NATIONAL GUIDELINE CLEARINGHOUSE™ (NGC) GUIDELINE SYNTHESIS

PREVENTION OF FALLS IN THE ELDERLY

Guidelines

1. **Health Care Association of New Jersey (HCANJ)**. Fall management guideline. Hamilton (NJ): Health Care Association of New Jersey; 2006 Sep. 32 p.
2. **Hartford Institute for Geriatric Nursing (HIGN)**. Preventing falls in acute care. Preventing falls in acute care. In: Capezuti E, Zwicker D, Mezey M, Fulmer T, editor(s). Evidence-based geriatric nursing protocols for best practice. 3rd ed. New York (NY): Springer Publishing Company; 2008. p. 161-98. [74 references]
3. **National Collaborating Centre for Nursing and Supportive Care, National Institute for Clinical Excellence (NCCNSC/NICE)**. Clinical practice guideline for the assessment and prevention of falls in older people. London (UK): National Institute for Clinical Excellence; 2004 Jun. 185 p.
4. **Registered Nurses Association of Ontario (RNAO)**. Prevention of falls and fall injuries in the older adult. Toronto (ON): Registered Nurses Association of Ontario; 2005 Mar. 56 p. [77 references]
5. **University of Iowa Gerontological Nursing Interventions Research Center (UIGN)**. Fall prevention for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2004 Feb. 60 p. [104 references]

INTRODUCTION

A direct comparison of recommendations for prevention of falls in the elderly is provided in the tables below. The guidelines compared were developed by the Health Care Association of New Jersey (HCANJ); the Hartford Institute for Geriatric Nursing (HIGN); the National Collaborating Centre for Nursing and Supportive Care, National Institute for Clinical Excellence (NCCNSC/NICE); the Registered Nurses Association of Ontario (RNAO); and the University of Iowa Gerontological Nursing Interventions Research Center (UIGN).

The five guidelines differ somewhat in scope. While the HCANJ and HIGN guidelines each focus on falls prevention in a single health care setting, the NCCNSC/NICE, RNAO, and UIGN guidelines address falls prevention in two or three settings. Prevention of falls in community-dwelling older adults is addressed by NCCNSC/NICE, and UIGN.

- Table 1 provides a quick-view glance at the primary interventions considered by each group.

- Table 2 provides a comparison of the overall scope of the guidelines.
- Table 3 provides a more detailed comparison of the specific recommendations offered by each group for the topics under consideration in this synthesis, including:
    - Assessment
        - Assessment of Fall Risk
        - Post-Fall Assessment/Evaluation
    - Fall Prevention Interventions
        - Intervention Planning
        - Medication Review and Modification
        - Gait, Balance and Exercise Interventions
        - Environmental Modification
        - Assistive/Protective Devices, Hip Protectors and Restraints
        - Other Interventions
    - Patient, Carer and Professional Education
- Table 4 lists the potential benefits and harms associated with the implementation of each guideline as stated in the original guidelines.
- Table 5 presents the rating schemes used by the guideline groups to rate the level of evidence and/or the strength of the recommendations.

Following the content comparison tables, the areas of agreement and areas of differences among the guidelines are identified.

Abbreviations

- HCANJ, Health Care Association of New Jersey
- HIGN, Hartford Institute for Geriatric Nursing
- MDS, Minimum Data Set
- NCCNSC/NICE, National Collaborating Centre for Nursing and Supportive Care, National Institute for Clinical Excellence
- RAP, Resident Assessment Protocol
- RNAO, Registered Nurses Association of Ontario
- UIGN, University of Iowa Gerontological Nursing Interventions Research Center

TABLE 1: COMPARISON OF INTERVENTIONS AND PRACTICES CONSIDERED
("✓" indicates topic is addressed)

	HCANJ (2006)	HIGN (2008)	NCCNSC/NICE (2004)	RNAO (2005)	UIGN (2004)
ASSESSMENT					
Assessment of Fall Risk	✓	✓	✓	✓	✓
Post-Fall Assessment	✓	✓	✓	✓	✓

FALL PREVENTION INTERVENTIONS					
Intervention Planning	✓	✓	✓	✓	✓
Medication Review & Modification	✓	✓	✓	✓	✓
Gait, Balance & Exercise Interventions	✓	✓	✓	✓	✓
Environmental Modification	✓	✓	✓	✓	✓
Assistive Devices, Hip Protectors & Restraints	✓	✓	✓	✓	✓
Other Interventions	✓	✓	✓	✓	✓
Patient, Carer & Professional Education	✓	✓	✓	✓	✓

TABLE 2: COMPARISON OF SCOPE AND CONTENT	
Objective and Scope	
HCANJ (2006)	• To limit and/or prevent the occurrence of falls within the parameters that can be controlled through structured program interventions • To minimize the severity of injuries sustained by an elderly individual resulting from a fall • To provide the professional staff with standards of practice that will enable them to perform effectively • To educate the resident, family, and staff • To limit the liability and financial risk to the facility
HIGN (2008)	• To prevent falls and serious injury outcomes in hospitalized older adults • To recognize multifactorial risks and causes of falls in older adults • To institute recommendations for falls prevention and management consistent with clinical practice guidelines

	and standards of care
NCCNSC/NICE (2004)	• To evaluate and summarize the evidence for assessing and preventing falls in older people • To highlight gaps in the research evidence • To formulate evidence-based and, where possible, clinical practice recommendations on the assessment of older people and prevention of falls in older people based on the best evidence available to the Guideline Development Group • To provide audit criteria to assist in the implementation of the recommendations
RNAO (2005)	• To present nursing best practice guidelines for the prevention of falls and fall injuries in the older adult • To increase all nurses' confidence, knowledge, skills, and abilities in the identification of adults within health care facilities at risk of falling and to define interventions for prevention of falling
UIGN (2004)	• To reduce the number of falls among elderly patients • To reduce injuries sustained during falls
Target Population	
HCANJ (2006)	• United States • Elderly residents of long-term care facilities, including skilled nursing facilities, subacute care, and assisted living facilities
HIGN (2008)	• United States • Hospitalized older adults
NCCNSC/NICE (2004)	• United Kingdom • Older people (aged 65 and over) in the community or extended care who are at risk of falling or who have fallen • Older people who attend primary or secondary care settings following a fall **Note**: The guideline does not cover hospitalised patients who sustain a fall while in hospital or who may be at risk of falling during hospitalisation or people who are confined to bed for the long term.
RNAO	• Canada

(2005)	• Older adults in acute care and long-term care settings at risk of falls and fall injuries These guidelines are <u>not</u> intended for use in older adults living in community settings.
UIGN (2004)	• United States • Older adults
Intended Users	
HCANJ (2006)	Advanced Practice Nurses Health Care Providers Nurses Occupational Therapists Pharmacists Physical Therapists Physician Assistants Physicians Public Health Departments
HIGN (2008)	Advanced Practice Nurses Allied Health Personnel Health Care Providers Hospitals Nurses Physical Therapists Physician Assistants Physicians
NCCNSC/NICE (2004)	Advanced Practice Nurses Allied Health Personnel Emergency Medical Technicians/Paramedics Health Care Providers Hospitals Nurses Patients Physician Assistants Physicians Psychologists/Non-physician Behavioral Health Clinicians Public Health Departments
RNAO (2005)	Advanced Practice Nurses Nurses
UIGN (2004)	Advanced Practice Nurses Nurses

TABLE 3: COMPARISON OF RECOMMENDATIONS FOR PREVENTION OF FALLS IN THE ELDERLY	
ASSESSMENT	
Assessment of Fall Risk	

HCANJ (2006)	**Clinical Assessment**
	
	• Assessment form - recommend rating scale
	• Completed by registered nurse
	• Time of completion
	  • Admission fall risk assessment completed within 24 to 48 hours of admission
	  • If indicated, comprehensive fall risk assessment within 14 to 21 days after admission
	• Frequency of reassessment
	  • Upon a fall
	  • Significant change likely to increase fall prediction factors
	  • Quarterly for skilled nursing facilities and nursing facilities
	  • Semi-annually for assisted living facilities
	
	Rehabilitation Assessment
	
	• Completed by physical therapist (PT) or occupation therapist (OT)
	• Form: (i.e., Tinetti Gait and Balance Tool or Berg Balance Scale)
	• Transfer evaluation
	• Time of completion (recommend 24 to 48 hours after referral)
	• Frequency of re-evaluation
	
	Continence Protocol
	
	• Toilet schedule
	• Bladder training, as indicated
	
	Mental Status Assessment
	
	• Recall
	• Judgment (safety awareness)
	• Complete mini-mental status assessment
	
	Pharmacological Assessment
	
	• Completed by pharmacy consultant or physician
	• Review of medication profile as needed

	• Evaluate risk for osteoporosis and recommend treatment as necessary • Evaluate need for Vitamin D and/or calcium supplements **Environment** • Physical room lay out • Equipment and assistive devices • Lighting • Other **Analysis/Assess Level of Risk** • Identify level of risk based on collective assessments and professional judgment
HIGN (2008)	**Parameters of Assessment** Assess and document all older adult patients for intrinsic risk factors to fall: • Advancing age, especially if older than 75 • History of a recent fall • Specific co-morbidities: dementia, hip fracture, type II diabetes, Parkinson's disease, arthritis, and depression • Functional disability: use of assistive device • Alteration in level of consciousness or cognitive impairment • Gait, balance, or visual impairment • Use of high-risk medications (Chang et al., 2004 **[Level I]**) • Urge urinary incontinence (Brown, Vittinghoff, & Wyman, 2000 **[Level III]**) • Physical restraint use (Capezuti et al., 2002 **[Level III]**) • Bare feet or inappropriate footwear • Identify risks for significant injury due to current use of anticoagulants such as Coumadin, Plavix, or aspirin and/or those with osteoporosis or risks for osteoporosis (Resnick, 2003 **[Level VI]**). **Nursing Care Strategies** On admission, assess/screen older adult patient for multifactorial risk factors to fall, following a change in condition, on transfer to a new unit, and following a fall (ECRI, 2006 **[Level VI]**):

