

*Prevention of falls*

*I  
n  
T  
h  
e  
E  
l  
d  
e  
r  
l  
y  
P  
o  
p  
u  
l  
a  
t  
i  
o  
n*

---

Format and Layout: Ghislaine Scott,  
Ghislaine Scott Services, Toronto, Ontario

Illustrations: Irwin Barrer, Toronto, Ontario

**ISBN 0-929129-34-2**

**© 1998 Ontario Public Health Association**

---

---

## *TABLE OF CONTENTS*

	<b>Page</b>
Introduction .....	1
Injury Prevention Primer .....	7
The Action Steps .....	23
Prevention of Cyclist Injury in the 5 - 15 Year Age Group .....	45
Prevention of Injuries to Motor Vehicle Occupants .....	55
Prevention of Falls in the Elderly Population .....	71
Sources of Resources .....	79
 Tables:	
Evaluation Questions .....	39
Publicity Tools .....	41
Table A - Motor Vehicle Traffic Injury Prevention Strategies .....	15
Table B - Suicide Prevention Strategies .....	16
Table C - Falls Prevention Strategies .....	17
Task Checklist .....	43
Windows of Opportunities .....	14

---



## PREVENTION OF FALLS IN THE ELDERLY POPULATION

### THE FACTS

Falls are:

- o The leading cause of injury for those over 65.<sup>1</sup>
- o The sixth leading cause of death in persons over age 65.<sup>2</sup>
- o In Ontario, between 1985-1990, nearly 600 persons over 65 died each year as a direct or indirect result of falling.<sup>3</sup>
- o Falls and instability are mentioned as a contributing factor in 40% of nursing home admissions in two American studies.<sup>4</sup>
- o One-third to one-half of persons over 65 are prone to falling, with falls being more common in older females.<sup>5</sup>

### *The Challenge*

The fact that many older persons have falls, that these falls can result in injury that compromises health and quality of life, is not a well-publicized problem.

Falls that result in injury are perhaps not seen as a major problem because they happen in isolation, most often inside the home and are considered to be an individual problem.

Public attention is piqued, but quickly fades, whenever the media reports that an elderly person who lived alone is found dead several days after an apparent fall. Communication devices that provide a means to summon help are now available to summon help in situations such as this, but they do not prevent the fall.

We need to raise the profile of falls as predictable and preventable in order to find ways for communities to minimize the potential for their occurrence.

<sup>1</sup>. Ontario Medical Association, Falls in the Elderly, A Report of the OMA Committee on Accidental Injuries, Toronto: OMA, November 1992, p. 1.

<sup>2</sup>. Ibid, fn. no. 1.

<sup>3</sup>. Ibid, fn. no. 1.

<sup>4</sup>. Winograd, Carol Hunter, Instability and Falls, Sci. Am. Med. 8 Interdisc IX Disorders in Geriatric Patients, Vol. 1, 1991, pp. 13-26, p. 25, fn. 65: The Prevention of Falls in Later Life, A Report of the Kellogg International Work Group on the Prevention of Falls by the Elderly, Danish Medical Bulletin, Gerontology Special Supplement Series, No. 4, 1987.

<sup>5</sup>. Ibid, fn. no. 1.

Some of these falls result in fractures and other serious injuries that can have an effect on health and quality of life. Other side effects can include self-imposed restriction of activity, feelings of discouragement in caregivers and even institutionalization.<sup>6</sup>

Fear of falling can itself be debilitating. It can lead to a spiral of restricted activity, decreased exercise, decreased independence and eventually to increased dependency.<sup>7</sup>  
Risk-factors for falling are identified as:

- o environmental
- o physical
- o drug-related
- o activity-related

Sometimes changing one factor can change the pattern or potential for falls, but most often the factors are interdependent, fitting together somewhat like pieces of a puzzle. These factors also vary in degree of importance in relation to an individual's degree of autonomy.

### ***The Risk Factors***

**Environmental factors** are perhaps the most recognizable and easy to change. Objects that may be tripped over, poor lighting, slippery surfaces, stairs and unstable or inappropriately designed furniture are examples of common environmental hazards.

