Better Strength, Better Balance! Partnering to deliver a fall prevention program for older adults

Darcie Taing, BScN, RN, MN, CCHN(C),¹ Kelly McKay, BScN, RN, Dip. Prog. Eval²

ABSTRACT

SETTING: Falls incur significant health and economic costs, particularly among older adults. Physical activity has been found to be the single most important fall prevention behaviour an older adult can do. This manuscript describes Ottawa Public Health's (OPH) experience implementing the Better Strength, Better Balance! (BSBB) program, a fall prevention exercise program for older adults, through an innovative partnership with the local Recreation, Cultural & Facility Services (RCFS) Department. BSBB aims to reach 1300 community-dwelling adults (aged 65 years and older) per year through approximately 86–130 exercise programs. Designed as a universal program, BSBB addresses participation barriers such as transportation, cost and location. BSBB was enabled with funding from the Champlain Local Health Integration Network, and coincided with the implementation of an Older Adult Plan for the City of Ottawa.

INTERVENTION: BSBB is a beginner-level, fall prevention exercise and education program that takes place twice a week, over 12 weeks. Certified RCFS instructors delivered the exercise components of the program and OPH staff incorporated fall prevention messaging and conducted the evaluation.

OUTCOMES: The formative evaluation indicated that participants experienced improved strength and balance, decreased fear of falling and the intent to adopt new fall prevention behaviours following the program. The partnership between OPH and RCFS allowed both partners to leverage their unique and mutual strengths to continually improve the program.

IMPLICATIONS: Improving access to strength and balance programming is an important public health strategy to reduce falls. The recreation sector is an ideal partner to help public health in this pursuit.

KEY WORDS: Aged; exercise; accidental falls; evaluation studies; recreation; public health

La traduction du résumé se trouve à la fin de l'article.

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Falls represent a remarkable health and economic cost across Canada, particularly among older adults. Falls occurring in adults aged 65 years and older accounted for \$3.4 billion nationally in 2010.¹ In Ottawa, approximately one fifth of older Ottawa adults, residing in private homes, fall.² Locally, falls have become the leading cause of injury-related emergency room visits (8200 per year), hospitalization (2100 per year) and death (90 per year) among older adults.^{3–5} The impact of falls on individual quality of life and health systems cannot be denied.

While fall prevention should target multiple risk factors, physical activity has been found to be the single most important fall prevention behaviour an older adult can do.^{6,7} A 2012 survey of community-dwelling older adults living in Ottawa revealed that although nine out of ten adults aged 65 years and older perceive falling as a preventable health concern, many are not taking the recommended steps to decrease their risk of falling.⁸ Of particular concern, only half (51%) of older adults surveyed met current aerobic recommendations* and only 38% met the strength recommendations†.⁹ Recognizing that community-dwelling older

adults are not active enough, promoting and improving their access to appropriate physical activity programs is an important public health intervention.

In 2014, Ottawa Public Health (OPH) and the City of Ottawa Recreation, Cultural & Facility Services (RCFS) Department partnered to provide community-based falls prevention exercise programs known as the Better Strength, Better Balance! (BSBB) program. This manuscript describes OPH's experience developing, implementing and evaluating the BSBB program through an innovative intersectoral partnership with RCFS. Emphasis will be placed on the unique benefits experienced while partnering with the local municipal recreation department, and how this innovative partnership mitigated the challenges faced.

Author Affiliations

1. Family Health Specialist, Ottawa Public Health, Ottawa, ON

2. Program Planning and Evaluation Officer, Ottawa Public Health, Ottawa, ON

Correspondence: Darcie Taing, Ottawa Public Health, 100 Constellation Drive, Ottawa, ON K2G 6J8, Tel: 613-580-6744, ext. 24260, E-mail: Darcie.Taing@ottawa.ca

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* The Canadian Physical Activity Guidelines¹⁰ recommend that all older adults accumulate at least 150 minutes (2½ hours) of moderate- to vigorous-intensity aerobic physical activity per week, in increments of 10 minutes or more.

† The Canadian Physical Activity Guidelines¹⁰ recommend that all older adults add muscle- and bone-strengthening activities at least two days per week.

PARTICIPANTS, SETTING AND INTERVENTION

In 2012, the City of Ottawa developed an Older Adult Plan¹¹ in its quest to become an Age-Friendly city. This plan endorsed OPH and other municipal partners working together to ensure the delivery of *a broad range of opportunities for active living; and to provide supports that are responsive to the diverse needs and choices of older adults*. With funding from the Champlain Local Health Integration Network (CLHIN), RCFS and OPH aligned to develop, implement and evaluate the BSBB program.