	• Use standardized or empirically tested fall-risk tools in conjunction with other assessment tools to evaluate risk for falling (e.g., Tinetti Performance Oriented Mobility, the Timed Get Up and Go Test, [Tinetti, Williams, & Mayewski, 1986] **[Level II]**; "Guideline for the prevention," 2001 **[Level VI]**). • Document findings in nursing notes, interdisciplinary progress notes, and the problem list. • Communicate and discuss findings with interdisciplinary team members. Identify specific patients requiring additional safety precautions and/or evaluation by a specialist, or: • Those with impaired judgment or thinking due to acute or chronic illness (delirium, mental illness) • Those with osteoporosis, at risk for fracture • Those with current hip fracture • Those with current head or brain injury (standard of care)
NCCNSC/NICE (2004)	**Case/Risk Identification** **C** - Older people in the care of healthcare professionals should be asked routinely whether they have fallen in the last year and asked about the frequency, context, and characteristics of the fall. **C** - Older people reporting a fall or considered at risk of falling should be observed for balance and gait deficits and considered for their ability to benefit from interventions to improve balance and mobility. (Tests of balance and gait commonly used in the UK are detailed in the original guideline document.) **Multifactorial Falls Risk Assessment** **C** - Older people who present for medical attention because of a fall, or report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should be offered a multifactorial falls assessment of risk. This assessment should be performed by a healthcare professional or professionals with appropriate skills and experience, normally in the setting of a specialist falls service. This assessment should be part of an individualised, multifactorial intervention. **C** - Multifactorial assessment may include the following:

	• Identification of falls history • Assessment of gait, balance and mobility, and muscle weakness • Assessment of osteoporosis risk • Assessment of the older person's perceived functional ability and fear relating to falling • Assessment of visual impairment • Assessment of cognitive impairment and neurological examination • Assessment of urinary incontinence • Assessment of home hazards • Cardiovascular examination and medication review
RNAO (2005)	**Assessment** Assess fall risk on admission. *(Level of Evidence = Ib; Grade of Recommendation = B)* Fall risk assessment is important as it provides direction for the multiple interventions which have been shown to reduce a person's risk of falling. Commonly identified fall risk factors for elderly patients in health care settings include confusion, tranquilizer use, hearing deficits, cognitive impairment, previous stroke, previous falls, confusion/delirium, acute diseases, and/or side effects of drugs. Risk screening is an effective method for identifying fall-prone individuals. A systematic review of fall screening tools concluded that since all residents of long term care (LTC) were likely to be at high risk of falls, universal fall prevention maneuvers should be administered in this setting, and that various tools such as the Morse Fall Scale, the STRATIFY risk assessment tool, and the Hendrich II Fall Risk Model© could be used. Assessment for fall risk is the key. The tool used must be appropriate for the setting and for the specific client population. Therefore, it is essential to assess the patient population in order to select a tool most appropriate for the setting. Appendix C in the original guideline document contains information on how to access the tools discussed above.
UIGN (2004)	**Note from the National Guideline Clearinghouse (NGC)**: A five-step algorithm for fall prevention for older adults is presented in the original guideline document. Steps 1, 2, and 3 review the multidimensional falls assessment, Step 4 summarizes falls interventions, and Step 5 outlines falls evaluation. **<u>Multidimensional Falls Assessment</u>**

Fall History (Step 1)

Detecting a history of falls is a crucial component of this protocol. ALL older adults presenting to ANY health care facility or provider are asked about their recent fall history ("Guideline for the prevention of falls," 2001. Evidence Grade = A). This recommendation includes older adults who are patients in primary care, acute care, and home health care settings as well as residents of long-term care and assisted living facilities.

1. Ask all older adults and/or their caregiver about the occurrence of falls during the past year.
2. If the older adult and/or their caregiver REPORTS NO FALL OR A SINGLE FALL in the past year, assess their fall potential (Step 2).
3. If the older adult and/or their caregiver REPORTS RECURRENT FALLS in the past year, or if the older adult PRESENTS FOLLOWING A FALL, complete a COMPREHENSIVE FALL EVALUATION (Step 3).

For residents of long-term care facilities, the MDS can be used to determine an individual's fall history if the resident has had no fall in the past 180 days or only a single fall in the past 30 days (MDS Item J4a) or past 31 to 180 days (MDS item J4b)

Fall Potential (Step 2)

For persons who are at relatively low risk for falling (reports no fall or single fall in the past year in Step 1), determination of the person's fall potential is recommended ("Guideline for the prevention of falls," 2001. Evidence Grade = A).

A fall potential assessment includes a review of the circumstances surrounding the previous fall (if they have fallen) and a brief assessment of gait and balance using a tool such as the Timed "Up & Go" Test (Podsiadlo & Richardson, 1991) found in Appendix C in the original guideline document.

For older adults and/or their caregivers who report no fall or a single fall in the past year, determine the older adult's fall potential using the **Falls Screening Tool** in Appendix B in the original guideline document.

Identify the circumstances surrounding any fall that occurred during the past year. This assessment includes the location of fall, activity prior to fall, loss of consciousness, use of

	walking aids (e.g., cane, walker) and/or protective devices (e.g., hip protectors, helmet), environmental conditions (e.g., snow, ice), and injuries that resulted from the fall. If another person witnessed the fall, his or her account of the fall is included. Information for assessing fall circumstances in long-term care residents using the MDS is included in the **Fall Circumstances in Long-term Care Residents** (See Appendix D in the original guideline document). Screen for gait and balance problems using the Timed "Up & Go" Test (Podsiadlo & Richardson, 1991) or similar gait and balance assessment tool (Mathias, Nayak, & Isaacs, 1986). Instructions for the Timed "Up & Go" Test are included in Appendix C in the original guideline document. If no gait or balance problem is identified on the Timed "Up & Go" Test or other brief screening tool, NO FURTHER ASSESSMENT OR INTERVENTION IS REQUIRED. A review of individual fall risk factors (See Appendix A: **Fall Risk Factors Checklist** in the original guideline document) may be considered for older adults with a low to moderate risk (Score 19 or less). Offer information about fall prevention strategies. Reassess fall history and fall potential in one year or if a fall occurs. If a gait or balance problem is identified (Score $\geq$20), complete the Comprehensive Fall Evaluation (Step 3). For residents of long-term care facilities, the gait and balance testing procedures are slightly different. The MDS 2.0 User's Manual (Morris, Murphy & Nonemaker, 1995; Brown et al., 2000) offers detailed testing alternatives. See the MDS 2.0 User's Manual pages 3-91 to 3-95 for more information on balance testing and RAP 11 Falls, page 3 for gait testing. **Comprehensive Fall Evaluation (Step 3)** • For older adults who report recurrent falls in the past year, who present to the health care provider/facility following a fall, or who are identified as having gait or balance problems on the Timed "Up & Go" Test (Score $\geq$20) (Podsiadlo & Richardson, 1991), conduct a comprehensive fall evaluation. The purpose of the comprehensive fall evaluation is to describe the circumstances surrounding recent falls, identify fall risk factors, delineate modifiable and non-modifiable risk factors, assess functional status, and target fall

	prevention strategies ("Guideline for the prevention of falls," 2001. Evidence Grade = A). • Referral to a specialist (e.g., gerontological nurse practitioner, clinical nurse specialist, geriatrician, physical therapist, occupational therapist, cardiologist, eye doctor) for a comprehensive fall evaluation or for particular components of the evaluation may be required ("Guideline for the prevention of falls," 2001. Evidence Grade = A). The comprehensive falls evaluation is discussed in detail in the original guideline document. A registered nurse or advanced practice nurse may complete the comprehensive falls evaluation. Components of this assessment that may require advanced diagnostic training are noted. Briefly, the comprehensive falls evaluation includes the following components: • Fall History, Fall Circumstances, and Fall Risk Factors Assessment • Health History and Functional Assessment • Medications and Alcohol Consumption Review • Vital Signs and Pain Assessment • Vision Screening • Gait and Balance Screening and Assessment • Musculoskeletal and Foot Assessment • Continence Assessment • Cardiovascular Assessment • Neurological Assessment • Depression Screening • Walking Aids, Assistive Technologies, & Protective Devices Assessment • Environmental Assessment • Falls Assessment in Long-Term Care: RAP Triggers
Post-Fall Assessment/Evaluation	
HCANJ (2006)	**Post-fall Evaluation** • Fall Management Investigation or Post Fall Assessment Tool • Physical assessment • Contributing factors to fall **Reporting Mechanism/Tracking of Falls Within the Facility** • Facility Fall Summary/Analysis • Action of the interdisciplinary team

