

Massachusetts Falls Prevention Program Inventory:
A 2012 Baseline Report on Evidence-Based Fall Prevention
Programs Provided to Massachusetts Older Adults

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List of Abbreviations

Term	Abbreviation
Administration on Aging	AOA
Area Agencies on Aging/ Aging Service Access Points	AAA/ASAPs
Assisted Living Residence	ALR
Boston Medical Center Injury Prevention Center	IPC
Centers for Disease Control and Prevention	CDC
Community Action Agency	CAA
Community Health Center	CHC
Council on Aging	COA
Home Health Agency	HHA
Massachusetts Commission on Falls Prevention	MCFP
Massachusetts Department of Public Health	DPH
A Matter of Balance	MOB

Executive Summary

On behalf of the Massachusetts Commission on Falls Prevention (MCFP), the Massachusetts Department of Public Health (DPH) engaged the Injury Prevention Center (IPC) at the Boston Medical Center to develop a statewide baseline inventory of evidence-based fall prevention programs for the index year, 2012. A web based survey was developed in collaboration with the Massachusetts Executive Office of Elderly Affairs, the DPH, and associations of organizations deemed likely to have provided falls prevention programming. Seven types of organizations were targeted to be surveyed: Area Offices on Aging/Aging Service Access Points; Assisted Living Residences; Community Action Agencies; Community Health Centers; Councils on Aging; Home Health Agencies; and YMCAs.

Methods

The survey was administered in two parts. Initially, organization Directors were surveyed to determine if falls prevention programming had been offered by their organization during 2012 (Directors' Survey). If Directors indicated that programming had been provided, they were asked to designate a person to provide program details. These designees were subsequently sent a survey link (Coordinators' Survey).

Survey responses were initially analyzed by organization type. Reports for each organization category were prepared and submitted to the DPH, MCFP and the individual organizations in the category. The present report aggregates all responses across all organizational categories.

In total, 825 organizations were surveyed, of which 457 (55%) responded to the Directors' survey. Of the 457 responding organizations, 53 (12%) offered 107 evidence-based falls prevention programming in 2012 during the year.

Interpretation of our results should be informed by two considerations. First, results do not represent a complete inventory of evidence-based fall prevention programs offered to Massachusetts older adults in 2012. Accordingly, the number of programs and

program participants are undercounted. This undercounting results from several possible factors: not all organizations providing programs were surveyed (e.g., hospitals, housing authorities); some surveyed organizations that provided programs may not have responded to the survey; and the Directors of some surveyed organizations that provided programs may not have been aware of, or may not have recalled, these program, in which case a Coordinators' survey would not have been sent. Nonetheless, we had relatively good response rates from the categories of organizations that conducted the majority of programs. Thus, we believe that the characteristics of programs described in our results are likely representative.

Major Findings

- Infrastructure for community-based falls prevention is developing in Massachusetts

Our results indicate that infrastructure for the deployment of evidence-based falls prevention programs is developing in Massachusetts, as evidenced by the number of programs offered, the geographic distributions of these programs, the salience of falls prevention among a variety of healthcare and older adult services organizations, and the expressed intentions of organizations to offer more programs in the future. It is notable that this dissemination has occurred in the absence of institutionalized funding, organizational mandates, legislative policies, widespread referrals from healthcare providers, and health insurance reimbursement. In general, local organizations at the community level have elected to offer falls prevention programs on their own initiative, and have marketed these programs directly to older adults.

- Predominance of A Matter of Balance

Our findings indicate that the most frequently offered program is A Matter of Balance (MOB). Several factors might account for this, including that: the program is well-documented and manuals and associated materials are available at relatively low cost; a lay-led version of MOB allows individuals without healthcare training to become master trainers who can in turn train lay program facilitators (coaches)

resulting in a large pool from which to draw volunteers to lead programs; and, the availability of small grants from public agencies (e.g., Executive Office of Elder Affairs) and private charitable organizations, most notably in Massachusetts, the Tufts Health Plan Foundation.

