

January 2002

*Nursing Best Practice Guideline*  
*Shaping the future of Nursing*

*prevention of*  
*& fall injuries*  
*in the older adult*



**RNAO**

Registered Nurses  
Association  
of Ontario

L'Association des infirmières  
et infirmiers autorisés de  
l'Ontario



*Greetings from Doris Grinspun  
Executive Director  
Registered Nurses Association of Ontario*

It is with great excitement that the Registered Nurses Association of Ontario (RNAO) disseminates this nursing best practice guideline to you. Evidence-based practice supports the excellence in service that nurses are committed to deliver in our day-to-day practice.

We offer our endless thanks to the many institutions and individuals that are making RNAO's vision for Nursing Best Practice Guidelines (NBPGs) a reality. The Ontario Ministry of Health and Long-Term Care recognized RNAO's ability to lead this project and is providing multi-year funding. Tazim Virani --NBPG project director-- with her fearless determination and skills, is moving the project forward faster and stronger than ever imagined. The nursing community, with its commitment and passion for excellence in nursing care, is providing the knowledge and countless hours essential to the creation and evaluation of each guideline. Employers have responded enthusiastically to the request for proposals (RFP), and are opening their organizations to pilot test the NBPGs.

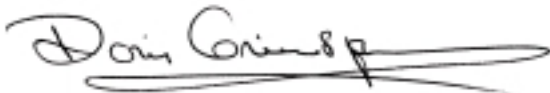
Now comes the true test in this phenomenal journey: will nurses utilize the guidelines in their day-to-day practice?

Successful uptake of these NBPGs requires a concerted effort of four groups: nurses themselves, other health-care colleagues, nurse educators in academic and practice settings, and employers. After lodging these guidelines into their minds and hearts, knowledgeable and skillful nurses and nursing students need healthy and supportive work environments to help bring these guidelines to life.

We ask that you share this NBPG, and others, with members of the interdisciplinary team. There is much to learn from one another. Together, we can ensure that Ontarians receive the best possible care every time they come in contact with us. Let's make them the real winners of this important effort!

RNAO will continue to work hard at developing and evaluating future guidelines. We wish you the best for a successful implementation!

Doris Grinspun, RN, MScN, PhD (candidate)



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## *Prevention of Falls and Fall Injuries in the Older Adult*

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## *Prevention of Falls and Fall Injuries in the Older Adult*

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### **Disclaimer**

*These best practice guidelines are related only to nursing practice and not intended to take into account fiscal efficiencies. These guidelines are not binding for nurses and their use should be flexible to accommodate client/family wishes and local circumstances. They neither constitute a liability or discharge from liability. While every effort has been made to ensure the accuracy of the contents at the time of publication, neither the authors nor RNAO give any guarantee as to the accuracy of the information contained in them nor accept any liability, with respect to loss, damage, injury or expense arising from any such errors or omission in the contents of this work. Any reference throughout the document to specific pharmaceutical products as examples does not imply endorsement of any of these products.*

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## How to Use this Document

**This nursing best practice guideline** is a comprehensive document providing resources necessary for the support of evidence-based nursing practice. The document needs to be reviewed and applied, based on the specific needs of the organization or practice setting/environment, as well as the needs and wishes of the client. Guidelines should not be applied in a “cookbook” fashion but used as a tool to assist in decision making for individualized client care, as well as ensuring that appropriate structures and supports are in place to provide the best possible care.

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. It is recommended that the nursing best practice guidelines be used as a resource tool. It is not necessary nor practical to have every nurse have a copy of the entire guideline. Nurses providing direct client care will benefit from reviewing the recommendations, the evidence in support of the recommendations and the process that was used to develop the guidelines. However, it is highly recommended that practice settings/environments adapt these guidelines in formats that would be user-friendly for daily use. This guideline has some suggested formats for such local adaptation and tailoring.

Organizations wishing to use the guideline may decide to do so in a number of ways:

- Assess current nursing and health care practices using the recommendations in the guideline.
- Identify recommendations that will address identified needs or gaps in services.
- Systematically develop a plan to implement the recommendations using associated tools and resources.

RNAO is interested in hearing how you have implemented this guideline. Please contact us to share your story. Implementation resources will be made available through the RNAO website to assist individuals and organizations to implement best practice guidelines.

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## summary of recommendations

### General Principles:

1. The client's perspective, individual desires and needs are central to the application of the guideline.
2. The over-arching principle that guides the intervention choices is the principle of maintaining the highest quality of life possible while striving for a safe environment and practices. Risk taking, autonomy, and self-determination are supported, respected, and considered in the plan of interventions.
3. Together individuals, their significant other(s) and the care team engage in assessment and interventions through a collaborative process.

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### Recommendation 1

Reduce fall-related risk factors through a fall prevention program.

*(Level of Evidence II)*

### Recommendation 2

Assess fall risk.

*(Level of Evidence III)*

### Recommendation 3

Identify intrinsic and extrinsic risk factors associated with potential falls and fall injuries, as the basis for individual and environmental multi-factorial intervention strategies.

*(Level of Evidence III)*

### Recommendation 4

Inform individuals and their family when the individual is at high risk of falling. Explain to the person/family what risk factors they have for falls, and possible fall prevention strategies. Collaborate with the person and his/her family to honor individual choices.

*(Level of Evidence IV)*

### Recommendation 5

Implement multiple strategies targeted at risk factors to effectively reduce falls and fall injuries, as risk factors associated with falls are multi-factorial.

*(Level of Evidence Ib)*

**Recommendation 6**

Maximize the person’s abilities and capabilities guided by his/her response and activity tolerance.

*(Level of Evidence IV)*

**Recommendation 7**

Incorporate restorative care procedures while accessing therapy services to assess and implement an individualized functional therapy program.

*(Level of Evidence IV)*

**Recommendation 8**

Explore with individuals the psychological effects of falls and/or fear of falling, and the impact on their confidence to perform daily activities.

*(Level of Evidence IV)*

**Recommendation 9**

In collaboration with the person/family, alternatives to restraint use must be implemented and proven to be ineffective, prior to consideration of “least restraint” approach.

*(Level of Evidence 1b)*

**Recommendation 10**

Provide non-pharmacological approaches for individuals with impaired cognition and emotional/behavioural needs.

*(Level of Evidence IV)*

**Recommendation 11**

Collaborate with the person, their physicians and pharmacists to minimize the use of benzodiazepines, the number of medications required, and the use of drugs with high risk for adverse side effects.

*(Level of Evidence II)*

**Recommendation 12**

In combination with other fall prevention strategies, participate in individual and/or group exercise programs, which are based on the individual’s functional ability, to help improve the person’s performance, strength, and balance.

*(Level of Evidence 1b)*

**Recommendation 13**

Use individually recommended, well designed and safe assistive devices (such as mobility aids) to reduce potential fall hazards (e.g. wheelchairs, walkers, canes in good repair, and adapted to person’s needs).

*(Level of Evidence IV)*

**Recommendation 14**

Use a transfer plan based on individualized assessment and re-evaluate the plan as the client’s functional status changes.

*(Level of Evidence IV)*

**Recommendation 15**

Provide information on dietary, life style and treatment choices for the prevention and management of osteoporosis, in order to reduce the person's risk of fracture.

*(Level of Evidence 1b)*

**Recommendation 16**

Use hip protectors where appropriate to decrease the risk of injury.

*(Level of Evidence 1b)*

**Recommendation 17**

Modify the environment to reduce potential fall hazards.

*(Level of Evidence III)*

**Recommendation 18**

Implement a "post fall protocol" for all individuals who experience a fall, and include the appropriate steps of assessment, immediate treatment and medical management, monitoring, evaluation of effectiveness of fall prevention strategies, and education.

*(Level of Evidence IV)*

**Recommendation 19**

Include in all entry-level nursing programs:

- Assessment skills for identifying older adults at risk for falls.
- Fall prevention strategies.

*(Level of Evidence IV)*

**Recommendation 20:**

Enhance staff skill levels in assessment.

*(Level of Evidence IV)*

**Recommendation 21**

Develop staff awareness of fall risk factors and potential prevention strategies.

*(Level of Evidence IV)*

**Recommendation 22**

Educate nurses and student nurses on the role of health promotion in involving individuals and their significant others, in discussions around risk for falls and possible fall prevention strategies.

*(Level of Evidence IV)*

**Recommendation 23**

Examine ethical and quality of life issues in light of an individual's risk for falls.

*(Level of Evidence IV)*

**Recommendation 24**

Core educational content areas to be included in a falls prevention program are:

- Exercise/activity & restorative programs for the frail elderly.
- Transfer assessment.
- Gait and balance assessment.
- Standardization of the administration of selected assessment tools.
- Alternatives to restraint use.
- Current legislation on restraints.
- Selected interventions focused on the prevention of functional decline: (e.g. cognitive impairment, continence care, and ambulation).
- Appropriate use of mobility aids.
- Post fall assessment and follow-up care.

