss of independence and depression (Blanchet & Edwards 2018). Falls are the most common cause of injury that results in emergency room visits. As well, falls are regarded as one of the most important sensitive nursing indicators by many worldwide quality organizations, including the USA National Database for Quality Indicators, AHRO, and WHO. While there are several education programs promoting fall prevention, it is critical that this training to be carried over and translated into the hospital environment through informed guidelines.

A clinical guideline is just one-step in the process of putting evidence into practice. A clear plan for how nurses will be informed about the guideline and supported in putting it into practice is also essential. As a result, the Ministry of Health, through the General Administration of Nursing Affairs, attempts to establish evidence-based nursing practice in order to improve nursing performance quality. As a result, this clinical guidance for the prevention and management of patient falls has been developed.

This clinical guideline will assist nursing staff in reducing patient falls. Furthermore, this protocol will serve as a practice guideline to advice nurses at the Ministry of Health on best practices for implementing patient fall prevention and management programs in hospital and community settings. The ultimate objective of maintaining quality nursing care and patient safety is to bridge the gap between theory and practice and to improve evidence-based culture. Through preventative interventions, multifactorial risk assessment and screening, post-fall care methods, and practice recommendations.

This clinical guideline is divided into four chapters. The first chapter defines falls and associated terms, followed by a background on falls and purpose and scope along with target audience of this clinical guideline. The second chapter describes risk categories, preventive measures, and preventative practice implementation. The third chapter discusses fall management and measures to be done as interventions for post-fall practice implementation. As best practice, the final chapter 4 endorsed education, practice, and policy recommendations to implement falls programs in hospital and community wide settings.

Background

According to studies, 30% of people over the age of 65 who live alone will die in any given year. In any given year, over half of all persons over the age of 80 who live alone die. Each year, falls are expected to cost the healthcare more than £ 2 billion (Blanchet & Edwards 2018).

Evidence indicated that fall and fall related injury are a common and serious problem for older people. People over the age of 65 and older have the highest risk of falling, with 30% of people over the age of 65 and 50% of people over the age of 65 falling at least once a year. The human cost of falling includes distress, pain, injury, loss of confidence, loss of independence and mortality (ref). Particularly, the following categories of inpatients should be considered at risk of falling in hospital: 1) Patients 65 and older ;2) Patients between the ages of 50 and 64 who are assessed by a doctor to be at increased risk of falling due to an underlying disease. A single fall is not always a sign of a major problem and an increased risk for subsequent falls as it may simply be an isolated event. A single fall may have multiple causes and repeated falls may each have a different etiology, so it is important to evaluate each separately. Although most falls do not result in serious injury, consequences for an individual falling may include: Infection, Loss of mobility leading to social isolation and depression, Increase in dependency and disability, psychological problems such as fear of falling and loss of confidence in being able to move about safely and Fractures – primarily hip, wrist and humerus.

In Saudi Arabia (SA), unintentional injury is the sixth leading cause of deaths and the seventh leading cause of years lived with disability. Study conducted by King Abdul-Aziz Medical City in Riyadh, Ministry of National Guard Heath Affairs indicated that 57% of the elderly (>60 years) reported that they had sustained a fall injury (Al saif et al.2012). Thus, fall prevention must be balanced against other priorities. Fall prevention involves managing a patient ‘s underlying fall risk factors (e.g., problems with walking and transfers, medication side effects, confusion, frequent toileting needs) and optimizing the hospital ‘s physical design and environment. A number of practices have been shown to reduce the occurrence of falls, but these practices are not used systematically in all hospitals.

Falls prevention and management is a multidisciplinary issue, involving the service user, their relatives, careers, nurses, doctors, allied health professionals, support staff, social care and the voluntary sector. Research indicated that any treatment plan should be person-centered. Falls prevention needs to be balanced with rehabilitation and the promotion of independence and the service user’s right to make their own decisions about the risks they are prepared to take (Heng et al. 2020).

Preventing patient falls begins with an accurate assessment of a patient's risk of falling followed by the initiation and continued evaluation of a fall prevention program based on patient-specific identified risks. Children have a normal tendency to fall based on developmental growth, and each child is different in physical and cognitive abilities. Falls may occur both in and out of the hospital setting. Prevention programs that have revealed the most favorable results include the use of a validated fall risk assessment tool. The Humpy Dumpty Fall Scale is a screening tool specifically developed for pediatric patients to assess risk for fall.

Purpose

1. To implement safety measures aiming at ensuring patient safety by reducing the risk of patient harm resulting from fall within the hospital.
2. To standardize processes and action steps for continued fall risk reduction and falls related injury prevention and management.

Target Audience:

The intended audience should influence the scope and depth of the guideline material. Therefore, the target primary audience for this nursing clinical guideline may consist of nursing executives, nurse managers, head nurses, nurse educators, and staff nurses working in the ministry of health facilities including hospital, primary care, and community settings (home health care and rehabilitation centers). In addition, the secondary audience for this guideline includes patient safety and quality healthcare workers who also contribute to quality health care.

Scope

While all types and ages of patients admitted to a hospital may be at risk for falls, the scope of this clinical nursing guideline will focus on all patient ages who were admitted and discharged from the health facilities as well as community settings. The process began when a patient was admitted to the hospital, and the process ended when the patient physically left the hospital. Alternatively, when patient seen in community setting and discharge from community care services.

Chapter 2

Individuals at Risk

A risk factor is something that increases a person's risk or susceptibility to falling. Many professional organizations advocate determining fall risk and promptly referring to a healthcare expert skilled with evaluation and treatment. The complex nature of the deficits related to fall risk requires close case management and coordination of services.

The first step in prevention strategies for falls is the identification of individuals most at risk of falling to maximize the effectiveness of any proposed intervention. In this regard, risk factors are considered as the key to selecting effective measures in fall prevention.

The risk factors for falls can be classified into two categories: intrinsic and extrinsic factors. Intrinsic risk factors, such as age, fall history, polypharmacy, and poor vision, originate within the patient. Extrinsic risk factors are those related to the environment and originate outside the patient.

Serious physical injuries result from the adverse relations between intrinsic and extrinsic risk factors. Reducing the number of falls in hospitals is a main priority due to the risk of serious injuries, increased costs, and psychological harms.

Intrinsic Risk Factors

1. **Advance Age:** Age is one of the key factors for falls, older people of age more than 65 years and younger children have the highest risk of serious injury arising from a fall or death.
2. **Gender:** Across all age groups and regions, both genders are at risk of falls. It has been noted that males are more likely to die from a fall, while females suffer more non-fatal falls. Older women and younger children are especially prone to falls and increased injury severity.
3. **History of Falls:** Patients that have had a recent fall, such as a fall in the past three months, should be considered at a greater risk for possible falls. History of falls may mask the influence of factors causing these earlier falls. It may be an indicator of an underlying problem, e.g., impaired balance, which is the real causal agent. Due to a lack of communication between the patient and the nurses during the initial assessment, as well as the nurses' inability to inquire about the patient's history of falls this led to the loss of this piece of information.
4. **Polypharmacy:** which is known as the chronic co-prescribing of multiple medications, has been reported as one of the main causes of falls among the elderly. The risk of falls increased with the use of four or more drugs.
5. **High Risk Medications:** that act on the brain or on the circulation leading to a fall is causing these symptoms such as sedation, with slowing of reaction times and impaired balance, hypotension,

including paroxysmal hypotension, bradycardia, tachycardia, or periods of asystole. Therefore, the risk of falls increases in patients take medication medications that cause loss postural gait and balance control. Sedatives, anticonvulsants, benzodiazepines, ACE inhibitors, anti-infective agents, antihistamine drugs, and chemotherapy drugs increases the rate of falling.