- Older adult service organizations have taken the lead

The majority of falls prevention programs we documented were offered by Area Agencies on Aging (AAAs), Aging Service Access Points (ASAPs), and Councils on Aging (COAs), all part of the service network funded by the federal and state offices on aging. Thus, fall prevention programs are a natural complement to existing elder services, such as senior centers, senior transportation shuttles, exercise programs, yoga, meals on wheels, and related support activities. Public funding agencies are increasingly requiring that organizations providing services to older adults provide evidence-based programs. Since MOB is widely (though not universally) accepted as evidence-based for falls prevention, conducting this program helps these service organizations meet requirements for evidence-based programming.

- Availability of facilitator training promotes program dissemination

Access to training probably accounts in part for the extensive deployment of MOB. This observation underscores the importance of accessible training for the future development of falls prevention infrastructure. The DPH recently sponsored training for a version of Tai Chi endorsed for falls prevention. This training initiative included a total of 40 facilitators divided among training programs at three locations across the state. The aim was to increase dissemination of fall prevention balance and strengthening programs. This initiative illustrates the potential role of the state in deploying fall prevention infrastructure. The IPC is currently evaluating this training initiative to determine the number of trainees who conducted programs during the post-training year, the location of these programs, the numbers of older adults served, and the cost of the training program as a function of the number served.

- The majority of programs are provided at little or no cost to participants
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Most falls prevention programs were offered at no cost to participants and half of the programs were internally funded. This probably reflects Title III funding from the federal Administration on Aging (Administration for Community Living), through the state Executive Office of Elder Affairs, to the AAAs, ASAPs, and COAs. But, this finding also underscores the fact that falls prevention programs are inexpensive relative to many healthcare interventions. Assuming that an organization has access to space for conducting programs (e.g., senior centers, churches, schools), the per participant cost of MOB or Tai Chi could be as low as \$100-\$150. The low cost of community-based group falls prevention programs also has implications for the development of state-wide falls prevention infrastructure because it increases the likelihood that health insurers may eventually reimburse for these programs.

- Completion rates indicate that older adults enjoy falls prevention programs

Completion rates for the programs were high. We operationalized completion as attending at least 80% of program sessions. Our data indicate that completion rates for the evidence-based programs ranged from 85-100%. This suggests that older adults value and/or enjoy participating in these falls prevention programs, thus enhancing program effectiveness (as opposed to efficacy alone) and increasing demand for program deployment.

Conclusions

We identified 107 evidence-based programs and estimated these served around 1,000 Massachusetts residents. This is a small number, compared to the nearly one million Massachusetts seniors. Nonetheless, our findings indicate that a nascent infrastructure for providing community falls prevention exists, despite the limitations on funding and limited referrals to programs by primary care physicians. Moreover, the fact that the dissemination of community falls prevention programs is in early stages provides opportunity to shape the development of falls prevention infrastructure for the future.

For several reasons, it is likely that within the next five years, the number of community-based falls prevention programs will proliferate in the state.

- Our data suggest that for many organizations, the salience of falls prevention is high;
- The Directors of many responding organizations indicated intentions to conduct falls prevention programs in the future;
- There is increasing awareness among health care providers and the public in general that many community-dwelling older adults can benefit from participation in falls prevention. This trend will result in greater engagement of health care providers in falls prevention, which, in turn, will increase referrals and thus increase demand for community-based falls prevention programs;
- Healthcare provider awareness and engagement will be accelerated by the availability of instruments for assessing falls risk, such as the CDC's STEADI toolkit and reimbursement for falls risk assessment as part of the annual wellness visit covered by Medicare;
- The evidence base for falls prevention strategies continues to grow as more trials are conducted, results published, and findings compiled in literature reviews and meta-analyses. The recent report to Congress by the Centers for Medicare and Medicaid Services included a retrospective cohort study evaluating MOB. Results indicated that participation in MOB reduced health care costs and had other beneficial health outcomes for older adults. These findings may lead to reimbursement for evidence-based community falls prevention programs by public and commercial health insurers;
- The DPH Prevention and Wellness Trust Fund is currently sponsoring demonstration programs at nine Massachusetts community-based partnerships aimed at increasing integration of clinical and community-based programs. Eight of these partnerships include falls prevention components. If successful, these projects could provide models for other communities, statewide and nationally.