*(Level of Evidence IV)*

**Recommendation 25**

Organizational policy should clearly support the specific role of nurses, as members of the interdisciplinary team, in assessment, mobilizing individuals and the use of mobility devices.

*(Level of Evidence IV)*

**Recommendation 26**

Establish policy for “least restraint” environment as per the College of Nurses of Ontario standards and the current legislation.

*(Level of Evidence IV)*

**Recommendation 27**

Establish low cost, high yield environmental and equipment changes, such as adjustments to lighting, availability of appropriate transfer devices, access to bed/chair alarm devices, high/low beds, and effective seating.

*(Level of Evidence IV)*

**Recommendation 28**

Establish a supportive environment for the older person, that includes consideration of all physical, political, and social factors.

*(Level of Evidence IV)*

**Recommendation 29**

Provide opportunities for interdisciplinary collaboration on falls prevention and clinical management, through access to health professionals with specialized knowledge in psychogeriatrics and rehabilitation.

*(Level of Evidence IV)*

**Recommendation 30**

Policy for polypharmacy and the use of psychotropic medications should include: regular medication reviews, assessment for the need for benzodiazepines, and alternative strategies to support the behavioural needs of cognitively impaired persons.

*(Level of Evidence IV)*

**Recommendation 31**

Ensure organizational policy for family presence support for 24 hour access/visiting.  
*(Level of Evidence IV)*

**Recommendation 32**

Ensure systems are in place to track meaningful and timely data on falls and related information, making this available to staff for review and evaluation for process improvement.  
*(Level of Evidence IV)*

**Recommendation 33**

Establish a “post fall follow-up and monitoring protocol”.  
*(Level of Evidence IV)*

**Recommendation 34**

Identify ongoing support for nurses to assist with clinical problem solving and the identification of fall preventative strategies.  
*(Level of Evidence IV)*

**Recommendation 35**

Provide support for research in the area of caring for the cognitively impaired with respect to mobility and fall prevention.  
*(Level of Evidence IV)*

**Recommendation 36**

Increase awareness of fall risk and fall prevention, among those persons working with older adults.  
*(Level of Evidence IV)*

**Recommendation 37**

Provide resources that enable older persons to participate in exercise programs and to maximize their opportunities for mobility and physical activity.  
*(Level of Evidence IV)*

**Recommendation 38**

Critical mass of professionals needs to be educated and supportive of nursing best practice guidelines in order to ensure sustainability of the guidelines. Develop resource champions for the guideline.  
*(Level of Evidence IV)*

**Recommendation 39**

Nursing best practice guidelines can be successfully implemented only where there is adequate planning, resources, organizational and administrative support, as well as the appropriate facilitation. In this regard, RNAO (through a panel of nurses, researchers and administrators) has developed *The Toolkit* for Implementing Clinical Practice Guidelines, based on available evidence, theoretical perspectives and consensus. The Toolkit is recommended for guiding the implementation of the RNAO nursing best practice guideline on “Prevention of Falls and Fall Injuries in the Older Adult”.  
*(Level of Evidence IV)*

## *Responsibility for Development*

**The Registered Nurses Association of Ontario (RNAO)**, with funding from the Ontario Ministry of Health and Long-Term Care (MOHLTC), has embarked on a multi-year project of nursing best practice guideline development, pilot implementation, evaluation and dissemination. “**Prevention of Falls and Fall Injuries in the Older Adult**” is one of four (4) nursing best practice guidelines developed in the first cycle of the project. This guideline was developed by a panel of nurses and experts convened by the RNAO and conducting its work independent of any bias or influence from the MOHLTC.

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## *Purpose and Scope*

**The purpose of this guideline** is to increase all nurses’ confidence, knowledge, skills and abilities in the identification of adults at risk of falling and to define interventions for prevention of falling.

The guideline has relevance to areas of clinical practice including acute care and long-term care, and will assist nurses to apply the best available research evidence to clinical decisions, and to promote the responsible use of health care resources. A guideline focusing on community care is planned for the future. Specifically, “**Prevention of Falls and Fall Injuries in the Older Adult**” will assist nurses to:

- Identify and decrease risk factors for falls.
- Decrease the incidence of falls.
- Decrease the incidence of injurious falls.

**The BPG focuses its recommendations on:**

|                                    |   |
|------------------------------------|---|
| <b>Substantive Recommendations</b> | directed at the nurse and nursing practice  |
| <b>Educational Recommendations</b> | directed at the competencies required for practice                                    |
| <b>Contextual Recommendations</b>  | directed at the practice settings and the environment to facilitate nurses' practice. |

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This nursing best practice guideline contains recommendations for Registered Nurses (RNs) and Registered Practical Nurses (RPNs). It is acknowledged that effective patient/client care depends on a coordinated interdisciplinary approach incorporating ongoing communication between health professionals and patients/clients, ever mindful of the personal preferences and unique needs of each individual patient/client. The recommendations made are not binding for nurses and should accommodate patient/client/family wishes and local circumstances.

It is the intention of this guideline to identify best nursing practices in the area of falls and prevention of falls. It is acknowledged that the individual competency of nurses varies between nurses and across categories of nursing professionals (RPNs and RNs), and is based on the knowledge, skills, attitudes and judgment enhanced over time by experience and education.





## *Development Process*

A panel of nurses with expertise in falls prevention, education, and research, representing institutional, long-term care and academic settings was convened under the auspices of the RNAO. The first task of the group was to review existing clinical practice guidelines in order to build on current understanding of falls prevention in the older adult, and to reach consensus on the scope of the guideline.

A systematic Internet search plus a literature search yielded a set of three (3) published best practice guidelines for prevention of falls in the older adult. A set of screening criteria was applied to each guideline and included whether the guideline was:

- Published in English.
- Developed in 1996 or later.
- Strictly about the topic area.
- Evidence based e.g. contained references, description of evidence, sources of evidence.
- Accessible as a complete document.

Two guidelines met these criteria, and were evaluated using the “*Appraisal Instrument for Clinical Practice Guidelines*,” an adapted tool from Cluzeau, Littlejohns, Grimshaw, Feder & Moran (1997). From this appraisal process, these two documents were identified as high quality, relevant guidelines appropriate for use in the development of this guideline:

- “**Prevention of Falls**”, The University of Iowa Gerontological Nursing Interventions Research Center, Academic Institution, 1996
- “**Falls and Fall Risk**”, American Medical Directors Association (AMDA) and the American Health Care Association, 1997.

A critique of systematic review articles and pertinent literature was also conducted to update the existing guidelines. Through a process of consensus, the recommendations in this guideline were developed. An initial draft of the RNAO “**Prevention of Falls and Fall Injuries in the Older Adult**” nursing best practice guideline was reviewed by stakeholders and responses were incorporated. The stakeholders reviewing this guideline are acknowledged at the front of this guideline.

This guideline was further refined after a seven-month pilot implementation phase in a selected practice setting in Ontario. Practice settings for RNAO nursing best practice guidelines are identified through a “request for proposal” process.

## Definition of Terms

### **Clinical Practice Guidelines or Best Practice Guidelines:**

“Systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical (practice) circumstances” (*Field & Lohr, 1990, p. 8*). Clinical Practice Guidelines or Best Practice Guidelines are developed using the best available research findings and where research gaps are present, consensus processes.

**Consensus:** A process for making policy decisions, not a scientific method for creating new knowledge. At its best, consensus development merely makes the best use of available information, be that scientific data or the collective wisdom of the participants (*Black et al., 1999*).

**Contextual Recommendations:** Statements of conditions required for a practice setting, that enable the successful implementation of the best practice guideline. The conditions for success are largely the responsibility of the organization, although they may have implications for policy at a broader government or societal level.

**Educational Recommendations:** Statements of educational requirements and educational approaches/strategies for the introduction, implementation and sustainability of the best practice guideline.

**Fall:** An event that results in a person coming to rest inadvertently on the ground or floor or other lower level.

**Family:** Whomever the person defines as being family. Family members can include: parents, children, siblings, neighbours, and significant people in the community.

**High Risk:** The presence of one or more risk factors as outlined in the assessment section of this guideline.

**Informal Support:** Support and resources provided by persons associated with the person receiving care. Persons providing informal support can include: family, friends, members of a spiritual community, neighbours, etc.

**Interdisciplinary Care:** A process where health care professionals representing expertise from various health care disciplines participate in the process of supporting clients and their families in the care process.

**Meta-analysis:** Use of statistical methods to summarize the results of independent studies, can provide more precise estimates of the effects of healthcare than those derived from the individual studies included in a review (Clarke & Oxman, 1999).