6. **Impaired Mobility:** Impaired physical mobility is inability to move purposefully within the physical environment that includes self-ambulation, bed mobility, moving from chair to bed, limited range of motion, and inability to perform movements will collectively cause muscle weakness, decrease muscle strength and power leading to fall and injuries.
7. **Postural Hypotension:** or orthostatic hypotension is the sudden changes (drop) in the blood due to change in the position or posture because it will decrease the blood supply to vital organs causing dizziness and fainting resulting in falls.
8. **Visual Acuity:** Visual function changes and deteriorates with age, especially elderly patients causing poorer eyesight, not able to see quite as clearly, or have difficulty with sudden light changes or glare blurred vision, double vision, diplopia, and myopia, and in turn consequently increases fall risk due to loss postural gait and balance control resulting in falls.
9. **Urinary Incontinence:** the involuntary loss of urine, can result from a multitude of etiologies and can have a significant negative impact on individual physical, social, economic, and psychological well-being especially physical mobility as it requires patient to frequently move to bathroom to void associated with gait and balance dysfunction leading to various incidence of falls among hospitalized elderly.
10. **Drug Use and/or Alcohol Use:** Alcohol consumption basically impair a person's judgment, coordination, and reaction time of the individual to the external stimuli which endangers the patient and person in the fatal falls and high risk of permanent injury and death.
11. **Cognitive Dysfunction**: People with confusion (memory or thinking problems) have an increased risk of falling when in hospital due to cognitive impairment, physical illness and being in unfamiliar surroundings. A patient's cognitive impairment may be due to dementia and or delirium.

    Dementia is a term for a number of conditions that affect memory, judgement, communication and the ability to carry out everyday activities. Alzheimer's disease is the most common cause of dementia. Delirium is an acute condition and sudden, patients may become agitated, disorientated or have changes in level of consciousness. A change in "usual" behavior, sudden onset of confusion, disorientation, forgetfulness, unable to pay attention, hyperactivity, agitation, sudden changes in emotions, feeling fearful or upset, leading to misbalance, and resulting in falls especially in the older patients.

    Physical Inactivity: is lack of body movement produced by skeletal muscles include walking, sports, active recreation, and play.

Extrinsic Risk Factors

1. **Poor Lighting:** presents a number of serious risks to safety, that hazards in hallways and walkways may not be visible. In addition, objects in the way, such as products and supplies, or they may be tripping hazards, such a power cords, snags in the carpet or rug, increase the risk of trips, falls, slips, and serious injury.
2. **Steep Steps:** Stairs of all types are inherently hazardous because people have been falling on them due to ill design or neglecting to use handrails, cause severe injury and even death. The vast majority of stairway falls result from a slips and sudden loss of balance, just as falls are on the level.
3. **Loose Carpets or Rugs:** Fall injuries associated with rugs and carpets are common and may cause potentially severe injuries. Frequent fall injuries occurred at the transition between carpet/rug and non-carpet/rug, on wet carpets or rugs, and while hurrying to the bathroom causing imbalance and loss of gait control resulting in falls.
4. **Slippery Floors:** are a leading cause of slips and falls. Floors may be slick due to water, excessive or improperly applied wax or polish, or due to the constant accumulation of moisture in the bathroom are a frequent ground for slip and falls.
5. **Badly Fitting Footwear or Clothing:** ill-fitting footwear, and specific design features, such as elevated heels and backless styles, can impair balance control and heighten the risk of falling.
6. **Lack of Safety Equipment:** Falls occurring on stairs or in bathrooms are associated with a high risk of injuries among hospitalized patients, as many hospitals lacks infrastructure and designed bathrooms well equipped with handles, grabs, side rails, adequate supporting devices. Lacking this significantly associated with falls and severe injuries and sometime death.
7. **Inaccessible Lights or Windows:** Inaccessible lights and windows are sometimes commonly occurring reasons for falls and injuries as patient tries to access and open the windows and doors using various surrounding tables and chairs resulting in slips and loss of balance leading to severe injuries and falls.
8. **New Environment:** Patient admitted in the hospital, which is a very new environment and unknown surrounding to him/her. Lacks of proper orientation and patient education regarding the necessities and facilities significantly endangers the patient for potential hospital acquired injuries and falls.

Fall Screening and Assessment

Falls risk assessment is a systematic and comprehensive process to identify individual patient/resident s risk factors for falling. A patient/resident s level of risk of falling and fall-related injury is a combination of:

- The severity of each risk factor (which can vary from nil to very high)
- The importance of that risk factor (some risk factors have a stronger association with the risk of falls and fall-related injuries than others), and
- The number of risk factors.

There is a direct relationship between a patient/resident s level of falls risk and their probability for falls.

Patient/ Resident Centered Tasks

1. Assess the following patient/residents for falls risk:
   - Patient/residents whose level of falls risk exceeded the screening threshold (Step 1).
   - All patient/residents in high falls risk populations.
   - All patient/residents in settings where most patient/residents are expected to have a high falls risk (e.g., dementia specific residential care units).
2. Assess or reassess a patient/resident s falls risk at the following times: as soon as practicable after admission if there is evidence of change in the patient/resident s health/functional status:
   - When the patient/resident s environment is changed (e.g., a patient/resident moves to another room, ward or setting, or new equipment is used).
   - When the patient/resident s treatment is changed (e.g., different drug(s) prescribed).
   - When the patient/resident has a fall.
   - When a patient/resident is discharged/transferred from one setting to another, either within the same organization or to a different organization.
   - As part of a routine review.
   - At other times as required by your organizations policy.
3. Use a recognized tool to carry out the assessment.
4. Identify and describe all factors that contribute to the patient/resident s risk of falling and fall related injuries. These include:
   - The patient/resident s personal risk factors, and
   - Risk factors in the patient/resident s individual environment.
5. Record the level of risk and the identified risk factors (both personal and individual environmental) in the patient/resident s permanent file/medical record/residential care file.
6. Proceed to Step 3 to determine actions to address the risk factors you have identified.

Fall Assessment Tools

Tool 1- Morse Fall Scale

Definition: The Morse Fall Scale (MFS) is a rapid and simple method of assessing a patient's likelihood of falling. A large majority of nurses (82.9%) rates the scale as "quick and easy to use," and 54% estimated that it took less than 3 minutes to rate a patient. It consists of six variables that are quick and easy to score, and it has been shown to have predictive validity and interrater reliability. The MFS is used widely in acute care settings, both in the hospital and long-term care inpatient settings.

Background: This tool can be used to identify risk factors for falls in hospitalized patients. The total score may be used to predict future falls, but it is more important to identify risk factors using the scale and then plan care to address those risk factors.

How to Use the Tool:

The Morse Fall Scale uses six different patient risk factors that gives an indication of the patient's probability of falling by assigning a numerical score. The total possible scoring on the scale is 125.