An excellent suggestions list for interventions or prevention steps was drawn up by the Ontario Medical Association (OMA)<sup>8</sup> and bears repeating in this publication (see p. 77).

Interventions are organized to range in ease of use and therefore "do-ability" from those requiring little effort or expense to those requiring significant effort or expense.

However environmental reorganization, as in one's home, must include the cooperation of the person it is meant to benefit. An abrupt change in personal environment can be confusing, as well as damaging to a sense of well-being. Attempts to modify an environment must keep in mind the dignity of the individual and the desire to maintain control and independence.

**Physical factors** associated with aging and/or chronic conditions, such as decreased muscle strength, disturbances in balance and mobility (often referred to as gait impairment), reduced vision, reduced hearing, and impaired mental functioning, are more likely to cause falls in an older person *when an environmental hazard is present*.

[Modifying an environment that presents a risk is perhaps easier than correcting a chronic disabling problem, as a first step. This initial action does not preclude attention to the underlying physical problem.](#)

**Drugs** Use of several drugs (more than four) and certain combinations of drugs can play a role in the "falling puzzle". Over-medication, misuse, misunderstanding of purpose or timing of drug effect with activity, memory disturbance, visual impairment, all have an effect on the potential to fall.

<sup>6</sup>. Ibid, fn. no. 1.

<sup>7</sup>. Ibid, fn. no. 1.

<sup>8</sup>. Ibid, fn. no. 1.

Assessment of drug therapy and usage requires cooperative participation of the physician, pharmacist, caregiver, and the older person.

**Activity level** Changes that come with aging can be subtle, but progressive. Often a small, yet crucial, decline in functional ability goes unnoticed. Activities that were once easily done may now present challenges. Manoeuvring on icy sidewalks, reaching high places, getting in and out of a bath tub, and attending to elimination needs, may require recognition of the change and development of a plan for another way of doing these things.

The maintenance of flexibility and adequate levels of exercise assists in maintaining the agility and strength so important to avoiding falls. As well, appropriate and adequate nutritional intake enhances the ability to maintain activity levels and resist falling.

**WHAT APPROACH CAN A COMMUNITY TAKE TO PREVENT FALLS IN ITS AGING POPULATION ?**

*Recognition of the diversity of the population of persons over 65 is a first step.* Many are very active, fit and completely independent. Others, though moderately compromised, remain independent but would benefit from assistance or personal and/or environmental adaptations that would allow them to continue with their usual activities. Some older persons are frail and require varying levels of assistance.

This diversity must be considered as you plan implementation of the interventions chosen by your action group.

**Remember that you can:**

- o advocate for and foster engineering and design solutions that compensate for the risk factors associated with falling
- o advocate for regulation and enforcement solutions that provide appropriate risk-reduced environments
- o develop appropriate services within the community that decrease the risk of injury generally and specifically for those seniors who would welcome and benefit from such service

Consult the **Action Steps** as you plan activities that require community action in order to eliminate, avoid or decrease environmental factors associated with falls. Several strategies have been adopted by communities throughout Ontario. Many initiatives from the following list have been approached as institutional research projects, as community based projects, or as combinations of the two.

- o assessment of elders to identify risk factors
- o assessment and monitoring of medication use
- o exercise programs
- o identification of home hazards
- o environmental modification (floor surfaces, lighting, bathrooms, stairs, traffic patterns, and accessibility) to reduce or eliminate hazards
- o close monitoring of older people in the first few weeks of institutionalization

**Developing Initiatives**

The development of these initiatives as community based projects allows for the multifaceted approach that the challenge requires. Some of the individuals and groups that should be involved in planning of injury prevention initiatives are:

- o members of a seniors' group
- o family and caregivers
- o visiting home-makers
- o physicians, nurses (acute, chronic care, general practice office, public health, and visiting)
- o hospital discharge planners
- o pharmacists
- o physical and occupational therapists
- o volunteer organizations, service clubs
- o medical supply businesses
- o independent living resource companies
- o community and building planners
- o public works
- o food retailers
- o taxi and public transportation personnel

**Some potential activities**

- o clearing of snow and wet leaves

- o grocery delivery during inclement weather
- o specific seniors shopping days offering reduced taxi fare or volunteer drivers
- o a minor home repairs program
- o a service for installation of handrails for steps and stairs
- o a visiting and check-in service

- o many other activities that relate to the risk factors
- o projects that can make assistive devices available
- o developing a communications strategy with your local media to develop interest in fall prevention

If a physical activity program is planned, be sure that professional advice is sought before introducing an exercise program. You want to avoid the potential for injury or unwanted side effects inherent in a too vigorous or unsuitable program.