**Older adult:** Individuals 65 years or older.

**Physical restraint:** Any device placed on or near the body that limits freedom of voluntary movement.

**Quick Reference Guides:** User oriented tools that contain key information from a best practice guideline. The user may be a staff nurse, student, nurse educator, advanced clinical practitioner, administrator, etc. Such formats or tools may include posters, reminder cards, booklets, brochures, or quick reference tools, etc.

**Stakeholder:** A stakeholder is an individual, group, or organization with a vested interest in the decisions and actions of organizations who may attempt to influence decisions and actions (Baker et al., 1999). Stakeholders include all individuals or groups who will be directly or indirectly affected by the change or solution to the problem. Stakeholders can be of various types, and can be divided into opponents, supporters, and neutrals (Ontario Public Health Association, 1996).

**Substantive Recommendations:** Statements of best practice directed at the practice of health care professionals that are ideally evidence-based.

**Systematic Review:** Application of a rigorous scientific approach to the preparation of a review article (*National Health and Medical Research Centre, 1998*). Systematic reviews establish where the effects of healthcare are consistent and research results can be applied across populations, settings, and differences in treatment (e.g. dose); and where effects may vary significantly. The use of explicit, systematic methods in reviews limits bias (systematic errors) and reduces chance effects, thus providing more reliable results upon which to draw conclusions and make decisions. (*Clarke & Oxman, 1999*).

**Technical Review:** A balanced review and analysis of the literature on a scientific or medical topic. The technical review provides a scientific rationale for a position statement and undergoes critical peer review before submission to the Professional Practice Committee for approval. (*American Diabetes Association website, June 2001*).



Statements of best practice directed at the practice of health care professionals are ideally evidence-based.

## Background Context

**In Canada,** falls are the sixth leading cause of death among older adults:

- 33% of older adults fall each year (*Campbell, Borrie & Spears, 1989*).
- 36% of those who fall develop serious injuries (*Koski, Luukinen, Laippala & Kiveal, 1998*)
- 40% of admissions to nursing homes are the result of falls (*Tinetti, Speechley & Ginter, 1998*).

The Canadian Institute for Health Information (CIHI) reports falls as the leading cause of injury admissions to Ontario acute care hospitals, especially for people over 65. Falls accounted for 54% of the 204,597 hospital injury admissions in 1997/98 and 68% of days spent in hospital. Injured persons spent close to 2 million days in hospital with an average length of stay of 12 days for fall related injuries. Falls are the leading cause of morbidity and mortality in seniors. Injuries pose a significant burden in terms of loss of life, reduced quality of life and economic cost (*CIHI, 2000*).

Not only do falls seriously affect the lives of individuals and their families, they pose a significant societal burden as well. Over \$980 million of the \$2.4 billion spent on falls, was devoted to treating falls among the elderly (*Smartrisk, 2001*).

In light of the serious and costly impact of falls in the acute care and long-term care setting, and the potential of nursing intervention to positively influence this problem, risk assessment for older adults and preventative interventions was selected as the focus for this RNAO nursing best practice guideline.

The Falls nursing best practice guideline panel acknowledges the stressful conditions in which nurses work and in particular, the demands on the time of nurses in various practice settings. With this in mind, the recommendations are targeted to allow nurses who do not specialize in falls prevention to conduct a quick assessment to identify key risk factors.

# Interpretation of Evidence

## Levels of Evidence

**This RNAO guideline is a synthesis** of a number of source guidelines. The recommendations made in this nursing best practice guideline have been critically reviewed and categorized by level of evidence. In order to fully inform the reader, every effort has been made to maintain the original level of evidence cited in the source document. No alterations have been made to the wording of the source documents involving recommendations based on randomized controlled trials or research studies. Where a source document has demonstrated an “expert opinion” level of evidence, wording may have been altered and the notation of RNAO Consensus Panel 2001 has been added.

The following evidence rating taxonomy, adapted from the Scottish Intercollegiate Network (SIGN), provides the definitions of the levels of evidence and the rating system used in this document:

|           |   |
|-----------|---|
| LEVEL Ia: | Evidence obtained from meta-analysis of randomized controlled trials, plus consensus.   |
| LEVEL Ib: | Evidence obtained from at least one randomized controlled trial, plus consensus.  |
| LEVEL II  | Evidence obtained from at least one well-designed controlled study without randomization or evidence obtained from at least one other type of well-designed quasi-experimental study, plus consensus. |
| LEVEL III | Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies, plus consensus.   |
| LEVEL IV  | Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities, plus consensus.   |

# Substantive Recommendations

## assessment

Assessment helps the nurse identify the risks associated with potential falls and fall injuries as the basis for intervention strategies. The risk factors associated with falls are multi-factorial; as the number of risk factors increase, the risk of falls and the risk of injurious falls also increases. The assessment section of this guideline addresses intrinsic and extrinsic risk factors for falls (see Recommendation 3 for a list of factors).

The assessment for risk factors should be conducted at the following times:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>A. Admission (within 48 hours).</li> <li>B. When there is physiological, functional or cognitive change.</li> </ul> | <ul style="list-style-type: none"> <li>C. When a fall is experienced.</li> <li>D. Quarterly, in long-term, chronic and residential care settings.</li> </ul> |
|--|--|

### Recommendation 1

#### Reduce fall-related risk factors through a fall prevention program.

*(Level of Evidence II)*

#### Discussion of Evidence

Several randomized controlled trials (Campbell et al., 1997; Tinetti, McAvay, & Claus, 1996; Vetter, Lewis & Ford, 1992) targeted multiple identified risk factors using a multi-dimensional approach to demonstrate the significant effect on falling, compared to a single intervention (Level 1a). The findings from a limited number of institutionalized-based populations are inclusive, and also support the value of a multidimensional approach as compared to a single intervention (Gillespie, Gillespie, Cumming & Lamb, 2000; Ray et al., 1998; Briggs, 1998). Oliver, Hopper & Seed (2000), in a meta-analysis of hospital-based programs, found a pooled effect of a 25% reduction in fall rate.

#### Method(s):

Based on the multifaceted nature of fall risk and prevention strategies, a number of fall prevention programs have been established. Fall prevention programs typically include:

- Risk assessment.
- Medication reviews.
- Use of assistive devices.
- Exercise and strength training.
- Home safety.

The institutional sector has developed several fall prevention programs. A few examples in Ontario are:

- Acute-care and long-term care, London (Heslin et al., 1992).
- Long-term care and residential care, Baycrest Centre for Geriatrics, Toronto (Bernick & Bretholz, 1999).
- Community sector, the Ottawa-Carleton Fall Prevention Coalition and Home Safety Program for Older Adults (Aminzadeh & Edwards, 1997).

| Recommendation 2   |                                       |
|--|---------------------------------------|
| <p><b>Assess fall risk.</b><br/><i>(Level of Evidence III)</i></p>   |                                       |
| <p><b>Discussion of Evidence:</b><br/>Risk screening is an effective method for identifying fall-prone individuals. Risk screening should be performed on all persons admitted to rehabilitation, general, medical, and surgical services of acute care settings. In complex continuing care, long-term care, and residential care, risk screening should be performed within two weeks of admission. <i>(See Appendix A for a flow diagram on risk screening).</i></p> <p>Briggs (2001) notes that the detection of a history of falls and a falls-related assessment are likely to reduce future probability of falls, if combined with appropriate interventions. There are a number of Level III studies that identify the level of risk for specific individuals using a variety of risk assessment instruments. Oliver et al (2000) identified a high level of reliability in risk screening in acute care settings. As accuracy with multiple risk assessors has not been well established, further research using sensitivity and specificity analysis are required <i>(Briggs, 1998; National Ageing Research Institute, 2000).</i></p> |                                       |
| <p><b>Methods:</b><br/>Examples of some risk screening tools are:</p>  |                                       |
| Fall Risk Screening Instrument   | Source                                |
| Patient Fall Assessment  | <i>Hendrick, 1998</i>                 |
| Heslin Fall Scale  | <i>Heslin et al., 1992</i>            |
| Morse Fall Scale   | <i>Morse, Morse &amp; Jylko, 1989</i> |
| <p>No risk screening tool alone will identify all risk population or risk factors <i>(National Ageing Research Institute, 2000)</i>. Sensitivity for the Morse scale is 78%, with a positive predictive value of 10.3%, and specificity is 83%, with inter-rater reliability of <math>r=.96</math> <i>(Morse et al 1989)</i>. The Hendrick scale has an inter-rater reliability of 97.5%.</p> <p>Subspecialty assessment is required for detailed clinical information related to specific risk factors as the basis for identification of required interventions. <i>(See Appendix B for a chart of assessment tools based on specific risk factors).</i></p>   |                                       |



## Recommendation 3

**Identify intrinsic and extrinsic risk factors associated with potential falls and fall injuries, as the basis for individual and environmental multi-factorial intervention strategies.**

*(Level of Evidence III)*

### Intrinsic Factors

#### Previous fall

(Ash, Macleod & Clark, 1998; Ballard, Shaw, Lowery, McKeith & Keeny, 1999; Cwikel, Fridd, Biderman & Galinsky, 2001; Kiely, Kiel, Burrows & Lipsitz, 1998; Mahoney et al, 2000; Rapport, Hanks, Millis & Deshpande, 1998; Sullivan & Badros, 1999; Tinetti & William, 1997).

