Falls Prevention Training for
Strategies and Actions for Independent Living (SAIL)

ABSTRACT
This article describes a quasi-experimental study on falls prevention for clients of home support services in British Columbia, Canada. The study tested a nurse-designed multifactorial intervention, delivered by community health workers. The intervention consisted of 1 day of falls surveillance and prevention training for 51 community health workers, followed by 6 months of evidence-based interventions with their clients ($n = 70$) using a pretested Checklist and Action Plan. Study findings showed a 43% reduction ($\chi^2 = 8.742, p < .01$) in falls and a 44% reduction ($\chi^2 = 5.739, p < .05$) for fallers (those who fell once or more) from the 6-month preintervention period to postintervention. The proportion of falls resulting in any injury did not decrease; however, fractures were reduced from seven in the 6-month preintervention period to one following the intervention. The results indicate this intervention is an effective and inexpensive falls prevention strategy for frail recipients of home support services.
Prevention of falls and related injuries poses a major challenge for nurses and allied health professionals. Falls are the most common cause of injury for those ages 35 and older. In 2001 and 2002, hospitalizations for fall-related injuries for Canadians ages 35 to 64 accounted for 45% of all injury-related admissions, and for those ages 65 and older, falls accounted for 85% of injury-related admissions (Canadian Institute for Health Information, 2004).

Thirty percent of individuals ages 65 and older who live in the community will experience at least one fall each year, and approximately half of these will experience two or more falls (O’Loughlin, Robitaille, Boivin, & Suissa, 1993; Tinetti et al., 1994). Almost half of those who fall experience a minor injury, and 5% to 25% sustain a serious injury such as a fracture or a sprain (Alexander, Rivara, & Wolf, 1992; Nevitt, Cummings, & Hudes, 1991). However, little is known about the rates of falls and injuries among adults who live in the community and receive home support services.

Extensive research has been conducted to determine the most common risk factors associated with falls in both community and institutional settings. A limited number of these studies pertained to persons receiving home support services. Such individuals are typically medically unstable; have severe mobility, cognitive impairments, or both; and are in need of assistance with activities of daily living. These same conditions are associated with an increased risk for falling and being injured. One study that examined fall risk factors among home support clients found gender, gait, environmental hazards, health changes, end-stage disease, medical problems, cognitive limitations, Parkinson’s disease, and perceived health status were associated with falling (Fletcher & Hirdes, 2002).

Major efforts have been undertaken to establish best practices for nurses and allied professionals in reducing falls. Systematic reviews and meta-analyses of randomized controlled trials on falls prevention indicate multifactorial interventions with multidisciplinary clinical support are more effective than single strategies such as exercise, education, environmental modifications, or clinical assessments (Chang et al., 2004; Gillespie et al., 2003; Hill et al., 2004).

However, studies of fall prevention interventions for community older adults tend to focus on well older adults. Little is known about the benefits of multifactorial interventions among frail older adults and younger adults who receive ongoing home support services.

An examination of current clinical practice for preventing falls among this clientele suggests many registered nurses, physical therapists, and occupational therapists do conduct routine assessments of home care clients’ risks of falls. They frequently conduct home safety assessments and undertake some form of fall prevention education and other interventions (Robertson, Devlin, Gardner, & Campbell, 2001).

However, because of the heavy caseloads of most of these health workers, there is often little opportunity for the introduction of individually tailored falls prevention strategies or for monitoring intervention outcomes and changes in risk. In addition, tools used for such assessments may not be standardized and often lack rigorous reliability and validity testing. Current interventions also lack standardization and may not conform to evidence-based practices.

The traditional role of community health workers involves providing assistance with activities such as bathing, dressing, and food preparation. Given this close interpersonal contact between community health workers and their clients and the opportunity for community health workers.
workers to monitor health changes, the authors initiated this study to determine whether community health workers could expand their role to include fall risk assessment and first-level multifactorial interventions with appropriate training and guidance by nurses and therapists. The study specifically examined the effects of a multifactorial approach to falls prevention among clients of home support services through the introduction of a program titled Strategies and Actions for Independent Living (SAIL).