[The following accounts are examples of what some communities are doing to stimulate action to reduce the incidence of injury associated with falls.](#)

**COMMUNITY STORIES****LAMBTON COUNTY****History**

In Lambton County, which includes the City of Sarnia, there is a very active seniors' group<sup>9</sup> who have taken on the prevention of falls as one of their many initiatives.

In 1989 the seniors in Lambton County held a workshop to identify their concerns. The first issue addressed housing needs. As a result, a housing and transportation survey was undertaken and completed in 1991. Of the recommendations, two addressed

seniors' needs in regard to home maintenance and adaptation.

The housing committee chose to relate injury prevention to home adaptation, specifically for the prevention of falls. The bathroom was chosen for reasons that are explicit and can be expressed in measurable outcomes. Approximately 51% of "accidents" happen in the bathroom and in Lambton County it is estimated that 5.4 million dollars a year are spent as a result of injuries to people over 65.<sup>10</sup>

<sup>9</sup>. Lambton Seniors - Lambton Health, 160 Exmouth St., Point Edward, Ontario, N7T 7Z6. Contact Mary Feniak, Tel: (519) 383-8331, fax: (519) 383-7092.

<sup>10</sup>. From data on housing study, supported by CMHC.

### *Activities*

Housing workshops for seniors were designed to focus on preventing falls by adapting the bathroom with grab bars. These two workshops are in the process of being evaluated with assistance of a researcher from the University of Waterloo. Knowledge, attitudes, intentions, beliefs, behaviours and barriers to change will be assessed. Future workshops will include family caregivers, health professionals and the construction industry.

The Lambton Seniors' Association has also arranged to have a barrier-free house available in Lambton (from CMHC, for a short time). Tours, including commentaries on adaptations and barrier-free designs, will be available to all age group in the community.

## **CITY OF TORONTO**

### *History*

In the **City of Toronto**, the development of the **Your Safe Home Checklist** is the culmination of ten years' work by many agencies and individuals.

The original stimulus came from one unit's (Northern Health Area) work on safety issues with children and seniors. They began by collecting information from other programs and interacting with agencies that had a stake in seniors' well-being and environmental issues, such as the Buildings Department, Barrier-Free Designs and HINTS (Housing in North Toronto for Seniors).

The co-operative preparation of a grant proposal marked the beginning of an inter-agency approach. The resulting feasibility study and report on injury prevention was sent on to the Toronto Board of Health and the Mayor's Committee on Aging. In the meantime, Public Health Nurses throughout the city continued to conduct educational sessions with older adults on injury prevention. Levels of this activity varied until the interest of the city was reawakened in 1988.

The Toronto Board of Health perceived a need, based on mortality data, for more comprehensive injury prevention programs. The feasibility study was reexamined and the Home Safe Home Committee was formed.<sup>11</sup> It included some of the original members, as well as representatives from a community health centre, the Mayor's Committee on Aging, the housing department, and community groups representing seniors. Through broad community and agency consultation, including contact with the CHIPPS program in San Francisco (Community and Home

Many of the fall clinics are so new that formal evaluation is not complete. However, some seniors

Injury Prevention Project for Seniors), the checklist was produced.

The checklist can be self-administered, done in conjunction with an assistant or completed as part of a group project. The checklist helps to identify what can be changed in one's home to reduce risk of injury and is a record of what needs changing when consulting with a landlord.

In a program with a seniors' housing project, arrangements were made to interact with the building population through a general meeting. Background work identified the responsibilities of tenant and landlord and created a framework for a co-operative approach to seniors' safety.

The program coordinator and some of the committee are making presentations to service providers, planners and policy makers as well as working with community groups. Community groups have taken on the distribution of the checklists, make presentation arrangements, report feedback, and collect questionnaires.