#### Visual deficit

(Beauchet, Eynard-Valhorgues, Blanchon, Terrat & Gonthier, 2000; Olive et al., 2000; Koski et al., 1998; Rapport et al., 1998).

#### Stroke

(Ugur, Gucuyener, Uzuner, Okan & Ozdemir, 2000; Sherrington & Lord, 1998).

#### Arthritis

(Beauchet et al, 2000; Lipsitz, Jonssen, Kelley & Koestner, 1991; Sherrington & Lord, 1998).

#### Orthostatic hypotension

(Ooi, Hossain & Lipsitz, 2000; Tinetti et al., 1996).

#### Acute illness

(Beauchet et al., 2000; Tinetti, 1986; Maki, 1997; Kiely et al, 1998).

#### Unsteady gait

(Kiely et al, 1998; Lee & Kerrigan, 1999; Mahoney et al., 2000; Oliver et al., 2000).

#### Cognitive impairment

(Ash et al, 1998; Mahoney et al., 2000; Oliver et al., 2000; Rapport et al., 1998; Tinetti, 1986).

#### Incontinence

(Stevenson, Mills, Welin & Beal, 1998; Sullivan & Badros, 1999).

### Extrinsic factors

#### Medications

(Ash et al., 1998; Bath & Morgan, 1999; Bueno Cavanillas, Padilla Ruiz, Peinado Alonso, Espigares Garcia & Galvez Vargas, 1999; Leipzig, Cumming & Tinetti, 1999 *alb*; Passaro et al., 2000; Ray et al., 1998; Tinetti et al., 1998).

#### Restraints

(Arbesman & Wright, 1999; Ash et al., 1998).

#### Environmental factors

- **Loose carpets.**  
(AMDA, 1998, 2001; Townsend, 2001b; Cumming et al., 1999; The University of York, 1996).
- **Unsafe stairways.**  
(The University of York, 1996).
- **Bath tubs without handles.**  
(AMDA, 1998; The University of York, 1996; Cumming et al., 1999).
- **Ill-fitting shoes.**  
(The University of York, 1996; Connel & Wolf, 1997).
- **Poor lighting.**  
(AMDA, 1998; Gregg, Pereira & Caspsen, 2000; The University of York, 1996).
- **Inadequate assistive devices.**  
(AMDA, 1998; Kiely et al., 1998; Arbesman & Wright, 1999).

### Discussion of Evidence:

Numerous studies have examined risk factors for falls among older adults. Studies have been undertaken in a variety of settings, including the community, acute care, long-term care, and residential facilities. Longitudinal cohort studies that document intrinsic and extrinsic factors among seniors, and then follow these seniors to determine who falls, offer the strongest evidence of a link between risk factors and fall events.

While it is beyond the scope of this guideline to provide a comprehensive review of the methodological rigour of risk factor studies, several examples of studies examining risk factors for falls among institutionalized seniors are provided here. Lipsitz et al., (1991), in a comparative study of 70 recurrent fallers in a long-term care facility, identified primary factors associated with falls such as: stroke, Parkinsonism, blindness, visual impairment, arthritis, drug related hypotension, lower extremity weakness and unstable gait and balance. In an acute care study by Stevenson et al., (1998), cardiovascular disease was identified as the most common

medical diagnosis, while incontinence and dependency for ambulation were also predominant. Tinetti et al (1998) identified that the risk of falling increased with the number of risk factors, from 8% with no risk factors to 78% with 4 or more risk factors.

In addition, Huijbregts and Gruber (1997) evaluated commonly known functional outcome measures used in the geriatric population.

### Recommendation 4

**Inform individuals and their family when the individual is at high risk of falling. Explain to the person/family what risk factors they have for falls, and possible fall preventative strategies. Collaborate with the person and his/her family to honor individual choices**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Discussion of Evidence:

While little evidence is available, the Falls Consensus panel supports the practice of informing persons who are at risk of falling.

## Interventions

The intervention section of this guideline will help you select an appropriate mix of interventions and tailor these to the needs and capacities of the older adult.

### Recommendation 5

**Implement multiple strategies targeted at risk factors to effectively reduce falls and fall injuries, as risk factors associated with falls are multi-factorial.**

*(Level of Evidence 1b)*

Provide the necessary clinical management of pre-existing conditions that may contribute to the person's risk for falls such as:

- Neuromuscular conditions
- Urinary tract infections
- Hypoxia
- Hydration
- Nutritional needs
- Orthostatic hypotension.

*(Mosley, Galindo-Ciocon, Peak & West, 1998)*

#### Discussion of Evidence:

Several studies (*Gillespie et al., 2000; Close & Glucksman, 2000; Tinetti et al., 1996*) demonstrate the benefit of a multi-dimensional approach compared to a single intervention (Level 1b), although the majority of these studies focus on community-based populations. The findings from a limited number of long-term care-based studies (*Ray et al., 1998*) are inclusive, and also support the value of

a multidimensional approach as compared to a single intervention (*Gillespie et al., 2000; Ray et al., 1998; National Ageing Research Institute, 2000, Briggs, 1998; American Geriatrics Society, 2001*). Very few studies have evaluated interventions related to orthostatic hypotension (*Mosley et al., 1998*). In a descriptive retrospective review, strategies for assessment included orthostatic hypotension with other fall prevention strategies, noting a significant ( $p < .003$ ) reduction in falls. As several interventions were evaluated simultaneously, results cannot be directly linked to those for orthostatic hypotension.

#### Method (s):

Medical status and intervention.

Some strategies for clients with postural hypotension (*Ledford, 1996*) are:

- Rise from sitting to standing position slowly.
- Dangle before standing or walking.
- Perform ankle pumping in sitting position before walking.
- Sit down immediately if feeling dizzy.
- Rest after meals if experiencing post prandial hypotension.

Recommendation 6

**Maximize the person’s abilities and capabilities guided by his/her response and activity tolerance.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

The nurse can:

- Incorporate an abilities-focused approach to personal care *(Dawson, Wells, & Kline, 1993; Wells et al., 2000).*
- Enable opportunities for activity, exercise, and rest as required *(Ledford, 1996).*
- Be flexible with care routines, anticipate actions, do not rush, and provide time to think through tasks.
- Implement a program to promote continence *(Ledford, 1996).*

**Discussion of Evidence:**

Although the studies have not specifically examined the impact on fall rates, the study by Inouye et al. (1999) suggests that if clients’ abilities are maximized they will be less at risk for confusion, and functionally more able. Dawson et al. (1993) identified specific nursing activities or interventions that are directed at the enablement of older persons with

described nursing interventions that focus on the enhancement of four areas threatened by those with Alzheimer’s disease: social, self-care, interactional and interpretive abilities. An educational program that focuses on the morning care of residents with dementia demonstrated a statistically significant effect on residents who received an abilities-focused program of care *(Wells et al., 2000)*. Among other outcomes, the authors reported a statistically significant effect on residents’ level of agitation. Assistance with toileting is important as urinary urgency, and urinary frequency combined with reduced mobility, balance and/or upper dexterity has been shown to be associated with increased risk of falling *(National Ageing Institute, 2000)*.

**Methods:**

Refer to the findings and recommendations prescribed by the researchers of abilities focused care studies *(Dawson et al., 1993; Wells et al., 2000)*. Use RNAO nursing best practice guidelines “*Promoting Continence Using Prompted Voiding*” and “*Prevention of Constipation in the Older Adult Population*”, available on the RNAO website, or by order at [www.rnao.org](http://www.rnao.org).

**Recommendation 7**

**Incorporate restorative care procedures while accessing therapy services to assess and implement an individualized functional therapy program.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

The nurse can:

- Assist client to determine meaningful activities.
- Assist client to schedule specific periods for diversional activity into daily routine *(Ledford, 1996)*.
- Provide physical activity to relieve muscle tension after assessing motor function.
- Assist unsteady individuals with ambulation *(Ledford, 1996)*.
- Incorporate range of motion activities into “activities of daily living” (ADLs) to maintain and restore flexibility *(Mulrow, Gerety & Kantyen 1994)*.

- Strive to maintain all functional capacity.
- Collaborate with occupational, physical, and/or recreational therapists in planning and monitoring an activity program as appropriate *(Ledford, 1996)*.

**Discussion of Evidence:**

The Falls BPG Consensus panel supports the need to maximize an individual’s functional and social abilities, in order to minimize their risk of becoming de-conditioned.

**Method:**

See Appendix D for a list of resources available in Ontario, including a link to a restorative care education and training program (RCET) designed for staff working with the frail elderly.

