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Falls: Prevention in nursing care facilities and the hospital setting

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INTRODUCTION

Falls occur commonly in older individuals and are a major health concern. Falls usually occur in older adults with multiple impairments in cognitive, sensory, and gait domains [1]. Falls are therefore very common among older adults who are cared for in institutional health care settings such as nursing homes, rehabilitation facilities, or acute hospitals.

Falls in institutional settings lead to functional decline, increased length of stay in acute care hospitals, and increased institutional liability. Much geriatric research has focused on strategies and interventions to prevent falling in the institutional environment.

This topic will address risk factors and prevention strategies for older patients in nursing homes and acute care facilities. A discussion of fall risks and prevention for community-dwelling older individuals is presented separately. (See "Falls in older persons: Risk factors and patient evaluation" and "Falls: Prevention in community-dwelling older persons".)

EPIDEMIOLOGY

Compared with community dwellers, falls occur more commonly among patients in nursing home, rehabilitation, and acute hospital settings. Data vary regarding fall rates and number of patients who fall, and depend upon the particular patient population studied. Approximately 50 percent of individuals in the long-term care setting fall each year [2,3].

The average rate of falls in the nursing home is estimated to be 1.5 falls per nursing home bed annually (range: 0.2 to 3.5 falls per bed annually) [4]. In the rehabilitation setting, rates may be higher for certain groups of patients. For instance, in the acute rehabilitation setting, fall rates for stroke patients have been reported as 3.4 falls per bed annually [5]. Certain groups of hospitalized patients are particularly vulnerable to falls; for example, 5 percent of inpatients with a recent ischemic stroke will fall [6], and nearly 10 percent of older adults admitted to a geriatric psychiatric unit will fall [7]. Hospitalized patients with cancer are also at especially high fall risk [8].

Morbidity and mortality — Falls that occur in nursing care facilities and acute hospital settings result in significant morbidity and mortality. As many as 5 percent of falls among nursing home residents result in a fracture, with an additional 2 percent of falls resulting in a serious injury requiring medical attention [2]. In hospitalized older adults, approximately 1 percent of falls result in a fracture [9], and as many as 5 percent may result in a serious injury [10].

Persons experiencing a hip fracture during hospitalization have a greater risk of institutionalization and death compared with community dwellers experiencing a hip fracture [11,12].

Institutional impact — Falls are a common source of litigation and denial of insurance claims in nursing care facilities and the hospital setting. In 2001, 30 percent of lawsuits in the United States against nursing homes alleged that a potentially avoidable fall contributed to the injury under review [13]. The Centers for Medicare and Medicaid Services (CMS) has determined that the proportion of residents with an injurious fall is an important quality measure in skilled nursing facilities (SNFs) [14].

Medical expenses associated with inpatient falls are a particular concern: as of 2008, Medicare and many private payers do not reimburse institutions for complications or extended length of stay related to falls that occur in the institution. Some falls that occur in the hospital setting are not preventable, and falls rates in the hospital have declined only slightly since the CMS initiative [15,16]. The estimated non-reimbursed hospital costs related to falls for 2008 to 2009 were 7.6 million dollars [17,18]. It is important that hospitals and other institutions avoid adopting ineffective or even harmful practices, such as increased use of restraints, in an effort to minimize the revenue losses associated with institutional falls.

CAUSES AND RISK FACTORS

Risk factors for falls in the nursing home or hospital setting are generally similar to those in the community (figure 1). Risk factors include older age, history of falls, cognitive impairment, dizziness or vertigo, environmental hazards, impaired mobility, certain medication use, and visual impairment [19-21]. A combination of these factors increases the fall risk [4].

Age and health status — Increased inpatient fall risk has been associated with older age and worse general health status. In a cohort of 9625 men who underwent an inpatient surgical procedure at a Veterans Affairs hospital, a postoperative fall was more likely in patients who were older, dependent in one or more activities of daily living, or had a higher American Society of Anesthesia (ASA) Score, indicating worse preoperative health [22]. Obesity may be protective of falls and hip fracture in the nursing home [23]. (See "Falls in older persons: Risk factors and patient evaluation".)