It was envisaged that nurses and therapists would provide the training and supervision of the community health workers and respond to client needs identified by community health workers and clients. This collaborative study was planned with input from home care nurses, therapists, community health workers, and the nurse researchers.

The two study questions were:

- What is the experience of community health workers who undergo training to implement a standardized fall prevention protocol?
- Would initiation of the standardized protocol reduce fall risk, falls, and fall-related injuries among adult clients?

**METHODS**

**Study Design**

This study was designed to reduce falls and fall-related injuries among adult clients receiving community home support services. Study objectives were to evaluate the impact of a 1-day training session and subsequent 6-month multifactorial intervention (Falls Prevention Checklist and Action Plan® [C&A]) for community health workers and to evaluate the effects of the program on falls and related injuries among home support clients for a 6-month period.

The intervention commenced with a 1-day training session for community health workers. Topics covered in the training included an overview of the scope and nature of the problem and proven fall-prevention strategies. It also addressed theory-based health promotion approaches such as recognizing the client’s readiness for and perceived ability to bring about change (Johnston, Riva, Cumming, & Tinetti, 1999; Norcross & Prochaska, 2002; Rubenstein & Josephson, 2002).

Specific training was given on the use of the 83-item C&A. The training also stressed the importance of working in partnership with clients, their families, and other professionals. This required a shift from community health workers’ traditional approach of doing things to or for clients.

The C&A guided community health workers and their clients through a series of questions on fall risk that triggered recommended actions for prevention. It was designed so discussion with clients on fall risk and prevention could fit into the daily routine of care and existing schedules.

Questions were based on proven biological, behavioral, environmental, and socioeconomic fall risk factors (Scott, Peck, & Kendall, 2004). These included: prior falls, muscle weakness, gait and balance deficits, visual impairment, cognitive and functional limitations, depression, the use of psychotropic medications, unsafe stairs, poor lighting, and uneven or slippery walking surfaces (Leipzig, Cumming, & Tinetti, 1999; Rubenstein & Josephson, 2002).

Recommended evidence-based interventions included education, routine exercise, environmental modification, health assessment and maintenance, medication modification, and physical and occupational therapy interventions for the appropriate use of assistive and protective devices (Gillespie et al., 2003; Scott et al., 2004; U.S. Department of Health and Human Services, 2003). Community health workers were instructed to follow the steps of the C&A to help them facilitate clients’ changes within the scope of their practice and to refer clients to other resources outside of their scope of practice through liaison with their nurse supervisors.

**Data Collection**

Prior to the start of the intervention, trained research assistants collected demographic and health status data as well as information on prior falls and related injuries during client in-home interviews. During the intervention period, identified risk factors and actions reported by clients were recorded by the community health workers on the C&A tool. On-site study coordinators oversaw the daily operations of the study, including monitoring the quality of data collection as well as providing guidance and ongoing feedback to the community health workers on their progress.

Data were collected using the following methods:

- Community health worker demographics questionnaire.
- Community health worker training evaluation questionnaire.
- Client demographic and health questionnaire.
- Client falls history and related injuries in the preceding 6 months.
- C&A.
- Falls Surveillance Report®.

The C&A was designed to identify potential risk and provide suggested actions to reduce the fall risk in the areas of activity, environment, equipment/clothing, health maintenance, and falls education. Content validity of this tool was assessed for consistency with the literature on fall risk and effective prevention, and for appropriateness for the target population. The Falls Surveillance report was used by community health workers to record client falls, related injury, fall location, and conditions apparent at the time of the fall during the 6-month intervention period.

**Setting and Recruitment**

Three sites were selected in British Columbia, Canada, to represent two rural towns with populations less than 10,000 and an urban city with a population greater than 300,000. Criteria for community health worker participation included having at least two
eligible clients with whom the workers could apply their training.