Assistance with toileting is important as urinary urgency, and urinary frequency combined with reduced mobility, balance and/or upper dexterity has been shown to be associated with increased risk of falling.



**Recommendation 8**

**Explore with individuals the psychological effects of falls and/or fear of falling and the impact on their confidence to perform daily activities.**

*(Level of Evidence IV -  
RNAO Consensus Panel, 2001)*

**Discussion of Evidence:**

Fear of falling is an important phenomena that has been described in various community based studies (Tinetti & Powell, 1993; Nakamura, Holm & Wilson, 1998). It has been shown to be an independent risk factor associated with falls among the elderly. Individuals may restrict their mobility unnecessarily, leading to social isolation, physical deconditioning and increased risk of falls. A person's confidence or self-efficacy to perform daily activities without falling has been shown to be closely related to actual performance. Self-efficacy, thus, is an important target for interventions. The majority of studies related to self-efficacy and fear of falls has been completed with a community-based population (Tinetti & Powell, 1993).

**Recommendation 9**

**In collaboration with the person/family, alternatives to restraint use must be implemented and proven ineffective prior to consideration of "least restraint" approach.**

*(Level of Evidence 1b)*

Ensure guidelines and policy on the use of restraints are in adherence with current legislation, and take in account the clients and families needs and desires.

In collaboration with the individual/family, use a multidisciplinary approach to identify and implement alternatives to restraint. Select individualized alternatives such as medication modifications, low beds, specialized positioning devices, bed/chair alarm monitors, alert systems, direct observation, moving the person closer to the nursing station, mattresses on the floor to decrease the impact of a fall, individualized activity/rest periods, assistance from family, regular toileting, and environmental modifications (Tinetti, Liu & Ginter, 1992; Capezuti, Evans, Strumpf & Maislin, 1996; Evans et al., 1997).

**Discussion of Evidence:**

Several studies have found that restraints actually increase the severity of falls (*Tinetti et al., 1992*), and can result in increased confusion, loss of bone mass, muscle atrophy with decreased ability to walk, chronic constipation, incontinence, decubitus ulcers, loss of dignity and independence, dehumanization, increased agitation, depression and death (*Miles & Irvine, 1992*). There is no evidence that the use or removal of restraints will reduce falls (*American Geriatrics Society, 2001; Capezuti et al., 1996; Evans et al., 1997; Miles & Irvine, 1992; National Ageing Institute, 2000; Tinetti et al., 1992*), however several restraint reduction studies have demonstrated a reduction in injurious falls (*Evans et al., 1997; Mahoney, 1995*).

In a retrospective case control study of 929 records of first time fallers who were restrained, it was identified that they were 14 times more likely to fall than those who were not restrained (*Ash et al., 1998*). In a review of United States National Injury Information Accident Investigations from 1993 to 1996, 74 deaths associated with bedrails were evaluated, 70% of the deaths were attributed to entrapment between the mattress and the rail with the face against

the mattress, 18% to entrapment with compression of the neck within the rails and 12% were caused by being trapped by the rails after sliding partially off the bed.

Alternatives to restraints have been suggested in the literature. Use of bed/chair alarm systems may be considered on a case-by-case basis for high risk clients with impaired cognition. Tideiksaar, Feiner & Maby (1993) conducted a randomized controlled trial using a bed alarm system in comparison with a non alarm control group; there was a trend towards reduced falls in the intervention group. The difference, however, was not significant. The study also showed a reduction in the use of restraints in the intervention group.

**Method(s):**

For an explanation of the current legislation (Legislation of Ontario, Patient Restraints Minimization Act, 2001), see Appendix C. The College of Nurses of Ontario (2000) has also provided guidelines on restraint use, as well as other key stakeholders such as the Ontario Hospital Association (November, 2001) and the restraint research-based protocol from the University of Iowa (*Ledford, 1996*). (See Appendix D for a list of resources).

**Recommendation 10**

**Provide non-pharmacological approaches for individuals with impaired cognition and emotional/behavioural care needs.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

The nurse can:

- Identify risk factors that can trigger unsettling behaviours such as agitation.
- Initiate interdisciplinary strategies for assisting persons with depression, agitation, and aggression.
- Communicate in a relaxed, calm manner.
- Provide simple directions, avoid detailed rationale and explanations.
- Maintain eye contact and place yourself in line of vision.
- Introduce herself by name and convey unconditional positive regard.
- Minimize relocation.
- Request assistance from families to sit with their relative.
- Maintain consistency in assignment of caregivers and schedule of activities.
- Provide aids for orientation in the environment, such as clocks and calendars.
- Ensure safe environment for pacing, walking, rocking and wandering when required to diffuse energy, and provide rest stops for fatigue (*Heslin et al., 1992*).

- Modify environmental stimuli such as noise and light, based on the individual's needs for rest and stimulation.
- Provide non-pharmacological sleep enhancement strategies.
- Consult with psychogeriatric specialist, behavioural neurologist, clinical nurse specialist in dementia care.

**Discussion of Evidence:**

Few studies have examined strategies to reduce falls in institutionalized cognitively impaired adults. Inouye et al (1999), in a controlled intervention study of delirium in hospitalized patients, found a number of targeted multidisciplinary interventions to acute confusion to be effective. Inouye et al (2000) described an effective program of care designed to prevent further functional and cognitive decline of older hospitalized adults. A systematic review (*National Ageing Research Institute, 2000*) on this subject matter suggests an interdisciplinary intervention strategy that reduces risk factors associated with acute confusion. Rapport et al. (1998) identified the concept of “executive function” as cognitive abilities that enable an individual to interact with their environment efficiently, identifying a significant association with falls in the institutional



setting. Impairment of executive functioning were noted to include impulsivity, difficulties in problem solving and inability to benefit from feedback.

## Recommendation 11

**Collaborate with the person, their physicians and pharmacists to minimize the use of benzodiazepines, the number of medications required, and the use of drugs with high risk for adverse side effects.**

*(Level of Evidence II)*

The nurse can:

- Work with the person, physician, and pharmacists to reduce inappropriate medications and provide for regular review of medications including over the counter medications.
- Review medications with client/family and provide memoric devices and specialized drug dispensers.
- Provide program support for withdraw of benzodiazepines.

*(Campbell et al., 1999).*

## Discussion of Evidence:

There is no randomized controlled trial that examines medication as a sole intervention to reduce falls. There is, however, a strong association between the number of medications and an increase risk of recurrent falls (*American Geriatrics Society, 2001; Leipzig et al., 1999a; Hanlon, Custon & Ruby, 1996*). There is an association between psychotropic medication use and an increased risk of falls, with this further increasing in patients taking a high dosages or combination of psychotropic medications There is a weak association between digoxin, type 1A anti-arrhythmic, diuretics and anti-hypertensives and falls (*Leipzig et al., 1999a; National Ageing Research Institute, 2000*). It is also important to note that drug therapy, falls and disability are inter-related and thus the need for several medications may be a marker for underlying physical or mental frailty which is also a contributing factors of falls. Leipzig (1999a) noted that the role of medications in conditions such as depression, anxiety, insomnia, and impaired mental status, may contribute to a significant relationship between these medications and falls.

Recommendation 12

**In combination with other fall prevention strategies, participate in individual and/or group exercise programs, which are based on the individual's functional ability, to help improve the person's performance, strength, and balance.**

*(Level of Evidence Ib)*

**Discussion of Evidence:**

Further research is needed to examine the relationship between exercise and decrease fall rates and injury among residential aged. Although the majority of studies are with community-based populations, such programs have demonstrated a reduction in falls (Campbell et al., 1997; Province et al., 1995; Close & Glucksman, 2000). Stevenson et al (1998), using a descriptive comparative design, noted that individuals with lack of exercise were twice as likely to fall. Patients who reported engaging in regular exercise were less likely to fall. Buchner (1997) in a meta-analysis, identified levels of physical activity associated with greater muscular performance, better mobility and a lower risk of falls.

Although exercise has many proven benefits, the optimal type, duration and intensity of exercise for falls prevention remain unclear (American Geriatrics Society, 2001;

Connelly & Vandervoort, 1999; Korokany, Wener, Cohen-Mansfield & Braun 1995; National Ageing Research Institute, 2000; Province et al., 1995; Mulrow et al., 1994). A survey of senior living facilities in the USA cited, chair-based exercises to be the most common format, followed by stretching and then supervised walking (National Ageing Institute, 2000). A few studies have demonstrated positive results with the implementation of a walking program with the cognitively impaired (Korokany et al., 1995). Among nursing home residents, an individual approach to exercise programming is required, within a group or 1:1 exercise program, targeting the area that needs to be strengthened. In long-term care, there is no evidence of exercise alone results in reduced falls (Campbell et al., 1997; Gillespie et al., 2000; Rubenstein et al., 2000). Furthermore, management support is required for the success of an activity/exercise program. Based on systematic reviews (American Geriatrics Society, 2001), it is recommended that older people who have had recurrent falls should be offered long-term exercise and balance training. Successful programs have consistently been over 10 weeks duration and the exercise has been sustained over time in order to sustain the benefits (Connelly & Vandervoort, 1999).

