INTRODUCTION

Accidental falls are the sixth leading cause of death in people over age 65. The rate of falls is roughly 30-40% for those over age 65 living in the community. However, rates are significantly higher for people over age 75, and 50% of people over age 80 fall each year. In addition, older adults who are hospitalized or who reside in long-term care (LTC) facilities have a significantly higher rate of falls—at least 1.5 falls per bed per year. Roughly one-half of all U.S. nursing home residents fall annually.

Recently, more attention has been given to this important public health problem. Funding was made available through the National Council on the Aging (NCOA) for a national initiative to increase awareness of the devastating and potentially preventable nature of falls in older adults. This has led to the development of national websites and other sources of information to aid the public and providers in preventing injuries related to falls.

Physicians and advanced practitioners are becoming more involved in working with nursing staff on interdisciplinary education in LTC facilities. This partnership enhances and enriches education by bringing nurses, nursing assistants, and primary care providers closer together, and by presenting a consistent, inclusive message about falls prevention to all staff. This special article provides physicians and advanced practitioners with some selected resources and references on educational content that should be considered, at a minimum, for LTC falls prevention. (It does not review all the components of effective falls prevention programs and policies, which can be found in several review articles referenced here.) In addition, specific evidence-based teaching strategies that primary care providers can use in an interdisciplinary nursing home practice are suggested.

REVIEW OF THE LITERATURE

A number of review articles on nursing home falls prevention have been published over the past several years. In addition, specific efforts to study the effectiveness of various educational programs in LTC have been described. Despite ongoing education, the ability to prevent falls in the LTC setting may be limited at times, due to the complex nature of the resident population and the high number of nonmodifiable risk factors.

Facility-based falls prevention programs are described in the nursing literature that focus on a quality improvement or systems approach, but not on the actual content of and methodology for education on this topic. Proprietary companies specializing in LTC education and staff development have designed...
programs on falls prevention; however these enter-
preneurial companies often market more expensive
products, which may not be affordable or available to nurs-
ing homes with fewer staff development resources.

Following is a discussion of selected evidence-based
topics related to falls prevention in LTC, and recom-
recommendations for content and teaching strategies for falls
prevention education programs.

**RISK FACTORS**

Risk factors for falls are generally broken down into
intrinsic and extrinsic categories (Table I). Intrinsic risk
factors are those related to the individual faller, such as
disease states, changes associated with aging, and med-
ications. Extrinsic risk factors are hazards associated
with the environment or type of activity. Both are
important in nursing home residents, as this popula-
tion tends to have more intrinsic risk factors; yet they
are also more sensitive to environmental risk, and
potentially less able to resist external hazards. Overall,
research suggests that focusing on intrinsic risk factors
is useful in preventing falls in this population.2

An important component of risk factor education is
emphasizing the multifactorial nature of falls preven-
tion, and the importance of identifying each risk factor
so that potentially modifiable ones can be addressed. In
LTC, many more risk factors may be nonmodifiable
(eg, late-stage Parkinson’s disease, age over 80, prior
stroke with dense hemiparesis) compared to potential-
ly modifiable factors in community-dwelling patients
(eg, reduced environmental clutter, education about
potentially dangerous activities or weather conditions).
Nurses and certified nursing assistants (CNAs) may
not be aware that one single fall is the best predictor of
future falls.19 By increasing awareness of this, LTC res-
didents who have fallen once, even prior to admission to
the nursing home, can be targeted for comprehensive
care plans and individualized interventions. A com-
plete review of risk factors and increased awareness of
the importance of individual risk factor identification
and modification for falls will lead to more consistent
and timely interventions by staff, behaviors that are
critical to reducing injurious falls.

**INTERVENTIONS**

**Exercise Programs**

Gait and balance disturbances and generalized
weakness have been determined to be major falls risk
factors in recent reviews and meta-analyses.2, 8, 20 While
individualized physical therapy is often part of falls pre-
vention, nurses and CNAs also play an important role
in providing exercise and restorative care to residents.

To date, research on exercise programs in this setting
has had limited ability to demonstrate effectiveness of
these programs alone.12, 21 Some researchers posit that
this is due to the multifactorial nature of falls in frail,
institutionalized adults, and the inability to conduct
randomized, controlled trials that are adequately pow-
ered to detect an intervention’s effect.22

Earlier studies demonstrated that strength training
increased muscle mass in 90-year-old nursing home
residents; yet a relationship between increased mus-
cle mass and reduced falls was not established.23 Nev-
evertheless, many experts agree that specific education
for CNAs who are assisting with activities of daily
living (ADLs), restorative care, and exercise is essen-
tial.24, 25 Video instruction for CNAs on how to pro-
vide restorative care and exercise to prevent falls is
available for purchase from the University of Mary-
land ([www.videopress.org](http://www.videopress.org)) and other organizations.

