



A HANDBOOK OF BEST PRACTICES

PROMISING PATHWAYS

Falls Prevention Programs
for Older Canadians
Living in the Community



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of Canada

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du Canada

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This handbook was produced under the Health Canada/Veterans Affairs Canada Falls Prevention Initiative. It is based on **A Best Practices Guide for the Prevention of Falls Among Seniors Living in the Community** (Scott, Dukeshire, Gallagher and Scanlan, 2001), prepared for the Federal/Provincial/Territorial Ministers Responsible for Seniors, available at: **www.hc-sc.gc.ca/seniors-aines/pubs/BestPractice_Falls_e.pdf**

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This publication is available on the following web site, from which it can be downloaded: **www.hc-sc.gc.ca/seniors-aines**. It can also be made available in alternative formats upon request.

©Minister of Public Works and Government Services Canada, 2002
Cat. No.: H39-621/2002E
ISBN: 0-662-32103-0

Également disponible en français sous le titre :
*La voie de la prévention. Guide des meilleures pratiques :
Programmes de prévention des chutes chez les aînés canadiens
vivant dans la collectivité*



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ABOUT *this* HANDBOOK

Objectives

Falls represent a serious and widespread problem in Canada, with about one third of older Canadians experiencing a fall each year, and many suffering the pain and loss of independence that often result. Section 1 of *Promising Pathways* provides information on the most effective strategies and interventions for reducing falls and preventing injuries among seniors who live in the community. Its purpose is to summarize the key elements and principles of effective falls prevention, in order to help guide the development of programs. This is not a “how to” guide, but Section 2 does provide tools and resources for planning and implementing falls prevention programs.

Users

This handbook was designed for professionals and others who work with seniors and veterans in the community. If you are a health or recreation professional, work in some aspect of community or emergency care, or are a leader in a seniors’ or veterans’ group, we hope you find this handbook of value.

Development

The handbook was developed under the Health Canada/Veterans Affairs Falls Prevention Initiative. It is based on a comprehensive review of falls prevention programs around the world: *A Best Practices Guide for the Prevention of Falls Among Seniors Living in the Community*. (to obtain a copy of this publication please see the inside cover.) Strict criteria determined which studies were included in the review in order to minimize the chance of bias and ensure reliable results. Although the best evidence available is summarized here, we do not yet have a complete picture. As experience and research build, more details on effective programs will emerge.

Some key references are included in this handbook. However, the comprehensive review cited above should be consulted for more details, including a complete listing of the studies referred to in this handbook.



INTRODUCTION

Why we need to prevent falls

The personal, economic and societal costs of falls among older Canadians are enormous. Each year, one third of all seniors (including veterans) experience at least one fall.¹ About half of falls result in minor injury, but up to one quarter have far more serious consequences, including sprains, fractures or even death.² Falls account for over half of deaths due to injuries among women aged 65 and older, and over one third of deaths due to injuries among men in the same age group.³ Many seniors who survive falls never fully recover. They face chronic pain and reduced mobility to the point where they lose their independence. Many live with an ongoing fear of another fall. Forty percent of all nursing home admissions occur as a result of falls by older people.⁴

Not surprisingly, falls represent a major cost to the healthcare system. The cost associated with falls in Canada is more than twice that due to motor vehicle crashes. In 1998, direct health care costs for fall-related injuries in Canada were estimated at \$1 billion.⁵ This does not take into account the long-term consequences of fall-related injuries, including higher rates of death and illness, susceptibility to future falls, loss of independence and a lowered quality of life.

The most effective programs combine a number of falls prevention strategies and address risk factors specific to an individual.

One size does not fit all

Because seniors and veterans are a large and diverse group, it is unlikely that one approach to falls prevention will apply to all. Falls are often the result of a complex combination of factors. Strategies that have been shown to reduce the likelihood of a fall-related injury include individual assessments, physical activity, home modifications, education, and efforts to ensure the appropriate use of medications.

According to the research, the most effective programs combine a number of these strategies and address the risk factors specific to an individual.

Some useful questions to consider in developing a falls prevention program are:

- What are the characteristics and circumstances of the population I want to address?
- How can I involve participants in organizing the program?
- How can I best make the program accessible to those who need to be involved?
- Will participants follow it over the long-term?
- How will the program be delivered?
- What barriers and opportunities exist for implementing the program?
- What is the cost to deliver the program and can it be sustained?

There is a lack of research comparing the effectiveness of falls prevention strategies among various groups of older people. Health and mobility can vary greatly between someone who is 55 and someone who is 95, or even between two 70 year-olds. Different approaches may be required for different cultures, races, genders and socioeconomic backgrounds. Low levels of literacy, poverty, rural settings and social isolation may present additional challenges. For example, a senior with a low income and no means of transportation is unlikely to benefit from exercise classes offered across town. The more individualized a program is, the more effective it is likely to be.

Me ... old?

Falls prevention programs often require that seniors and veterans make changes to their behaviours or homes, yet little research has examined how to make such changes more acceptable. Some people hesitate to participate in falls prevention programs at all because, regardless of their age, they do not want to be viewed as old, frail or vulnerable to injury.