BSBB is a beginner-level fall prevention exercise and education program that takes place for one hour, twice a week, over 12 weeks. BSBB targets community-dwelling adults aged 65 years and older. It aims to:

- reduce barriers for older adults in accessing physical activity;
- promote regular physical activity and help older adults meet the Canadian Physical Activity Guidelines[‡] for strength and balance;¹¹
- increase awareness among older adults regarding the six key behaviours^{12–14} known to reduce the risk of falling; and
- establish a sustainable partnership between two municipal departments.

As part of the CLHIN funding, OPH committed to reach 1300 older adults per year through approximately 86–130 exercise programs delivered in the community. These programs considered the following known barriers to falls prevention: denial of fall risk, transportation, effort, cost, and dislike of programming options.¹⁵ Although BSBB focused on physical activity, it was an expectation of the funding that the program also address the broader known fall prevention behaviours, such as annual medication reviews, vision checks and removal of home hazards. During each 12-week program, participants received fitness instruction from instructors with group fitness and senior fitness certification (twice weekly), and fall prevention education and resources. Core components of BSBB stemmed from an existing RCFS program and incorporated, when possible, best practice criteria for fall prevention programs in community-dwelling older adults.¹⁶

Although BSBB was intended to be universal in nature, an equity lens was applied to ensure participation barriers were addressed for vulnerable older adults residing in Ottawa. The program was free and offered in either French or English at locations across the city. Participants who self-identified as having transportation issues were referred to the program coordinator for assistance including bus passes, transit information and venue selection. The programs were also offered in nine low-income older-adult apartment buildings. The only participation criteria imposed was that residents had to be 65 years or older and not require the use of a wheelchair or scooter.

OPH and RCFS have a strong history of collaboration on public health-related policies,¹⁷ coalitions and programming. The partners capitalized on this existing relationship to implement BSBB as per the funding and time requirements. RCFS ensured the

delivery of the programs through their fitness instructors in both RCFS and community facilities. OPH coordinated the program, including: site selection, fall prevention education, resources, and registration through OPH's telehealth line. OPH also conducted the formative evaluation. Through partnership, OPH and RCFS were each able to voice and act on their distinct perspective. RCFS focused on the fitness aspects of the program and had the resources and experience needed to support promotion, registration and delivery. RCFS brought a wealth of experience working within a cost recovery and/or cost generating structure. OPH brought a health promotion perspective and sought out ways this program could have a greater impact on preventing the impact of fall injuries. OPH had experience providing free or low-cost accessible community programming and targeted interventions for vulnerable populations.

EVALUATION METHODS

A formative evaluation was conducted during the initial two 12-week program cycles offered. This allowed for ongoing quality improvement and program revisions. Although the evaluation focused on implementation, questions also addressed participant and instructor perceived impact, community reach and how effective the partnership was between OPH and RCFS. Table 1 describes the various data collection methods employed.

RESULTS

Registration and attendance

During the initial two 12-week cycles of the program, BSBB exceeded its reach targets, with 1539 older adults registered in 74 sessions. OPH's registration telephone lines were overwhelmed by the strong community response to this program and waiting lists were initiated. Of those registered in the program, over 10% did not attend any actual classes. Ongoing participation in the program was assessed. During cycle 1, 34% ($n = 213$) of registrants attended 75% or more of the classes. During cycle 2, 40% of registrants ($n = 292$) attended 75% or more of the classes. Prolonged winter vacations and illness were the two most frequently identified reasons for non-attendance.

Participant satisfaction

Participant satisfaction in the BSBB program was very high. Following cycle 2, 98% ($n = 405$) of participants surveyed agreed or strongly agreed they were satisfied with the program, and 92% ($n = 380$) stated they had learned new information to prevent falls. Over 307 written comments and testimonials were received from participants. Participants expressed appreciation towards the instructors, the accessibility, and the impact of the program. Negative comments focused on the registration process due to the high call volume, communications when changes occurred, and the venues selected due to poor transit (bus) connections, accessibility and parking.

Implementation

During the implementation of BSBB, revisions and improvements occurred in "real time" throughout delivery of the program. Improvements were made to: registration processes, the screening criteria for registrants, venue selection criteria, and instructor

[‡] Adults aged 65 years and older should accumulate at least 150 minutes of moderate to vigorous intensity aerobic physical activity per week, in bouts of 10 minutes or more. It is also beneficial to add muscle- and bone-strengthening activities using major muscle groups at least 2 days per week.