**Sensory Impairment**

The importance of visual assessment and correction
for falls prevention has been addressed in several stud-
ies.26-30 It is not easy to ensure that a resident has ade-
quate eyewear accessible. Temporary staff can be
unaware that a resident requires corrective lenses to see
properly and ambulate safely. Challenges also need to be
addressed for residents who cannot leave the nursing
home for an ophthalmologic examination, or cannot
cooperate due to dementia or other cognitive issues.
Similar issues exist with regard to hearing aid use. Failure
to correct hearing loss is a known risk factor for falls.2

**Medication Review**

Several evidence-based articles have documented the
importance of medication review and adjustment in
Table I: Risk Factors and Interventions for Falls in the LTC Setting

### Common Intrinsic Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalized muscle weakness</td>
</tr>
<tr>
<td>Gait and balance disorders; difficulty rising from a chair or sitting back down; instability on first standing; staggering on turning</td>
</tr>
<tr>
<td>Neurological conditions and/or cognitive impairment (eg, dementia, Parkinson’s disease, stroke)</td>
</tr>
<tr>
<td>Age over 80</td>
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<tr>
<td>Arthritis</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>History of falls</td>
</tr>
<tr>
<td>Impaired ADLs</td>
</tr>
<tr>
<td>Use of an assistive device</td>
</tr>
<tr>
<td>Visual deficit</td>
</tr>
<tr>
<td>Hearing deficit</td>
</tr>
<tr>
<td>Knee, hip or foot deformities or pain; joint instability; poor back flexibility</td>
</tr>
<tr>
<td>Chronic pain, antalgic gait</td>
</tr>
<tr>
<td>Cardiac dysrhythmias; syncope</td>
</tr>
<tr>
<td>Delirium</td>
</tr>
<tr>
<td>Dizziness/lightheadedness</td>
</tr>
<tr>
<td>Fear of falling</td>
</tr>
<tr>
<td>Fluid and electrolyte imbalance</td>
</tr>
<tr>
<td>Orthostatic hypotension</td>
</tr>
<tr>
<td>Peripheral neuropathy</td>
</tr>
<tr>
<td>Urinary or fecal urgency or incontinence</td>
</tr>
<tr>
<td>More than 3-4 medications</td>
</tr>
<tr>
<td>Types of medications (psychoactive medications; some cardiac medications)</td>
</tr>
<tr>
<td>Total number of chronic diseases or conditions</td>
</tr>
<tr>
<td>Deconditioning or acute illness from any etiology</td>
</tr>
</tbody>
</table>

### Common Extrinsic Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ill-fitting or inappropriate footwear</td>
</tr>
<tr>
<td>Lack of assistive devices</td>
</tr>
<tr>
<td>Lack of seating or positioning devices for sitting</td>
</tr>
<tr>
<td>Inadequate lighting</td>
</tr>
<tr>
<td>Lack of safety railings in bathroom or hallway</td>
</tr>
<tr>
<td>Uneven flooring surfaces</td>
</tr>
<tr>
<td>Malfunctioning call systems or alarms</td>
</tr>
<tr>
<td>Poorly fitting or incorrect eyewear</td>
</tr>
<tr>
<td>Unfamiliar environment</td>
</tr>
<tr>
<td>Use of full-length siderails</td>
</tr>
<tr>
<td>Wet or slippery floor</td>
</tr>
<tr>
<td>Inappropriate use of chemical or physical restraints</td>
</tr>
<tr>
<td>Caregivers or staff not trained in fall prevention or management of confused residents</td>
</tr>
<tr>
<td>Room too far from nurse’s station</td>
</tr>
<tr>
<td>Lack of restorative program</td>
</tr>
<tr>
<td>Clutter or poorly positioned storage areas</td>
</tr>
<tr>
<td>Bed too high</td>
</tr>
</tbody>
</table>

### Interventions to Include in Staff Education For Intrinsic and Extrinsic Risk Factors

<table>
<thead>
<tr>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early identification and assessment of specific risk factors for each resident</td>
</tr>
<tr>
<td>Reassessment with any acute illness, change in functional or cognitive status</td>
</tr>
<tr>
<td>Documentation of specific interventions in interdisciplinary care plan</td>
</tr>
<tr>
<td>Reassessment at regular intervals to determine if interventions are effective</td>
</tr>
<tr>
<td>Importance of communication on any new potential risk factors</td>
</tr>
<tr>
<td>Team conference and root cause analysis of any falls, even noninjurious ones</td>
</tr>
</tbody>
</table>