Another challenge in falls prevention is ensuring that people who agree to take

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part in a program follow through with its recommendations. For example, exercise will only benefit those who actively participate on a regular basis. In addition to being effective, therefore, a program must be delivered in a way that motivates people to continue.

The following suggestions have been shown to be helpful:

- Include a social element and offer refreshments
- Provide transportation to the program or offer it in places where seniors already gather
- Phrase messages in a meaningful way. For example, say: "Regular physical activity helps you maintain your independence and allows you to stay in your own home as long as possible"
- Have seniors teach each other
- Use telephone or other forms of follow-up.

How do seniors respond to suggestions for change?

Programs are most likely to be accepted by seniors if they emphasize the importance of falls prevention in maintaining control over their lives and remaining independent for a longer period of time.

Seniors view the following changes as least acceptable:

- having medications reviewed
- foot and eyesight checks
- changing the type of footwear worn
- asking for help with daily tasks such as shopping and housework.

Seniors accept the following changes with some reservations:

- finding out more about falls
- speaking with a physician about falls
- participating in falls prevention programs.⁶

Program costs

Cost is an important consideration in falls prevention programs and can vary greatly. A multifaceted, personalized program that requires a significant time commitment from several health professionals, community health workers and volunteers can cost as much as \$1,000 or more per participant. However, such

One study showed that for every dollar spent on a multifaceted falls prevention program there was a saving of over three dollars in reduced treatment costs for injuries caused by falls.

a well-developed program can also reap financial benefits through reduced health care costs. One study showed that for every dollar spent on a multifaceted falls prevention program there was a saving of over three dollars in reduced treatment costs for injuries caused by falls.⁷

EVIDENCE *for* BEST PRACTICES

Research shows that programs that combine strategies tend to be most successful, particularly when they focus on the factors that place an individual at risk. Successful programs tend to include the following:

- **Physical assessments:** A systematic assessment of an individual by a health worker or health care team is used to identify any diseases, disabilities or personal behaviours that may cause or contribute to falls. This assessment is the basis for designing a program geared to address specific risk factors.
- **Physical activity:** Strength, balance training, walking and other activities to improve overall fitness are important in falls prevention.
- **Home modifications:** Programs that make the home a safer place (for example, by installing grab bars or railings) are most effective when arrangements are made for the work to be done and the costs are subsidized, if necessary.
- **Education:** Increasing awareness around the risk factors for falls and how to prevent them will increase the likelihood of seniors and veterans adopting prevention strategies.

- **Appropriate use of medications:** Some medications (including tranquilizers and sleeping pills) and some combinations of drugs are known to contribute to falls. Making seniors and their family members more aware of this and working with physicians and pharmacists to make appropriate changes in medication use can be an effective strategy.

A good first step in a falls prevention program is to use an overall assessment tool, such as the Falls Risk Questionnaire (see Section 2, Self-Assessment, page 19.) This could be followed by individual assessments by health practitioners trained in falls prevention.

Best practices in falls prevention programs

- Combinations of strategies specific to the needs of individual seniors are likely to be the most successful
- Strategies need to address a wide range of risk factors
- Teams of trained health practitioners can best address the complex combination of factors that contribute to falls.

Physical assessments

An individual assessment by a trained health practitioner or team can identify any physical factors that may pre-dispose a person to fall. During an assessment, a physician or nurse looks for medical conditions that may affect a person's balance, muscular strength, bone density, cognition, hearing, vision, touch and ability to walk. While each of these factors alone may not lead to a fall, having a number of physical limitations, combined with unsafe environments and risky behaviours increases the likelihood of a fall. Therefore, prevention strategies

should start with a physical assessment of the individual, and then lead to a program that identifies and eliminates other contributing problems.

As the story on page 7 shows, assessments are particularly important after a fall, as they often uncover undiagnosed health problems that could contribute to future falls.

The success of this approach may be due to the use of well-qualified assessors, thorough screening for physical and behavioural risks, and an individually tailored follow-up strategy.

Please see Section 2, Physical Assessments (page 20) for a list of physical assessment tools and further information.

A summary of key points

- Physical assessments by physicians or nurses trained in falls prevention, followed by individualized falls prevention plans can be effective in reducing falls and related injuries
- Seniors who have fallen should have a thorough medical assessment for underlying health problems that could contribute to future falls
- Older people who sustain injuries due to falls are likely to have other health problems, including those related to balance and vision
- Trained, supervised volunteers may conduct initial screens with reliable risk assessment questionnaires, as long as referrals are made to the appropriate health or social service providers.

While each factor alone may not lead to a fall, having a number of physical limitations, combined with unsafe environments and risky behaviours increases the likelihood of a fall.

Clara Jones Is feeling better, thanks

Clara Jones had been living on her own since being widowed two years ago. She now does tasks around the house that her husband used to do. One day, Clara injured her arm when she fell off of a chair as she was changing a light bulb. The arm was still very sore and bruised the next day, so she went to see her family doctor. Her physician noticed how shaky Clara was while walking, and recommended that she return in a few days for a full physical assessment. The assessment revealed problems with vision, poor leg strength, and interactions among the medications Clara was taking that were contributing to low blood pressure. In addition, Clara had lost weight since her last annual check-up, and was dehydrated.