As a tool that identifies home hazards and contains safety tips, the checklist is just one part of a project which will eventually expand to include drug and medication issues. The Home Safe Home Committee is pleased to share its checklist and to assist where it can.

## **FALL ASSESSMENT CLINICS AND PROGRAMS**

have been developed in several sites to provide individual assessment of the potential to fall and to find ways to modify that potential. The approach is usually multidisciplinary and includes elements of the following list:

- o clearance with, or participation of, the family doctor
- o assessment of:
  - (i) mental and physical status, including balance and mobility
  - (ii) home environment
  - (iii) medication and alcohol use
  - (iv) the individual's perception of the problem
- o maintenance of an activity diary
- o referrals to the appropriate treatment discipline if a problem has been identified

<sup>11</sup>. Anita O'Connor, tel: (416) 392-0953.

have described this attention to the potential for falling as a "welcomed relief." For others, a fall remains a

[private affair, to be neither acknowledged nor shared.](#)

## OTTAWA-CARLETON

A fall prevention program for seniors has been initiated by the Ottawa-Carleton Health Department.<sup>13</sup> It is part of a major research initiative, funded by the Ontario Ministry of Health, to examine the effectiveness of two strategies to prevent falls among seniors who live in apartment buildings.

The two fall prevention strategies being tested are a community action approach and a more traditional risk reduction program. The former involves a community mobilization skill development and reinforcement phase. During mobilization, members of the fall prevention team organize an awareness campaign, run focus and discussion groups, meet with key informants and identify social networks in their assigned apartment buildings. Community organizers, who are building residents, are recruited to develop and implement an action plan for the building. In preparation for this role, the fall prevention team member works with them to strengthen their knowledge and skills about the content and process of fall prevention. An action plan is developed and implemented by the community organizers. Reinforcement for achievements is provided by a number of groups and agencies.

The second approach involves organizing on-site fall prevention clinics in the apartment buildings. Residents who attend the clinic are assessed for their fall-risk profile, and provided with an environmental hazard checklist developed for use in apartment buildings. Those seniors found to be at-risk for falls are offered a series of three home visits by a member of the fall prevention team and a reinforcing phone call one month after the visits.

[Initial results of the research project are expected in 1994 and will be used to guide fall prevention program development in the Ottawa-Carleton region.](#)

<sup>13</sup>. 495 Richmond Rd., Ottawa, Ontario, K2A 4A4 (Nancy Edwards). Tel: (613) 722-2328, fax: (613) 724-4191.

### ***Some general thoughts about fall prevention.***

Finding ways to help everyone recognize falling as preventable, and to implement change is a major challenge.

As with any prevention effort, the approaches and solutions will be multifaceted. Some of this challenge can be met by training health professionals who interact with seniors, to focus on falls as preventable and to be prepared to offer relevant solutions. Preparing members of the seniors' population to plan and perform appropriate parts of prevention programs (such as in environmental assessment programs) empowers this population.

Developing community initiatives that decrease fall risk factors wherever possible will contribute to an overall effort to help seniors maintain the independence that is so important. When participation is expected on the part of the seniors, allowing time for change to happen within the timeframe of the older person and not that of the community group, professional partners or researchers is important.

### ***Summary***

Injury negatively affects independence and health. Community action can increase alertness to potential risk through awareness and assessment of the environment. In addition, the community can also advocate for further research into ways to decrease risk in the environment and ways to compensate for diminishing ability. Perhaps shifting the language from safety to "independence maintenance" will assist in reminding communities and seniors alike of the purpose of such activity.

## FALLS IN THE ELDERLY:

A REPORT OF THE OMA COMMITTEE ON ACCIDENTAL INJURIES, TORONTO: NOVEMBER 1992, P. 2.