Includes information from references 2, 36, 56-58
— FALLS PREVENTION —

preventing nursing home falls. In educational materials, the critical interrelationship of the CNAs, nurses, and medical providers in detecting adverse clinical events should be discussed. CNAs are often the first to note a change in resident condition (eg, weakness, dizziness, altered mental status), and failure to report this change immediately to the licensed nursing staff may delay a full assessment of the resident. At least one study demonstrated that CNAs detect change in condition as many as five days prior to nurses. Providers and nurses should ensure that CNAs and families are informed of medication changes, particularly dosage adjustments of psychoactive medications, phenytoin, or digoxin. Providers can use the opportunity when medication orders are written to talk with nurses and CNAs about potential side effects or interactions as they relate to falls.

Footwear

Until recently, only general guidelines with regard to safe footwear were available for educational programs on falls prevention. However, a number of studies in the past few years have suggested that residents who wear no shoes/slippers at all are at highest risk for falls. Specific guidance for residents, families, and staff about the best types of footwear to recommend (eg, rubber sole, high collar, sturdy upper, good fit) is now available. When residents are admitted to long-term or subacute care, they may arrive without clothes or shoes. Providers and staff are often told that the family is going to bring the clothes and shoes at a later date. Given the high incidence of falls within 24-48 hours of admission to an LTC facility, this is an opportunity for education and early intervention. Families should be told of the importance of bringing sturdy footwear for the resident as soon as possible.

Residents with Cognitive Impairment

Studies have shown that residents with dementia or cognitive impairment have nearly twice the risk for falls, and some behavioral interventions may be effective in reducing falls in this population. Resources that address redirection and diffusing or preventing escalation of aggressive or combative behaviors, such as Bathing Without a Battle, can teach behavioral interventions that will reduce the risk of falls in this population when direct care must be provided. Teaching strategies should include opportunities for CNAs to express their ideas and engage in discussions about preventing falls in this population.

Uses of Technology in Falls Prevention

The use of technology for falls prevention in LTC, part of environmental modification, includes education on the proper use of alarm systems, assistive devices, sensor devices to detect movement, and efforts to eliminate or minimize use of physical and chemical restraints. It may also include adaptive equipment for wheelchairs and room furniture that lowers the risk of falls, such as a lap buddy, scoop mattress, split siderails, or raised toilet seat. Due to extensive interdisciplinary research, as well as regulatory changes set in motion with the Omnibus Budget and Reconciliation Act of 1987 (OBRA ’87), the use of physical and chemical restraints in nursing homes has been significantly reduced. However, alternative falls prevention measures for individual residents are not always available to replace those previous interventions. Failure to protect a resident at high risk for falls and failure to utilize appropriate measures may be noted by state surveyors and can be a factor in litigation. For caregivers to utilize equipment or devices for falls prevention, they must understand how the devices work, why the facility and/or providers believe that they will prevent falls, and how to use and maintain them properly. Providers can engage direct care staff in these discussions, and may work with nurses to identify areas where more staff training is needed.

POST-FALL ASSESSMENT

Another important feature of falls education programs is how to respond to a fall. Recent research has suggested that there is a lack of consistency in the approach to post-fall assessment. This has important implications for both education and quality improvement (QI) programs, because post-fall assess-
ment may offer an opportunity to detect the most likely causes of the immediate fall in an individual. Members of the interdisciplinary team can use these events as teachable moments. For example, when a resident is found on the floor of his or her room, the nurse and CNA (after tending to the resident’s immediate needs and ensuring the resident’s safety) can strategize about why they think the resident may have fallen, and what interventions may prevent future falls in this resident.

Wagner demonstrated the increased value of a detailed post-fall assessment form for documentation, and this is also useful for education. Obtaining information regarding falls prevention strategies from CNAs (“Can you give me three interventions for this resident that we can put into place immediately, to reduce her risk of falls?”) can increase staff’s investment in the process. If staff are involved in identifying and developing solutions to issues, they are more likely to follow the plan of care.