1. **History of Falling:** Scored as 25 if the patient has fallen during the present hospital admission or if there was an immediate history of physiologic falls, such as from seizures or an impaired gait prior to admission. If the patient has not fallen, this is scored 0. If the patient falls for the first time in-house, it is scored as 25.
2. **Secondary Diagnosis:** Scored as 15 if more than one medical diagnosis is listed on the patient's chart; if not, scored as 0.
3. **Ambulatory Aid:** Scored as 0 if patient walks without a walking aid even if assisted by a nurse, uses a wheelchair, or is on bedrest and does not get out of bed. If the patient uses crutches, a cane, or a walker, this item scores 15; if patient ambulates clutching onto the furniture for support, score this item 30.
4. **IV Therapy:** Scored as 20 if the patient has an intravenous apparatus or a heparin/saline lock inserted; if not, score 0.
5. **Type of Gait:** If the patient is in a wheelchair, the patient is scored according to the gait he or she used when transferring from the wheelchair to the bed.
    - Normal: Characterized by the patient walking with head erect, arms swinging freely at the side, and striding unhesitantly. This gait scores 0.
    - Weak: Characterized by the patient having a stooped gait but is able to lift the head while walking without losing balance. If support from furniture is required, steps are short, and patient may shuffle, this gait is scored as 10.

- Impaired: Characterized by the patient having difficulty rising from the chair, attempting to get up by pushing on the arms of the chair, and/or bouncing several attempts to rise. Also, the patient's head is down, they watch the ground while grasping onto furniture for support, utilize a walking aid for support, or they cannot walk without assistance. This gait is scored as 20.

6. **Mental status:** Measured by checking the patient's own self-assessment of his or her own ability to ambulate. Ask the patient, "are you able to go to the bathroom alone or do you need assistance?" If the patient correctly judges his or her own ability to ambulate and this is consistent with the ambulatory orders in the EHR, the patient is rated as "normal" and scored 0. If the patient's response is not consistent with the mobility order or if the patient's assessment is unrealistic, then the patient is considered to overestimate his or her own ability and to be forgetful of limitations and scored as 15 (ahrq.gov; 2016).

Emergency Department Procedure

The Triage Nurse will assess fall risk for patients on admission. Any one of the following three findings will result in the patient being deemed a high fall risk: a Morse Score of 70 or greater, a history of a fall within the last 90 days, and the patient demonstrating overestimation of abilities or forgetting limitations. All patients assessed as high fall risk will have a yellow fall wrist band applied, and bed alarm in place while being treated in the Emergency Department.

Table 1: Morse Fall Tool

	Item	Item Score	Patient Score
1.	History of falling (immediate or previous)	No 0 Yes 25	_____
2.	Secondary diagnosis (≥ 2 medical diagnoses in chart)	No 0 Yes 15	_____
3.	Ambulatory aid None/ bedrest/ nurse assist Crutches/ cane/ walker Furniture	0 15 30	_____
4.	Intravenous therapy/heparin lock	No 0 Yes 20	_____
5.	Gait - Normal/ bedrest/ wheelchair - Weak* - Impaired	0 10 20	_____
6.	Mental status - Oriented to own ability - Overestimates/forgets limitations	0 15	_____
	Total Score‡: Tally the patient score and record. <25: Low risk 25-45: Moderate risk >45: High risk		_____

* **Weak Gait:** Short steps (may shuffle), stooped but able to lift head while walking, may seek support from furniture while walking, but with light touch (for reassurance).

* **Impaired Gait:** Short steps with shuffle; may have difficulty arising from chair; head down; significantly impaired balance, requiring furniture, support person, or walking aid to walk.

Suggested scoring based on Morse JM, Black C, Oberle K, et al. A prospective study to identify the fall-prone patient. Soc Sci Med 1989; 28(1):81-6. However, note that Morse herself said that the appropriate cut-points to distinguish risk should be determined by each institution based on the risk profile of its patients. For details, see Morse JM, , Morse RM, Tylko SJ. Development of a scale to identify the fall-prone patient. Can J Aging 1989;8;366-7.

Tool 2- Medication Fall Risk Score

Definition: A medication review fall-risk screening tool that is designed for use in conjunction with nurse-administered tools such as the Morse Fall Scale (MFS).

Background: This tool can be used to identify medication-related risk factors for falls in hospitalized patients.

How to Use the Tool:

A pharmacist would perform this assessment.

1. The RN will evaluate medication-related fall risk on admission and at regular intervals thereafter. The institutional electronic Medication Fall risk Score website will add up the point value (risk level) for every medication the patient is administered. If the patient is taking more than one medication in a particular risk category, the score should be calculated by: $\text{Risk Level Score} \times \text{Number of Medications in that Risk Level Category.}$
2. Nursing personnel will use this tool in conjunction with clinical assessment and the other fall risk tools to determine if a patient is at risk for falls and plan care accordingly.
3. The Medication Fall Risk Score is available electronically for pharmacy use in reviewing patient profiles. If questions arise from nursing personnel, pharmacists may be contacted with questions.
4. The RN will check this institutional electronic Medication Fall Risk Score website under the References drop down menu of the nursing charting system each shift to help identify those patients at risk for falling and to determine interventions.

Table 2: Medication Risk Level Category

Point Value/ (Risk Level)	Drug Classifications	Comments
3 (High)	Analgesics, * antipsychotics, anticonvulsants, benzodiazepines†	Sedation, dizziness, postural disturbances, altered gait and balance, impaired cognition
2 (Medium)	Antihypertensives, cardiac drugs, antiarrhythmics, antidepressants	Induced orthostasis, impaired cerebral perfusion, poor health status
1 (Low)	Diuretics	Increased ambulation, induced orthostasis
Score ≥ 6		Higher risk for fall; evaluate patient

* Includes opiates. Although not included in the original scoring system, the falls toolkit team recommends that you include non-benzodiazepine sedative-hypnotic drugs (e.g., zolpidem) in this category.

Table 3: Medication Fall Risk Evaluation Tools

Use the tools below when evaluating patients found to have high medication-related risk for falls. The comments section provides information on how to evaluate the indicators.

Indicator	Comments
Medications	Beers criteria,* dose adjustment for renal function or disease state, overuse of medications, IV access
Laboratory	Therapeutic drug levels (digoxin, phenytoin), international normalized ratio, electrolytes, hemoglobin/hematocrit
Disease states	Comorbidities, hypertension, congestive heart failure, diabetes, orthopedic surgery, prior fall, dementia, other†
Education	Patient's ability/willingness to learn, patient's mental status

* Beers criteria are available at: American Geriatrics Society updated Beers criteria for potentially inappropriate medication use in older adults. J Am Geriatr Soc 2012;60(4):616-31.

* Age 65 years or older.

Tool 3- Humpty Dumpty Falls Scale

Definition: The Humpty Dumpty Falls Scale (HDFS), a seven-item assessment scale used to document age, gender, diagnosis, cognitive impairments, environmental factors, response to surgery/sedation, and medication usage, is one of several instruments developed to assess fall risk in pediatric patients.

Background: A seven item assessment scale used to assess the fall risk in the pediatric patient. Neonates and infants are, by definition, at risk for falls due to their developmental age. Such patients are maintained in age an appropriate isolated, bassinet, or open crib. Document safety checklist on age-appropriate intervention in the medical record .The Humpty Dumpty Pediatric Fall Assessment Scale is utilized in the care of Pediatric patients .Specific details regarding the Pediatric fall risk interventions are available in the Pediatric Department. Co sleeping is not encouraged for infants and children of any age. Safe sleep and fall prevention education is documented in the patient's medical record.