Cognitive impairment — Delirium and dementia are both contributors to falls in the hospital or nursing home setting [20,24,25].

Environmental hazards — In one study, environmental hazards were felt to be the cause of 16 percent of falls in the nursing home setting [4]. Common environmental hazards in the institutional health care setting include:

- Wet floors
- Rooms overcrowded with furniture
- Improper toilet seat height or bed height [26]
- Floor type, with falls more likely with carpet flooring compared with vinyl flooring [27]

Impaired balance — Several observational studies of falls in nursing home residents have found an increased risk of fall in patients with gait disorders or weakness [4,24]. In one review of four studies (1076 falls), gait disorders or weakness was found to be the most likely cause (25 percent) of falling; dizziness was also reported by a quarter of patients who have fallen [4]. However, a majority of falls resulted from a combination of intrinsic risk factors and situational or environmental hazards.

Medication use — Medication use may be one of the most common and modifiable risk factors for falls, although it is difficult for observational studies to separate the effects of the medication from the underlying medical condition (see "Drug prescribing for older adults"). Medications with activity directed at the central nervous system, such as neuroleptics, benzodiazepines, antidepressants, and other sedatives (eg, zolpidem) appear to be associated with an increased risk of falls [28-30]. A meta-analysis of 70 studies evaluating the relationship between psychotropic medication use and falls includes 17 studies that were conducted in the nursing home or rehabilitation setting [31]. The risk of falls was increased among users of

antidepressants, antipsychotics, benzodiazepines, and other sedatives (odds ratio [OR] 1.5 to 1.7).

There is no evidence that the newer psychotropic agents are less likely to cause falls. A retrospective cohort study of 2428 nursing home residents found no difference in the risk of falls among users of the newer selective serotonin reuptake inhibitor (SSRI) antidepressants versus traditional tricyclic antidepressants [32]. Similarly, a prospective cohort of 2005 nursing home residents in Australia found little difference in the risk of falls among users of the newer antipsychotics versus the traditional antipsychotics [33]. Use of the newer sedatives (eg, zolpidem) has also been associated with an elevated risk of falls or injurious falls in the hospital and nursing home settings [29,34]. Similarly, it is not clear that one class of psychotropic agents is safer than another with respect to falls risk. In a comparative effectiveness study of antidepressants and antipsychotics to treat nursing home residents with dementia and behavioral problems, there was no significant difference between the rate of falls in the two classes of medications [35].

Other classes of medications that have been associated with an increased risk of falls include vasodilators, diuretics, beta-blockers, and diabetic medications [19,24,36].

Recent changes in medication dosages or new medications, particularly benzodiazepines, may also be an important risk factor for falls in the nursing home [37-40].

SCREENING FOR FALL RISK

Multiple fall risk screening tools have been proposed for use in the acute hospital setting including the Morse Fall Scale [41], Hendrich II Fall Risk Model [42], Schmid Fall Risk Assessment Tool [43], Johns Hopkins Hospital Fall Risk Assessment Tool [44], and St. Thomas's Risk Assessment Tool (STRATIFY) [45]. The FRAiL model can be used to predict residents at greatest risk for fracture in the setting of a fall.

The Morse Fall Scale, one of the more commonly used scales, is comprised of six items: history of falling in past three months, presence of any secondary diagnosis, use of an ambulatory aid, receipt of intravenous therapy, abnormal gait, and impaired mental status, with composite scores ranging from 0 to 125 (table 1).

A meta-analysis comparing the sensitivity and specificity of the Morse Fall Scale and STRATIFY found that, using a cutpoint of >45, the Morse Fall Scale had superior sensitivity; the specificity was similar for the two scales [46]. An inter-rater reliability study found that both the Morse Fall Scale (with a cutpoint of >25) and the Hendrich II Fall Risk Model (with a cutpoint of 5) had

similar sensitivity (>0.70), whereas the Hendrich II exhibited superior specificity (0.62 versus 0.48) [47]. One study found that a falls risk assessment tool (STRATIFY) was not helpful in predicting fractures after falls, but that the FRAX tool was useful for that purpose [48]. (See "Osteoporotic fracture risk assessment", section on 'Fracture risk assessment tool'.)