NEW ADMISSIONS

While some skilled nursing facilities may have physical or occupational therapists available seven days a week, many smaller facilities have only part-time rehabilitative services. In such cases, educational programs for nursing staff should include how to complete a basic falls risk assessment, and how to perform basic tests for gait and balance, so that high-risk residents can be identified as soon as possible after admission. The Get Up and Go Test has been evaluated in nursing home populations, and is one example of a short, standardized assessment that can be taught to nurses or CNAs. The Tinetti Gait and Balance Assessment and Berg Balance Scale are examples of more detailed tools designed to measure improvements in gait and balance over time. If rehabilitative services are not available for several days (such as on weekends), nursing staff need to be educated on how to minimize immediate falls risk. This should include providing appropriate assistive devices, monitors, external hip protectors, and seating until physical and occupational therapy can evaluate the new resident. Providers can include a discussion of these important measures when writing admission orders on new residents.

ENVIRONMENTAL ROUNDS

Environmental rounds can be a useful strategy for teaching LTC staff about falls prevention. Members of the interdisciplinary team conduct walk rounds on residents who have fallen within the past week. Generally, these residents have been discussed within 24 hours at a falls meeting or morning report. The purpose of environmental rounds is to involve staff who may not have been at the meeting (eg, housekeeping, maintenance, CNAs) who might have valuable information to contribute about the potential causes of falls in a particular resident. In addition, the entire team can examine the environment and process ideas about potential environmental modification that could reduce falls risk. This methodology represents not only a falls prevention strategy but also a teaching opportunity. Any member of the health care team can conduct or lead rounds; often, a physician, medical director, advanced practice nurse, physician assistant, or unit manager acts as attending physician for the purpose of teaching rounds. Conducting these as actual walk rounds emphasizes the importance of evaluating the resident in her or his own environment, and not simply discussing the falls risk at a meeting removed from the resident and the location where the fall occurred. While the benefit of these walk rounds has been discussed in the literature, many facilities have not yet adopted this methodology, or have not included providers on the team.

IDENTIFYING A “FALLS CHAMPION” FOR A TRAIN-THE-TRAINER STRATEGY

Another component of some successful falls prevention programs has been the identification of a “falls champion.” This is often a nursing assistant, staff nurse, staff development coordinator, or director of nursing who receives additional education and mentoring on falls
Table II: Selected Resources for Information on Fall Prevention Programs

<table>
<thead>
<tr>
<th>Organization</th>
<th>Website or URL</th>
<th>What You’ll Find</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Geriatrics Society</td>
<td><a href="http://www.americangeriatrics.org">www.americangeriatrics.org</a></td>
<td>Clinical Practice Guidelines</td>
</tr>
<tr>
<td>American Medical Directors Association</td>
<td><a href="http://www.amda.com">www.amda.com</a></td>
<td>Clinical Practice Guidelines</td>
</tr>
<tr>
<td>California Fall Prevention Initiative</td>
<td><a href="http://www.stopfalls.org">www.stopfalls.org</a></td>
<td>Links to several resources from U.S. and Canada including Best Practices</td>
</tr>
<tr>
<td>Center for Healthy Aging</td>
<td><a href="http://www.healthyagingprograms.org">www.healthyagingprograms.org</a></td>
<td>Overview of falls prevention initiatives; many community-based. Patient and family education materials</td>
</tr>
<tr>
<td>Hartford Institute for Geriatric Nursing</td>
<td><a href="http://www.geronurseonline.org">www.geronurseonline.org</a></td>
<td>Teaching materials and nursing competencies for LTC</td>
</tr>
<tr>
<td>Medicare Quality Improvement Community (MedQic)†</td>
<td><a href="http://www.medicare.org">www.medicare.org</a></td>
<td>Recently updated Best Practices, including teaching materials and standards from several state programs. Staff education program developed by national experts. Downloadable pdfs, checklists, and other materials easily implemented and tailored to LTC.</td>
</tr>
<tr>
<td>National Council on the Aging</td>
<td><a href="http://www.ncoa.org/content.cfm?sectionID=142">http://www.ncoa.org/content.cfm?sectionID=142</a></td>
<td>Teaching materials and power point presentations (general and community focus)</td>
</tr>
<tr>
<td>National Association of Gerontological Nursing Assistants</td>
<td><a href="http://www.ncal.org/caring/nagna.htm">http://www.ncal.org/caring/nagna.htm</a></td>
<td>Articles for LTC CNAs in newsletter format</td>
</tr>
<tr>
<td>University of South Florida at Tampa</td>
<td><a href="http://www.cme.hsc.usf.edu/falls/#pa">http://www.cme.hsc.usf.edu/falls/#pa</a></td>
<td>Annual falls prevention conference, cosponsored by the Veteran’s Administration</td>
</tr>
</tbody>
</table>

* Access to some clinical information may require membership.  
† Recently updated best practices source from the Centers for Medicare & Medicaid Services.
prevention strategies and leadership skills. This person may be charged with training new staff, overseeing documentation and communication, and continuing to raise awareness about the importance of preventing falls. These key individuals require additional training and support for sustainability of a falls education program.