Following a discussion about her daily routine and support systems, Clara agreed to a falls prevention plan specific to her needs. It started with some simple physical corrections, including new eyeglasses and adjustments to her medications. With the help of a physiotherapist, Clara started an

exercise program that focused on balance and leg strengthening exercises. Home care was asked to conduct a home assessment, and the visiting occupational therapist recommended a number of improvements, including better lighting, the purchase of a stable step stool and installation of grab bars in the bathroom. She also noticed the food Clara had in her kitchen and asked a nutritionist to assess her diet. This revealed that Clara's diet was low in protein and that her dehydration was due to the fact that she was drinking only tea and soda pop.

A follow-up assessment one year later revealed that Clara had not had another fall. She had more energy and felt less depressed than she did a year earlier. She was now eating better, drinking milk and water regularly and not standing on chairs to change light bulbs. She had joined a seniors centre where she took regular exercise classes. Without these changes, Clara said she was sure she would now be living in a nursing home.

Physical activity

Aging affects everyone differently, but most people experience some physical limitations as they grow older. Muscles and bones become weaker and bones may change shape, affecting older people's balance, the way they walk and how quickly they react to obstacles. All these factors increase the possibility of falls and fall-related injuries. Exercises that build muscle strength and balance can help prevent falls. Physical activity may also decrease people's fear of falling, improve cardiovascular health, aid in sleep and ease depressed moods.

A summary of key points

- Exercise programs that focus on strength training, balance and endurance may be effective in reducing falls
- Balance training (such as Tai Chi) is a component in most successful physical activity programs for falls prevention
- Physical activity programs must be regular and sustained to be effective; they should be planned for the long-term and include motivating factors, such as opportunities to socialize
- Caution should be used in developing exercise programs for specific groups of seniors at risk for falls.

An unclear picture

Not all exercise programs produce positive results. As the story on page 9 shows, some are more effective than others. Other exercise programs show no effect at all, and some actually do more harm than good. For example, in one study, a brisk outdoor walking program for post-menopausal women who had previously

Caution must be taken to ensure that the choice of exercise program does not cause harm. Physical assessments are recommended for seniors before they begin new physical activities.

fallen resulted in significantly more falls in the first year of the program, with no difference in the second year. Questions remain concerning the optimal type of exercise and level of intensity for various groups of seniors. Caution must be taken to ensure that the choice of exercise program does not cause harm. Physical assessments are recommended for seniors before they begin new physical activities.

Please see Section 2, Physical Activity (page 20) for a list of resources.

Fit again through Tai Chi

Last year Ellen Anderson turned 74. Although she had been quite active throughout her life, recently an occasional walk was the extent of her exercise. She knew that she wasn't as fit as she used to be, but really couldn't see herself going to a gym, with all those spandex-clad young people and group showers. Then she saw a sign at the seniors centre inviting people to come out and try Tai Chi—a form of Chinese martial arts that builds balance and flexibility. Ellen had lost her balance and fallen on her front steps two weeks ago. Although she hadn't hurt herself badly, she was bruised and thought that maybe she could have caught herself if her balance was better.

Ellen found out she didn't need any special shoes or clothing to attend the Tai Chi class. She decided to go and convinced one of her friends to join her. Before starting the twice-weekly classes, they were given a simple physical test

of their balance and strength and asked about any falls that they had had in the previous year. Another class in the centre was using stationary bicycles and weight machines to increase strength and endurance. After class, the men and women got together for juice and snacks.

After a year, participants from both classes were reassessed for strength, balance and endurance. They were asked again whether or not they had any falls in the year during which they had taken the exercise classes. Overall, both groups had increased cardiovascular fitness. The people in the Tai Chi class had reduced falls by almost half over the previous year and those using stationary bicycles and weight machines had reduced falls by one third. Ellen feels stronger and is sleeping better. She enjoys Tai Chi and makes it a part of her regular routine.

Home modifications

Most Canadians want to remain in their own homes for as long as possible. Therefore, it is especially important to ensure the safety of older people's homes. The contribution of individual environmental hazards to falls is not known. However, changes that are thought to reduce the chance of falls include removing clutter, scatter rugs and electrical cords, improving lighting, and installing handrails, grab bars and non-skid strips. Successful home safety programs often include some form of support to help seniors make the necessary changes.

A number of factors affect the success of home modification programs in reducing falls and fall-related injuries. The cost of repairs and whether assistance is available to make or pay for them is one of the most important factors. Also, for home modifications to take place, seniors and veterans must first allow people into their homes for an inspection and then agree to alterations that may change the appearance of their homes (for example, stair railings). Some safety features (for example, grab bars) may be perceived as indicators of frailty, a negative stereotype associated with aging. It is often best to involve the people at risk in deciding what would help to reduce their chances of falling. How a program is promoted also affects its acceptance. The story on page 11 highlights some success factors.

Please see Section 2, Home Modifications (page 20) for a home safety checklist, and further information.

A summary of key points

- Home modification is an effective strategy as part of a falls prevention program
- Programs that include financial and/or manual assistance to make home repairs are most successful
- Occupational therapists are well trained in conducting home assessments, and are able to assess a senior's ability to function within a home
- Programs that enlist seniors as volunteers are more likely to be accepted. However, steps must be taken to ensure the privacy and safety of all those involved
- Education and counseling about reducing risk improves home modification programs
- Word-of-mouth attracts those who are ready to make changes to their homes, increasing the success and cost effectiveness of programs.