How to Use the Tool:

Assessing/screening for risk factors for falls in children

1. Using identifiers to implement falls prevention protocol
2. Implementing protocol according to patient needs
3. Reassessing patient and modifying as appropriate
4. Reporting incidence of falls
5. Measuring/monitoring rates
6. Enhancing falls prevention program

Low Risk Standard (Score 7-11)

1. Assess elimination needs, assist as needed
2. Call light is within reach, educate patient/family on its functionally
3. Environment clear of unused equipment, furniture's in place, clear of hazards
4. Orientation to room
5. Bed in low position, brakes on
6. Side rails X2 or 4 up, assess large gaps, such that a patient could get extremity or other body part entrapped, use additional safety precautions.
7. Use of non-skid footwear for ambulating patients
8. Use of appropriate size clothing to prevent risk of tripping
9. Assess for adequate lighting, leave nightlights on
10. Patient and family education available to parents and patients
11. Document fall prevention teaching and include in the plan of care

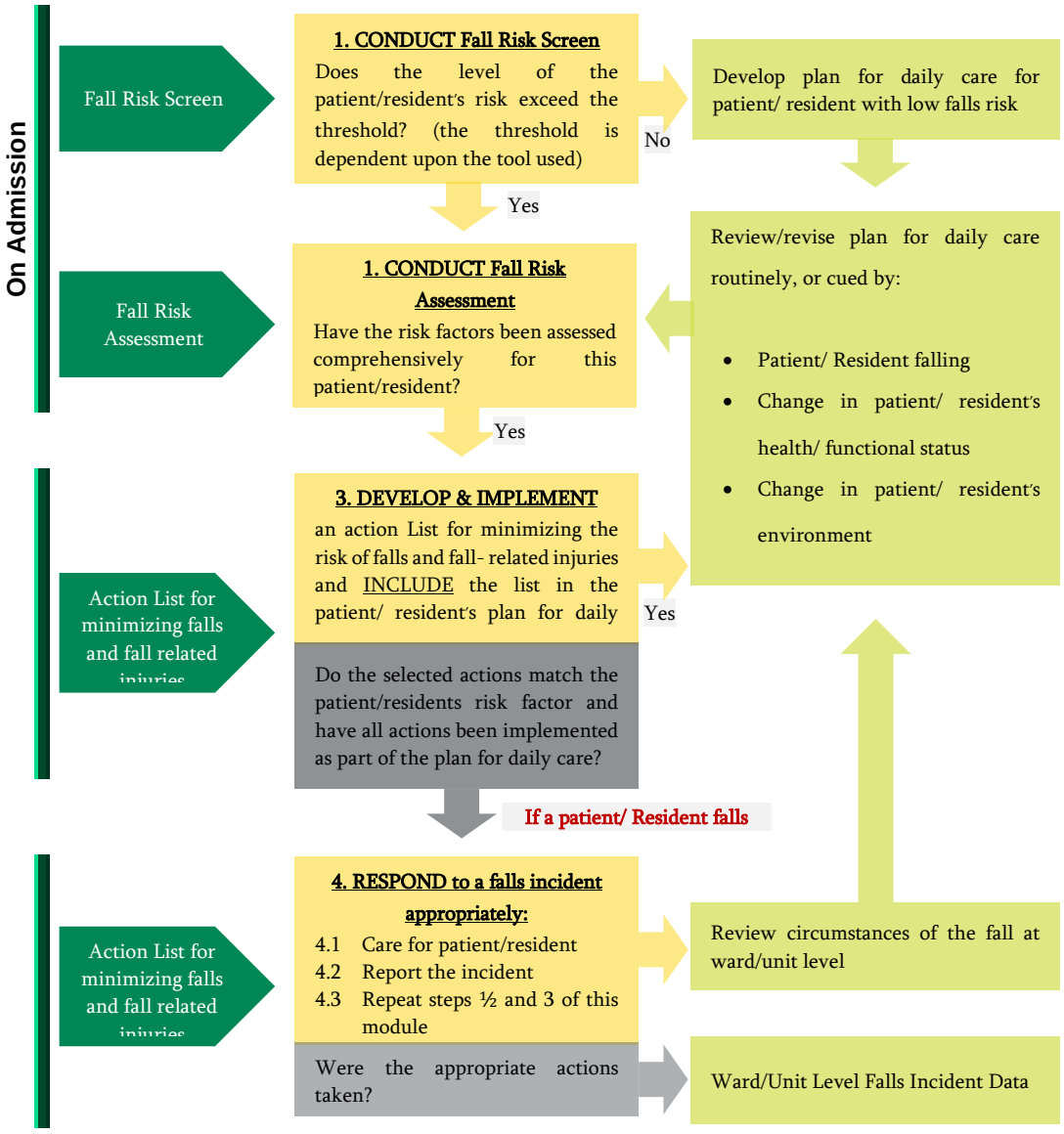
High Risk Standard (Score 12 or >)

1. Evaluate medication administration times
2. Remove all unused equipment out of room
3. Protective barriers to close off spaces, gaps in the bed
4. Keep door open at all times unless specified isolation precaution are in use
5. Keep bed in the lowest position, unless patient is directly attended
6. Educate Patient/Family regarding falls prevention
7. Document in the nursing narrative teaching and plan of care
8. Identify with “Humpty Dumpty Sticker/Sign" on patients, in beds & charts Check patient minimum every hour.
9. Accompany patient with ambulation
10. Move patient closer to nurses’ station
11. Assess need for 1:1 supervision

Table 4: Humpty Dumpty Fall Scale

	Check if Present	Allocated		Score
1.	Age	less than 3 years old	- 4	
		3 to less than 7 years old	- 3	
		7 to less than 13 years old	- 2	
		13 years and above	- 1	
2.	Gender	Male	- 2	
		Female	- 1	
3.	Diagnosis	Neurological Diagnosis	- 4	
		Alterations in oxygenation	- 3	
		Psychiatric/Behavioral Disorders	- 2	
		Other Diagnosis	- 1	
4.	Cognitive Impairments	Not aware of limitations	- 3	
		Forgets limitations	- 2	
		Oriented to own ability	- 1	
5.	Environmental Factors	History of falls or Infant-toddler placed in bed	- 4	
		Patient uses assistive devices or infant-toddler in crib	- 3	
		Patient placed in bed	- 2	
		Outpatient Area	- 1	
6.	Response to Surgery/ Sedation/Anesthesia	Within 24 hours	- 3	
		Within 48 hours	- 2	
		More than 48 hours/None	- 1	
7.	Medication Usage	Multiple usage of sedatives (excluding ICU patients sedated and paralyzed) e.g. Hypnotics, Barbiturates, Phenothiazine's, Antidepressants, Laxatives/Diuretics, Narcotic.	- 3	
		One of the meds listed above	- 2	
		Other Medications/None	- 1	
Total Score= ---------- Risk Level: High Risk (H), Low Risk (L)				

Steps in Minimizing the Risk of Falls and Fall- Related Injuries



Nursing Strategies in Preventing Fall

An important element to preventing falls is to implement appropriate measures and interventions for those hospitalized patients, situations and locations assessed to be at risk for falls.