	• Timely modifications to the treatment plan • Family/resident conferences • Physical adaptation to room, wheelchair, and/or walking device • Collective review identification, and analysis of trends in resident falls throughout the facility Facility protocol may include falls management review and analysis by the safety committee, falls committee, interdisciplinary care (IDC) plan committee, quality improvement committee, or other established interdisciplinary group. **Quality Improvement** • Collect falls data (including near miss data) • Post fall tool • Falls summary report • Conduct interdisciplinary analysis of information to gain helpful knowledge. • Review and revise policies and procedures as appropriate • Retrain staff on new policies and procedures • Complete Facility Falls Data summary document • Analyze information • Revise policies and procedures as appropriate • Retrain staff on new policies and procedures
HIGN (2008)	**Parameters of Assessment** Perform a post-fall assessment (PFA) following a patient fall to identify possible fall causes (if possible, begin the identification of possible causes within 24 hours of a fall) as determined during the immediate, interim, and longitudinal post-fall intervals. Because of known incidences of delayed complication of falls, including fractures, observe all patients for about 48 hours after an observed or suspected fall ("Guideline for the prevention," 2001 **[Level VI]**; ECRI, 2006 **[Level VI]**; Gray-Miceli et al, 2006 **[Level III]**): • Perform a physical assessment of the patient at the time of the fall, including vital signs (which may include orthostatic blood pressure readings), neurological assessment, and evaluation for head, neck, spine, and/or extremity injuries. • Once the assessment rules out any significant injury: • Obtain a history of the fall by the patient or

	witness description and document • Note the circumstances of the fall: location, activity, time of day, and any significant symptoms • Review of underlying illness and problems • Review medications • Assess functional, sensory, and psychological status • Evaluate environmental conditions • Review risk factors for falling ("Guideline for the prevention," 2001; American Medical Directors Association [AMDA], 1998; ECRI, 2006; University of Iowa Gerontological Nursing Interventions Research Center [UIGN], 2004; Resnick, 2003 **[all Level VI]**) The process approach to an individualized PFA includes use of standardized measurement tools of patient risk in combination with a fall-focused history and physical examination, functional assessment, and review of medications ("Guideline for the prevention," 2001; AMDA, 1998; Resnick, 2003; UIGN, 2004 **[all Level VI]**). When plans of care are targeted to likely causes, individualized interventions are likely to be identified. If falling continues despite attempts at individualized interventions, the standard of care warrants a reexamination of the older adult and their falls. **Nursing Strategies** • Communicate to the physician or advance practice nurse important PFA findings (ECRI, 2006 **[Level VI]**). • Monitor the effectiveness of the falls prevention interventions instituted. • Following a patient's fall, observe for serious injury due to a fall and follow facility protocols for management (standard of care). • Following a patient's fall, monitor vital signs, level of consciousness, neurological checks, and functional status per facility protocol. If significant changes in patient's condition occurs, consider further diagnostic tests such as plain film x-rays, CT scan of the head/spine/extremity, neurological consultation, and/or transfer to a specialty unit for further evaluation (standard of care).
NCCNSC/NICE (2004)	**A** - Following treatment for an injurious fall, older people should be offered an assessment to identify and address future risk and individualised intervention aimed at promoting independence and improving physical and

	psychological function.
RNAO (2005)	**Assessment** Assess fall risk after a fall. *(Level of Evidence = Ib; Grade of Recommendation = B)* A fall in an elderly person is often a presentation of a disease (sentinel fall), and a previous fall triples the odds of a client experiencing a future fall. A randomized controlled trial (RCT) in an American long-term care (LTC) facility has shown that resident assessment within seven days of a fall was effective at preventing subsequent hospitalization and reduced hospital days although it did not reduce fall rate.
UIGN (2004)	**Note from the National Guideline Clearinghouse (NGC)**: A five-step algorithm for fall prevention for older adults is presented in the original guideline document. Steps 1, 2, and 3 review the multidimensional falls assessment, Step 4 summarizes falls interventions, and Step 5 outlines falls evaluation. **Comprehensive Fall Evaluation (Step 3)** • For older adults who report recurrent falls in the past year, who present to the health care provider/facility following a fall, or who are identified as having gait or balance problems on the Timed "Up & Go" Test (Score $\geq$20) (Podsiadlo & Richardson, 1991), conduct a comprehensive fall evaluation. The purpose of the comprehensive fall evaluation is to describe the circumstances surrounding recent falls, identify fall risk factors, delineate modifiable and non-modifiable risk factors, assess functional status, and target fall prevention strategies ("Guideline for the prevention of falls," 2001. Evidence Grade = A). • Referral to a specialist (e.g., gerontological nurse practitioner, clinical nurse specialist, geriatrician, physical therapist, occupational therapist, cardiologist, eye doctor) for a comprehensive fall evaluation or for particular components of the evaluation may be required ("Guideline for the prevention of falls," 2001. Evidence Grade = A). The comprehensive falls evaluation is discussed in detail below. A registered nurse or advanced practice nurse may complete the comprehensive falls evaluation. Components of this assessment that may require advanced diagnostic training are noted. Briefly, the comprehensive falls

	evaluation includes the following components: • Fall History, Fall Circumstances, and Fall Risk Factors Assessment • Health History and Functional Assessment • Medications and Alcohol Consumption Review • Vital Signs and Pain Assessment • Vision Screening • Gait and Balance Screening and Assessment • Musculoskeletal and Foot Assessment • Continence Assessment • Cardiovascular Assessment • Neurological Assessment • Depression Screening • Walking Aids, Assistive Technologies, & Protective Devices Assessment • Environmental Assessment • Falls Assessment in Long-Term Care: RAP Triggers
FALL PREVENTION INTERVENTIONS	
Intervention Planning	

HCANJ (2006)	**Dynamic Treatment Plan**
	
	Specific interventions based on fall assessment results and resident preferences all interdisciplinary team members must address:
	
	• Resident, staff, and family teaching
	• Room modifications
	• Resident's daily routines
	• Mental status/behaviors
	• Physical limitations
	  • Activities of daily living (ADL) skills
	  • Continence
	• Pain
	• Medication use
	• Consistent and proper uses of assistive or protective devices based on assessments
	
	Updated information consistently communicated to the staff, resident, and family:
	
	• Staff
	  • General classification system identifying resident's potential to fall and staff response
	  • Summary of assessments/changes in plan of care
	  • Verbal and written report

	• Residents
	  • One-to-one education and review
	• Families
	  • Care conferences
	
	Post Fall Evaluation
	
	• Fall Management Investigation or Post Fall Assessment Tool
	• Physical assessment
	• Contributing factors to fall
	
	Reporting Mechanism/Tracking of Falls Within the Facility
	
	• Facility Fall Summary/Analysis
	• Action of the interdisciplinary team
	  • Timely modifications to the treatment plan
	  • Family/resident conferences
	  • Physical adaptation to room, wheelchair, and/or walking devices
	• Collective review of resident falls throughout the facility
	
	Facility protocol may include falls management review and analysis by the Safety Committee, Falls Committee, Interdisciplinary Care (IDC) Plan Committee, Quality Improvement Committee, or other established interdisciplinary group.

HIGN (2008)	**Parameters of Assessment** In the acute-care setting, an integrated multidisciplinary team (consisting of the physician, nurse, health care provider, risk manager, physical therapist, and other designated staff) plans care for the older adult, at risk for falls or who has fallen, hinged on findings from an individualized assessment (ECRI, 2006; Joint Commission on Accreditation of Healthcare Organizations [JCAHO], 2006 **[both Level VI]**). **Nursing Care Strategies** Review and discuss with interdisciplinary team findings from the individualized assessment and develop a multidisciplinary plan of care to prevent falls (Chang et al., 2004 **[Level I]**).
NCCNSC/NICE (2004)	**Multifactorial Interventions** **A** - All older people with recurrent falls or assessed as being

	at increased risk of falling should be considered for an individualised multifactorial intervention. **A** - In successful multifactorial intervention programmes the following specific components are common (against a background of the general diagnosis and management of causes and recognised risk factors): • Strength and balance training • Home hazard assessment and intervention • Vision assessment and referral • Medication review with modification/withdrawal
RNAO (2005)	**Intervention** *Organizational Support* Organizations create an environment that supports interventions for fall prevention that includes: • Fall prevention programs • Staff education • Clinical consultation for risk assessment and intervention • Involvement of multidisciplinary teams in case management • Availability of supplies and equipment such as transfer devices, high low beds, and bed exit alarms *(Level of Evidence = IV)*
UIGN (2004)	**<u>Description of Interventions</u>** Fall prevention strategies that are implemented will depend upon the findings of the multidimensional falls assessment, individual fall risk factors, and the resources available to the older adult and/or his or her caregivers. Following the COMPREHENSIVE FALL EVALUATION, the health professional has a rich source of information with which to plan targeted fall prevention strategies that are individualized for each person and based on the presence of fall risk factors. While referring to the completed **Falls Risk Factors Checklist** (Appendix A in the original guideline document), the health professional can discuss with the older adult and/or caregiver the most likely risk factors contributing to his or her risk of falling and begin planning nursing interventions to prevent falls. Fall prevention programs that combine exercise with risk

factor modification and those based upon an interdisciplinary comprehensive falls evaluation appear to be the most effective for reducing falls in older adults (Agostini, Baker, & Bogardus, 2001; Hill-Westmoreland, Soeken, & Spellbring, 2002. Evidence Grade = A).

Implement Fall Prevention Interventions (Step 4)

Fall prevention interventions that address modifiable fall risk factors are suggested by specific settings below (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001; Oliver, Hopper, & Seed, 2000. Evidence Grade = A). Information is included for older adults living in community settings, residents of long-term care or assisted living facilities, and elders in acute care settings. Following the specific settings information is an overview of specific fall prevention interventions which includes information on 1) comprehensive fall evaluation and treatment of health problems, 2) medication review and modification, 3) improving physical mobility: exercise programs, balance and gait training, and appropriate use of walking aids, 4) environmental management, 5) staff education programs, 6) continence promotion and toileting programs, 7) physical restraint reduction, and 8) preventing fall-related injuries with protective devices.