A study of 5129 nursing home residents from 13 facilities found a modest improvement in the identification of residents at risk for falls when information from the electronic health record (EHR) was added to the Minimum Data Set. However, overall prediction was still moderate (28.6 percent of observed falls occurred among residents in the highest projected risk decile versus 32.3 percent when EHR data was added) [49]. Information from the Minimum Data Seta can also be used to predict hip fractures in the nursing home, which typically occur in the setting of a fall. A large study of long-stay nursing home residents in the United States found a unique pattern of risk factors for hip fracture in this setting, including independence in transfers, urinary continence, and wandering [50]. A small study from the United Kingdom found that a tool combining demographics and resident characteristics with measures of gait and balance performed well in predicting falls in the residential care setting [51].

A systematic review and meta-analysis of prospective studies suggests that falls screening tools are comparable with nursing clinical judgment when predicting falls in the acute hospital setting [52]. Screening tools may be even less useful in the nursing home setting, where the majority of residents are likely to be at high fall risk. A prospective cohort study of 183 nursing home residents in Sweden found that both the staff's judgment of fall risk and a prior history of falls were better predictors of future falls than commonly used screening tests for falls, such as the Get Up And Go test [53]. Rather than implement falls screening, all nursing home residents who are able to transfer should be considered at high risk for falls. Additional screening tools may be used to stratify residents at greatest risk of injury [50,54].

PREVENTION STRATEGIES

Fall prevention in older adults may be particularly challenging in hospitals and care facilities [55,56]. A large meta-analysis of 119 trials and nearly 150,000 patients found that most interventions failed to lower the risk of falling [57]. Variation in cognitive and physical impairments among patients, as well as variation in types of facilities, makes it difficult to compare and evaluate the evidence between trials.

Exercise — In a meta-analysis of 10 randomized trials of fall prevention interventions in care facilities, exercise did not reduce the rate of falls compared with usual care (relative rate [RR] 1.02, 95% CI 0.88-1.18) [57]. However, in a subgroup analysis, the effect of exercise differed

among patient populations, suggesting that exercise reduced falls for participants with less disability, but potentially increased falls in more frail older adults. In a 2020 meta-analysis, exercise reduced falls among nursing home residents, although the benefit was uncertain among persons with cognitive impairment [58].

Tai chi — Tai chi, which contains elements of both strength and balance, has been found effective in fall prevention in the community setting [59]. However, randomized trials of tai chi in nursing home residents did not find statistically significant evidence of benefit [60,61].

Medication review — Medication review and adjustment of medication regimens, as part of a multifactorial intervention, is an important component of fall prevention in the community setting, but its impact in the institutionalized setting is less well established [56,57,62]. A meta-analyses of six trials of fall prevention in care facilities comparing general medication review with usual care found no reduction in either the risk (RR 0.93, 95% CI 0.80-1.09) or frequency of falling (RR 0.93, 95% CI 0.64-1.35); however, there was variability in the results between studies and the quality of supporting evidence was low [57]. Given that medications are the most easily modifiable risk factor for falls among institutionalized patients, we perform medication review.

Behavior modification — One small study of 71 older adult patients with evidence of confusion and behavioral disturbances examined the effect of individualized advice on nonpharmacologic strategies to reduce agitation versus usual care in the inpatient setting [63]. There was no statistically significant difference between the percentage of fallers in the intervention and control groups.

Aromatherapy may affect the psychological status of individuals with behavioral symptoms related to dementia. The mechanism by which these agents may be effective is unclear. A randomized trial of nursing home patients in Japan found that olfactory stimulation by a lavender patch worn for a year resulted in fewer fallers and a lower incidence rate of falls for the lavender, compared with the placebo, group [64]. These results require further confirmation.

Toileting interventions — There is some evidence to suggest that falls in the nursing home setting commonly occur while toileting [65], but the role of toileting interventions to reduce falls is unclear. An intervention that combined exercise with a toileting protocol for incontinence reduced falls in nursing home residents; however, it was not possible to distinguish the exercise component from that of the toileting intervention [66].