Fall prevention requires an effective multidisciplinary approach to create a safe and healthy environment for those hospitalized patients to prevent from falls and resulting injuries related to falls.

Nurses in the health care team can play a significant role in providing an evidence-based care and fall prevention approach by implementing nursing interventions for fall preventions among the hospitalized patients. Nurses' education and fall prevention program are both crucial in preventing patient falls.

Nurses play a vital role in the safety concerned of the hospitalized patients by frequently assessing and monitoring the patient movement and activities of daily living during their stay in the hospital.

Nursing staff can implement various strategies in preventing fall for hospital patient.

1. **Assessment:** Assessing who are at risk for fall. All the patient in the hospital shall be assess for risk of fall starting from the beginning journey at the hospital. Then reassess frequently at regular intervals. Once the patients are defined at risk for fall, they must be identified by a specific strategy using colored Identification band or patient ID band for their level of risk for falls. Nurses shall assess and reassess the patient for risk of fall upon Admission, Transfer from One unit to another, change in the health status or condition of the patient, before and after the sedation and procedure, every shift and post patient fall.
2. **Safety Signs:** Patient Bedside and hospital rooms shall be provided with sign for risk of falls indicating that interventions for preventing falls are being implemented at all time as it serves as a guide for the health care workers to be cautious and guarantee the implementation of the prevention strategies. In addition, a color wristband is issued to patients at risk of falls that served as a warning to nurses in hospitals. All fall risk safety
3. **Patient Education and Awareness:** Patients shall be provided with detailed orientation regarding the room, windows, bed, light switch boards, call bells, bathroom, outdoors, bedpans, bed exits, and equipment in the room and the use of call bells in the beginning of the hospitalization itself, as this is the period very much prone to have falls because patients are not aware about the immediate surrounding and environment. Hence, it is the key intervention to be implemented throughout the hospitalization of the patient to prevent falls and relevant injuries.
4. **Environmental Factors:** Such as bell call, wet and slippery floors, clutters, insufficient lights and unfamiliar equipment and environments are the common risk factors involved in the falls, similarly they are preventable at the same time. Nurses and hospital staff shall always make sure that the floor is dry, rooms, corridors have sufficient, and enough lighting that makes things clearly visible.

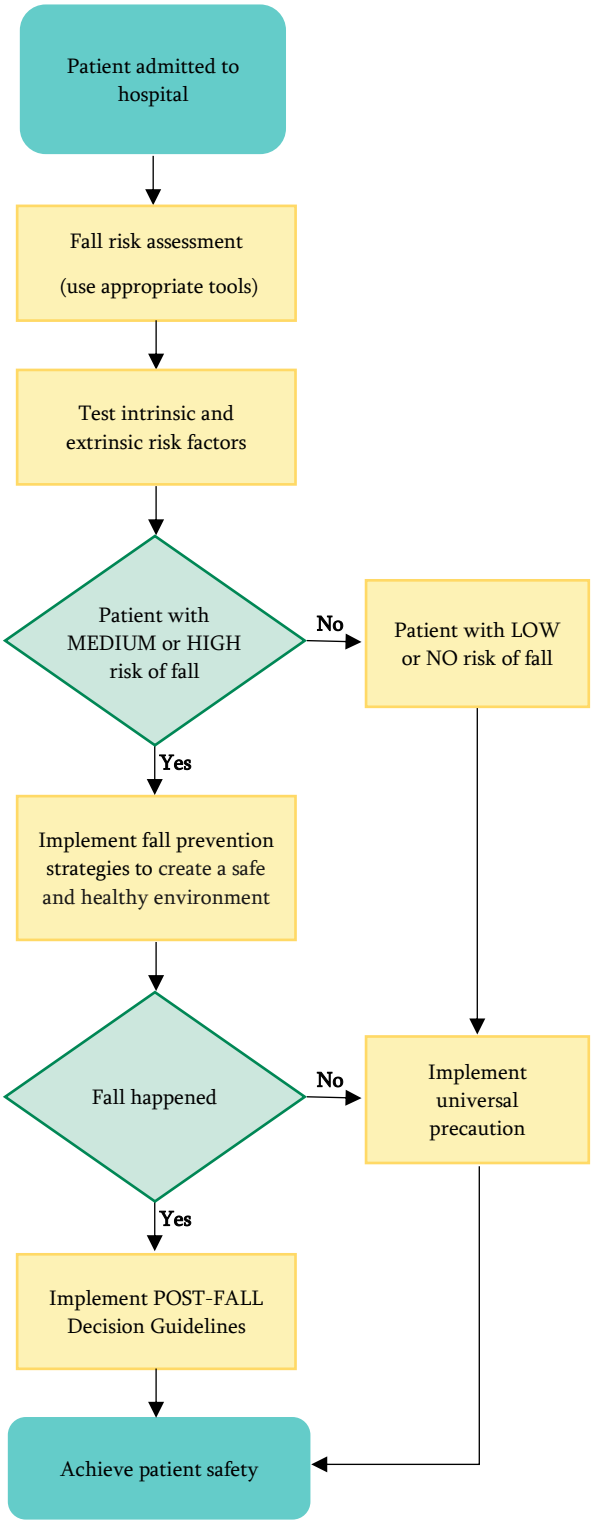
Effective parking of the unused and extra furniture and equipment that makes unnecessary congestion and traffic in the rooms. Nurses' calling bells have proven to be an effective strategy for preventing falls because they alert nursing staff and health care providers that a patient is in need of assistance. Globally, call bells have proven to be the effective strategy in limiting or decreasing the incidence of falls and injuries related to falls. Patients must be oriented regarding the use of call bells and shall be taught how to use it.

5. **Patient Care Items:** Such as Patient slipper and shoes is important in preventing the falls. Hospital and Nurses shall provide the patient with properly fitting patient slipper and shoes that are anti-slip in nature.
6. **Nursing Assistance:** It is the primary function of nurses to assist patients who are in the hospital to provide routine care and assist in the performance of their daily living activities. Ambulation to bathroom, chair and bedside movements shall be assisted by the nurses.
7. **Medication Management:** Nurses have to have a detail knowledge about the medication action and side effects and shall be aware of the list if medications causing risk of falls. Hence, implementing the interventions to prevent falls due to such medications is the nursing responsibility, which involves the patient awareness and education, frequent assessment and monitoring, and proving assistance with every ambulation to prevent falls.
8. **Supporting Devices:** Hospital shall ensure that they are providing the safety instruments and infrastructure for their patients during their stay in the hospital. Bathroom shall be equipped with the supporting devices like handles to hold when sitting and seat belts, holders in the sides of the walls to hold when walking and moving in and out of the bathroom, etc. Other common fall prevention tools include canes and walkers, which provide extra stability for patients who are unstable on their feet. Patients may require help from caregivers for mobility, even with assistive devices.
9. **Nutrition:** Eating healthy foods and balanced diet strengthen and support the muscle mass thereby lowers the risk of falls. Consuming right and required amount of Calcium, Vitamin D, minerals, proteins, carbohydrates, fats and lipids helps to maintain the body weight moreover, prevent over and underweight. Thus, decreases the risk of fatal injuries and falls.
10. **Physical Activity:** Physical inactivity doubles the risk of developing a disability that will adversely affect the mobility as well as the ability to perform even the most basic daily living activities and functional movements. Regular participation in the physical activities and daily exercises is not only essential to maintain the good health but also the functional independence in the adulthood and aging. Thus, exercise and physical activity play an important role in decreasing the falls and their consequences resulting in fatal injuries especially in the elderly and aging populations.
11. **Hospital Strategies and Intervention towards Fall Prevention:** Organization and hospital shall govern, generate and implement basic and mandatory policy and procedure in regards to fall risk

assessment, fall prevention measures and interventions besides supporting infrastructure are available for the patient safety and prevention of falls and resulting injuries. In addition, hospitals must have a process of auditing the compliance for interventions and reporting the incidents and also shall have an effective action plan towards each identified risk factors and reported problems in order to prevent the consequences and similar incidents in future and promote patient safety.