Interventions For Older Adults Living In The Community

Studies conducted with community-dwelling older persons support the following interventions (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A):

- Gait training and advice on the appropriate use of assistive devices (Close et al., 1999; Tinetti et al., 1994. Evidence Grade = B)
- Review *and modification* of medications, including psychotropic medications
    a. Reduction in the number and dosages of prescribed medications (Campbell et al., 1999; Close et al., 1999; Tinetti et al., 1994. Evidence Grade = B)
- Exercise and balance training programs (Campbell et al., 1999; Steinberg et al., 2000; Tinetti et al., 1994. Evidence Grade = B)
- Assessment and treatment for any identified health problems (Close et al., 1999. Evidence Grade = B)

    a. Treatment of postural hypotension (Close et al., 1999; Tinetti, McAvay, & Claus, 1996. Evidence Grade = B)

b. Treatment of cardiovascular disorders (Close et al., 1999. Evidence Grade = B)
c. Treatment of visual problems (Close et al., 1999. Evidence Grade = B)

- Modification of environmental hazards (Cumming et al., 1999; Tinetti et al., 1994. Evidence Grade = B)

Interventions For Older Adults Living In Long-Term Care Or Assisted Living Facilities

Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B):

- Comprehensive fall evaluation (Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B)
- Improvement in room lighting, flooring, and footwear (Agostini, Baker, & Bogardus, 2001; Ray et al., 1997. Evidence Grade = B)
- Staff education programs (Ray et al., 1997. Evidence Grade = B)
- Wheelchair use and maintenance by an occupational therapist (Ray et al., 1997. Evidence Grade = B)
- Gait training and advice on appropriate use of assistive devices (Ray et al., 1997. Evidence Grade = B)
- Review and modification of medications, including psychotropic medications (Ray et al., 1997. Evidence Grade = B)

Interventions For Older Adult Patients In Acute Hospital Settings

Research on multi-component fall prevention programs in the hospitalized setting suffer from small sample sizes and methodological issues (Agostini, Baker, & Bogardus, 2001. Evidence Grade = A). A meta-analysis of hospital-based fall prevention programs revealed that pooling the effects from three controlled trials resulted in no effect — that is no benefit in reducing falls (Oliver, Hopper, & Seed, 2000. Evidence Grade = A). This same meta-analysis demonstrated that pooling the effects from seven prospective studies with historical controls, fall rates declined by about 25% (Oliver, Hopper, & Seed, 2000. Evidence Grade = A). The interventions employed in these studies were heterogeneous and often several interventions were employed simultaneously (Oliver, Hopper, & Seed, 2000). In studies in hospitalized settings, practices included educational activities for nurse and support staff, patient orientation activities, review of prior falls, and improvement

of surrounding environment. Specific environmental components included reducing physical obstacles in rooms, adding supplemental lighting and grab bars in bathrooms, and lowering bedrails and bed height. Other studies have attempted to improve transfer and mobility by scheduled ambulatory and physical therapy activities and provision of better footwear. Studies also incorporated interventions for cognitively impaired patients through education of families, minimizing sedating medications, and locating confused patients close to nursing staff. Because many of these studies used small sample sizes and lacked precise standardization and description of the interventions, the generalizability and reproducibility of findings are limited (Agostini, Baker, & Bogardus, 2001. Evidence Grade = A).

Fall prevention strategies that are commonly used in acute care settings, including wristbands or over-bed stickers to identify persons at high risk for falls, bed alarms, or physical restraints, show little benefit for reducing falls in hospitalized older adults (Oliver, Hopper, & Seed, 2000. Evidence Grade = A). Fall prevention programs that identify an individual's fall history and fall risk with subsequent implementation of targeted modifiable risk factors may help prevent falls in hospitalized older adults ("Guideline for the prevention of falls," 2001; Oliver, Hopper, & Seed, 2000). In addition, ensuring that hospital units are staffed adequately so that nurses and assistive personnel are available to assist older adults with transfers, toileting, and other basic physical needs should be a priority (Blegen, Vaughn, & Goode, 2001. Evidence Grade = C).

Agostini, Baker, & Bogardus (2001) note that in the hospital, several interventions have been employed as part of multiple risk factor intervention studies, but many have been poorly described and standardized. Practices include educational activities for nurse and support staff, patient orientation activities, review of prior falls, and improvement of the surrounding environment.

Specific Fall Prevention Interventions

Major interventions that have been recommended as fall prevention strategies for older adults include: 1) comprehensive fall evaluation and treatment of health problems, 2) medication review and modification, 3) improving physical mobility: exercise programs, balance and gait training, and appropriate use of walking aids, 4) environmental modification, and 5) continence promotion and toileting programs. A brief overview of each intervention, as well as information on physical restraint reduction and preventing fall-related injuries with protective

	devices, is provided. Educating direct care givers who assess fall risk and initiate individualized interventions is an important component of fall reduction. Educational programs for the staff involved in fall prevention are necessary but not sufficient to reduce falls (Ray et al., 1997). **Comprehensive Fall Evaluation and Treatment of Health Problems** The most important steps in any fall prevention program are to identify persons who have previously experienced a fall, determine the potential for future falls, and outline and reduce individual fall risk factors ("Guideline for the prevention of falls," 2001; Hill-Westmoreland, Soeken, & Spellbring, 2002. Evidence Grade = A). This is accomplished through the baseline fall screening, comprehensive fall evaluation, and ongoing treatment of health problems (Close et al., 1999; Ray et al., 1997; Rubenstein et al., 1990; Tinetti, McAvay, & Claus, 1996; Hill-Westmoreland, Soeken, & Spellbring, 2002. Evidence Grade = B). Older adults at risk for falls cannot benefit from targeted fall prevention interventions unless underlying health conditions are identified and will not benefit unless these conditions are treated. Common health conditions if left untreated in older adults that contribute to fall risk include postural hypotension (Close et al., 1999; Tinetti, McAvay, & Claus, 1996. Evidence Grade = B), cardiovascular disorders (Close et al., 1999. Evidence Grade = B), visual problems (Close et al., 1999. Evidence Grade = B), and urinary incontinence (Bakarich, McMillan, & Prosser, 1997. Evidence Grade = C). Identification of high risk patients through bracelets, signs, or tags has been incorporated in multifactorial interventions to prevent falls (Agostini, Baker, & Bogardus, 2001; Oliver, Hopper, & Seed, 2000). A randomized controlled study on use of colored bracelets to identify high-risk inpatients did not demonstrate a statistically significant treatment effect; thus there is no evidence that use of such an identification system reduces falls (Agostini, Baker, & Bogardus, 2001; Oliver, Hopper, & Seed, 2000). Use of such identification systems might, in fact, adversely affect rehabilitation and promotion of functional independence by causing stigma and anxiety among patients and their family members (Oliver, Hopper, & Seed, 2000). Although this strategy is used in fall prevention programs, there is little evidence to demonstrate the effect on reduction of falls (Agostini, Baker, & Bogardus, 2001; Oliver, Hopper, & Seed, 2000. Evidence Grade = A).
Medication Review and Modification	

HCANJ (2006)	Included in initial clinical risk assessment by nurse **Pharmacological Assessment** • Completed by pharmacy consultant or physician • Review of medication profile as needed • Evaluate risk for osteoporosis and recommend treatment as necessary • Evaluate need for Vitamin D and/or calcium supplements **Dynamic Treatment Play** Specific interventions based on fall assessment results, and resident preferences. The interdisciplinary team members must address: • Medication use
HIGN (2008)	**Parameters of Assessment** Assess and document all older adult patients for intrinsic risk factors to fall: • Identify risks for significant injury due to current use of anticoagulants such as Coumadin, Plavix, or aspirin and/or those with osteoporosis or risks for osteoporosis (Resnick, 2003 **[Level VI]**). **Nursing Care Strategies** • In the interdisciplinary discussion, include review and reduction or elimination of high-risk medications associated with falling.
NCCNSC/NICE (2004)	**Psychotropic Medications** **B** - Older people on psychotropic medications should have their medication reviewed, with specialist input if appropriate, and discontinued if possible to reduce their risk of falling.
RNAO (2005)	**<u>Intervention</u>** **Medications** Nurses, in consultation with the health care team, conduct

	periodic medication reviews to prevent falls among the elderly in health care settings. Clients taking benzodiazepines, tricyclic antidepressants, selective serotonin-reuptake inhibitors, trazodone, or more than five medications should be identified as high risk. There is fair evidence that medication review be conducted periodically throughout the institutional stay. *(Level of Evidence = IIb; Grade of Recommendation = B)* **<u>Organization and Policy Recommendations</u>** **Medication Review** Organizations implement processes to effectively manage polypharmacy and psychotropic medications including regular medication reviews and exploration of alternatives to psychotropic medication for sedation. *(Level Of Evidence = IV)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)** *Interventions For Older Adults Living In The Community* Studies conducted with community-dwelling older persons support the following interventions (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A): • Review *<u>and modification</u>* of medications, including psychotropic medications a. Reduction in the number and dosages of prescribed medications (Campbell et al., 1999; Close et al., 1999; Tinetti et al., 1994. Evidence Grade = B) *Interventions For Older Adults Living In Long-Term Care Or Assisted Living Facilities* Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B): • Review and modification of medications, including psychotropic medications (Ray et al., 1997. Evidence