Eligibility criteria for clients included being ambulatory (with or without mobility aids), receiving publicly funded home support services, and being able to complete a pre- and postquestionnaire at the beginning and end of the 6-month study. A total of 57 community health workers and subsequently 87 of their home support clients volunteered to participate in the program.

The supervisors of the three home support agencies agreed to consistently assign these clients to the trained community health workers for the 6-month intervention period. This was a convenience sample as no efforts were made to randomly select the community health workers or clients. All participants gave informed consent per approved University of British Columbia ethical review guidelines.

**Statistical Analysis**

Descriptive statistics were used to profile the C&A and Falls Surveillance tool findings. Bivariate analyses, including chi-square and t tests, were used to test the differences between community health workers and clients who completed the study and those who did not. Bivariate analyses also were conducted to test differences between sites and to test for statistical significance in falls and injury rates comparing the 6-month preintervention rates with the 6 months following enrollment. Statistics were computed using Statistical Package for the Social Sciences version 12.0 (SPSS Inc., Chicago, IL).

**RESULTS**

**Demographics**

Six of the 57 community health workers withdrew from the study because of disability or sick leave, or because they left the service agency. The remaining 51 community health workers ranged in age between 20 and 62 years, with an average age of 48.8 years ($SD = 8.4$) (Table 1). All but one of the workers were women.

The number of years worked ranged from 1 to 29 years, with an average of 11.7 years ($SD = 6.5$). These findings are similar to those for the general population of community health workers in Canada, who consist primarily of women and have an average age of 48 years, with more than 10 years experience in home care (Cloutier, David, Prevost, & Teiger, 1999). There were no significant differences between community health workers who completed the study and those who dropped out (Table 1).

Seventeen of the 87 clients did not complete the study because of illness or death, or because they were unable or unwilling to complete the postintervention assessments. Two clients whose community health workers dropped out were reassigned to another community health worker who had completed the training.

Of the 70 clients who completed the intervention phase, 55 (79%) were women and 15 (21%) were men. Clients ranged in age from 47 to 100 years, with an average age of 82.5 years ($SD = 10.4$) (Table 2). The majority of clients had a normal body mass index (48%), required assistance with transferring (74%), and lived alone (71%). The average number of health conditions reported was 5.9.

The average number of hours clients spent indoors each day was 22.1, and on average only 2 hours a day were spent walking. Bivariate analysis showed no statistically significant differences between clients who completed the study and those who dropped out, with the exception of the number of health conditions reported.

<table>
<thead>
<tr>
<th><strong>TABLE 1</strong> DEMOGRAPHICS FOR COMMUNITY HEALTH WORKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Women, n (%)</td>
</tr>
<tr>
<td>Age (years), mean ± SD</td>
</tr>
<tr>
<td>Years worked, mean ± SD</td>
</tr>
<tr>
<td>Training completed in British Columbia, n (%)</td>
</tr>
</tbody>
</table>

* $\chi^2$ with correction was calculated if the expected or actual number in the cell was < 5.
† $\chi^2$ test.
‡ t test.
On average, those who dropped out reported more health conditions (7.5, SD = 2.3) compared to those who remained in the study (5.9, SD = 2.9) (Table 2).