12. **Supporting the Self-Care Post Fall:** elderly people admitted in the hospital due to recent history of falls are at very high risk for falls and injuries during the stay in the hospital and at community. Considering the recent history and consequences hospital staff shall ensure the patient safety and prevention from fall at all time during the stay in the hospital. Fall prevention measure and inventions shall be implemented and patient are attended and assisted at time during mobility and physical activity. Patient and family members must be taught about the basic measures and interventions to be implemented to prevent falls and injuries.
13. **Postural Hypotension:** it is the commonly identified risk factor for falls especially in the older adults and for those who are on medications especially medications causing postural hypotension. This can be corrected and verified by properly evaluating the needs of medication and required dosage calculation and readjustment of the dose. In addition, nurses should provide effective orientation and health education to the patient and family upon arrival to the hospital, that will make patient fully aware of the immediate surroundings and as a result helps to prevent from falls. Moreover, patients shall also be taught about minimal active exercises like sitting up on beds, moving lower limbs before standing, encourage to avoid direct standing from the sleeping or lying down position to prevent from fall.

Falls Prevention Flowchart



Chapter 3

Pathways of Best Practices for the Management of Falls

What You Will Do if A Patient Has Just Fallen (Responding to A Case)

Responding to incidents

Nurses should review every fall and complete a falls report, including recommendations for the immediate and longer term care required. The circumstances surrounding a fall are of critical importance. However, this information is often difficult to obtain and may need to be sourced from people other than the residents themselves, including staff, visitors and other residents. This may be particularly important if the resident, when questioned directly, does not recall the circumstances of the fall or hitting the ground.

Post Fall Interventions

When a fall occurs four steps to take in response to a fall:

1. Assessment 
2. Notification and Communication 
3. Monitoring and Reassessment 
4. Documentation: Classification, Reporting and Analysis 

Step 1: Assessment

Before any falls occur, a baseline fall assessment should be done, so it can be compared to post fall assessment. Post-fall assessments have been part of multiple interventions successful in reducing falls.

The nurse should conduct a comprehensive assessment:

1. The nurse must determine level consciousness patient if loss consciousness, the nurse must immediately check circulation, airway and breathing and call rapid response as needed.
2. If no loss, consciousness should determine serious injury, which defined as an injury involving the neck or spine, or any other major trauma.

3. The attending nurse should not move the patient, but should call for assistance from another nurse and immediately notify a physician.
4. The nurse should perform head to toe assessment for obtain baseline information including:
   4.1 Cardiac assessment (orthostatic vital signs measurement including blood pressure, heart rate, oxygen saturations, temperature, and telemetry (if available).
   4.2 Neurologic assessment (blood sugar, assessment of Glasgow coma scale (pupils, speech, sensation, and level of consciousness).
   4.3 The musculoskeletal system assessment (deformities, pain, swelling, weakness, strength, and range of motion) and the nurse should be assessed for any abrasions, lacerations, obvious bleeding, and hematomas.
   4.4 If there is no head trauma then vital signs should be taken every eight hours for the next 24 hours and then reassessed.
   4.5 If there is minor head trauma or head, injury neurologic vitals should assess every hour for at least four hours, then every eight hours for the first 24 hours prior to reassessment.
   4.6 It is during the 24 hour reassessment period that the doctor or the nurse practitioner determines if further assessment should occur, thus termination of the protocol.

NOTE: This is post fall algorithm using in Sunnybrook Hospital, Toronto, Canada wrote by Keisha Lovence DNP, MSN, ACNP-BC, RN) (Jablonski et al., 2011, Margolis, 1983).

Step 2: Notification and Communication

1. After comprehensive assessment, the nurse gathers physical examination findings in addition to any other relevant information, such as past medical history, medications, any recent laboratory results, and injury risk factors.
2. The nurse should document the situation-background-assessment-recommendation (SBAR), in the nursing notes .
3. After that, the nurse notify the physician about current situation and the nurse should determine if any testing or medication holds are indicated.
4. Post fall, it is important to ensure that all fall indicators are established the nursing staff, and care indicators should be clearly visible on care familiarity, the Kardex, and the communication white board at the patient's bedside.
5. The fall should be disclosed to the family.
6. The nurse is responsible for notify physiotherapy and occupational therapy (PT/OT) so that an OT/PT assessment can be manage, and this should be followed-up on to ensure

that it has happened. Twelve hours after the post-fall incident the nurse is responsible for performing a full physical examination to evaluate and document injury due to fall incident.

Step 3: Monitoring and Reassessment

1. After the patient returns to bed, perform frequent neurologic and vital sign checks, including orthostatic vital signs.
2. Observe patient who have fallen and who are taking anticoagulants or antiplatelet (blood-thinning medications) carefully, because they have an increased risk of bleeding and intracranial hemorrhage.
3. Ensure ongoing monitoring of patient, because some injuries may not be apparent at the time of the fall. Frequency and duration of the observations that are required.
4. Contact with the physician and provide relevant details any change in patient condition.

Table 5: Post Fall 72-Hour Monitoring Report:

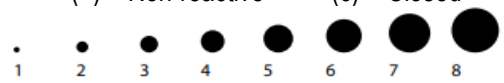
Instruction:

- This assessment should be completed at the following intervals for follow up for all falls.
- A fall that is unwitnessed, or in which the head is hit, requires neurological checks.

Initial assessment (Baseline); followed by q15 min x 4; q30 min x 2; every hour x 2; once per shift for 72 hours.

Patient Name: _____ Room #: _____ Date:_____. Time of fall:_____

Description	Baseline	q15 x 4				q30 x 2		q1 x 2		24 hours			48 hours			72 hours		
Date																		
Time																		
Vital signs																		
Assess blood pressure for increase or decrease. Assess pulse for slowing or widening pulse, then increase rate. Assess respirations for change in rate, rhythm and pattern.																		
Blood Pressure																		
Pulse																		
Respiration																		
Orientation																		
Place																		
Person																		
Date/Time																		
Skin																		
Bruising																		
Skin tear																		
Clear																		
Other																		
Pain																		
Circle YES or NO. If YES, record site here:----------																		
Range of Motion/Strength of Extremities: Check if right/left responses are the same. It is necessary to know the baseline ability for each. Range of motion F for full, L for limited.																		
4 = Normal power 3 = Mild weakness 2 = Severe weakness 1 = No response **scoring example:**																		
Right Hand																		
Left Hand																		