For ambulatory residents with urinary symptoms, it makes sense to try and reduce urinary symptoms through medication review and control of edema. Bedside commodes and scheduled toileting may be useful for select patients, although there is no direct evidence to support this.

There is evidence to suggest that nursing home residents with incontinence benefit from a multifactorial falls intervention, including environmental modifications and strength and balance training, more than residents who are continent [67].

Footwear — There are no studies evaluating footwear interventions to reduce falls in an institutionalized setting. However, nonskid, well-fitting footwear is likely important in an effort to reduce falls. (See "Falls: Prevention in community-dwelling older persons", section on 'Environment/assistive technology'.)

Education — There is limited evidence that education of staff or patients may be an effective strategy to reduce falls among patients in nursing homes and rehabilitation settings who do not have severe cognitive impairment [56,68].

Trials that did not separately analyze patients with and without severe cognitive impairment failed to demonstrate benefit from education:

- A randomized trial found that a low-intensity intervention (use of an assessment tool to identify high-risk individuals, a "high-risk" logo, and written prevention strategies for staff) may have actually increased falls in a residential setting [69].
- A randomized trial of an intensive two-day safety training seminar for staff, involving 112 facilities and 10,558 patients with 12-month follow-up, also failed to result in fall prevention in the nursing home setting [70].
- A cluster randomized trial of an intervention to promote high-quality staff interactions plus a falls quality improvement program failed to reduce falls compared with the falls quality improvement program alone [71]. A modest improvement in staff communication measures was seen.

By contrast, other trials have found that education lowered fall rates among patients without severe cognitive impairment [72,73]. As an example:

- In a pragmatic trial among patients with a Mini-Mental State Examination score of at least 23 out of 30 residing in eight hospital rehabilitation units, individualized patient education and staff follow-up was associated with fewer falls (adjusted rate ratio [ARR] 0.60, 95% CI 0.42-0.94), fewer injurious falls (adjusted RR 0.65, 95% CI 0.42-0.88), and fewer fallers (odds ratio [OR] 0.55, 95% CI 0.38-0.81) compared with controls [74].

Multitargeted interdisciplinary approach — Most commonly, multidisciplinary strategies have been studied in the nursing home setting. Interventions may include staff training, environmental modifications, balance and strength training, medication review with

discontinuation of psychotropic medications, and occupational therapy for review of assistive aids.

In a cluster randomized trial of a multitargeted approach in the United Kingdom [75] that used the "Guide to Action for Care Homes (GtACH)," the incidence rate ratio of falls was reduced by 47 percent at an incremental cost of GBP £108. The GtACH is a systematic nursing home-wide program that includes staff education and support in the use of risk assessment and decision support tools.

A meta-analysis involving older patients in hospital and care facilities of seven trials testing the effect of multifactorial interventions on rate of falls and risk of falls showed a suggestive benefit (rate of falls [RaR] 0.78, 95% CI 0.59-1.04 and RR 0.89, CI 0.77-1.02, respectively) [68]. Meta-analysis of four trials indicated a trend toward reduction in the number of people sustaining hip fracture (RR 0.56, 95% CI 0.30-1.03).

Two trials of nursing home residents showed a statistically significant reduction in the risk of falling in the intervention group [76,77]. Interventions that were used in these trials included exercise programs focusing on balance and strength, environmental modifications, staff education, and medication reviews.

Reports on the effectiveness of interventions in the hospital setting are variable.

- In the largest trial, involving six hospitals in Australia and over 30,000 patients hospitalized on medical and surgical services (over 45,000 admissions), wards were randomly assigned to a nurse-led multicomponent falls prevention intervention or usual care [78]. The intervention involved a falls risk assessment tool and implementation, individualized to the patient, of one or more of the following six components: falls alert sign, bathroom supervision, accessible walking aids, toileting regimen, low bed, bed/chair alarm. Although use of program components was higher in the intervention than control group, there was no difference in rates of falls or fall injuries between the two groups.