	Grade = B) **<u>Specific Fall Prevention Interventions</u>** **Medication Review and Modification** Reduction of the number of medications has been a component of many multifactorial fall prevention programs conducted in a variety of settings (Campbell et al., 1999; Close et al., 1999; Tinetti et al., 1994; Ray et al., 1997. Evidence Grade = B). Review of medications without modification appears to be of little benefit ("Guideline for the prevention of falls," 2001. Evidence Grade = A). Older adults who have fallen should have their medications reviewed and altered or stopped as appropriate. Whenever possible, health care providers should consider reducing medications for older adults who take four or more medications and for those who take psychotropic medications (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A).
Gait, Balance, and Exercise Interventions	
HCANJ (2006)	**Rehabilitation Assessment** • Form: (e.g., Tinetti Gait and Balance Tool or Berg Balance Scale) **Dynamic Treatment Plan** Specific interventions based on fall assessment results and resident preferences. The interdisciplinary team members must address: • Physical limitations • Consistent and proper uses of assistive or protective devices based on assessments
HIGN (2008)	**Nursing Care Strategies** • Promote early mobility and incorporate measures to increase mobility, such as daily walking, if medically stable and not otherwise contraindicated. • Explore with the older patient and/or family caregiver avenues to maintain mobility and functional status; consider referral to home-based exercise or group exercises at community senior centers. If discharge is planned to a subacute or rehabilitation unit, label the older adult's mobility status, functional status, and other

	forms of activity in the home to increase gait or balance on the transfer form.
NCCNSC/NICE (2004)	**Strength and Balance Training** **A** - Strength and balance training is recommended. Those most likely to benefit are older community-dwelling people with a history of recurrent falls and/or balance and gait deficit. A muscle strengthening and balance programme should be offered. This should be individually prescribed and monitored by an appropriately trained professional. **Exercise in Extended Care Settings** **A** - Multifactorial interventions with an exercise component are recommended for older people in extended care settings who are at risk of falling.
RNAO (2005)	**Intervention** **Tai Chi** Tai Chi to prevent falls in the elderly is recommended for those clients whose length of stay (LOS) is greater than four months and for those clients with no history of a fall fracture. There is insufficient evidence to recommend Tai Chi to prevent falls for clients with length of stay less than four months. *(Level of Evidence = Ib; Grade of Recommendation = B)* **Exercise** Nurses can use strength training as a component of multi-factorial fall interventions; however, there is insufficient evidence to recommend it as a stand-alone intervention. *(Level of Evidence = Ib; Grade of Recommendation = I)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)** *Interventions For Older Adults Living In The Community* Studies conducted with community-dwelling older persons support the following interventions (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A):

- Gait training and advice on the appropriate use of assistive devices (Close et al., 1999; Tinetti et al., 1994. Evidence Grade = B)
- Exercise and balance training programs (Campbell et al., 1999; Steinberg et al., 2000; Tinetti et al., 1994. Evidence Grade = B)

Interventions For Older Adults Living In Long-Term Care Or Assisted Living Facilities

Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B):

- Gait training and advice on appropriate use of assistive devices (Ray et al., 1997. Evidence Grade = B)

Specific Fall Prevention Interventions

Improving Physical Mobility: Exercise Programs, Balance Training, Gait Training, and Appropriate Use of Walking Aids

- Exercise programs, gait and balance training, and appropriate use of assistive devices and walking aids have been shown to be important strategies to prevent falls for older adults ("Guideline for the prevention of falls," 2001; Campbell, Borrie, & Spears, 1989; Gardner, Robertson, & Campbell, 2000; Gillespie et al., 2002; Hill-Westmoreland, Soeken, & Spellbring, 2002; Province et al., 1995. Evidence Grade = A).
- The benefits of improving physical mobility and endurance through any of these interventions alone as a fall prevention intervention, without concurrent reduction of other fall risk factors, has not been supported (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A).
- Exercise programs that have been offered as fall prevention strategies in older adults include walking, balance training, resistance/strength training, aerobics, stationary cycling, and Tai Chi Chuan.
- Exercise programs that have a minimum duration of at least 10 weeks are more successful than shorter programs ("Guideline for the prevention of falls," 2001. Evidence Grade = A). Exercise programs must be sustained for sustained benefits ("Guideline for the prevention of falls," 2001. Evidence Grade = A).
- Minimization of bed rest in hospitalized elders is a

	practical, real-world intervention that has implications for prevention of falls as well as other hospital-acquired complications (Agostini, Baker, & Bogardus, 2001). • To learn more about exercise programs for older adults, please see the Gerontological Nursing Interventions Research Centers Research Dissemination Core Evidence-Based Protocols: "Exercise Promotion: Walking in Elders," by Jitramontree (2001) and "Progressive Resistance Training" by Mobily and Mobily (2002) or the National Institute on Aging (1998) for an educational program entitled *Exercise: A Guide From the National Institute on Aging.*
Environmental Modification	
HCANJ (2006)	**<u>Assessments</u>** **Environment** • Physical room lay out • Equipment and assistive devices • Lighting • Other **<u>Dynamic Treatment Plan</u>** Specific interventions based on fall assessment results, and resident preferences all interdisciplinary team members must address: • Room modifications
HIGN (2008)	**Parameters of Assessment** Assess and document patient-care environment routinely for extrinsic risk factors to fall and institute corrective action: • Floor surfaces for spills, wet areas, and unevenness • Proper level of illumination and functioning of lights (night light works) • Table tops, furniture, beds are sturdy and are in good repair • Grab rails and grab bars are in place in the bathroom • Use of adaptive aides work properly and are in good repair • Bedrails do not collapse when used for transitioning or support • Patient gowns/clothing do not cause tripping

	• Intravenous (IV) poles are sturdy if used during ambulation and tubing does not cause tripping. **Nursing Care Strategies** Assess the patient care environment routinely for extrinsic risk factors and institute appropriate corrective action: • Use standardized environmental checklists to screen; document findings • Communicate findings to risk managers, housekeeping, maintenance department, all staff and hospital administration, if needed • Re-evaluate environment for safety (ECRI, 2006 **[Level VI]**) Institute general safety precautions according to facility protocol, which may include: • Use of a low-rise bed that measures 14 inches from floor • Use of floor mats if patient is at risk for serious injury, such as osteoporosis • Easy access to call light • Use of rubber-sole heeled shoes or nonskid slippers • Reduction of clutter in traffic areas
NCCNSC/NICE (2004)	**Home Hazard and Safety Intervention** **A** - Older people discharged from hospital following a fall should be offered a home hazard assessment and safety intervention/modifications by a suitably trained healthcare professional. This should normally be part of discharge planning and be carried out within a timescale agreed by the patient or carer and appropriate members of the healthcare team. **A** - Home hazard assessment is shown to be effective only in conjunction with follow-up and intervention, not in isolation.
RNAO (2005)	**Environment** Nurses include environmental modifications as a component of fall prevention strategies. *(Level of Evidence = Ib)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)**

Interventions For Older Adults Living in the Community

Studies conducted with community-dwelling older persons support the following interventions (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A):

- Modification of environmental hazards (Cumming et al., 1999; Tinetti et al., 1994. Evidence Grade = B)

Interventions for Older Adults Living in Long-Term Care or Assisted Living Facilities

Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B):

- Improvement in room lighting, flooring, and footwear (Agostini et al., 2001; Ray et al., 1997. Evidence Grade = B).

Interventions for Older Adult Patients in Acute Hospital Settings

In studies in hospitalized settings, practices included educational activities for nurse and support staff, patient orientation activities, review of prior falls, and improvement of surrounding environment. Specific environmental components included reducing physical obstacles in rooms, adding supplemental lighting and grab bars in bathrooms, and lowering bedrails and bed height.

Because many of these studies used small sample sizes, and lacked precise standardization and description of the interventions, the generalizability and reproducibility of findings are limited (Agostini, Baker, & Bogardus, 2001. Evidence Grade = A).

Specific Fall Prevention Interventions

Environmental Modification

Assessment and modification of environmental hazards is often suggested as a fall prevention strategy. Unfortunately, research studies of environmental hazard modification have had small samples and insignificant statistical results (Abreu et al., 1998; El-Faizy & Reinsch, 1994. Evidence Grade = C). Larger studies have failed to support environmental

	modification alone as a fall prevention strategy (Peel, Steinberg, & Williams, 2000; Sattin et al., 1998; van Haastregt et al., 2000. Evidence Grade = B), although as a component of multifactorial fall prevention intervention, environmental modification may help decrease fall risk in some older adults (Cumming et al., 1999; Gillespie et al., 2002; Ray et al., 1997; Steinberg et al., 2000. Evidence Grade = B).
Assistive/Protective Devices, Hip Protectors, and Restraints	
HCANJ (2006)	**<u>Assessments</u>** **Environment** • Equipment and assistive devices **Dynamic Treatment Plan** Specific interventions based on fall assessment results and resident preferences. The interdisciplinary team members must address: • Consistent and proper uses of assistive or protective devices based on assessments
HIGN (2008)	**Nursing Care Strategies** Institute general safety precautions according to facility protocol, which may include: • Minimization and/or avoidance of physical restraints • Use of personal or pressure sensors alarms • Use of rubber-sole heeled shoes or nonskid slippers
NCCNSC/NICE (2004)	**Interventions that cannot be recommended because of insufficient evidence** *Hip Protectors* Reported trials that have used individual patient randomization have provided no evidence for the effectiveness of hip protectors to prevent fractures when offered to older people living in extended care settings or in their own homes. Data from cluster randomized trials provide some evidence that hip protectors are effective in the prevention of hip fractures in older people living in

	extended care settings who are considered at high risk.
RNAO (2005)	**Hip Protectors** Nurses could consider the use of hip protectors to reduce hip fractures among those clients considered at high risk of fractures associated with falls; however, there is no evidence to support universal use of hip protectors among the elderly in health care settings. *(Level of Evidence = Ib; Grade of Recommendation = B)* **Least Restraint** Nurses should not use side rails for the prevention of falls or recurrent falls for clients receiving care in health care facilities; however, other client factors may influence decision-making around the use of side rails. *(Level of Evidence = III; Grade of Recommendation = I)* Organizations establish a corporate policy for least restraint that includes components of physical and chemical restraints. *(Level of Evidence = IV)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)** *Interventions For Older Adults Living In Long-Term Care Or Assisted Living Facilities* Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B): • Wheelchair use and maintenance by an occupational therapist (Ray et al., 1997. Evidence Grade = B) **<u>Preventing Fall-Related Injuries with Protective Devices (Hip Protectors, Alarms)</u>** • Use of hip protectors does not seem to reduce the risk of falling, but there is strong evidence to support the ability of hip protectors to prevent hip fractures in persons 65 years of age and older, in nonhospitalized settings, who fall (Agostini, Baker, & Bogardus, 2001;