Table 1. Data collection strategies used to inform the evaluation

Method	Target audience/ data source	Description
Focus groups	OPH/RCFS staff, BSBB instructors	Evaluator facilitated session. Assessed with staff what worked, didn't work and recommendations.
Review of registration and class attendance records	Program records	Assessed session participation and dropout rates. Analysis also focused on identifying what proportion of older adults attended at least 75% or more of the classes.
Electronic survey	Instructors	Assessed instructor perceptions of the program and the training/support they received.
Post-program questionnaires	BSBB program participants	Written survey conducted at the final class of each cycle. Assessed participant satisfaction, intent to change, program delivery, fear of falling, and self-reported changes occurring as a result of the program.
Comparison of evaluation data between the first and second cycles of BSBB	Cycle 1 evaluation report	Assessed changes and improvements made between the first two cycles of the program. This enabled OPH to assess compliance with quality improvement recommendations following cycle 1 of the program.

in-service training. A follow-up system with registered participants who were a “no show” was also initiated so someone on the waiting list could take their place.

Outcomes

Participants ($n = 415$) and instructors ($n = 13$) surveyed following cycle 2 of the program reported seeing positive changes as a result of BSBB.

- 94% of participants ($n = 389$) felt they had better strength and balance;
- 86% of participants ($n = 348$) were less worried about falling;
- 98% of participants ($n = 405$) intended to continue exercising after the program;
- 73% of participants ($n = 269$) stated they would adopt at least one or more new fall prevention behaviours as a result of the program; and
- 100% of instructors ($n = 13$) stated they had noticed an improvement in strength, balance and fitness in their class participants.

These results were similar to the changes reported by participants after cycle 1.

Partnership

Focus groups with OPH and RCFS staff identified that both partners contributed significant resources and in-kind staff time to the project. Both partners also expressed they would not have been able to sustain the program without their symbiotic intersectoral relationship and the funding provided by the CLHIN. Improved communication between OPH and RCFS, additional class resources for participants and more specific participation criteria were areas cited for improvement.

KEY FINDINGS

Community uptake

Effective fall prevention exercise programs are tailored to the individual and provided at the right level to allow participants to progress.¹⁶ BSBB was intended to be an entry point for many older adults to physical activity to enhance strength and balance. The evaluation results, however, showed uptake by residents across a wide spectrum of abilities from beginner to advanced. Community-

dwelling older adults have a variety of physical, cognitive and experiential abilities, as well as a myriad of social, economic and accessibility challenges. Although other fitness opportunities exist in Ottawa for adults 65 years and older, most are not fully funded and not all residents are aware of them. As a result, community interest and registration for BSBB was very strong and in some cases, because of full classes, potential registrants had to be deferred.

Despite high registration, attendance was an issue during the initial two cycles of the BSBB program. The evaluation defined strong attendance as attending 75% or more of the classes. Following cycle 2 of the program, only 40% of registrants achieved this. RCFS staff acknowledged that in their industry, free programs often have higher dropout rates and lower participation than cost-based programs. BSBB also saw high repeat registration from clients rather than seeing them progress on to other programs offered in the community. A better understanding of the motivation and barriers for older adults to attend physical activity programming would further inform strategies to improve and sustain attendance.

Working in partnership

Public health and recreation departments typically express similar missions – to support and enable healthy, engaged communities. Despite these shared values, these publicly funded bodies often function independently of each other. The strong partnership formed between OPH and RCFS for the BSBB program was innovative, in that both partners were able to align their shared mandate of becoming an Age-Friendly city, resources and skills to propel the program. The main challenges identified following the cycle 1 & 2 evaluation related to venues, registration, at-home exercises, client-tailored programming, and sustainable resources. In partnership, both OPH and RCFS were able to address these challenges by leveraging their unique and mutual assets and strengths.

During the BSBB program, issues were faced around the appropriateness and accessibility of some of the venues. OPH and RCFS jointly reviewed client satisfaction data collected and the evaluation findings to establish standardized criteria that could be used to enable site selection. The partners then employed these criteria to select RCFS facilities suitable for hosting the program.

To address the high registration volume, RCFS provided OPH with access to their existing electronic registration system (CLASS).

This system handles over 50 000 residents' registrations per year for RCFS programs. With support and training from RCFS, OPH continues to manage the registration using RCFS's system. In addition, OPH has embedded pre-screening questions within the registration process to better assess the appropriateness of the program for each participant prior to registration.