- One analysis of four trials (6478 participants) found that multifactorial interventions decreased the rate of falls (RaR 0.69, 95% CI 0.49-0.96) [68]. Effective interventions used in these trials included balance and strength exercises, environmental modifications, staff education, medication reviews, and a comprehensive geriatric review.

- Another meta-analysis of interventions in the acute hospital setting, involving six trials, found that multicomponent interventions could reduce the rate of falls (OR 0.90, 95% CI 0.83-0.99) but estimated that the number needed to treat to prevent a single inpatient fall would be 1250 patient days [79]. Given that only one-third of the inpatient falls resulted in

injury, some have questioned whether an intensive multitargeted approach is cost-effective in the hospital setting.

Patient-tailored interventions utilizing health information technology — A randomized trial in the acute hospital setting examined the effectiveness of a falls prevention kit tailored to patient characteristics utilizing health information technology [80]. Patients (n = 10,264) were randomly assigned in clusters to usual care versus the intervention consisting of evidence-based recommendations and care plans that were automatically selected on the basis of a patient's profile via the electronic medical record. The fall rate and number of fallers was reduced in the intervention sites (3.15 versus 4.18 falls per 1000 patient days), with the greatest benefit observed in patients over the age of 65.

Hip protectors — Since hip fracture is such an important consequence of falls in older persons, methods of preventing hip fracture in patients who fall, particularly with the use of hip protectors, have been studied. Early studies of hip protectors had found benefit among groups of patients randomly assigned to an intervention based on setting (ie, by ward in a nursing home). These studies were potentially susceptible to bias with unintended "co-interventions" that occur when whole units participate in trials and are allocated to use hip protectors, and these co-interventions benefit other residents of these facilities. Subsequent studies have randomized individual patients.

Findings from a variety of studies call into question the effectiveness of hip protectors:

- Meta-analyses of randomized trials of hip protectors found no evidence that they were effective in reducing hip fractures in studies in which randomization was by individual patient within an institution [81,82].

- The apparent lack of efficacy of hip protectors may be due in part to low compliance rates [81]. Most fractures occurred when the hip protector was not being used [83,84]. A retrospective study of 14 facilities in Canada found a decreased risk of hip fracture among nursing home residents with a fall who were wearing a hip protector compared with those not wearing a hip protector (adjusted RR 0.38, 95% CI 0.14-0.99) [85].

- A study of circumstances associated with hip fracture in 300 patients presenting to an emergency department from either the community or nursing home found that hip protectors would have no potential to prevent more than half (51.8 percent) of the fractures: patients were at low risk for falls, fracture was not the result of a fall, or fracture occurred in circumstances that would have precluded use of hip protectors [86].

- A study in which nursing home patients served as their own controls, wearing an undergarment designed for research purposes with a protective hip pad only on one side, found there was no difference in fracture rate between protected and unprotected hips [87].

- One meta-analysis, however, that used a Bayesian model to address the statistical problems inherent in combining cluster-randomized and individually randomized trials, found that use of hip protectors in nursing homes (four trials, 1922 individuals) was protective for hip fracture (OR 0.40, 95% CI 0.25-0.61) [88]. The herd effect of cluster studies, however, might still account for some of this benefit.

At least a dozen types of hip protectors are commercially available, with most published trials using SafeHip. Many of these hip protectors have not been tested in clinical trials. Laboratory studies of performance characteristics for several commercially available products showed significant variability across the different products [89]. Despite concerns about effectiveness, and until results from studies with higher rates of compliance are available, it is not unreasonable for clinicians to consider the use of hip protectors in patients at high risk of hip fractures who are willing to comply with their use.

Vitamin D — Adults over age 65 years with deficient serum 25-hydroxyvitamin D levels (<10 ng/mL [25 nmol/L]) are at increased risk for sarcopenia (loss of muscle mass and strength) and a higher risk of falls and fractures [90-92].