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Clients Who Completed Study (n = 70)</th>
<th>Clients Who Dropped Out (n = 17)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female, n (%)</td>
<td>55 (79)</td>
<td>12 (71)</td>
<td>0.145‡</td>
</tr>
<tr>
<td>Age (years), mean ± SD</td>
<td>82.5 ± 10.4</td>
<td>80.1 ± 8.5</td>
<td>0.88**</td>
</tr>
<tr>
<td>Use of walking aid, n (%)</td>
<td>66 (94)</td>
<td>15 (88)</td>
<td>0.122‡</td>
</tr>
<tr>
<td>Body mass index, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal (18.5 to 24.9)</td>
<td>32 (48)</td>
<td>6 (43)</td>
<td>0.000‡</td>
</tr>
<tr>
<td>Underweight (&gt; 18.5)</td>
<td>8 (12)</td>
<td>1 (7)</td>
<td>—</td>
</tr>
<tr>
<td>Overweight (25 to 29.9)</td>
<td>16 (24)</td>
<td>5 (36)</td>
<td>0.167‡</td>
</tr>
<tr>
<td>Obese (&gt; 30)</td>
<td>10 (15)</td>
<td>2 (14)</td>
<td>0.000‡</td>
</tr>
<tr>
<td>Transfer assistance, n (%)</td>
<td>52 (74)</td>
<td>10 (59)</td>
<td>1.597‡</td>
</tr>
<tr>
<td>Lives alone, n (%)</td>
<td>50 (71)</td>
<td>11 (65)</td>
<td>0.295‡</td>
</tr>
<tr>
<td>Number of health conditions,</td>
<td>5.9 ± 2.9</td>
<td>7.5 ± 2.3</td>
<td>2.12**</td>
</tr>
<tr>
<td>mean ± SD</td>
<td></td>
<td></td>
<td>.037*</td>
</tr>
<tr>
<td>Number of hours spent indoors,</td>
<td>22.1 ± 2.0</td>
<td>21.7 ± 1.8</td>
<td>0.75**</td>
</tr>
<tr>
<td>mean ± SD</td>
<td></td>
<td></td>
<td>.453</td>
</tr>
<tr>
<td>Number of hours spent walking,</td>
<td>2.0 ± 2.9</td>
<td>1.2 ± 1.1</td>
<td>1.11**</td>
</tr>
<tr>
<td>mean ± SD</td>
<td></td>
<td></td>
<td>.268</td>
</tr>
</tbody>
</table>

*χ² with correction was calculated if the expected or actual number in the cell was < 5.
† Significant at < .05.
‡ χ² test.
** t test.

Checklist and Action Plan Outcomes

The results of the assessments using the C&A tool were examined in two areas: frequency of reported fall risks and ranking of the risks according to whether actions were taken to reduce the risk. The following is a summary of key findings.

Community health workers assessed 81 of the 83 items on the C&A tool to be present for 1 or more of their clients. Of these, 1 or more clients took action to reduce the risk for 69 items. The 10 most frequently selected items and the proportion of clients who took action are listed in Table 3.

Fifty-eight (86%) clients reported getting out of bed during the night as being a problem area. However, less than half reported making a change to reduce this falls risk (41%, n = 24). Actions taken to reduce this risk included rising more slowly to reduce hypotension or reviewing relevant medications with a physician or pharmacist to reduce those that might contribute to fall risk.

Other problem areas identified by clients included not being able to balance while showering (69%, n = 47), not exercising regularly (63%, n = 43), and not participating in social activities (59%, n = 40). Action taken to improve balance in the shower included acquiring equipment such as a grab bar. Lack of exercise was addressed by increasing participation in exercise programs. Only 1 client

(t = 2.12, p = .037). On average, those who dropped out reported more health conditions (7.5, SD = 2.3) compared to those who remained in the study (5.9, SD = 2.9) (Table 2).
increased social activity; the majority of clients stated lack of transporta-
tion was the main barrier to making a change in this area.

The most frequent change was made by clients (n = 37) who identi-
fied they bent over to pick up objects. Twenty-two (59%) of these clients
reported they purchased or started using a long-handed grabbing tool
to reduce their risk. Recommended changes least likely to be taken by
this group of clients were those that involved structural alterations to the
home or considerable expense.

**Pretest and Posttest Measures**

Data on prior falls were collect-
ed during the in-home interviews
with clients prior to the start of the
intervention. A fall was defined as
unintentionally coming to a rest on
the ground, floor, or other lower
level, regardless of whether the fall
resulted in injury. Seventy-five falls
were reported among 45 of the 70
clients in the 6 months prior to the
intervention.

During the 6-month intervention
phase, 43 falls were reported among
25 of the 70 clients. Of the 25 fallers,
18 (70%) were women and 7 (30%)
were men.