**Method(s):**

Interventions need to be based on outcomes of functional level assessment. Develop an individualized plan with appropriate exercise and activity interventions. Assess client’s positioning and transferring needs prior to incorporating functional exercise programs for the client (See Appendix D for a list of resources).

**Recommendation 13**

**Use individually recommended, well designed and safe assistive devices (such as mobility aids) to reduce potential fall hazards (e.g. wheelchairs, walkers, canes in good repair, and adapted to person’s needs).**

*(Level of Evidence IV- RNAO Consensus Panel, 2001)*

The nurse can:

- Provide training for required assistive devices and monitor effective use (AMDA, 1998).

- Ensure that positioning devices used do not also function as restraints.
- Develop a seating and positioning plan for the client (Heslin et al., 1992).
- Use positioning supports such as wheelchair positioning wedges or lateral supports, in consultation with an Occupational Therapist.
- Use assistive devices such as stocking aides, reachers, and dressing aids.
- Appropriately maintain wheelchairs, walkers and canes (e.g. ensure brakes in good working order on wheelchairs, rubber tips and ice picks on cane with anti-tippers as required). Consult with the physiotherapist.

**Discussion of Evidence:**

There is no research completed to examine the specific role of aids/wheelchairs and the prevention of falls. Current research on this subject matter is largely with community based populations (American Geriatrics Society, 2001; Aminzadeh & Edwards, 1997; National Ageing Research Institute, 2000).



| Recommendation  | 14 |
|---|----|
| <p><b>Use a transfer plan based on individualized assessment and re-evaluate the plan as the client’s functional status changes.</b><br/><i>(Level of Evidence IV – RNAO Consensus Panel, 2001)</i></p>   |    |
| <p>The nurse can:</p> <ul style="list-style-type: none"><li>■ Instruct clients how to use posture and body mechanics to prevent injury while performing physical activities (Ledford, 1996) and activities of daily living. For example, clients with osteoporosis should avoid forward flexion.</li><li>■ Demonstrate how to shift weight from one foot to another while standing (Ledford, 1996).</li><li>■ Demonstrate how to rise to standing position from chair using arms of chair and positioning feet to stabilize centre of gravity.</li><li>■ Use raised toilet seat when indicated.</li></ul> |    |
| <p><b>Discussion of Evidence:</b><br/>The opinions and clinical experience of the Falls best practice guideline panel support the need to use an individual transfer plan.</p>  |    |
| <p><b>Method:</b><br/>One resource for development of a transfer plan is the “patient transfer assessment program” (See Appendix B for a description of this program).</p>  |    |

| Recommendation  | 15 |
|---|----|
| <p><b>Provide information on dietary, life style and treatment choices for the prevention of osteoporosis in order to reduce the person’s risk of fracture.</b><br/><i>(Level of Evidence Ib)</i></p>   |    |
| <p>Information may include:</p> <ul style="list-style-type: none"><li>■ Calcium and Vitamin D3 supplementation.</li><li>■ Weight-bearing exercises e.g. walking.</li><li>■ Pharmacological management to maintain/improve bone strength.<br/><i>(Kannus et al., 1999; National Ageing Research Institute, 2000).</i></li></ul>  |    |
| <p><b>Discussion of Evidence:</b><br/>There have been several studies demonstrating a relationship between bone density at the femoral neck and an increased risk of fractures. It was noted that this risk increases with age (Cummings et al., 1995). The institutionalized elderly are also at high risk for Vitamin D deficiency, due to their lack of exposure to sunlight and age-related skin changes. A number of randomized controlled trials evaluated the association between Vitamin D and Calcium supplementation, and a reduction in falls and fall-related fractures (AMDA, 1998). There are also several randomized controlled trials providing evidence on the benefits of the</p> |    |

prevention and treatment of osteoporosis, as outlined in peer review clinical practice guidelines for osteoporosis.

**Method:**

The Osteoporosis Society of Canada provides clinical guidelines on the diagnosis, prevention and treatment of osteoporosis (See Appendix D for list of resources).

**Recommendation 16**

**Use hip protectors where appropriate to decrease the risk of injury.**

*(Level of Evidence Ib)*

**Discussion of Evidence:**

Research shows that hip protectors do not affect the risk of falls but do decrease the risk of injury (American Geriatrics Society, 2001; Kannus et al., 2000; National Ageing Research Institute, 2000; Lauritzen et al., 1993). One limitation noted in the studies, is the reluctance of clients to wear these devices.



**Environment Recommendation 17**

**Modify the environment to reduce potential fall hazards.**

*(Level of Evidence III)*

A variety of recommended environmental modification strategies are cited in the literature (Ledford, 1996; AMDA, 1998; Mosley et al., 1998).

The nurse can:

- Position height of bed and chair so that clients' feet can touch the floor.
- Provide sturdy chairs with armrests and a supportive firm cushion.
- Ensure access to functioning call light and provide prompt response to light (Ledford, 1996).
- Modify environment to improve lighting, minimize glare, create straight paths to bathrooms.
- Provide commodes as appropriate.
- Provide night lighting in walkways and doorways.
- Replace blind doors with see-through doors where there is two-way traffic.
- Mark doorway thresholds and edges of steps with contrasting colour.
- Advocate for handrails and periodic rest stops in corridors and on both side of ramps, steps and stairs (AMDA, 1998).

**Recommendation 17 con't**

- Maintain obstacle free path in halls, corridors, and entrances with a minimum of clear passage 35 inches wide and 80 inches high (Mosley et al., 1998).
- Install appropriately placed grab bars for all toilets, showers and tubs (Sullivan et al., 1999).
- Install non-slip surfaces on all bathtubs and showers.
- Remove mats, scatter rugs and area rugs. If mats are used, secure them using double-sided tape.
- Encourage the use of supportive, low-heeled, and correct fitting shoes.
- Provide environmental safety awareness programs (AMDA, 1998).

**Discussion of Evidence:**

The majority of studies focus on the community based population. Although modifications to the environment are one of several interventions employed in the multi-targeted falls prevention studies, there has been no randomized controlled trial investigating the effectiveness of environmental modifications alone in reducing falls (National Ageing Research

**Recommendation 18**

Institute, 2000; Ray et al., 1998). Gillespie et al., (2000) identified that multiple interventions incorporating modification of environmental risk factors, reduced falls, but not fall injuries. Lord & Dayhew (2001) identified impaired vision as an important risk factor in community dwelling seniors. Search of the literature found no studies on the effect of footwear on falls, but several studies illustrated improvement with balance and sway as a result of footwear use (American Geriatrics Society, 2001).

**Recommendation 18**

**Implement a “post fall protocol” for all persons who experience a fall, and include the appropriate steps of assessment, immediate treatment and medical management, monitoring, evaluation of effectiveness of fall prevention strategies, and education.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

The nurse can:

- Examine client for injuries, prior to moving the client, especially for head injury and trauma including fractures (AMDA, 1998).
- Discuss with the client at an appropriate time his/her perception of the experience, exploring together, possible causative factors that led to the fall.
- Assist the client to get up (unless injured) and try to restore his/her dignity (AMDA, 1998).
- Document the circumstances regarding the fall such as location, time, related activities, as well as the client's position after the fall (AMDA, 1998).
- Notify the physician routinely, instead of immediately, for falls without significant injury or change in condition (AMDA, 1998).
- Inform the family /significant others of the fall incident.
- Observe the client for delayed complications such as head injury or fracture (AMDA, 1998).
- Implement head injury routine, for those who fall who are on anti-coagulant therapy, or where injury is suspected.

- Inform the physician of any behavioural changes or unexplained pain in light of a recent fall.
- Complete a “post fall protocol” (e.g. incident form, risk management form for serious incidents).
- Document follow-up actions.
- If appropriate, review/teach the person how to get up from a fall.
- If appropriate, discuss the use of an emergency response system (e.g. Life Line, Senior Support Telephone Program) in order to access assistance.

### Discussion of Evidence

The opinions and clinical experiences of the Falls best practice guideline panel support the need for follow-up after each fall.

### Method

An incident form and risk management form can be used to guide the documentation for follow-up regarding a fall incident. A guide for categorizing the severity of injury resulting from a fall is included in the section entitled “Evaluation and Monitoring of the Guideline”, p.42.

## Educational Recommendations

### Recommendation 19

**Include in all entry-level nursing programs:**

- Assessment skills for identifying older adults at risk for falls.
- Fall prevention strategies.