A meta-analyses of fall prevention measures included four randomized trials that examined the effect of vitamin D on falls among residents of care facilities [57] . Vitamin D supplements reduced the frequency of falls (RR 0.72, 95% CI 0.55-0.95) but not the total risk of falling (RR 0.92, 95% CI 0.76-1.12). Another meta-analysis of trials that enrolled hospitalized or institutionalized patients 80 years and older reached a similar conclusion [93].

Inconsistent results of trials in care facilities may relate to insufficient vitamin D dosing. A randomized placebo control trial of vitamin D supplementation in nursing home residents found that only higher doses of vitamin D were associated with a decreased risk of falls [94]. In this study, 124 nursing home residents were randomly assigned to receive vitamin D (200, 400, 600, or 800 international units) or placebo daily for five months. The rate of falls was reduced in the group taking 800 international units, with no difference in the rate of falls among the placebo group and those taking lower doses of vitamin D.

The American Geriatrics Society panel review of data regarding vitamin D stated that many older adults will need higher supplementation levels (eg, at least 1000 international units daily) to achieve adequate serum 25-hydroxyvitamin D levels sufficient for fall and fracture

prevention, and that this higher dose allows for a wide safety margin [95,96]. We agree with the recommendation of a minimum cholecalciferol supplemental dose of 1000 international units daily, although authors of other UpToDate topics recommend a lower supplemental dose of 600 to 800 international units/day. (See "Vitamin D deficiency in adults: Definition, clinical manifestations, and treatment", section on 'Dosing' and "Vitamin intake and disease prevention", section on 'Vitamin D'.)

Restraints and alarms — There is no evidence to support the use of physical restraints to reduce falls in the nursing home or inpatient setting [97]. One study of 263,068 nursing home residents evaluated the effect of physical restraints (full bed rails on all open sides of bed, half rail one side, trunk restraint, limb restraint, or chairs to prevent rising) on falls and other adverse health outcomes [98]. After adjustment for factors other than restraints that might impact fall risk, a slight increased risk of falls was found among residents who were physically restrained. There was also an increase in walking dependence, pressure ulcers, and contractures among those who were physically restrained. An increased risk of falls among nursing home residents who were physically restrained, compared with those without restraints, was also demonstrated in additional studies [99,100].

A time series conducted in two post-stroke and brain injury rehabilitation units suggested that removal of physical restraints may be associated with a decreased rate of falls [101]. Falls were also decreased in the nursing home setting with an intervention that led to a decrease in the use of restrictive bedside rails [100].

The utility of bed and chair alarms in reducing falls in the nursing home setting is not established, although these devices are widely used. Alarm use leads to “false positive” signals that can be annoying to the resident and difficult for staff to interpret. In a cluster randomized trial in an urban community hospital involving over 27,000 patients, nursing units (matched for comparable pre-intervention fall rates) were randomly assigned to an educational intervention to increase use of bed alarms or to usual care [102]. Despite a significant increase in alarm use by the intervention groups (64.4 versus 1.8 days per 1000 patient days), there was no difference in fall rates, number of patients who fell, or fall-related injuries between groups. Authors note that the trial may have been underpowered to detect the primary endpoint (falls per 1000 patient-days), but a large benefit would be unlikely. Two other trials included bed alarms as part of a multifactorial fall prevention intervention, with reduction in falls found in one trial [80] but not the other [103].

These devices may be appropriate for a select group of hospital patients or nursing home residents, but in the absence of other interventions are not likely to prevent falls for most patients.

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Falls".)