LITTLE EFFORT/EXPENSE REQUIRED:	MODERATE EFFORT/EXPENSE REQUIRED:	SIGNIFICANT EFFORT/EXPENSE REQUIRED:
<ul style="list-style-type: none"> <li>• wearing of comfortable, supportive footwear and appropriate length of pant leg;</li> <li>• correction of slippery surfaces by using non-slip waxes on hard floors;</li> <li>• removal of throw rugs and use of non-slip mats in bath, shower and on other wet surfaces, such as entrances, laundry and kitchen sink areas;</li> <li>• removal of obstructions and elimination of clutter; watch for pets;</li> <li>• ensuring that electrical cords do not extend across floor;</li> <li>• provision of adequate space to manoeuvre between pieces of furniture without turning side-ways;</li> <li>• use of television remote control and cordless phone</li> <li>• removal of caster wheels from furniture;</li> <li>• removal/repair of furniture that is rickety or unstable when leaned on;</li> <li>• adequate lighting in association with non-glare paints and surfaces; use of nightlights in the bedroom and corridor;</li> <li>• elevation of chairs and bed so as to reduce requirement for (leg/quads) strength on getting in and out of sitting position;</li> <li>• regular check of mobility devices such as walkers, crutches and canes to ensure that tips are not worn and that the device is of proper height.</li> </ul>	<ul style="list-style-type: none"> <li>• additional electrical outlets to prevent stretching of extension cords across travelled areas;</li> <li>• placement of light switches to allow easy access;</li> <li>• provision of at least one phone extension for each level in the home, preferably table-top rather than wall phone;</li> <li>• use of a change in colour to denote change in surface type or level (e.g. flights of stairs);</li> <li>• installation of electronic emergency response systems, such as Protect Alert/Life Line;</li> <li>• use of seating in bathtub and/or shower;</li> <li>• use of bedroom commodes;</li> <li>• use of walking aids, such as canes, quad canes or walkers.</li> </ul>	<ul style="list-style-type: none"> <li>• ensure adequate supervision by caregiver/family member;</li> <li>• provision of additional assistance/observation when ill and for climatic conditions such as rain, ice, and wind;</li> <li>• provision of bathroom and laundry-room facilities on same level as bedroom, living room and kitchen;</li> <li>• modification of stairs with a low travel height (gradient) and longer depth (e.g. 5" high, 14" depth step)'</li> <li>• installation of handrails that can be gripped easily and are easy to see, i.e. at comfortable height and diameter in hall ways, stairs and bathroom;</li> <li>• installation in washrooms of grab bars that are designed to withstand the weight of the individual.</li> </ul>

## ***BIBLIOGRAPHY - PREVENTION OF FALLS IN THE ELDERLY POPULATION***

Costa, Anthony J., Preventing Falls in Your Elderly Patients, *Postgraduate Medicine*, Vol. 89, No. 1, January 1991.

Edwards, Nancy, Maryse Céré and Diane Leblond, A Community-based Intervention to Prevent Falls Among Seniors, *Community Health*, Vol. 15, No. 4, pp. 57-65 (1993).

Hemenway, David and Graham A. Colditz, The Effect of Climate on Fractures and Deaths Due to Falls Among White Women, *Accid. Anal. & Prev.*, Vol. 22, No. 1, pp. 59-65, Great Britain: Pergamon Press, 1990.

Merrild, Ulrik and Soeren Bak, An Excess of Pedestrian Injuries in Icy Conditions: A High-Risk Fracture Group - Elderly Women, *Accid. Anal. & Prev.*, Vol. 15, No. 1, pp. 41-48, 1993.

Ministry of Health (Ontario), Mandatory Health Programs and Services, Public Health Branch, Healthy Growth and Development: Healthy Elderly - Principles and Program Strategy, Toronto: August 1991.

National Resource Center on Health Promotion and Aging, *Perspectives in Health Promotion and Aging*, Vol. 6, November 3, 1991.

Ontario Medical Association, Subcommittee on Falls in the Elderly, Falls in the Elderly, A Report of the OMA Committee on Accidental Injuries, Toronto: Ontario Medical Association, November 1992.

Ontario Medical Association, Subcommittee on Falls in the Elderly, A Physician's Guide to the Prevention of Accidental Falls in the Elderly, Ontario Medical Review, April 1992, pp. 35-39.

Tinetti, Mary E., M.D., and Mark Speechley, Ph.D., Prevention of Falls Among the Elderly, *The New England Journal of Medicine*, Vol. 320, No. 16, p. 1055.

Winograd, Carol Hutner, Instability and Falls, *Scientific American Medicine*, 8 Interdisc, IX Disorders in Geriatric Patients, pp. 13-26.