	"Guideline for the prevention of falls," 2001; Parker, Gillespie, & Gillespie, 2002. Evidence Grade = A). • There is insufficient evidence to recommend use of bed alarms as a fall prevention strategy for hospitalized older adults (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001; Oliver, Hopper, & Seed, 2000. Evidence Grade = A). **<u>Physical Restraints and Falls in Older Adults</u>** • *There is no scientific evidence that supports the use of physical restraints as a fall prevention strategy for older adults* (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A). • Older adults who are restrained are more likely to experience a fall than those who are not restrained (Capezuti et al., 1996. Evidence Grade = C). • Restraint reduction programs do not seem to cause a significant increase in the total number of falls and may reduce the number and/or seriousness of injuries sustained during a fall (Agostini, Baker & Bogardus, 2001; Hanger, Ball, & Wood, 1999; Neufeld et al., 1999; Tinetti, Liu, & Ginter, 1992. Evidence Grade = C). • In addition, some restraints, such as bedrails, have been implicated in serious entrapment injuries or deaths (Parker & Miles, 1997. Evidence Grade = C).
Other Interventions	
HCANJ (2006)	No additional recommendations offered.
HIGN (2008)	**Nursing Care Strategies** Institute general safety precautions according to facility protocol, which may include: • Increased observation and surveillance • Regular toileting at set intervals and/or continence program; provide easy access to urinals and bedpans • Observation during walking rounds or safety rounds • Use of corrective glasses for walking
NCCNSC/NICE (2004)	**Cardiac Pacing** **B** - Cardiac pacing should be considered for older people with cardioinhibitory carotid sinus hypersensitivity who have

	experienced unexplained falls. **Encouraging the Participation of Older People in Falls Prevention** **D** - To promote the participation of older people in falls prevention programmes the following should be considered: • Healthcare professionals involved in the assessment and prevention of falls discussing which changes a person is willing to make to prevent falls. • Information should be relevant and available in languages other than English. • Falls prevention programmes should also address potential barriers such as low self-efficacy and fear of falling and encourage activity change as negotiated with the participant. **D** - Practitioners who are involved in developing falls prevention programmes should ensure that such programmes are flexible enough to accommodate participant's different needs and preferences and should promote the social value of such programmes.
RNAO (2005)	**Vitamin D** Nurses provide clients with information on the benefits of vitamin D supplementation in relation to reducing fall risk. In addition, information on dietary, life style, and treatment choice for the prevention of osteoporosis is relevant in relation to reducing the risk of fracture. *(Level of Evidence = IV)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)** *Interventions For Older Adults Living In The Community* Studies conducted with community-dwelling older persons support the following interventions (Agostini, Baker, & Bogardus, 2001; "Guideline for the prevention of falls," 2001. Evidence Grade = A): • Assessment and treatment for any identified health problems (Close et al., 1999. Evidence Grade = B) a. Treatment of postural hypotension (Close et al., 1999; Tinetti, McAvay, & Claus, 1996. Evidence Grade = B) b. Treatment of cardiovascular disorders (Close et al., 1999. Evidence Grade = B)

	c. Treatment of visual problems (Close et al., 1999. Evidence Grade = B) **<u>Specific Fall Prevention Interventions</u>** **Continence Promotion and Toileting Programs** A continence assessment to determine type and severity of urinary incontinence and/or fecal incontinence and type-specific treatment of any incontinence is a suggested component of a fall prevention program for older adults. Older adults in acute care settings may benefit from a toileting program (Bakarich, McMillan, & Prosser, 1997. Evidence Grade = B), as may older adults with functional and/or cognitive challenges. For further information about prompted voiding programs for older adults, please see the Evidence-Based Protocol "Prompted Voiding for Persons with Urinary Incontinence" (Lyons & Specht, 1999).
Patient, Carer, and Professional Education	

HCANJ (2006)	**<u>Education/Awareness</u>**
	
	Falls Program In-Service
	
	• Staff members
	  • Intervals for review of Fall Management Program:
	  • Upon orientation
	  • Semiannual
	  • Post fall evaluation as necessary
	  • Contents of review:
	  • Policies and procedures
	  • Documentation expectations
	• Resident
	  • Intervals for review of Fall/Safety Information:
	  • Admission
	  • Care plan meetings
	  • Quarterly resident population education on falls management
	  • After a fall
	  • Contents of review:
	  • Instructions and information concerning safety awareness
	  • Proper use of call bells, walking devices, wheelchairs, and other assistive devices
	• Family
	  • Intervals for review of Fall/Safety Information:
	  • Upon admission of the resident
	  • Address with family as resident presents

	need to discuss • Upon discharge of resident • Contents of review: • Reasonable expectations from the facility • How they can assist • Department of Health and Senior Services (DHSS) • Inform the Department of Health and Senior Services staff about the facility's Fall Program and what is the level of implementation
HIGN (2008)	**Nursing Care Strategies** • Upon discharge, review with the older patient and/or family caregiver the fall risk factors and measures to prevent falls in the home. Provide patient literature/brochures if available. If not readily available, refer to the Internet for appropriate Web sites and resources. • Provide staff with clear, written procedures describing what to do when a patient fall occurs.
NCCNSC/NICE (2004)	**Education and Information Giving** **D** - Healthcare professionals involved in falls prevention should be educated about falls assessment and prevention. **D** - Individuals at risk of falling and their carers should be offered information orally and in writing about: • What measures they can take to prevent further falls • How to stay motivated if referred for falls prevention strategies that include exercise or strength and balancing components • The preventable nature of some falls • The physical and psychological benefits of modifying falls risk • Where they can seek further advice and assistance • How to cope if they have a fall, including how to summon help and how to avoid a long lie
RNAO (2005)	**Client Education** All clients who have been assessed as high risk for falling receive education regarding their risk of falling.

	(Level of Evidence = IV) **Nursing Education** Education on the prevention of falls and fall injuries should be included in nursing curricula and on-going education with specific attention to: • Promoting safe mobility • Risk assessment • Multidisciplinary strategies • Risk management including post-fall follow-up • Alternatives to restraints and/or other restricted devices *(Level of Evidence = IV)* **Organizational Support** • Staff education *(Level of Evidence = IV)*
UIGN (2004)	**Implement Fall Prevention Interventions (Step 4)** *Interventions For Older Adults Living In Long-Term Care Or Assisted Living Facilities* Studies of interventions to prevent falls among older persons living in long-term care facilities support the use of the following interventions ("Guideline for the prevention of falls," 2001; Ray et al., 1997; Rubenstein et al., 1990. Evidence Grade = B): • Staff education programs (Ray et al., 1997. Evidence Grade = B)

TABLE 4: BENEFITS AND HARMS	
Benefits	
HCANJ (2006)	• Prevention of falls, reduced injury, and ultimately improved quality of life of residents • Limited liability and financial risk to the facility

HIGN (2008)	**Patient** • Safety • Avoidance of falls • Absence of serious injury outcomes from falls that occur • Knowledge of their risks for falling • Prepared at discharge to prevent falls in their homes • Prehospitalization level of mobility at discharge • Promptly assessment and treatment of fall-related complications to prevent adverse outcomes **Nursing Staff** • Accurate detection, referral, and management of older adults at risk for falling or who have experienced a fall • Integration into their practice comprehensive assessment and management approaches for prevention of falls in the institution • Gained appreciation for older adults' unique experience of falling and how it influences their daily living, functional, physical, and emotional status • Education of older adult patients anticipating discharge about falls prevention strategies
NCCNSC/NICE (2004)	Implementation of the recommendations may ensure that older people at risk from falls receive consistent management and care to prevent the occurrence of falls, improve outcomes, and minimize recurrence of injury due to falls.
RNAO (2005)	**Overall Benefits** • Increased nurses' confidence, knowledge, skills, and abilities in the identification of adults at risk of falling and the ability to define interventions to prevent falls • Decreased falls in older adults • Decreased morbidity, mortality, and hospitalization rates related to falls Nurses, other health care professionals, and administrators who are leading and facilitating practice changes will find this document valuable for the development of policies, procedures, protocols, educational programs, assessment and documentation tools, etc.
UIGN (2004)	Prevention of falls among elderly patients while maintaining autonomy and independence