Upon completion of two cycles of the BSBB program, both partners agreed that some standardization was needed for the program's core exercise components. RCFS identified these components from a fitness perspective, while OPH staff validated the exercises selected from a fall prevention perspective. The exercises were then used to provide consistency to BSBB classes and later informed the development of a take-home resource.

RCFS staff have specialized senior fitness training that enables them to tailor exercise programming for broad audiences. The nature of BSBB, however, led to a diverse audience that RCFS had not encountered before. As there were initially limited registration criteria, aside from age, participants presented with a vast range of physical/cognitive abilities, concurrent medical conditions and socio-economic considerations. During the second cycle of the program, RCFS and OPH worked together to ensure health concerns or issues were addressed prior to the first class. OPH staff were able to quickly assess the status of potential BSBB participants during registration and if needed refer potential participants to more appropriate, community programs. By

screening clients through the telephone registration, OPH provided client-centred service and was able to promote other RCFS community programs. As a result, RCFS instructors were able to focus on tailoring the exercise components for their classes, rather than assessing and addressing concurrent health considerations for each individual participant.

Once a screening process was established for the BSBB program, some older adults were declined registration for safety reasons. Referring these frailer older adults to more appropriate community programs became challenging, as few community-based, free or low-cost opportunities existed. Both OPH and RCFS quickly recognized the need for a coordinated and integrated continuum of community-based exercise programs for frail to active older adults. This continuum could help guide residents towards programming options when initiating physical activity or when their health, strength and balance changes. OPH and RCFS are currently developing this continuum in partnership.

The development, implementation and evaluation of BSBB was resource intensive. Substantial in-kind contributions from OPH and RCFS along with the CLHIN funding enabled the program. By leveraging their respective community resources and expertise, OPH and RCFS were able to develop and implement BSBB; however the partners agreed that a sustainable funding model was needed. Collaboratively exploring additional funding options such as: cost recovery models; promoting

Table 2. Additional benefits of partnering with municipal recreation departments

Benefit	Description
Shared accountabilities	<p><i>Public accountability:</i> Similar to public health, municipal recreation departments are funded through tax revenue, and are thus accountable to publicly elected officials. Their mutual need for transparency as well as ethical and equitable service delivery complement each other.</p> <p><i>Information and privacy:</i> In Ontario, both municipal recreation and public health departments operate under the Municipal Freedom of Information and Protection of Privacy Act. This Act dictates how personal information and personal health information can be stored, shared, accessed and disposed. Similar Acts and accountabilities can be found in all provinces in Canada.</p> <p><i>Social determinants of health (SDOH):</i> Although municipal recreation departments often operate on a cost-recovery model, they are also required to ensure affordable and equitable service in the community. Many community-based programs are offered at low cost and subsidies are available for low-income families. The programming options offered through municipal recreation departments extend beyond health and wellness to address crucial SDOH areas such as literacy, education, early child development, social networking, employment skills, and community engagement.</p> <p><i>Accessibility:</i> Municipal recreation programs aim to create accessible, community-based programs and services. Similar to public health, they must provide services that consider language, geographical accessibility and community need. In Ontario, both municipal recreation and public health operate under the Accessibility for Ontarians with Disabilities Act. Similar Acts and accountabilities can be found in other provinces in Canada.</p>
Sustainability	Municipal recreation departments are well established, long-standing pillars in most communities. A stable community presence can be anticipated with this partner.
Shared mandate	In many communities, municipal recreation and public health operate under the same municipality or city services. In Ottawa, both RCFS and OPH exist under the umbrella of the City of Ottawa. Thus these two partners shared the same overarching vision, mission and long-term community goals. In relation to BSBB specifically, both partners worked under a cross-departmental <i>Older Adult Plan</i> for the city.
Resources	In most communities, municipal recreation has unparalleled access to a strong network of infrastructure and resources (community venues, mass registration systems, community outreach services, skilled/knowledgeable workforce) that can advance and support public health programming. By partnering together, municipal resources can be pooled and better leveraged.
Expanded partnerships	Within municipalities, natural symbiotic partnerships often emerge between municipal departments. By working together, recreation and public health can harness and integrate their close partnerships.
Cross promotion of complementary programs	Promoting public health and recreation programming together can be mutually beneficial for the partners and can lead to improved community access. Public Health is viewed as a trusted source for health information, thus well positioned to promote recreation programming. Recreation is a well-recognized service provider, thus well positioned to promote public health messages/programs to diverse audiences.