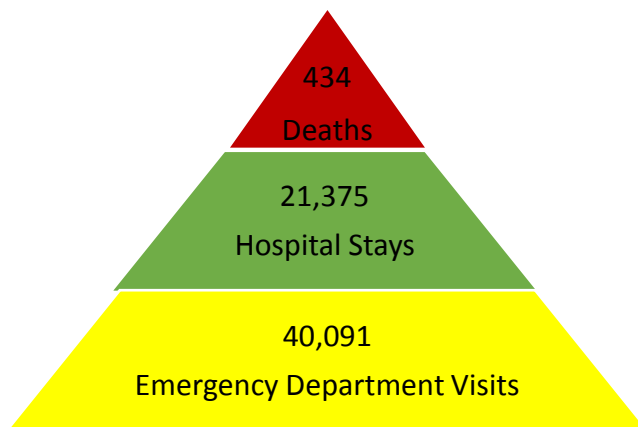
If, indeed, these factors result in a rapid expansion of falls prevention programming, new questions about the nature and integrity of developing falls prevention infrastructure could emerge:

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- Will public and private healthcare insurers reimburse for community-based falls prevention programming?
 - Will a single category of organization become the dominant provider of community-based falls prevention?
 - Will the healthcare system become more engaged in offering falls prevention programming through hospitals, practice management groups, community health centers, or home health agencies?
 - Will Massachusetts YMCAs become more engaged in offering falls prevention programming, given their existing resource base in terms of staffing, physical facilities, and compatible exercise and conditioning programs and equipment?
 - Should the state contribute to the development of falls prevention infrastructure by providing funding for programs and or program facilitator training?
 - Should formal quality control systems be implemented by public or private insurers if they decide to reimburse for community-based falls prevention?
 - Should falls prevention programming be subject to regulation?

As falls prevention infrastructure develops, these and many other issues will likely emerge. Massachusetts, however, is poised to assume a leadership role in how and how rapidly the system develops. The recent creation of the MCFP provides an entity to consider these emerging issues, explore solutions to potential problems, and chart a future of falls prevention in the state.

1. INTRODUCTION

Falls are a significant and costly public health problems that affect millions of older adults nationwide. At least 30% of those age 65 and older experience at least one fall each year and half of those fall repeatedly (MDPH, 2010). In Massachusetts, as elsewhere, falls are the leading cause of injury-related deaths and non-fatal injuries among older adults. Although fall-related death rates are lower in Massachusetts than in the US as a whole, rates are increasing in both the state and the nation. In 2010, fall-related injuries caused 434 deaths among Massachusetts older adults, 21,375 hospital stays, and 40,091 emergency department visits (MDPH, 2010).



Of the Massachusetts older adults treated in acute care hospitals for fall injuries in 2010, 20% had traumatic brain injury and 10% had hip or other femur fractures (MDPH, 2010). The 2010 Massachusetts Behavioral Risk Factor Survey indicated that 35% of older adults who experienced a fall in

the prior three months sought medical attention for their related injuries and/ or restricted activity for at least one day. Non-fatal fall injuries are associated with decreased quality of life, lower functioning and increased healthcare utilization.

The costs of older adult falls are substantial. In 2010, in Massachusetts, falls attributable costs were \$512 million for inpatient care, \$100 million for emergency room visits and \$19 million for observation hospital stays, for a total of \$631 million in direct medical care expenditures (MDPH, 2010). These costs are likely to increase as the population ages.