TABLE 5: EVIDENCE RATING SCHEMES AND REFERENCES	
HCANJ (2006)	Not applicable
HIGN (2008)	**Levels of Evidence** **Level I**: Systematic reviews (integrative/meta-analyses/clinical practice guidelines based on systematic reviews) **Level II**: Single experimental study (randomized controlled trials [RCTs]) **Level III**: Quasi-experimental studies **Level IV**: Non-experimental studies **Level V**: Care report/program evaluation/narrative literature reviews **Level VI**: Opinions of respected authorities/Consensus panels **References Supporting the Recommendations** American Medical Directors Association (AMDA). Falls and fall risk. Columbia (MD): American Medical Directors Association (AMDA); 1998. 16 p. [23 references] Brown JS, Vittinghoff E, Wyman JF, Stone KL, Nevitt MC, Ensrud KE, Grady D. Urinary incontinence: does it increase risk for falls and fractures? Study of Osteoporotic Fractures Research Group. J Am Geriatr Soc 2000 Jul;48(7):721-5. PubMed Capezuti E, Maislin G, Strumpf N, Evans LK. Side rail use and bed-related fall outcomes among nursing home residents. J Am Geriatr Soc 2002 Jan;50(1):90-6. PubMed Chang JT, Morton SC, Rubenstein LZ, Mojica WA, Maglione M, Suttorp MJ, Roth EA, Shekelle PG. Interventions for the prevention of falls in older adults: systematic review and meta-analysis of randomised clinical trials. BMJ 2004 Mar 20;328(7441):680. [17 references] PubMed ECRI. Falls prevention strategies in healthcare settings guide. Plymouth Meeting (PA): ECRI; 2006. 300 p. Gray-Miceli DL, Strumpf NE, Johnson J, Draganescu M, Ratcliffe SJ. Psychometric properties of the Post-Fall Index. Clin Nurs

	Res 2006 Aug;15(3):157-76. PubMed Guideline for the prevention of falls in older persons. American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention. J Am Geriatr Soc 2001 May;49(5):664-72. PubMed Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Root causes of patient falls. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2006. Lyons SS. Fall prevention for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2004 Feb. 60 p. [104 references] Resnick B. Preventing falls in acute care. In: Mezey M, Fulmer T, Abraham I, Zwicker DA, editor(s). Geriatric nursing protocols for best practice. 2nd ed. New York (NY): Springer Publishing Company, Inc.; 2003. p. 141-64. [25 references] Tinetti ME, Williams TF, Mayewski R. Fall risk index for elderly patients based on number of chronic disabilities. Am J Med 1986 Mar;80(3):429-34. PubMed University of Iowa Gerontological Nursing Interventions Research Center (UIGN). Fall prevention for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2004. 60 p.
NCCNSC/NICE (2004)	**Evidence Categories** **I**: Evidence from meta-analysis of randomised controlled trials or at least one randomised controlled trial **II**: Evidence from at least one controlled trial without randomization or at least one other type of quasi-experimental study **III**: Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies, and case-control studies **IV**: Evidence from expert committee reports or opinions and/or clinical experience of respected authorities

	Recommendation Grades **Grade A** - Directly based on category I evidence **Grade B** - Directly based on category II evidence or extrapolated recommendation from category I evidence **Grade C** - Directly based on category III evidence or extrapolated recommendation from category I or II evidence **Grade D** - Directly based on category IV evidence or extrapolated recommendation from category I, II, or III evidence **Good Practice Point (GPP)** - Recommended good practice based on the clinical experience of the Guideline Development Group (GDG)
RNAO (2005)	**Levels of Evidence** **Level Ia**: Evidence obtained from meta-analysis or systematic review of randomized controlled trials **Level Ib**: Evidence obtained from at least one randomized controlled trial **Level IIa**: Evidence obtained from at least one well-designed controlled study without randomization **Level IIb**: Evidence obtained from at least one other type of well-designed quasi-experimental study. **Level III**: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, and case studies **Level IV**: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities **Grades of Recommendations** **A**: There is good evidence to recommend the clinical preventive action. **B**: There is fair evidence to recommend the clinical preventive action. **C**: The existing evidence is conflicting and does not allow making a recommendation for or against use of the clinical

	preventive action; however other factors may influence decision-making. **D**: There is fair evidence to recommend against the clinical preventive action. **E**: There is good evidence to recommend against the clinical preventive action. **I**: There is insufficient evidence (in quantity and/or quality) to make a recommendation, however other factors may influence decision-making.
UIGN (2004)	**Rating Scheme for Strength of Recommendations** A = Evidence from well-designed meta-analysis, or well-done synthesis reports such as those from the Agency for Healthcare Policy and Research (AHRQ), or the American Geriatric Society (AGS) B = Evidence from well-designed controlled trials, both randomized and nonrandomized, with results that consistently support a specific action (e.g., assessment, intervention or treatment) C = Evidence from observational studies (e.g., correlational descriptive studies) or controlled trials with inconsistent results D = Evidence from expert opinion or multiple case reports **References Supporting The Recommendations** Abreu N, Hutchins J, Matson J, Polizzi N, Seymour CJ. Effect of group versus home visit safety education and prevention strategies for falling in community-dwelling elderly persons. Home Health Care Manag Pract 1998;10(4):57-65. Agostini JV, Baker DI, Bogardus ST Jr. Prevention of falls in hospitalized and institutionalized older people. In: Markowitz AJ, Shojania KG, Duncan BW, McDonald KM, Wachter RM, editor(s). Making health care safer: a critical analysis of patient safety practices. Rockville (MD): Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services; 2001. p. 281-99. Bakarich A, McMillan V, Prosser R. The effect of a nursing intervention on the incidence of older patient falls. Aust J Adv Nurs 1997 Sep-Nov;15(1):26-31. PubMed

Blegen MA, Vaughn TE, Goode CJ. Nurse experience and education: effect on quality of care. J Nurs Adm 2001 Jan;31(1):33-9. PubMed

Brown JS, Vittinghoff E, Wyman JF, Stone KL, Nevitt MC, Ensrud KE, Grady D. Urinary incontinence: does it increase risk for falls and fractures? Study of Osteoporotic Fractures Research Group. J Am Geriatr Soc 2000 Jul;48(7):721-5. PubMed

Campbell AJ, Borrie MJ, Spears GF. Risk factors for falls in a community-based prospective study of people 70 years and older. J Gerontol 1989 Jul;44(4):M112-7. PubMed

Campbell AJ, Robertson MC, Gardner MM, Norton RN, Buchner DM. Psychotropic medication withdrawal and a home-based exercise program to prevent falls: a randomized, controlled trial. J Am Geriatr Soc 1999 Jul;47(7):850-3. PubMed

Capezuti E, Evans L, Strumpf N, Maislin G. Physical restraint use and falls in nursing home residents. J Am Geriatr Soc 1996 Jun;44(6):627-33. PubMed

Close J, Ellis M, Hooper R, Glucksman E, Jackson S, Swift C. Prevention of falls in the elderly trial (PROFET): a randomised controlled trial. Lancet 1999 Jan 9;353(9147):93-7. PubMed

Cumming RG, Thomas M, Szonyi G, Salkeld G, O'Neill E, Westbury C, Frampton G. Home visits by an occupational therapist for assessment and modification of environmental hazards: a randomized trial of falls prevention. J Am Geriatr Soc 1999 Dec;47(12):1397-402. PubMed

El-Faizy M, Reinsch S. Home safety intervention for the prevention of falls. Phys Occup Ther Geriatr 1994;12(3):33-49.

Gardner MM, Robertson MC, Campbell AJ. Exercise in preventing falls and fall related injuries in older people: a review of randomised controlled trials. Br J Sports Med 2000 Feb;34(1):7-17. [38 references] PubMed

Gillespie LD, Gillespie WJ, Robertson MC, Lamb SE, Cumming RG, Rowe BH. Interventions for preventing falls in elderly people. Cochrane Database Syst Rev 2002;(2):CD000340. [182 references] PubMed

Guideline for the prevention of falls in older persons. American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention. J

Am Geriatr Soc 2001 May;49(5):664-72. PubMed

Hanger HC, Ball MC, Wood LA. An analysis of falls in the hospital: can we do without bedrails. J Am Geriatr Soc 1999 May;47(5):529-31. PubMed

Hill-Westmoreland EE, Soeken K, Spellbring AM. A meta-analysis of fall prevention programs for the elderly: how effective are they. Nurs Res 2002 Jan-Feb;51(1):1-8. PubMed

Jitramontree N. Exercise promotion: walking in elders evidence-based protocol. In: Titler MG, editor(s). Series on evidence-based practice for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2001.

Lyons SS, Specht JKP. Prompted voiding for persons with urinary incontinence. In: Titler MG, editor(s). Series on evidence-based practice for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 1999. p. 47. [57 references]

Mathias S, Nayak US, Isaacs B. Balance in elderly patients: the "get-up and go" test. Arch Phys Med Rehabil 1986 Jun;67(6):387-9. PubMed

Mobily K, Mobily P. Progressive resistance training evidence-based protocol. In: Titler MG, editor(s). Series on evidence-based practice for older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2002.

Morris JN, Murphy K, Nonemaker S. MDS 2.0 user's manual. Updated by Brown, D.L. (2000). Des Moines (IA): Briggs Corporation; 1995.

National Institute on Aging. Exercise: a guide form the national institute on aging. Publication No. NIH 99-4258. Washington (DC): National Institutes of Health (NIH); 1998.