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Recommendation 20

**Enhance staff skill levels in assessment.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Recommendation 21

**Develop staff awareness of fall risk factors and potential prevention strategies**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Recommendation 22

**Educate nurses and student nurses on the role of health promotion in involving clients and their significant others in discussions around risk for falls and possible fall prevention strategies.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Recommendation 23

**Examine ethical and quality of life issues in light of an older person's risk for falls.**

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*

### Recommendation 24

**Core educational content areas to be included in a falls prevention program are:**

- Exercise/activity & restorative programs for the frail elderly.
- Transfer assessment.
- Gait and balance assessment.
- Standardization of the administration of selected assessment tools.
- Alternatives to restraint use.
- Current legislation on restraints.
- Selected interventions focused on the prevention of functional decline, cognitive impairment, continence care, and ambulation.
- Appropriate use of mobility aids.
- Post Fall Assessment and follow-up care.

*(Level of Evidence IV – RNAO Consensus Panel, 2001)*



## Contextual Recommendations

### Recommendation 25

**Organizational policy should clearly support the specific role of nurses, as members of the interdisciplinary team, in assessment, mobilizing individuals and use of mobility devices.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

### Recommendation 26

**Establish policy for “least restraint” environment as per College of Nurses of Ontario standards and the current legislation.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

### Recommendation 27

**Establish low cost, high yield environmental and equipment changes, such as adjustments to lighting, availability of appropriate transfer devices, access to bed/chair alarm devices, high/low beds, and effective seating.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

### Recommendation 28

**Establish a supportive environment for the older person, that includes consideration of all physical, political, and social factors.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

### Recommendation 29

**Provide opportunities for interdisciplinary collaboration on falls prevention and clinical management, through access to health professionals with specialized knowledge in psychogeriatrics and rehabilitation.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

### Recommendation 30

**Policy for polypharmacy and the use of psychotropic medications should include: regular medication reviews, assessment for the need for benzodiazepines, and alternative strategies to support the behavioural needs of the cognitive impaired persons.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 31**

**Ensure organizational policy for family presence support for 24 hour access/visiting.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 32**

**Ensure systems are in place to track meaningful and timely data on falls and related information, making this available to staff for review and evaluation for process improvement.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 33**

**Establish a “post fall follow-up and monitoring protocol”.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 34**

**Identify ongoing support for nurses to assist with clinical problem solving and the identification of fall preventative strategies.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 35**

**Provide support for research in the area of caring for the cognitively impaired with respect to mobility and fall prevention.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 36**

**Increase awareness of fall risk and fall prevention, among those persons working with older adults.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*



Provide resources that enable older persons to participate in exercise programs, and to maximize their opportunities for mobility and physical activity.

**Recommendation 37**

**Provide resources that enable older persons to participate in exercise programs and to maximize their opportunities for mobility and physical activity.**

*(Level of Evidence IV –  
RNAO Consensus Panel,*

**Recommendation 38**

**Critical mass of professionals needs to be educated and supportive of nursing best practice guidelines in order to ensure sustainability of the guidelines. Develop resource champions for the guideline.**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*

**Recommendation 39**

**Nursing best practice guidelines can be successfully implemented only where there is adequate planning, resources, organizational and administrative support, as well as the appropriate facilitation. In this regard, RNAO (through a panel of nurses, researchers and administrators) has developed The Toolkit for Implementing Clinical Practice Guidelines, based on available evidence, theoretical perspectives and consensus. The Toolkit is recommended for guiding the implementation of the RNAO nursing best practice guideline on “Prevention of Falls and Fall Injuries in the Older Adult” (See Appendix E for a description of the Toolkit).**

*(Level of Evidence IV –  
RNAO Consensus Panel, 2001)*



## Evaluation and Monitoring of Guideline

There are a number of indicators that an organization can consider, to evaluate the impact of implementing this guideline. Some examples are:

- Number of falls
- Number of fall injuries
- Types of injury
- Volume of restraint use
- Polypharmacy
- Prevalence of use of assistive devices
- Prevalence of activity program utilization
- Hydration status
- FIM and MDS scores
- Staff satisfaction with protocol
- Client / Patient satisfaction
- Admission to LTC associated with fall injury
- Number of admissions to rehab for fall related event
- Rehabilitation days related to fall
- Acute care days and operative procedures related to fall
- Volume of ambulance utilization related to falls
- Use of Fall Monitoring Log.

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### Fall Monitoring

#### Severity of Injury Scale

| 1. No Injury | 2. Minor  | 3. Moderate to Serious  | 4. Serious  |
|--------------|---|---|---|
|              | <ul style="list-style-type: none"> <li>■ abrasion</li> <li>■ contusion</li> </ul> | <ul style="list-style-type: none"> <li>■ laceration</li> <li>■ tissue tear</li> <li>■ hematoma</li> <li>■ impaired mobility due to injury</li> <li>■ fear of subsequent fall and fall injury</li> </ul> | <ul style="list-style-type: none"> <li>■ fracture</li> <li>■ multiple fracture</li> <li>■ subdural hematoma</li> <li>■ head injury</li> </ul> |

## Quick Reference Guides

The following tools are included in the Appendices:

- Fall Prevention and Management Framework – Residential Programs. [See Appendix A](#)
- Reference Guide for Assessment Tools for Specific Risk Factors. [See Appendix B](#)

## *Process For Updating / Reviewing of Nursing Best Practice Guidelines*

**The Registered Nurses Association of Ontario** proposes to update the nursing best practice guidelines as follows:

1. Following dissemination, each nursing best practice guideline will be reviewed by a team of specialists (Review Team) in the topic area every three years following the last set of revisions.
2. During the three-year period between development and revision, RNAO BPG project staff will regularly monitor for new systematic reviews and randomized controlled trials (RCTs) in the field.
3. Based on the results of the monitor, project staff may recommend an earlier revision period. Appropriate consultation with a team comprising of original panel members and other specialists in the field will help inform the decision to review and revise the BPG earlier than the three year milestone.
4. Three months prior to the three year review milestone, BPG project staff will commence the planning of the review process as follows:
  - a) Invite specialists in the field to participate in the BPG Review Team. The Review Team will be comprised of members from the original panel as well as other recommended specialists.
  - b) Compilation of feedback received, questions encountered during the dissemination phase as well as other comments and experiences of implementation sites.
  - c) Compilation of new clinical practice guidelines in the field, systematic reviews, meta-analysis papers, technical reviews and randomized control trial research.
  - d) Detailed work plan with target dates for deliverables will be established.

The revised BPG will undergo dissemination based on established structures and processes.

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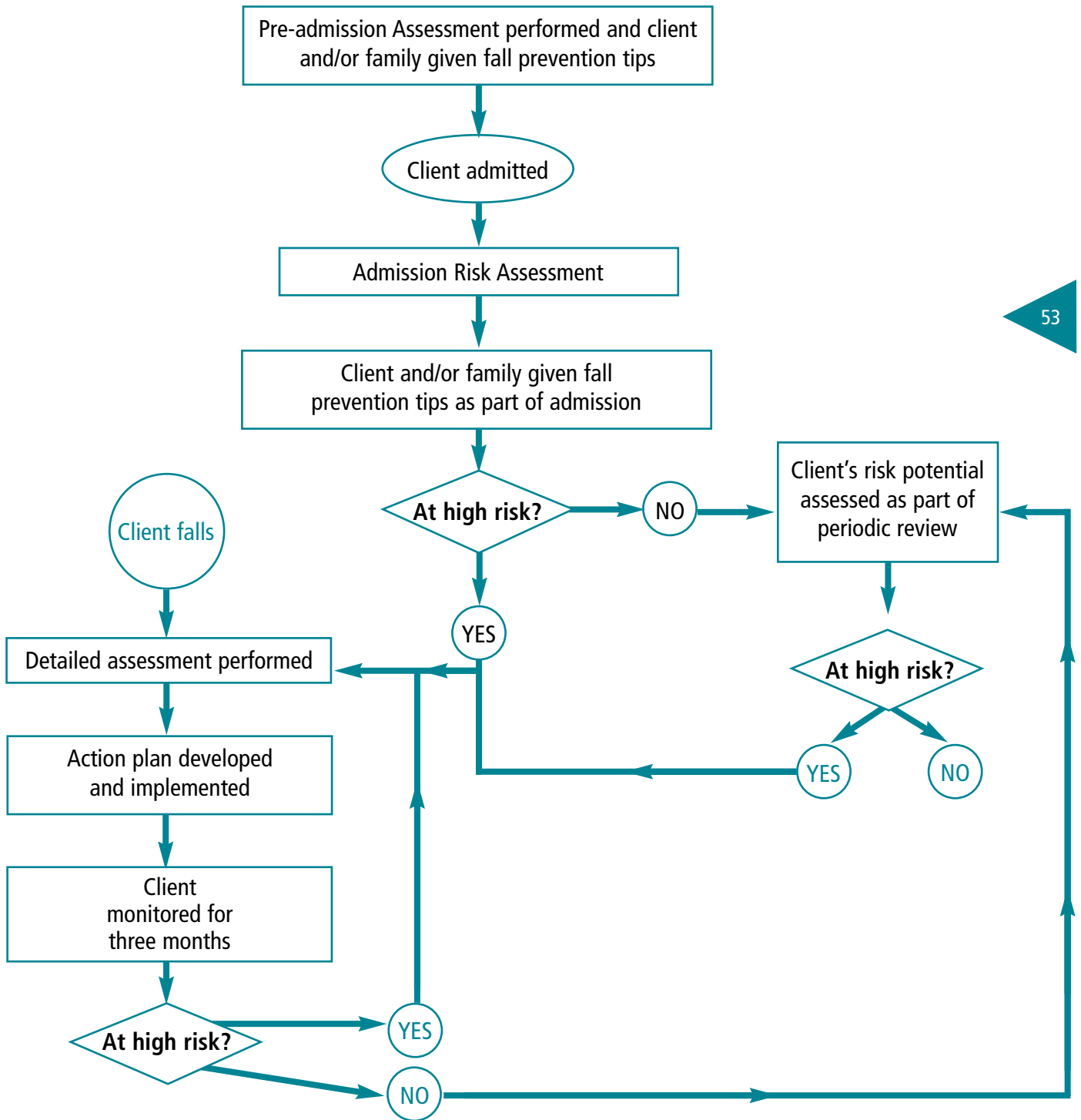
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# Appendix A