Nonetheless, several decades of research on falls prevention have yielded relatively low cost, low-tech interventions that are evidence-based for falls prevention. These programs are currently being deployed throughout Massachusetts and the nation and



may eventually be integrated with the healthcare system as physicians become more engaged in falls risk assessment for their older patients, older adults become more aware that falls risk can be reduced, and if or when public and private healthcare insurers provide reimbursement for falls prevention programming.

Evidence-based falls prevention programs can be classified as multifactorial, multiple, or single (Gillespie et al. 2012). Multifactorial programs consist of a falls risk assessment performed by healthcare providers followed by a combination of interventions designed to address the individual risks for a given patient. Multifactorial interventions are typically managed by a primary care physician in a clinical setting. Multiple interventions consist of a fixed combination (e.g. exercise, home safety assessment) usually delivered in a group setting, with all participants receiving the same content, regardless of individual risk factors. Some multiple interventions are designed to be delivered at home, for older adults who are too frail to attend group programs in the community. Examples of multiple programs are A Matter of Balance and Stepping On. Single programs consist of one intervention only, such as exercise and/or balance training. These programs are also often delivered to a group, without individualized content. Examples are various versions of Tai Chi that have been shown to be effective for falls prevention.

Multiple and single programs are often delivered by community-based organizations that serve older adults, such as local Councils on Aging, but are sometimes delivered by healthcare organizations, such as hospitals and community health centers.

On behalf of the Massachusetts Commission on Falls Prevention (MCFP), the Massachusetts Department of Public Health (DPH) engaged the Injury Prevention Center (IPC) at Boston Medical Center to develop a state-wide baseline (2012) inventory of evidence-based community falls prevention programs for older adult Massachusetts residents living independently. A web-based survey was developed to determine: 1) the number and types of evidence-based programs provided in the state; 2) the location of these programs; 3) the number of older adults participating in these programs; 3) the training of program facilitators; 4) the professional background of





program facilitators; and 5) how programs were funded. The aim was to provide the Commission, DPH, organizations that serve older adults and other stakeholders with baseline data on statewide infrastructure for community-based falls prevention interventions. By identifying gaps in program availability by geography, facilitator training, and funding, the results could inform the development of strategies and resource allocation to enhance the state's network of community-based falls prevention programming.

2. METHODS

Operationalizing the Variables

The aim of this project was to develop a snapshot of evidence-based falls prevention infrastructure in Massachusetts during the 2012 index year. Specifically, we were interested in documenting programs that targeted community-dwelling older adults and that met criteria as evidence-based for public and private US funding sources. We could find no single list of evidence-based falls prevention programs that served our purpose. Challenges to developing such a list included the fact that the lists of evidence-based falls prevention programs published by the Centers for Disease Control and Prevention (CDC) and the U.S. Administration on Aging (AOA) differed, with some overlap. Moreover, some agencies use levels of evidence, such as evidence-based vs. evidence supported. In addition, some exercise programs that are not necessarily aimed at falls prevention have been found in clinical trials to reduce falls risk, and therefore could be considered evidence-based for falls prevention. Given these complexities, for the purposes of this project, we developed the following criteria for defining evidence-based falls prevention programs for older adults:

1. Listed in the second edition of the CDC's falls prevention program compendium (2010)
2. Listed as a third evidence tier falls prevention program by the AOA
3. Listed by the AOA as a 1st, 2nd or 3rd evidence tier older adult exercise program that meets the criteria specified by the Sherrington et al (2008) meta-analysis on exercise programs for falls prevention. To satisfy the Sherrington criteria, the program must consist of at least 50 hours of exercise, offer a balance component, and exclude a walking component.