Lucy Granger makes a difference

Contributing to her community was important to Lucy Granger. As a retired public health nurse, it seemed only natural to volunteer her services for a new community program focused on falls prevention.

The program began by advertising free home assessments by an occupational therapist. Unfortunately, it drew few responses. Disappointed but undaunted, Lucy offered to talk to some people at a local seniors centre. She had had some changes made after her husband's stroke, and thought she could speak about how it had helped them stay in their home. Almost all the people she spoke to over coffee at the centre agreed to a home visit.

With the help of an occupational therapist, Lucy and other volunteers recommended changes ranging from easy things (such as removing scatter rugs and putting a non-slip mat in the bathtub) to more extensive modifications (such as adding a railing to stairs or

installing grab bars in the bathroom). During the visit, volunteers also asked residents to complete a short questionnaire on their history of falls and gave them information on falls prevention.

In a follow-up visit, the volunteers noted that, while most people made the easy changes, fewer than 20 percent had added railings or grab bars. After some effort by the program directors, funding was secured to pay for supplies, and volunteers from a youth training program agreed to make the repairs.

Word of the service spread and the program began receiving calls from people asking for home assessments. Over 90 percent of those visited agreed to the recommended changes, once practical and financial help was available. Those who had had the home modifications done experienced less than half as many falls as before the repairs had been made. Lucy knew her efforts had made a difference!

Education

Education can play an important role in a multifaceted falls prevention program. Seniors and veterans who are unaware of the risks and consequences of falling are unlikely to be motivated to try to prevent them.

A summary of key points

- Education may play an important role in multifaceted falls prevention programs. On its own, however, education may not be effective in reducing falls
- In addition to specific falls prevention messages, providing information and help with diet, alcohol use, medication use and other lifestyle behaviours may be useful
- Group learning may be more effective than individual education.

Information sessions vary, but most include a presentation, time for questions and discussion, and the distribution of print materials. They typically last between one and one and a half hours. Education can take place during home visits, but there are definite advantages to group learning, which encourages socializing and group support. Group sessions should be held in locations that

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are accessible and comfortable for older adults who may have health problems. Health professionals (including family doctors, nurses and occupational therapists) are particularly effective at identifying physical limitations and risk factors due to health. However, trained peer volunteers are good at drawing out personal experiences to highlight practical solutions relevant to senior audiences.

Please see Section 2, Education (page 22) for tips for successful falls prevention workshops, and further information.

An example of a behaviour change program

The Steady As You Go* (SAYGO) program uses a group approach that takes advantage of shared learning. It uses trained seniors to encourage participants to talk about their experiences with falls and any solutions they have found.

Participants attend two 90-minute group sessions. The first begins with a self-assessment of risk for falls due to:

- risky behaviours such as standing on furniture to reach things
- personal physical factors such as balance, leg strength, vision and medication use
- factors in the home and surrounding areas.

Participants are then given tips to reduce their risk for falls, including printed materials and an exercise video.

The second session, conducted approximately one month after the first, is designed to gather information about changes people have made to reduce their risk of falls. In a program evaluation, participants reported reducing seven out of eight risk factors. Those who had fallen in the previous year were half as likely to fall during the program's four-month follow-up period, as compared with those who did not take part.

* See Resources, p. 26

Appropriate medication use

Certain types of medication or combinations of drugs can contribute to falls. The drugs most commonly linked to an increased risk of falling are benzodiazepines, which include tranquilizers and sleeping pills. They are among the most widely prescribed drugs for people aged 65 and over. Recent studies show that their use impairs both cognition and movement. A review of a senior's medicine by his/her physician may reveal the need to adjust, reduce or eliminate the use of some medications.

A summary of key points

- **Some drugs and combinations of drugs can contribute to falls**
- **Medication from the class of drugs known as benzodiazepines (many sleeping pills and tranquilizers) increases the risk of falling among seniors**
- **Withdrawal from these drugs may reduce falls but it is difficult for people to stop using them. A physician's help may be required to provide alternative treatments for anxiety and sleep disorders**
- **Taking vitamin D₃ plus calcium or some osteoporosis medications have been shown to reduce fractures among those who are at risk due to low bone density.**

Research has shown that reducing medication use (especially tranquilizers and sleeping pills) may reduce the risk of falls. In one study, the risk of falling among seniors who had their medications withdrawn and started a home exercise program was reduced by 66 percent, compared with a group of seniors who did not have their medications withdrawn. (Note: Seniors should not stop using their medications without consultation with and support from their family physician.)

Building stronger bones

Fall-related fractures are often linked to a loss of bone density and weakened bone structure. Bone loss among seniors may be caused by lack of exercise, insufficient calcium and Vitamin D in the diet, and inadequate sun exposure. A combination of Vitamin D₃ and calcium, and some osteoporosis medications have been shown to increase bone density and reduce the risk of having a fracture among those with low bone density. It is recommended that seniors consult with their doctors regarding the best medication choice for them.

Please see Section 2, Appropriate Medication Use (page 23) for tools and further information.