## Fall Prevention and Management Framework- Residential Programs



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# Appendix B

## Assessment Toolchart

The following chart lists examples of assessment tools based on specific risk factors identified during risk screening.

| TOOL                                | SOURCE  | FUNCTION  |
|-------------------------------------|---|---|
| <b>Development of Client Goals</b>  |   |   |
| Goal Attainment Scaling             | Cott & Finch (1991)                           | <ul style="list-style-type: none"> <li>Identifies individualized therapy goals, including priorities and timelines. Goals for medical problems, mobility, cognition, medications and activities of daily living are included.</li> </ul>  |
| <b>Gait and Balance</b>             |   |   |
| Timed "Up and Go"                   | Podsiadlo & Richardson (1991)                 | <ul style="list-style-type: none"> <li>measures physical mobility in the frail elderly.</li> <li>measures the time it takes to rise from a standard chair, walk 3 meters, turn, walk back to the chair, and sit down.</li> <li>is a quick and practical tool, demonstrating moderate correlations with gait speed and balance (Huijbregts &amp; Gruber, 1997).</li> </ul>   |
| Berg Balance Scale                  | Berg, Wood-Dauphiness, & Williams (1992)      | <ul style="list-style-type: none"> <li>a measure of balance related to task performance.</li> <li>Interrater and interrator reliability is reported as good with a chronback alpha of .96, and content validity is well established (Huijbregts &amp; Gruber, 1997).</li> <li>reported as a quick (15minutes) and easy measure.</li> </ul>  |
| Clinical Outcomes Variables Scale   | Seaby & Torrance(1989)                        | <ul style="list-style-type: none"> <li>a functional measure to assess movement from one postural position to another, or from one location to another, within walking or wheeling distance.</li> <li>interrator reliability is greater than .90 (Spearman's rho), and internal consistency is high at .95</li> <li>User-friendly, taking about twenty minutes to complete (Huijbregts &amp; Gruber, 1997).</li> </ul> |
| Assessment of Balance               | Perlin (1992)                                 | <ul style="list-style-type: none"> <li>measures level of physical balance (versus gait).</li> <li>performance of balance maneuvers categorized according to a normal, adaptive, or abnormal response.</li> <li>accurate assessment dependent upon close observation of client.</li> </ul>   |
| <b>Cognition</b>                    |   |   |
| Mini-mental Status Exam             | Folstein & Folstein (1975)                    | <ul style="list-style-type: none"> <li>most widely used mental status assessment.</li> <li>measures memory, orientation, language, attention, visuospatial, and constructional skills.</li> <li>a screening tool to be used to identify clients who may require further testing.</li> </ul>   |
| <b>Transfers</b>                    |   |   |
| Patient Transfer Assessment Program | Haley & Colgate (1991)<br>©Foothills Hospital | <ul style="list-style-type: none"> <li>Assesses the specific transfer abilities of clients</li> <li>Establishes whether client is weight-bearing or non weight-bearing</li> <li>Includes guidelines for use of patient transfer equipment.</li> </ul>   |

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## *Appendix C*

### **Legislative Assembly of Ontario Bill 85: Patient Restraints Minimization Act, 2001**

**Title:** An Act to minimize the use of restraints on patients in hospitals and on patients of facilities.

#### **Explanatory Note:**

The Bill governs the use of restraints on patients in hospitals and on patients of such facilities and organizations as are specified in the regulations (called “facilities” in the Bill). However, the Mental Health Act continues to govern the use of restraints on persons in psychiatric facilities. The Bill also governs the confinement of patients in hospitals and facilities to prevent serious bodily harm to themselves or to others, and the use of monitoring devices for that purpose.

Hospitals and facilities are prohibited from restraining or confining patients or from using monitoring devices on them except in the circumstances described in sections 5 and 6 of the Bill.

Hospitals and facilities are required to establish policies with respect to restraining and confining patients and using monitoring devices on them, and with respect to the use of alternative methods to prevent serious bodily harm by patients to themselves and others. The policies must encourage the use of alternative methods, whenever such methods are reasonably available.

Hospitals and facilities are also required to monitor and reassess patients who are under restraint, are confined or on whom a monitoring device is being used. The regulations set out the requirements to be met for monitoring and reassessing such patients.

Only physicians and persons specified in the regulations are authorized to write an order to restrain or confine a patient in a hospital or facility or to use a monitoring device on such a patient. The regulations may prohibit the use of standing orders for restraint, confinement or the use of monitoring devices.

#### **Stakeholders**

- Canadian Institute for Health Information Quality of Chronic Care in Ontario Improving Press release, November 1, 2000
- National Institute of Nursing Research. Long Term Care for Older Adults (1994), chap. 5, “Problems Associated with the Use of Physical Restraints”.

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## Appendix D

### Resources and Useful Websites

| Resource  | Source  |
|---|---|
| Long-term Care Physical Activity workshop<br>Restorative Care Education and Training Program          | The Centre for Activity and Ageing<br>The University of Western Ontario<br>London, Ontario N6G 1K7<br>Phone: (519) 661-1603<br>Fax: (519) 661-1612.<br><a href="http://www.uwo.ca/actage/">www.uwo.ca/actage/</a>   |
| A Guide on the Use of Restraints for Registered Nurses<br>and Registered Practical Nurses in Ontario. | College of Nurses of Ontario.<br><a href="http://www.cno.org">www.cno.org</a> .   |
| Report of the Restraints Task Force   | Ontario Hospital Association (November 2, 2001).<br>Available on-line: <a href="http://www.oha.com">www.oha.com</a> .<br>See Reports and Studies.   |
| Patient Restraints Minimization Act, 2001   | Ontario Legislative Library.<br><a href="http://www.e-laws.gov.on.ca">www.e-laws.gov.on.ca</a>  |
| Clinical Practice Guidelines for the<br>Diagnosis and Management of Osteoporosis                      | Scientific Advisory Board,<br>Osteoporosis Society of Canada.<br>Clinical practice guidelines for the diagnosis<br>and management of osteoporosis.<br><i>Canadian Medical Journal</i> (1996), 155: 1113-33.<br><a href="http://www.osteoporosis.ca">www.osteoporosis.ca</a> . |

## *Appendix E*

### *Toolkit:*

#### **Implementing Clinical Practice Guidelines**

Best practice guidelines can only be successfully implemented if there are: adequate planning, resources, organizational and administrative support as well as appropriate facilitation. In this light, RNAO, through a panel of nurses, researchers and administrators has developed a “Toolkit for Implementing Clinical Practice Guidelines” based on available evidence, theoretical perspectives and consensus. The Toolkit is recommended for guiding the implementation of any clinical practice guideline in a health care organization.

The “Toolkit” provides step by step directions to individuals and groups involved in planning, coordinating, and facilitating the guideline implementation. Specifically, the “Toolkit” addresses the following key steps:

1. Identifying a well-developed, evidence-based clinical practice guideline
2. Identification, assessment and engagement of stakeholders
3. Assessment of environmental readiness for guideline implementation
4. Identifying and planning evidence-based implementation strategies
5. Planning and implementing evaluation
6. Identifying and securing required resources for implementation

Implementing guidelines in practice that result in successful practice changes and positive clinical impact is a complex undertaking. The “Toolkit” is one key resource for managing this process.

January 2002

*Nursing Best Practice Guideline*  
*prevention of falls and*  
*fall injuries in the older adult*



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