Description	Baseline	q15 x 4	q30 x 2	q1 x 2	24 hours	48 hours	72 hours
Range of Motion/Strength of Extremities: Check if right/left responses are the same. It is necessary to know the baseline ability for each. Range of motion F for full, L for limited.							
4 = Normal power **3 = Mild weakness** **2 = Severe weakness** **1 = No response**							
Right arm							
Left arm							
Right leg							
Left leg							
Eye Responses: A) Eyelid Response							
4 = Opens eyes spontaneously and purposely 3 = Opens eyes only in response to speech ("Please open your eyes.") 2 = Opens eyes only in response to pain (apply blunt pressure with an object such as a pencil to the fingernail where it enters the skin of the finger) 1 = Does not open eyes when painfully stimulated U = Untestable							
Eye Score							
B) Pupils: Assess size, equality, reaction to light, and unilaterally dilated pupils. Some residents will have unequal pupils as their normal.							
(+) = Reactive (–) = Non-reactive (c) = Closed In Millimeters 							
Right size							
Right reaction							
Left size							
Left reaction							
Notifications: Yes or N/A (Document notification time, name, outcome in Nurse's Notes)							
Physician notified if change in status							
Family notified if change in status							
Nurse's initials with signature _____ _____ _____ _____ _____ _____ _____ _____							

Step 4: Documentation

Post fall documentation consist of :

- Time of assessment by nurse.
- Potential cause or contributing factors of fall
- Location of fall
- Medications(especially contribute to fall ,bleeding risk)
- Review of recent laboratory results.
- Vital signs
- Pain assessment
- Physical examination completed
- Skin assessment
- Musculoskeletal evaluation
- Neurological evaluation
- Mental status assessment
- Injury status
- Plan of care updated
- Family notification addressed.

1. Classification

1.1 To measure the outcome of a fall, many facilities classify falls using a standardized system.

1.2 Each organization should has injury tracking system which consist of:

1.2.1 Define of types injuries (such as lacerations, fractures, and bleeds).

1.2.2 Severity of injury definition which classified to:

- None: indicates that the patient did not sustain an injury secondary to the fall.
- Minor: indicates those injuries requiring a simple intervention.
- Moderate: indicates injuries requiring sutures or splints.
- Major: injuries are those that require surgery, casting, further examination (e.g., for a neurological injury).
- Deaths: refers to those that result from injuries sustained from the fall.

Table 6: Classification of Severity of Injury.

Severity Of Injury	No Injury	Minor Injury	Major Injury	Death
Score	0	1	2	3

2. Reporting

2.1 Most facilities also require that an incident report be completed for quality improvement, risk management, and peer review.

2.2 Generate an incident report for every fall that occurs. The incident report will need to contain, at a minimum:

2.2.1 The fact that the incident being reported was a fall.

2.2.2 The patient in whom the fall occurred.

2.2.3 The date the fall occurred.

2.2.4 The unit the patient was assigned to at the time of the fall.

2.2.5 The location of the fall.

2.2.6 A detailed report about the circumstances of the fall.

2.2.7 The level of injury, if any.

3. Analysis

3.1 **Analyzing Fall Related Data:**

3.1.1 Purpose of analysis fall related data is enable staff to identify causes or risk factors also identify about circumantnces occurrence of falls.

3.1.2 From analysis fall related data is identify about types of fall, severity of injury.

3.2 **Standarzing Rates:**

3.2.1 Fall rate:

$$\text{Fall Rate} = \frac{\text{Number of Patient Falls}}{\text{Number of Patient Bed Days}} \times 1000$$

The Joint Commission measures patient fall rates as the number of patient falls, with or without injury to the patient, during the calendar month multiplied by 1000 divided by patient days by Type of Unit.

Patient days are calculated using various methods but the most accurate method is to sum the actual hours of stay for all patients, whether in-patient or short stay, and divide by 24.

3.2.2 Repeat fall rates:

It is necessary to monitor the frequency of falls for patients, and the causes of this frequent fall must be radically analyzed, and prevent repeat falls.

3.2.3 Injury rates:

Calculated the injury rate how many injuries occurred per 100 according the following formula:

$$\text{Injury Rate} = \frac{\text{Number of Injuries}}{\text{Number of Falls}} \times 100$$

The multiplier is changed to 100 to produce a meaningful rate for such a rare outcome. We suggest measuring both major and minor injuries rates.

As an example of injury rates:

a facility has had 80 falls in the last month. Of the 80 falls, 5 resulted in a minor injury such as an abrasion, hematoma not requiring medical attention, 3 falls resulted in a major injury, such as a hip fracture, and the remainder resulted in no injury.

$$\text{Minor Injury Rate} = \frac{5}{80} \times 100 = 6.25\ per\ 100\ falls\ (6.25\%)$$

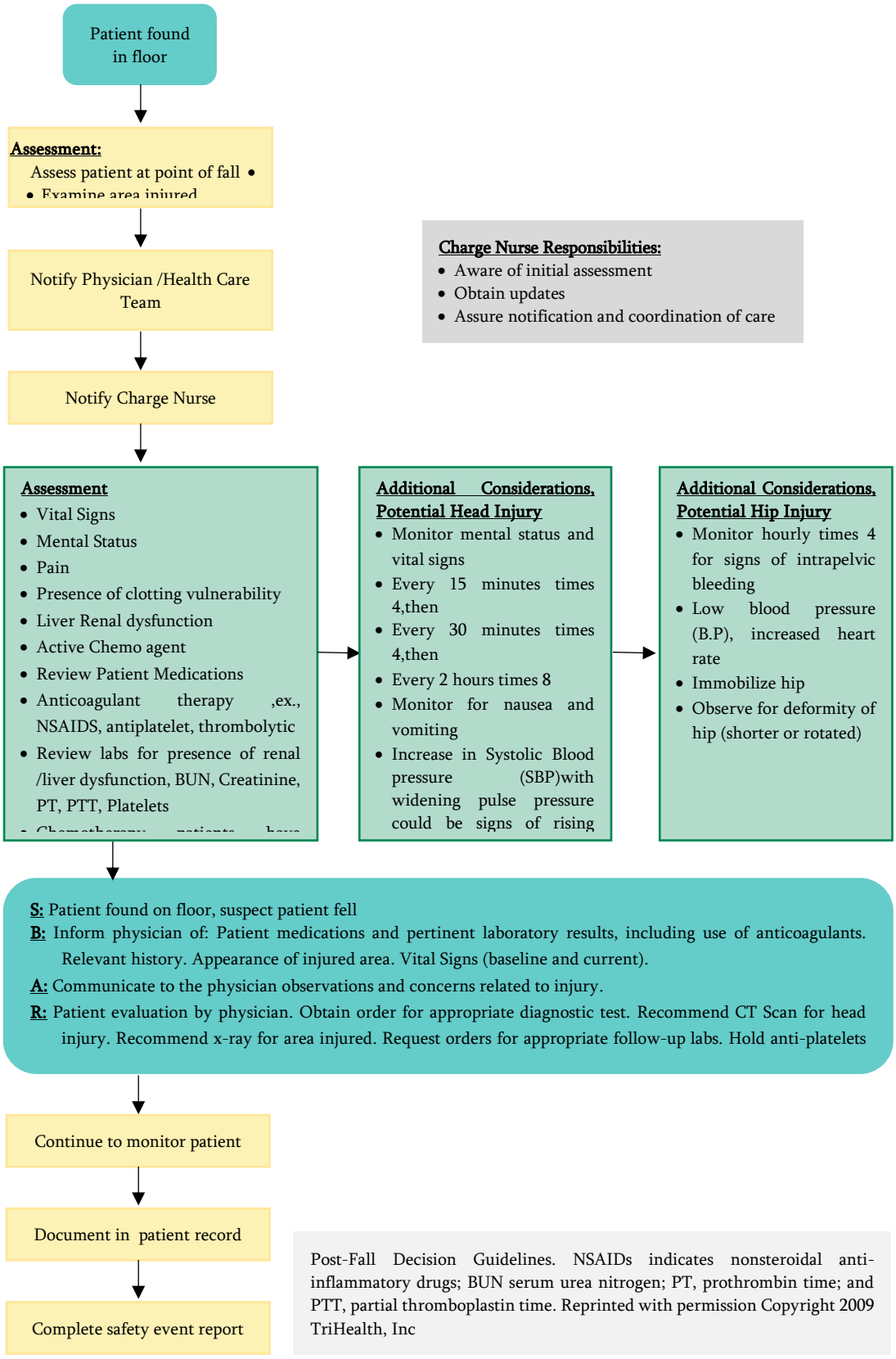
$$\text{Minor Injury Rate} = \frac{3}{80} \times 100 = 3.75\ per\ 100\ falls\ (3.75\%)$$