A review of Jack Wilson's medications

Jack Wilson, who is 82 years old, was complaining of a painful wrist when he arrived at the emergency department with his daughter. He had stood up to get out of the bath and felt dizzy. As he was getting out to sit on the toilet, he had fallen and injured his wrist. He mentioned to the nurse checking him in that he often gets dizzy when he gets up quickly. His daughter Lorna added that she has found her father unstable on his feet, especially at night. He had fallen twice over the last month without serious injury. This time, though, the x-ray revealed a fracture that required a cast.

Because of the two other falls, the emergency physician reviewed Jack's medications. He was taking two pills for high blood pressure, a tranquilizer for his "nerves" and a sleeping pill at night. The doctor pointed out that the combination of the blood pressure medication with the nerve pills and sleeping pills might have contributed to the fall. In addition, the nerve pill and the

sleeping pill were both benzodiazepines, which could build up in his body, making him unsteady.

A home care nurse visited a few days later. She pointed out that there were no grab bars in the bathroom and there was a scatter rug beside the bed. She also mentioned a new falls prevention program recently started by the public health department. Lorna and Jack decided to participate. The first presentation was given by a pharmacist who spoke about the importance of reviewing the information that is provided when someone purchases a drug for the first time. At home Lorna and Jack read the information with renewed interest and noticed that the side effects of Jack's medications included dizziness. An appointment was made with the family doctor to have all his medications reviewed. As a result, the dose of Jack's blood pressure medicine was reduced and the nerve pill was eliminated.

Health promotion strategies

Community development approaches show promise in finding solutions in falls prevention. By involving seniors, veterans and a broad range of other individuals and organizations in the design and implementation of falls prevention programs, community-based programs can address many of the related factors that cause falls. Involving the community

Successful partnerships, including with seniors and veterans, are a key component of community programs.

from the beginning raises awareness, enhances local acceptance and commitment to the program, and improves access to local expertise, volunteers and resources.

Successful partnerships are a key component of community development. Potential partners for programs include seniors and veterans groups, social service workers, faith groups, local businesses, public health and health promotion workers, pharmacists, product designers (architects, urban planners, developers) and government officials.

A summary of key points

- Seniors and veterans are key participants in the design and implementation of community-based approaches
- Community-wide programs can address the many factors that cause falls
- Involving many community partners increases the chances of success for prevention initiatives
- Partnership among groups in the community improves local ability to address falls by increasing acceptance and involvement to the issue
- Community development programs are needed to advocate for building repairs and changes in building codes that can reduce the risk of falls by seniors.

Health promotion at work

A community development approach to falls prevention can be applied to a variety of situations. In one program, staff helped senior residents in an apartment building develop community organization skills such as lobbying, social marketing, advocacy and counseling to encourage behaviour change. They provided information about the risk factors for falls and worked with the residents to develop action plans specific to their needs. Involving the residents in planning the program meant that it was built on issues and concerns that they had identified. It also expanded social connections within the building through those who chose to become involved.

Another project called the S.T.E.P.S.* Project aimed to create safer environments for those at risk for falling. It increased awareness about the causes of falls in public places, and encouraged

the reduction or elimination of hazards. After consulting with key stakeholders including seniors, government officials, building managers and health and social service workers, S.T.E.P.S. sponsored a hotline so that people could report hazards that contributed to falls. Information from the hotline was relayed to building managers and appropriate municipal officials. Unofficial feedback indicated that about one-third of hazards were repaired and many others were marked to draw attention to them. S.T.E.P.S. also hosted a symposium that brought together health professionals, engineers, city planners, politicians and others to compile recommendations based on the study findings. One result of the S.T.E.P.S. project was greater awareness on the part of municipal engineers—key players because of their ability to initiate structural and environmental changes in the community.

* See Resources, p. 24

Conclusion

The strategies outlined in this handbook have been shown to be effective in preventing falls, when combined in a program that is specific to the needs of the individual. Some approaches will be more successful in addressing risk factors among specific groups than others. A good understanding of the intended audience is important to developing

effective programs. Varying levels of health and fitness, and different cultures, genders and socioeconomic backgrounds may require different approaches. Involving participants in planning programs is highly recommended as a key to success. The resources listed in Section 2 can help guide the development of programs.

References

1. O'Loughlin J, Robitaille Y, Boivin JF, and Suissa S (1993). "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly". *American Journal of Epidemiology*, 137 (3): 342-354.
2. Alexander B, Rivara F, and Wolf ME (1992). "The cost and frequency of hospitalization for fall-related injuries in older adults". *American Journal of Public Health*, 82 (7): 1020-1023.
3. Raina P, Dukeshire S, Chambers L, Toivonen D, and Lindsay J (1997). "Prevalence, risk factors and health care utilization for injuries among Canadian seniors: An analysis of 1994 National Population Health Survey". *IESOP Research Report No. 15*. Hamilton: McMaster University.
4. Rawsby E (1998). "Review of the literature on falls among the elderly". *Image: Journal of Nursing Scholarship*, 30 (1): 47-52.
5. Hygeia Group (1998). *The Economic Burden of Unintentional Injury in Canada*. SMARTRISK.
6. Commonwealth Department of Health and Aged Care, Australia (2000). *National Falls Prevention for Older People Initiative: "Step Out with Confidence". A Study into the Information Needs and Perceptions of Older Australians Concerning Falls and Their Prevention*. Canberra: Managing Innovation Marketing Consultancy Network.
7. Rizzo J, Baker D, McAvay G, and Tinetti M (1996). "The cost-effectiveness of a multi-factorial targeted prevention program for falls among community elderly persons". *Medical Care*, 34 (9): 954-969.