Thirty-nine (91%) falls occurred
indoors, with the three most com-
mon locations being the bedroom
(23%, n = 10), the bathroom (23%,
n = 10), and the living room (19%,
n = 8). Information on the time of
fall was provided for 38 falls. Falls
occurred more frequently in the
afternoon between 12:00 p.m. and
6:00 p.m. (34%, n = 13), followed by
6:00 p.m. to 12:00 a.m. (26%, n = 10),
6:00 a.m. to 12 p.m. (22%, n = 8), and
12:00 a.m. to 6:00 a.m. (18%, n = 7).

Table 4 shows the circumstances
surrounding falls based on clients’
reports of their activity at the time of
the fall, their surrounding environ-
ment, and any health problems they
were experiencing at the time of the
fall. Walking, bending, and getting
out of a bed or chair alone were the
most frequently reported activities.

No handrails, uneven surfaces, and
> 2 m to the nearest rest area were
identified as the most frequently re-
ported environmental problems at the
time of the fall. The most frequently
reported health problem at the time
of the fall was poor balance or gait.

**Falls Preintervention Versus
Postintervention**

Study findings showed a 43% re-
duction in falls between the 6-month
preintervention period and postinter-
vention (χ² = 8.742, p < .01). The rates
are reported per 1,000 person days to
account for the differences in sample
sizes at each site. The change in the
rate of falls from the 6-month prein-
tervention period to the end of the in-
tervention varied across sites, with the
overall rate decreasing from 5.9 to 3.4
falls per 1,000 person days (Table 5).

Two sites (one urban and one rural)
contributed to this decrease, while the
other rural site showed a small increase
from the 6-month preintervention pe-
riod to the end of the intervention (5.2
to 6.3 falls per 1,000 per days).

During the 6-month preinte-
ervention period, there were 45 fallers
(those who fell once or more). By the
end of the intervention, this was re-
duced to 25 fallers, representing a 44%
decrease (χ² = 5.739, p < .05). The
rate of fallers per 1,000 person days
decreased at all three sites from the 6-
month preintervention period to the
end of the intervention (Table 6). The
total rate decreased from 3.6 fallers
per 1,000 person days during the 6-
month preintervention period to 2.0
fallers at the end of the intervention.

Average age was 85 years (SD = 11) for fallers compared to 81

<table>
<thead>
<tr>
<th>Identified Problem</th>
<th>Self-Identified Risk</th>
<th>Took Action to Reduce Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting out of bed during the night</td>
<td>58 (86)</td>
<td>24 (41)</td>
</tr>
<tr>
<td>Lack of balance while standing in shower</td>
<td>47 (69)</td>
<td>14 (30)</td>
</tr>
<tr>
<td>Not exercising regularly outside of home</td>
<td>43 (63)</td>
<td>10 (23)</td>
</tr>
<tr>
<td>Lack of regular social and recreational activities</td>
<td>40 (59)</td>
<td>1 (3)</td>
</tr>
<tr>
<td>Restricted activities because of a prior fall</td>
<td>38 (58)</td>
<td>1 (3)</td>
</tr>
<tr>
<td>Bending over to pick up fallen objects†</td>
<td>37 (56)</td>
<td>22 (59)</td>
</tr>
<tr>
<td>Not exercising in home</td>
<td>33 (49)</td>
<td>16 (48)</td>
</tr>
<tr>
<td>Not reporting public hazards</td>
<td>30 (46)</td>
<td>9 (30)</td>
</tr>
<tr>
<td>Lack of mobility aid maintenance</td>
<td>30 (45)</td>
<td>10 (33)</td>
</tr>
<tr>
<td>Not having night-lights in bedroom</td>
<td>29 (43)</td>
<td>6 (21)</td>
</tr>
</tbody>
</table>

*Based on 68 clients.
†Findings may have been influenced by clients being offered a gift (value < U.S. $7.00) of a shoehorn, flashlight, or long-handed grabbing tool.
years ($SD = 10$) for non-fallers. In addition to fallers being older, they were more likely to have hearing or vision problems and depression compared to non-fallers. While these findings are clinically important, bivariate analysis did not show statistical significance. However, having fallen in the 6 months prior to the study was highly predictive of falling during the intervention period ($\chi^2 = 17.0$, $df = 1$, $p < .001$).