Typically, the facility identifies an individual who is motivated, has leadership qualities, and is willing to take on this new role. Providers can work with the falls champion by acknowledging the individual’s new role as a resource and advocate for falls safety. When a fall occurs in the facility, the provider can

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**Table III: Getting Started: How Medical Providers Can Become More Involved in Falls Prevention Education**

1. Ask to meet with the staff development coordinator and/or director of nursing.

2. Ask to review policies and procedures related to falls prevention. This may include (list is not exhaustive):
   - Falls risk assessment (performed within 24 hours of admission)
   - Falls policy and procedure
   - Falls interdisciplinary team structure and meeting format, schedule
   - Resident accident reporting procedure and incident report forms (including incident of unknown origin)
   - Post-fall assessment or investigation report
   - Initial behavior assessment policy
   - Device/restraint policy and procedure (including restraint reduction form)
   - Falls prevention care plan guide

3. Ask to review materials on falls used for new staff orientation. How often is this information reviewed with current staff? Ask if competencies for nurses and/or CNAs are documented, and how often (annually?).

4. Discuss the role of the medical providers (MD/NP/PA) in falls prevention and management, especially frequent communication on high-risk residents.

5. Talk about falls prevention with direct care staff whenever possible. Reinforce the basic principles of early risk factor identification, reduction of environmental hazards, and communication.

6. Encourage residents, family, and staff to ask questions and provide suggestions with regard to falls prevention.

7. Encourage facility to identify a “falls champion” on each unit, to raise awareness of the importance of falls prevention.

8. Offer to provide educational sessions on falls prevention and management. Consult resources (Table II) for existing programs that have been developed for LTC staff education. Contact local nursing programs at community colleges or universities for assistance in presenting educational programs on falls prevention. Contact local chapters of nursing associations, such as the American Academy of Nurse Practitioners or the National Conference of Gerontological Nurse Practitioners. Speakers may be available to give presentations at local nursing homes.
discuss the specifics of that fall with the designated falls champion, who would then be responsible for disseminating any new information to other staff members. Comprehensive programs reviewed by national experts are available, some of which include materials for training a falls champion (Table II).

FROM MULTIDISCIPLINARY TO INTERDISCIPLINARY EDUCATION

While some articles in the literature discuss falls prevention programs as interdisciplinary, in many real-life practice situations these programs are actually only multidisciplinary. Clinical practice guidelines may be geared primarily to medical providers, rather than nursing and facility staff. (A notable exception is the American Medical Directors Association [AMDA] Clinical Practice Guideline on Falls and Fall Risk). Policies and procedures are infrequently reviewed by primary care providers other than by medical directors. Educational programs are geared to either nurses or physicians, and infrequently to nursing assistants. A true appreciation for the interdependence of all LTC team members is needed, with particular attention to teaching communication on resident change in condition, as well as information sharing between disciplines. Educational programs should include all facility staff, not just nursing and rehabilitation.

Part of a complete education program is ensuring that there are no assumptions about who is responsible for each aspect of falls prevention—everyone should know who is accountable for each component of the facility’s program. While these are often considered aspects of program and policy implementation, they should be included in educational programs as well. Many programs considered to be educational do not include information on leadership and accountability, even though these can be important influences on resident outcomes such as falls and restraint use.

RESOURCES

Several organizations have information, either for purchase or available at no cost, on their websites. Table II includes a selected list of organizations with LTC falls prevention information and resources. Books on falls in older persons by Tideiksaar, Lord, and others present background material and templates for the development of educational programs and nursing care plans specific to LTC. Primary care providers and medical directors should become familiar with each facility’s education program, and provide resources and updates as new information becomes available (Table III).

CONCLUSION

Many recent articles have been written on falls prevention in LTC, and research suggests that education alone may not be adequate for reducing rates of injurious falls in this setting. In order to be effective, providers and nursing home staff must have access to educational materials that have been developed and updated based on current evidence. Online resources can provide background information, and may include specific interventions focused on the LTC setting.

In addition to a discussion of content, the present article has highlighted components of certain educational strategies, such as environmental rounds, interdisciplinary team teaching sessions, and train-the-trainer techniques, that have been evaluated in the LTC setting. Physicians and providers can promote the development and use of evidence-based educational materials and teaching strategies, and can be a strong voice for interdisciplinary falls prevention education in long-term care.

The author reports no relevant financial relationships.