TOOLS *and* RESOURCES

This section of the Handbook provides some practical tools and information on where to find additional resources, including existing programs and web sites. Program planners should note that seniors should be advised to speak with their physicians or other health professionals prior to undertaking falls prevention activities such as exercise, and to changing their nutrition or medication.

Please go to the last part of this handbook – Resources for Falls Prevention Programs – to obtain information on how to access the resources and programs listed in this section.

Self-assessment

Falls Risk Questionnaire: This tool (see box) provides an easy-to-use overall assessment of an individual's risk for falls. This may be followed up with a physical assessment by health professionals.

Are you at risk for a fall?

Do you:

- have frequent slips, trips, near falls or falls?
- have difficulty keeping your balance?
- ever feel dizzy?
- have foot problems?
- have weak muscles or stiff joints?
- have to rush to the bathroom?
- have vision and/or hearing difficulties?
- experience difficulty sleeping?
- experience difficulty concentrating?
- experience shortness of breath?
- forget to regularly check for safety hazards in and around the home?
- walk in places that are uneven, slippery or icy?
- take three or more medications?
- drink alcohol frequently?

If you answered yes to the first question, or to three or more of the other questions, you are at risk for a fall. Talk to a health professional now about ways to prevent falls.

Source: Adapted from *The First Step: Fall Prevention Starts With You*, The Burnaby Coalition To Prevent Falls, Fraser Health Authority.

More information: Programs that provide information on self-assessments for risk of falls by seniors include:

- The First Step: Fall Prevention Starts with You
- Steady As You Go (SAYGO), A Guide for Seniors to Assess Their Risks for Falling
- Falls Prevention Guide for Seniors: Shedding Light on Falls.

Physical assessment

The following physical assessment tools are used by clinicians in assessing fall risk factors.

- Timed Up and Go Test
- Functional Reach Test
- Berg Balance Scale
- Tinetti Balance and Mobility Assessment
- Dynamic Gait Index.

Physical activity

The following resources focus on physical activity for seniors:

- Steady As You Go (SAYGO), A Guide for Seniors to Assess Their Risks for Falling (specific to falls prevention and provides an assessment tool and video)
- Canada's Physical Activity Guide to Healthy Active Living for Older Adults.

Home modifications

The **Home Safety Checklist** on page 21 can be used with seniors as a way to assess risks in the home and to begin a discussion about possible modifications in order to prevent falls.

Other Information: More information on home modifications can be found in the following resources:

- *The Safe Living Guide*, Health Canada
- *Maintaining Seniors' Independence Through Home Adaptations: A Self-Assessment Guide*, Canada Mortgage and Housing Corporation
- *Check for Safety: A Home Falls Prevention Checklist for Older Adults*, U.S. Centres for Disease Control and Prevention
- Health Care Programs, Veterans Affairs Canada.

Home Safety Checklist

	Yes	No	To Do
Are the front steps and walkways leading to your house or apartment in good repair?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are stairs and walkways kept free of snow, ice or leaves?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does the surface of stairs and walkways provide good traction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Throw rugs and scatter mats are dangerous. If you insist on having them, do they have non-skid backing to keep them from slipping?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can you do without them?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are your traffic areas clear of telephone and electrical cords?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is your home, including stairwells, well lit?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are interior stairs in good condition, with a non-skid surface?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are there solid handrails on both sides of the stairway?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are stairs free of clutter?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have a rubber bath mat or a non-slip surface to make your bathtub or shower less slippery?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If you have trouble getting on and off the toilet, do you have a raised toilet seat and a grab bar?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In your kitchen, do you have a stable step stool (with a safety rail) for reaching high places?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you frequently have to walk around furniture in your home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have a phone near your bed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have nightlights in your bedroom and bathroom?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Adapted from *The Safe Living Guide*, Health Canada.

Education

The following tips may be helpful in **planning** a successful workshop on falls prevention.

Plan and publicize

- Survey the community for partners, participants and a workshop location
- Ensure transportation or go to where seniors gather (for example, seniors centres)
- Send personal invitations if possible; they are most successful
- If possible, offer the workshop FREE and provide refreshments
- Include a contact name and phone number on all advertising
- Contact local media outlets and offer to write an article and to be interviewed
- Be topical: gear the session to the season and include recent falls-related news or events.

Plan for safety and comfort

- Choose an accessible, comfortable and welcoming location
- Make it easy for people to see and hear
- Lighting should not be overly bright or dim. The speaker should not stand in front of a window
- Include a stretch break half-way through the session
- Use a photocopier to enlarge print materials if needed (font of at least 12 point is recommended.)

Make it easy to follow

- Provide or post an agenda
- Speak clearly and encourage others to speak one at a time
- Write key words on a flipchart
- Avoid technical and professional jargon
- Use concrete examples whenever possible
- Use visual aids (show a cane or a step-stool) when appropriate
- Present information and design activities as if there are people in the group who cannot read or write.