3.3 **Root Cause Analysis** : is a useful technique for understanding reasons for a failure in the system. RCA is required if there has been a serious injury or if there has been a death from fall.

3.4 **Using Data Presentation Tools:** Visual presentation of falls data is an effective method for summarizing and presenting outcomes and trends over time among these tools run chart and control chart.

- Run Charts: purpose from this tool in analyzing falls data is enhanced by ability to comment on the chart with narrative on the graph when what actions were implemented to reduce patient falls.
- Control Charts: are a specific kind of run chart which assess the amount variation within a specified measure range referred to as upper and lower limits of performance.

Post Fall Decision Guidelines



Post-Fall Decision Guidelines. NSAIDs indicates nonsteroidal anti-inflammatory drugs; BUN serum urea nitrogen; PT, prothrombin time; and PTT, partial thromboplastin time. Reprinted with permission Copyright 2009 TriHealth, Inc

Chapter 4

Fall Prevention Recommendation

There are three categories of fall prevention recommendations: practice, education, and organizational and policy recommendations. This protocol will highlight the various types of fall prevention recommendations.

1-Practice recommendations:

Are preventive actions taken practically to help reduce the chance of falls. The prevention process begins with the screening of adults to identify those who are at risk of falls. The screening process identifies any history of fall or balance difficulty using clinical judgment. The identified adults are then assessed to understand the risks and contributing factors. Understanding these factors help determine the appropriate intervention. Adults who fall recurrently or those with multiple factors are directed to the appropriate clinicians for professional development of the intervention.

Communication between caregivers and the elderly increases the effectiveness of the prevention strategies. Care facilitators are advised to engage with adults who are at risk of falling. This allows them to understand how the latter perceives risks and how motivated they are to address the issues. It is out of careful communication that an appropriate care plan is developed. Consequently, caregivers also educate the adult on the risk of falls or fall injuries. This can take different formats depending on the appropriateness of the situation. Additionally, caregivers should communicate the prevention plans to other health care providers and relevant professionals.

The intervention plan is implemented to reduce the risk of falls. A combination of interventions is engineered to suit the unique needs of the adult. Considerations of factors such as age, weight, and other relevant features allow the tailoring of an effective prevention plan (“Preventing falls in hospitals,” n.d.). The healthcare setting also plays a critical role when designing the plan. Exercise interventions, for example, physical training, are considered effective because they develop the adult’s balance and other functions. Strength and balance encourage the adult to go through with the intervention plan.

Dietary interventions as well as monitoring the drugs taken by the adult also aid in the prevention process. Care providers should work together with prescribers who give the adult drugs. Some drugs have side effects that affect a person’s balance or stability, increasing the risk of falls. Physical barriers can also be used to reduce the risk of falls and fall injuries. An example is the hip protector worn around the hips to help reduce the chance of a hip fracture in the case of a fall.

The use of such devices has potential merits and demerits, which the care provider should consider before using this prevention technique (Registered Nurses' Association of Ontario, 2017). Additionally, some adults do not prefer using the barriers because they might be uncomfortable.

Prevention measures taken after a fall are also part of the fall prevention recommendation. After a fall, caregivers should conduct a physical checkup to assess the severity of the injuries. Consequently, the care provider should provide relevant treatment and the necessary care. Additionally, the adult should be monitored for other injuries that might not be apparent. The fall is then assessed to identify any contributing factors that can be mitigated. It is recommended that the caregivers communicate with other members of the interprofessional team to develop other effective intervention plans. The adult can also be referred to relevant health care providers for appropriate physical rehabilitation.

2-Education recommendations:

Prevention measures that involve the disbursement of relevant Information about fall prevention and reducing the risk of fall injuries is now found in the education system. This method of recommendation relies on health care education and other training programs to reduce falls. Health care organizations are proactive in enlightening their staff about fall and fall-related injuries. Learning about fall prevention techniques reduces the risks of falls through awareness.

3-Organizational and policy recommendations:

Are those that reduce the risk of fall through strategies that create a safe environment? The environment is made safe through the implementation of effective measures, for example, fall prevention cautions. Additionally, the environment can be structurally modified to reduce contributing factors that lead to falls. Organizational leaders and their supporting teams work hand in hand to ensure the successful implementation of safety policies.

Training (Staff)

All healthcare professionals dealing with patients known to be at risk of falling should develop and maintain basic professional competence in falls assessment and prevention.

Accountabilities:

1. **Patient Safety/Risk Manager**: Responsible for reviewing all reported fall incident and ensuring appropriate analysis and learning are communicated and implemented across the hospital.
2. **Head of Departments:** They are responsible for ensuring that:
    - The areas over which they have control are designed and managed in such a way as to avoid the extrinsic diverse multi-factorial causes of falls.
    - Staffs are competent, receive appropriate training and understand their roles and responsibility in the prevention and management of patient falls.
    - Lessons learned from investigations of previous falls and preventive actions implemented.
    - Documentation must be in place to enable effective communication within the multi-professional team.
    - System in place to regularly monitor, evaluate and review existing fall with prevention system.

Patient and Family Education and Engagement

Nurses strive to reduce risk and ensure patient safety from falls in health care systems. Patients and their families are able to take a more active role in reducing falls.

Specific Safe Interventions

- The patient should be oriented to the Unit/Ward Call System and call system remote should be left within reach of patient.
- Instruct the patient or resident to request assistance as needed.
- Instruct the patient to wear non-skid footwear, considering the type and condition of footwear such as ill-fitting shoes or incompatible soles.
- Inform and educate patients and/or family members regarding a plan of care to prevent falls.
- Include the patient's family in the development of an individualized safety plan, considering age-specific criteria and patient cognition when planning care.
- Collaborate with the patient's family to provide assistance as needed while maintaining the patient's independent functioning.

Conclusion

This clinical guideline is a valuable resource for nurses who want to implement best practices for fall prevention and management in healthcare settings across the ministry of health. Using this clinical guideline may assist and direct nursing staff, head nurses, nurse educators, and nurse leaders in planning and achieving patient safety goals, as well as promoting a sensitive quality nursing indicators reporting system through effective knowledge and training across all health settings within the ministry of health.

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