Table 3. Questions for future research and evaluation opportunities

<i>Impact</i>
What are the impacts of the BSBB program on participant's physical activity and fall risk (at 6 months and 1 year post participation)?
What are the specific physical, social and mental health impacts of programs such as BSBB on participants?
What is the impact of this type of program on participants and their injury/fall rates versus no program? Compare and contrast this program/results in relation to other communities with comparable populations.
<i>Contextual influences</i>
What influence does free versus for-fee programming have on older adult participation in physical activity?
What are the defined contextual influences that lead to a successful physical activity program for older adults?
What are the barriers and mechanisms that promote and or limit access to physical activity for older adults?

existing recreation program subsidies; and bridging the gap between free and existing fee-based programming are proposed next steps.

The literature validates the benefits of working in partnership. Public health partnering with municipal recreation departments however affords many additional and unique benefits (Table 2).

Limitations of the evaluation and areas for future research

The program evaluation for BSBB focused on processes and participant self-report rather than directly observed and or measured changes. No pre or post tests were conducted in participants nor were control groups established. As a result, the influence of the program versus other contextual factors was not clearly defined. High engagement from program participants resulted in rich qualitative data, however inconsistent and incomplete attendance documentation may have introduced error.

The BSBB program evaluation identified multiple areas warranting further exploration, as described in Table 3.

CONCLUSION

Exercise programs designed with fall prevention criteria can prevent and reduce the severity of fall injuries in older adults¹⁸ and show an overall return of investment.¹⁹

By working together, OPH and RCFS were able to accomplish more than they could in isolation. Improving access to strength and balance programming is an important area for public health action; however public health cannot and should not do this alone. The municipal recreation sector is an ideal partnership to help public health champion healthy living.

Between 2015 and 2030, Ottawa's population of adults aged 65 years of age and older is anticipated to grow from 14.6% ($n = 140\,136$) to 21% ($n = 247\,973$).²⁰ Integrating fall prevention messaging into mainstream recreation programming is advantageous for both the public health and the municipal recreation sectors. Existing recreation programming can be re-oriented to better meet community health needs and prevent falls. Public health can benefit from the existing infrastructure, community links and expertise from its partners in municipal recreation.

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RÉSUMÉ

CONTEXTE : Les chutes engendrent d'importants coûts sur le plan de l'économie et de la santé, en particulier chez les personnes âgées. Il a été démontré que l'activité physique est le comportement le plus important à adopter pour prévenir les chutes chez les personnes âgées. Le présent document décrit l'expérience de Santé publique Ottawa (SPO) dans la mise en œuvre du programme En force, en équilibre! (EFEE), un programme d'exercices de prévention des chutes destiné aux personnes âgées qui est exécuté grâce à un partenariat novateur avec la Direction générale des loisirs, de la culture et des installations (DGLCI). EFEE a pour objectif de rejoindre 1300 adultes vivant dans la collectivité (65 ans et plus) chaque année en leur offrant de 86 à 130 programmes d'exercices environ. Conçu en tant que programme universel, EFEE aborde les obstacles à la participation comme le transport, les coûts et l'emplacement. EFEE, qui a pu être offert grâce au financement du Réseau local d'intégration des services de santé de Champlain, a coïncidé avec la mise en œuvre d'un Plan relatif aux personnes âgées de la Ville d'Ottawa.

INTERVENTION : EFEE est un programme d'éducation et d'exercices de prévention des chutes de niveau débutant dont les séances ont lieu deux

fois par semaine pendant 12 semaines. Des instructeurs certifiés de la DGLCI assurent l'exécution du volet exercices du programme, tandis que du personnel de SPO prépare les messages de prévention des chutes et procède à l'évaluation.

RÉSULTATS : L'évaluation formative a révélé que les participants ont amélioré leur résistance et leur équilibre, ont moins peur de tomber et ont l'intention d'adopter de nouveaux comportements de prévention après avoir suivi le programme. Le partenariat entre SPO et la DGLCI a permis aux deux partenaires de mettre leurs forces uniques et mutuelles à profit pour continuer d'améliorer le programme.

CONSÉQUENCES : Faciliter l'accès aux programmes d'amélioration de la résistance et de l'équilibre constitue une stratégie de santé publique importante pour réduire les chutes. Le secteur des loisirs est un partenaire idéal de la santé publique à cet égard.

MOTS CLÉS : âgé; exercice; chutes accidentelles; études d'évaluation; loisirs; santé publique