Foster participation and peer learning

- Aim to have 12 to 15 participants (this number is ideal)
- Arrange chairs in a semi-circle
- Encourage participants to provide information about their experiences and use the opportunity to clarify and expand as needed
- Everyone teaches; everyone learns
- Avoid a lengthy lecture style; the entire session should be no more than two hours long, including time to socialize
- Provide handouts and follow-up to reinforce learning and help remove barriers to change (for example, with a telephone call one week after the session)
- Provide a list of resources and contact names for participants to follow-up with.

Appropriate medication use

The list on the following page provides seniors with basic information on appropriate medication use.

Minding your medicine

If you take medication, follow this general advice:

- Tell ALL your doctors and your pharmacist about ALL of the medicine you are taking—prescription, over-the-counter and herbal—as well as your use of alcohol
- Plan to have all medications reviewed regularly with your doctor. Keep a list of medications you are currently taking in your wallet
- Take your medications as prescribed. Speak with your physician before making any changes in how you use your medications (prescription, over-the-counter and herbal)
- If you react to a medicine or experience side effects, tell your doctor or pharmacist. Your doctor may adjust the dosage
- Talk to your health care professional about alternatives to medication. Medication may not always be the best solution
- When you get a new medicine, ask these questions and make sure you understand the answers
 - What is the name of the medication and what does it do?
 - How and when do I take it, and for how long?
 - Are there any side effects and what should I do if I get any?
 - Will this medication interact with any other medicine I am taking?
 - What food, drinks or other medicine should I avoid when I take this medicine?
 - Do you have any written information about the medicine?

Source: Adapted from *The Safe Living Guide*, Health Canada.

Resources for Falls Prevention Programs

For setting up community programs

Home Safe Home Road Show: Injury Prevention for Seniors in the Community (1998). This resource kit includes a facilitator's guide, videos and related publications (including the *Safe Living Guide*). Some materials, including the video, are available in Chinese (Cantonese). The cost is \$30, including postage (one copy per request). Contact: Health Promotion Programs Assistant, South Riverdale Community Health Centre, (416) 461-1925, fax: (416) 469-3442, e-mail: sdavis@srchc.com

Programme intégré d'équilibre dynamique (PIED). PIED is a ten-week program designed for implementation by health professionals. It aims to reduce three risk factors associated with falls: impaired balance, dangers in the home and unsafe behaviours. A community animation guide costs \$20. Contact: Direction de la santé publique de Montréal-Centre, (514) 528-2400 ext. 3646, www.santepub-mtl.qc.ca/Aines/accueil.html.

Taking S.T.E.P.S: Modifying Pedestrian Environments to Reduce the Risk of Missteps and Falls (1996). This manual helps organizers identify and address the safety needs of pedestrians at risk of injury from missteps, falls or collisions with objects in public places. The cost is \$15.00 plus \$3.00 postage and handling. Contact: Dr. Elaine M. Gallagher, School of Nursing, University of Victoria, (250) 721-7966, fax (250) 721-6231, e-mail: egallagh@HSD.UVIC.ca

Community Action and Injury Prevention (1998). This guide provides support to individuals and community groups who want to take action to prevent injury. Elements of the guide are available at www.opha.on.ca/publications/, which also features **Best Practice Programs for Injury Prevention**. Contact: Kathleen Orth, (416) 367-3313 ext. 22, e-mail: keorth@opha.on.ca

You Can Do It! A Community Guide for Injury Prevention (1992). This guide describes the steps for developing an injury prevention program, including program development, implementation and evaluation. The cost is \$10.00. Contact: University of Alberta, Alberta Centre for Injury Control and Research, (780) 492-6019, fax: (780) 492-7154, e-mail: acicr@ualberta.ca

A Tool Kit to Prevent Senior Falls (1999) (Cat. 099-6393). Materials for developing falls prevention programs include Check for Safety: A Home Falls Prevention Checklist for Older Adults. Free from the U.S. Centres for Disease Control and Prevention web site at www.cdc.gov/ncipc/pub-res/toolkit/toolkit.htm.

Stepsafe (1997). Information on this falls prevention program developed by the Kingston/Frontenac/Lennox and Addington Falls Prevention Coalition is available at www.stepsafe.com.

A Best Practices Guide for the prevention of falls among seniors living in the community (Scott, Dukeshire, Gallagher and Scanlan, 2001). This guide, which is the basis of this handbook, presents the findings of a systematic review of falls prevention programs, focusing on 34 studies that evaluated the effectiveness of falls prevention strategies for community-dwelling seniors. Available free from the Division of Aging and Seniors, Health Canada. Contact: (613) 952-7606, fax: (613) 957-9938, e-mail: seniors@hc-sc.gc.ca or www.hc-sc.gc.ca/seniors-aines/pubs/best_practices/intro_e.htm.

Inventory of Canadian Programs for the Prevention of Falls among Seniors Living in the Community (Scott, Dukeshire, Gallagher and Scanlan, 2001). This companion document to the best practices guide cited above is a national inventory of Canadian programs designed to reduce falls or fall-related injuries among community-dwelling seniors. Free from the Division of Aging and Seniors, Health Canada (see contact information in previous listing) or at www.hc-sc.gc.ca/seniors-aines/pubs/inventory/intro_e.htm.