There was a 39% decrease in the number of falls that resulted in injury; 51 falls resulting in injury occurred during the 6-month preintervention period compared with 31 falls resulting in injury at the end of the intervention. However, this reflects the drop in the number of falls rather than a decrease in the proportion of falls resulting in injury.

Of the 43 falls during the intervention phase, 72% ($n = 31$) resulted in injury. This was a slight increase from the 68% ($n = 51$) injury rate for the 75 falls that occurred during the 6-month preintervention period. Severe injuries (i.e., those requiring emergency department visits) decreased from 18 (24%) during the 6-month preintervention period to 8 (19%) at the end of the intervention. Seven fractures to the hip or other bones were reported during the 6-month preintervention period compared to one hip fracture and two concussions reported during the intervention period.

**DISCUSSION**

The significant reduction in falls and fallers during the 6-month intervention period indicates the 1-day training session and guided intervention show promise. However, it is difficult to attribute the results solely to the intervention as this was not a randomized trial with a control group, and factors other than the intervention may have influenced the results.

Furthermore, falls in the prior 6 months were based on client recall, which tends to be associated with underreporting (Hale, Delaney, & Cable, 1993). Sampling bias also may have influenced the results, as clients with moderate to severe dementia did not meet the eligibility criteria for this study. Those who volunteered to participate may have been more receptive to the training and intervention than a population that includes those with dementia. Future research is necessary to

**TABLE 4**

<table>
<thead>
<tr>
<th>Client Activity</th>
<th>Frequency (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>20 (47)</td>
</tr>
<tr>
<td>Bending</td>
<td>18 (42)</td>
</tr>
<tr>
<td>Getting out of chair or bed alone</td>
<td>13 (30)</td>
</tr>
<tr>
<td>Toileting</td>
<td>12 (28)</td>
</tr>
<tr>
<td>Dressing</td>
<td>6 (14)</td>
</tr>
<tr>
<td>Carrying object</td>
<td>4 (9)</td>
</tr>
<tr>
<td>Bathing</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No handrail</td>
<td>10 (23)</td>
</tr>
<tr>
<td>Uneven surface</td>
<td>7 (16)</td>
</tr>
<tr>
<td>&gt; 2 m to rest area</td>
<td>7 (16)</td>
</tr>
<tr>
<td>Barefoot</td>
<td>6 (14)</td>
</tr>
<tr>
<td>Clutter or obstacles in path</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Poorly fitting footwear</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Wet or slippery surface</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Wearing socks only</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (11)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Problems</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance and gait problems</td>
<td>26 (61)</td>
</tr>
<tr>
<td>Dizziness</td>
<td>17 (40)</td>
</tr>
<tr>
<td>Urinary incontinence or urgency</td>
<td>12 (28)</td>
</tr>
<tr>
<td>Acute bacterial or viral infection</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Confusion</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Agitation or aggression</td>
<td>2 (5)</td>
</tr>
<tr>
<td>Foot problem</td>
<td>2 (5)</td>
</tr>
<tr>
<td>Bowel incontinence or urgency</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Weight loss &gt; 5% in past month</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

*More than one condition could be selected for each category.
determine whether dementia impedes this approach to falls prevention. Without randomization of participants and a larger sample size, caution must be used in generalizing these findings to the broader population of community health workers and home support clients. However, considerable learning did occur regarding the nature of falls among this population and the potential for prevention.

The C&A tool proved to be a good resource for understanding which items clients identified as potential fall risks and what measures they were willing to take to reduce these risks. By testing a tool designed for use within current home care service delivery practices, this study was able to show that risk reduction is possible in the home environment and that community health workers and clients can work together toward that goal within existing care plans.