Neufeld RR, Libow LS, Foley WJ, Dunbar JM, Cohen C, Breuer B. Restraint reduction reduces serious injuries among nursing home residents. J Am Geriatr Soc 1999 Oct;47(10):1202-7. PubMed

Oliver D, Hopper A, Seed P. Do hospital fall prevention programs work? A systematic review. J Am Geriatr Soc 2000 Dec;48(12):1679-89. [93 references] PubMed

Parker K, Miles SH. Deaths caused by bedrails. J Am Geriatr Soc 1997 Jul;45(7):797-802. PubMed

Parker MJ, Gillespie LD, Gillespie WJ. Hip protectors for preventing hip fractures in the elderly. Cochrane Database Syst Rev 2002;(2):CD001255. [31 references] PubMed

Peel N, Steinberg M, Williams G. Home safety assessment in the prevention of falls among older people. Aust N Z J Public Health 2000 Oct;24(5):536-9. PubMed

Podsiadlo D, Richardson S. The timed "Up & Go": a test of basic functional mobility for frail elderly persons. J Am Geriatr Soc 1991 Feb;39(2):142-8. PubMed

Province MA, Hadley EC, Hornbrook MC, Lipsitz LA, Miller JP, Mulrow CD, Ory MG, Sattin RW, Tinetti ME, Wolf SL. The effects of exercise on falls in elderly patients. A preplanned meta-analysis of the FICSIT Trials. Frailty and Injuries: Cooperative Studies of Intervention Techniques. JAMA 1995 May 3;273(17):1341-7. PubMed

Ray WA, Taylor JA, Meador KG, Thapa PB, Brown AK, Kajihara HK, Davis C, Gideon P, Griffin MR. A randomized trial of a consultation service to reduce falls in nursing homes. JAMA 1997 Aug 20;278(7):557-62. PubMed

Rubenstein LZ, Robbins AS, Josephson KR, Schulman BL, Osterweil D. The value of assessing falls in an elderly population. A randomized clinical trial. Ann Intern Med 1990 Aug 15;113(4):308-16. PubMed

Sattin RW, Rodriguez JG, DeVito CA, Wingo PA. Home environmental hazards and the risk of fall injury events among community-dwelling older persons. Study to Assess Falls Among the Elderly (SAFE) Group. J Am Geriatr Soc 1998 Jun;46(6):669-76. PubMed

Steinberg M, Cartwright C, Peel N, Williams G. A sustainable programme to prevent falls and near falls in community dwelling older people: results of a randomised trial. J Epidemiol Community Health 2000 Mar;54(3):227-32. PubMed

Tinetti ME, Baker DI, McAvay G, Claus EB, Garrett P, Gottschalk M, Koch ML, Trainor K, Horwitz RI. A multifactorial intervention to reduce the risk of falling among elderly people living in the community. N Engl J Med 1994 Sep 29;331(13):821-7. PubMed

Tinetti ME, Liu WL, Ginter SF. Mechanical restraint use and fall-related injuries among residents of skilled nursing facilities.

	Ann Intern Med 1992 Mar 1;116(5):369-74. PubMed Tinetti ME, McAvay G, Claus E. Does multiple risk factor reduction explain the reduction in fall rate in the Yale FICSIT Trial? Frailty and Injuries Cooperative Studies of Intervention Techniques. Am J Epidemiol 1996 Aug 15;144(4):389-99. PubMed van Haastregt JC, Diederiks JP, van Rossum E, de Witte LP, Voorhoeve PM, Crebolder HF. Effects of a programme of multifactorial home visits on falls and mobility impairments in elderly people at risk: randomised controlled trial. BMJ 2000 Oct 21;321(7267):994-8. PubMed

GUIDELINE CONTENT COMPARISON

The Health Care Association of New Jersey (HCANJ), the Hartford Institute for Geriatric Nursing (HIGN), the National Collaborating Centre for Nursing and Supportive Care, National Institute for Clinical Excellence (NCCNSC/NICE), the Registered Nurses Association of Ontario (RNAO), and the University of Iowa Gerontological Nursing Interventions Research Center (UIGN) present recommendations for prevention of falls in the elderly. NCCNSC/NICE, RNAO, HIGN, and UIGN provide explicit reasoning behind their judgments, ranking the level of evidence for each major recommendation; HCANJ provides its recommendations in outline form along with recommended tools and forms, and a bibliography, but does not provide an evidence ranking.

Some guidelines are broader in scope than others. All five guidelines, however, address both fall risk assessment and interventions to prevent falls, the two areas that are the focus of this synthesis.

Areas of Agreement

Fall Risk Assessment

All of the guidelines agree that older persons should undergo assessment of their risk for falling. NCCNSC/NICE and UIGN recommend a two-stage approach in which an initial limited fall risk assessment is performed for all older persons, followed by a more complete evaluation for persons found to be at higher risk. A more extensive initial assessment for all older persons is recommended by HCANJ, HIGN, and RNAO (these three guidelines address falls prevention in extended and/or acute care rather than community settings).

In the extended and/or acute care setting, RNAO recommends assessment upon admission and HCANJ recommends initial assessment within 24 to 48 hours of admission and a comprehensive assessment within 14 to 21 days; no time-frame for initial or comprehensive assessment is specified by the other guidelines.

The NCCNSC/NICE and UIGN guidelines are in agreement that the limited initial risk assessment should include asking the older person about falls and performing a gait and balance assessment (e.g., "Up and Go" test). Older persons identified as being at increased risk for falls should then undergo an in-depth evaluation. In the HCANJ and HIGN guidelines, evaluations that go beyond the components of the initial assessment described above are indicated for all older persons.

NCCNSC/NICE and UIGN recommend a complete fall evaluation (multifactorial fall risk assessment) in all older persons at risk for falling (i.e., those with a history of multiple falls, those who perform poorly on a gait and balance test, and those with other risks for falls). RNAO, without addressing which subgroups should undergo a limited versus comprehensive fall risk evaluation, states that risk screening is an effective method for identifying fall-prone individuals and that the risk assessment tool used must be appropriate for the setting and the specific client population. With one exception, the guidelines agree that after a fall, an analysis of the fall and/or complete fall risk evaluation should be performed (UIGN does not address immediate post-fall evaluation but instead offers a comprehensive fall evaluation for examining falls from the past year).

There is general agreement on the risk factors that are most important to assess as part of a complete fall risk evaluation. These include history of fall circumstances, medications, existing medical problems, gait and balance, neurological status, and cardiovascular status. Other risk factors to assess that are included in some but not all guidelines are fear of falls, vision, incontinence, joint function, assistive devices, pain, and foot assessment.

Fall Prevention Interventions

Multifactorial Interventions

All the guidelines recommend multifactorial interventions, with the interventions differing somewhat depending on the patient population addressed by the guideline. Interventions recommended include gait and balance training, review and modification of medications, treatment of postural hypotension and cardiovascular disorders (including cardiac arrhythmias), exercise programs, use of walking aids, vision assessment/referral, and environmental modifications to reduce hazards in home, acute care, and extended care settings. UIGN, HCANJ, and HIGN also recommend continence promotion and toileting programs. RNAO recommends vitamin D therapy to help prevent osteoporotic fractures in the event of a fall.

Exercise

All of the guidelines include exercise (strength and balance training) as a beneficial intervention. HIGN recommends that caregivers promote early mobility and incorporate measures to increase mobility, such as daily walking, if medically stable and not otherwise contraindicated. According to NCCSNC/NICE, those most likely to benefit are older community-dwelling people with a history of recurrent falls and/or balance and gait deficit. RNAO and UIGN agree that the benefit of exercise as an isolated intervention is not supported by the research; rather, exercise needs to be part of a multifactorial approach. RNAO also recommends Tai

Chi for clients whose length of stay is greater than four months and those with no history of fall facture.

Assistive Devices, Hip Protectors and Restraints

The three guidelines that address the issue of physical restraints (HIGN, RNAO, and UIGN) are in agreement that there is no evidence that they prevent falls. RNAO points out that physical restraints may increase risk of falls and recommends that organizations establish a policy for least restraint. Two guidelines (RNAO and UIGN) that address the use of hip protectors agree that, although they do not prevent falls, they may decrease fall-related injuries. NCCSNC/NICE cites hip protectors as an intervention that cannot be recommended because of insufficient evidence. RNAO indicates that use of bed side rails to prevent falls may result in injury to patients who try to climb over them or get caught in them; RNAO adds, however, that other client factors may influence decision-making around the use of side rails. HIGN urges that bedrails must be checked to be sure they do not collapse when used for transitioning or support.

Patient and Carer Education

All of the guidelines provide recommendations for patient, carer and/or professional education.

Areas of Differences

Fall Risk Assessment

The NCCNSC/NICE and UIGN guidelines agree that persons seen in the community setting who are at relatively low risk for falling should be assessed with a gait and balance test. There are some differences, however, in how the guidelines define the low risk population. For instance, UIGN recommends the test for those reporting a single fall or no fall, and NCCNSC/NICE recommends the test for persons reporting a single fall and those otherwise considered at risk of falling.

Fall Prevention Interventions

There is some disagreement concerning the use of alarms. UIGN states there is insufficient evidence to recommend use of bed alarms as a fall prevention strategy for hospitalized older adults. HIGN recommends that general safety precautions according to facility protocol be instituted, and may include use of personal or pressure sensor alarms.

This Synthesis was prepared by ECRI on August 30, 2006. The information was reviewed by: UIGN on September 6, 2006, HCANJ on September 20, 2006, and JHF on September 29, 2006. The most current version of this Synthesis removes the American Geriatric Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons (AGS/BGS/AAOS) guideline, which has now been

archived. This synthesis was updated most recently on September 15, 2008 to update HIGN recommendations and remove AMDA recommendations.

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