For individual seniors and veterans

The Safe Living Guide (1997). This booklet presents a thorough guide to home safety for seniors and a few personal success stories. Free from the Division of Aging and Seniors, Health Canada at (613) 952-7606, fax: (613) 957-9938, e-mail: seniors@hc-sc.gc.ca or www.hc-sc.gc.ca.

Bruno and Alice (1999). This booklet presents twelve short stories about two active seniors whose neglect of home safety almost causes them to miss their rendez-vous with love. The stories offer insight into some of the personal preventive measures seniors can take to make their environment safer and prevent injuries. Available free from the Division of Aging and Seniors, Health Canada (see contact information above).

Go for it! A guide to choosing and using assistive devices. Available free from the Division of Aging and Seniors, Health Canada (see contact information above).

Maintaining Seniors' Independence Through Home Adaptations: A Self-Assessment Guide (2001). This publication, developed by Canada Mortgage and Housing Corporation describes various adaptations that can help seniors remain in their homes longer. It also cites two programs that provide financial assistance for home modifications to eligible seniors. Available free of charge. Contact: 1-800-668-2642 or www.cmhc-schl.gc.ca.

Falls Prevention Guide for Seniors: Shedding Light on Falls (1999). This guide, developed by the North York Coalition for Seniors' Falls Prevention, outlines various risks for falling and how they can be prevented. It is available on-line from the Centre for Studies in Aging, Sunnybrook Health Science Centre. www.sunnybrook.utoronto.ca/~csia/Research/falls+post.htm

The First Step: Fall Prevention Starts with You (2001). This handbook for seniors identifies risk factors for falls and suggests "what to do, where to go and who to phone" in the Burnaby, BC area. For a free copy, send your request with a self addressed, 8.5" x 11" stamped envelope c/o Marcia Carr, Coordinator, Geriatric Care, Clinical Nurse Specialist, Geropsychiatry, Burnaby Hospital, 3935 Kincaid Street, Burnaby, BC V5B 2X6.

Check for Safety: A Home Falls Prevention Checklist for Older Adults (1999) (Cat. 099-6156). U.S. Centres for Disease Control and Prevention (CDC). Available at www.cdc.gov/ncipc/pub-res/toolkit/checkforsafety.htm.

Canada's Physical Activity Guide to Healthy Active Living for Older Adults (2000). This easy-to-use guide is geared specifically toward older Canadians. It explains why physical activity is important and offers tips and easy ways to increase physical activity for good health and improved quality of living later in life. Available free of charge. Contact: 1-888-334-9769 or www.paguide.com.

Steady As You Go #1 (SAYGO #1) (1996). This falls prevention program for healthy mobile seniors is designed to address fall risk factors and is delivered by trained senior facilitators, supported by community health professionals. The agency and facilitator manual provides a step-by-step outline of how to implement this program in the community. It is available in French, as *De Pied Ferme* and Chinese, as *Bo Bo Ping On*. The client handbook is \$8 and the agency and facilitator manual is \$65. Contact: Capital Health, Alberta, (780) 413-7955, fax: (780) 482-4194.

Veterans Affairs Canada, Health Care Programs. Veterans and other qualified clients may be eligible for a variety of programs and services, including Aids for Daily Living, to assist the purchase of assistive devices such as walkers, canes, or orthotic devices. Contact Veterans Affairs Canada District Office, listed in the blue pages of your phone book.

Web sites of interest

Health Canada, Division of Aging and Seniors – Offers programs and publications related to the Canadian senior population.
www.hc-sc.gc.ca/seniors-aines/

Canadian Health Network – The home page for a number of organizations and consumer information related to health.
www.canadian-health-network.ca/1seniors.html/

University of Alberta, Alberta Centre for Injury Control and Research – ACICR strengthens and helps coordinate injury control in Alberta and provides support for agencies, practitioners and other key stakeholders who do work related to injury prevention, emergency medical services, acute care and rehabilitation.
www.med.ualberta.ca/acicr

University of Ottawa – The Community Health Research Unit (CHRU) is a health system-linked research unit funded by the Ontario Ministry of Health. Includes academic papers on falls and falls prevention, including *Community Action for Fall Prevention, Falls in Later Life, Exploring the Views and Experiences of Lay Community Organizers, Stair Falls Among Seniors, Hazards, Safety Recommendations and Building Codes*. (613) 562-5800 ext. 8040, fax: (613) 562-5658, e-mail: chru@zeus.med.uottawa.ca.
www.uottawa.ca/academic/med/epid/chru_eng.htm

University of Toronto, Centre for Studies in Aging – Contains research on falls prevention and postural control.
www.sunnybrook.utoronto.ca/~csia.
www.swchsc.on.ca/~csia.

SMARTRISK – Established in 1992, this national non-profit organization is dedicated to preventing injuries and saving lives.
www.smartrisk.ca

Safe Communities – The Safe Communities Foundation works in partnership with the private and public sectors to improve the health and safety of workers and people throughout your community.
www.safecommunities.ca

Canadian Medical Association (CMA) and the CMA Journal –
www.cma.ca and www.cma.ca/cmaj

Safe USA – This public-private partnership aims to reduce fall-related injuries and deaths in the United States.
www.cdc.gov/safeusa/olderfalls.htm