Based on the C&A findings and user feedback on its practical application, the tool will be revised to give priority to items for which there is a combination of greatest risk and potential for action. User feedback suggested a number of items could be removed or collapsed to reduce the tool length. However, before removing items, each will be scrutinized for its potential for reducing risk.

End users also provided six alternate items and recommended interventions that will be considered for the revised version. Further testing of reliability and validity will be conducted on a revised version of this tool.

The surveillance tool also proved to be useful in identifying specific contributing factors linked to individual falls that occurred during the intervention phase and was useful in designing targeted prevention strategies. Pooled surveillance findings also pointed to the need to examine why falls occurred among men more than twice as often as among women. Frequently reported activities at the time of the fall indicated an interaction exists between balance and gait problems, the environment, and movement that involved walking, bending, or rising from a lower level. Home assessments that focus on these interactions would be useful for tailoring fall prevention strategies.

There are considerable cost implications to the 43% reduction in falls and 39% reduction in fall-related injuries between the 6-month preintervention period and the end of the intervention. Falls, even without injury, are associated with an increased risk for future injurious falls and a fear of falling, which leads to reduced activity and weakened muscles (Kressig et al., 2001; Speechley & Tinetti, 1991).

Financial implications for falls with injury include increased workload for care providers, medical costs for clients and their families, and considerable health care costs for injuries requiring emergency treatment or hospitalization. Given that the average cost of hospitalization for a fall-related injury for individuals age 65 and older is Can $18,000 (U.S. $12,000) (Cloutier & Albert, 2001), a program targeted to a high-risk group such as home support clients has the potential for considerable cost savings.

This study has identified a new role for home care nurses in relation to falls prevention. They can become facilitators and trainers in assisting community health workers to conduct first-level risk detection for falls. They also have a role in responding to needs identified from such assessments and in providing ongoing quality assurance and evaluation of such efforts.

### Table 5

<table>
<thead>
<tr>
<th></th>
<th>Site 1 (Urban)</th>
<th>Site 2 (Rural)</th>
<th>Site 3 (Rural)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls during 6 months prior to intervention</td>
<td>32</td>
<td>14</td>
<td>29</td>
<td>75</td>
</tr>
<tr>
<td>Falls during intervention</td>
<td>17</td>
<td>17</td>
<td>9</td>
<td>43</td>
</tr>
<tr>
<td>Preintervention/post-intervention faller rate*</td>
<td>6.5/3.2</td>
<td>5.2/6.3</td>
<td>6.4/2.0</td>
<td>5.9/3.4</td>
</tr>
</tbody>
</table>

*Per 1,000 person days.

### Table 6

<table>
<thead>
<tr>
<th></th>
<th>Site 1 (Urban)</th>
<th>Site 2 (Rural)</th>
<th>Site 3 (Rural)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls during 6 months prior to intervention</td>
<td>24</td>
<td>8</td>
<td>13</td>
<td>45</td>
</tr>
<tr>
<td>Fallers during intervention</td>
<td>13</td>
<td>7</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Preintervention/post-intervention faller rate*</td>
<td>4.4/2.4</td>
<td>3.0/2.6</td>
<td>2.9/1.1</td>
<td>3.6/2.0</td>
</tr>
</tbody>
</table>

*Per 1,000 person days.
KEYPOINTS

FALLS PREVENTION TRAINING

1 With the rapid increase in the number of frail older adults living in the community, falls and related injuries are becoming a significant problem that, without intervention, will place excessive burdens on home health care resources.

2 Under the direction of nursing leadership, the Strategies and Actions for Independent Living (SAIL) program enhanced the ability of community health workers to collaborate with clients, families, and coworkers to reduce individual risk factors for falling and improve the safety of clients’ home environments.

3 This study demonstrates that nurse and therapist led training using a collaborative approach to implement standardized, evidence-based falls prevention protocols has the potential to significantly reduce falls among home support clients.

REFERENCES


ABOUT THE AUTHORS

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