SUMMARY AND RECOMMENDATIONS

- Falls are common and associated with significant morbidity and mortality in the nursing care facilities and the acute hospital setting. (See 'Epidemiology' above.)
- Risk factors for falls in the nursing home and hospital settings, similar to risk factors for falls in the community, include: older age, history of falls, cognitive impairment, vitamin D deficiency, impaired balance, visual impairment, certain classes of medications, medication changes, and environmental factors. Medications with central nervous system activity (neuroleptics, sedatives, antidepressants) are particularly implicated, as is change in medications. (See 'Causes and risk factors' above.)
- All nursing home residents who are able to transfer should be considered at high risk for falls. Several screening tools can be used; the FRAiL model predicts residents at greatest risk for fracture in the setting of a fall. (See 'Screening for fall risk' above.)
- Multifactorial interventions that address an individual resident's greatest risk factors for falls may be an effective strategy to reduce the rate of falls and should include exercise programs, focusing on strength and balance, as well as environmental modifications and possibly medication review. Health information technology may be helpful to deliver personalized fall prevention strategies. (See 'Prevention strategies' above and 'Multitargeted interdisciplinary approach' above.)
- We suggest vitamin D supplementation to reduce the rate of falls in long-term care facility patients (**Grade 2B**). We are in agreement with the American Geriatrics Association recommendation for vitamin D supplementation of at least 1000 international units per day for older persons residing in long-term care settings with proven or suspected vitamin D insufficiency. Authors of other UpToDate topics would recommend a lower supplemental dose of 600 to 800 international units per day. (See 'Vitamin D' above.)
- We recommend **not** using bedrails or physical restraints for fall protection in long-term care facilities (**Grade 1B**). (See 'Restraints and alarms' above.)

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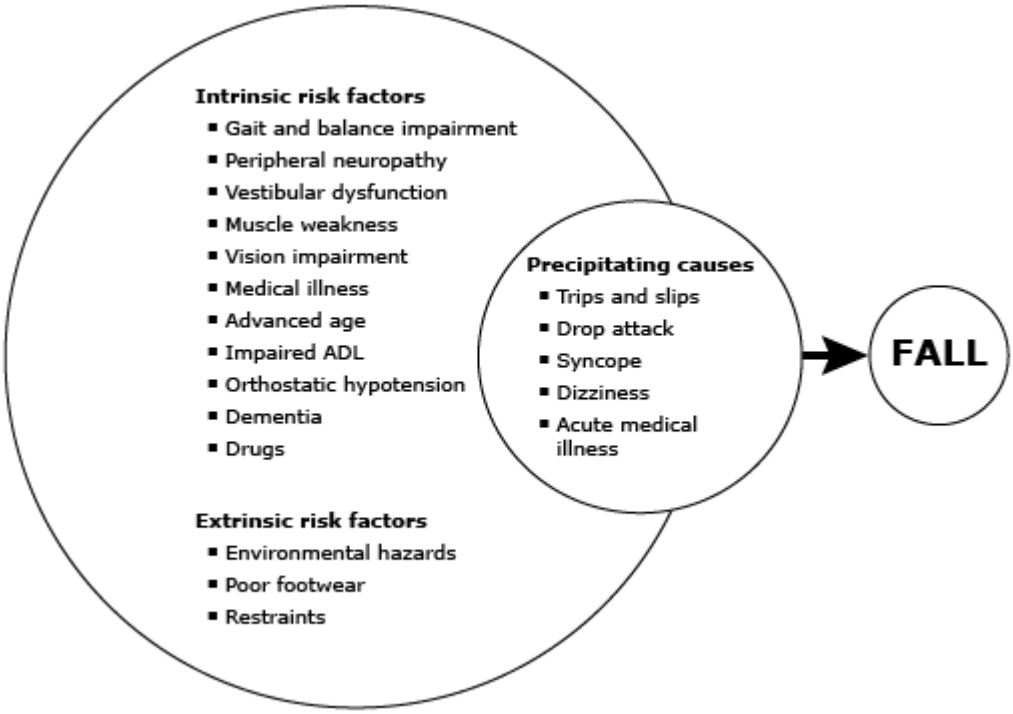
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GRAPHICS

The multifactorial and interacting causes of falls



ADL: activities of daily living.

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Morse Fall Scale

Item			Score
1. History of falling	No	0	
	Yes	25	
2. Secondary diagnosis	No	0	
	Yes	15	
3. Ambulatory aid			
None/bed rest/nurse assist		0	
Crutches/cane/walker		15	
Furniture		30	
4. Intravenous therapy/saline lock	No	0	
	Yes	20	
5. Gait			
Normal/bed rest/wheelchair		0	
Weak		10	
Impaired		20	
6. Mental status			
Oriented to own ability		0	
Overestimates/forgets limitations		15	
		Total	

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