We reviewed our approach with several experts based at public and private agencies that fund falls prevention programming and with several academic falls prevention researchers. In adopting this approach, we acknowledge that as trials are conducted



and published, the list of evidence-based falls prevention programs will change with time and that alternative methods might have yielded lists somewhat different from the one we derived. Nonetheless, we believe that our method was appropriate for our purpose because it focused on programs endorsed by public funding agencies. Table 1 presents the list of evidence-based falls prevention programs used for this survey.

Table 1: List of Evidence-based Falls Prevention Programs

1	Stay Safe, Stay Active (developed by Barnett et al, at Bankstown Hospital)
2	The Otago Exercise Experience (developed by Robertson et al, Dunedin School of Medicine)
3	Erlangen Fitness Intervention (developed by Freiburger et al, Friedrich-Alexander University, Erlangen-Nurnberg)
4	Tai Chi: Moving for Better Balance (developed by Li et al, Oregon Research Institute)
5	Australian Group Exercise Program (developed by Lord et al, Neuroscience Research Australia)
6	Veterans Affairs Group Exercise Program (developed by Rubenstein et al, VA Medical Center, CA)
7	Falls Management Exercise Intervention (FaME) (developed by Skelton et al, Glasgow Caledonian University)
8	Central Sydney Tai Chi (developed by Voukelatos et al, Sydney Southwest Area Health Promotion Service)
9	Simplified Tai Chi (developed by Wolf et al, Emory University School of Medicine)
10	The VIP Trial (developed by Campbell et al, Dunedin School of Medicine)
11	Home Visits by an Occupational Therapist (developed by Cumming et al, University of Sydney)
12	Falls-HIT (Home Intervention Team) (developed by Nikolaus et al, University of Ulm)
13	Stepping On (developed by Clemson et al, University of Sydney)
14	PROFET (Prevention of Falls in the Elderly Trial) (developed by Close et al, Neuroscience Research Australia)
15	Accident & Emergency Fallers (developed by Davison et al, Royal Victoria Infirmary)
16	The NoFalls Intervention (developed by Day et al, Accident Research Centre)
17	The SAFE Health Behavior and Exercise Intervention (developed by Hornbrook et al, Kaiser Permanente Northwest)
18	Multifactorial Falls Prevention Program (developed by Salminen et al, University of Turku)
19	The Winchester Falls Project (developed by Spice et al, Queen Alexandra Hospital)
20	Yale FICSIT (Frailty and Injuries: Cooperative Studies of Intervention Techniques) (developed by Tinetti et al, Yale University School of Medicine)
21	A Multifactorial Program (developed by Wagner et al, Group Health Research Institute)
22	A Matter of Balance (developed by Roybal Center, Boston University)
23	Healthy Moves for Aging Well (developed by Partners in Care Foundation)
24	Stay Active and Independent (SAIL) (developed by Washington State Department of Health)
25	Enhance Fitness (developed by Belza et al, University of Washington, Seattle)
26	Peer Exercise Program Promotes Independence (PEPPI) (developed by the Arkansas Department of Health)
27	Tai Chi 4 Health and Balance (developed by Movement Arts Institute)
28	Bingocize (developed by Crandall et al, Kentucky Wesleyan College)



Survey Participants

Categories of organizations surveyed were Area Agencies on Aging, Aging Services Access Points (AAA/ASAPs), Councils on Aging (COAs), YMCAs, Community Health Centers (CHCs), Assisting Living Residences (ALRs), Home Health Agencies (HHAs), and Community Action Agencies (CAAs). For each category of organization surveyed a tailored format of the survey was developed in collaboration with representatives of the organization (e.g. statewide associations). The data collected, however, were consistent across organization categories.

Administration and Content

A cover letter from the Massachusetts Secretary of Elder Affairs and the Commissioner of the Massachusetts Department of Public Health that explained the purpose of the survey was mailed to organizations' Directors/CEOs.

The actual survey was administered on the web in two parts. The first part, the Directors' Survey, was used to screen for organizations that conducted falls prevention programs in 2012. If a Director indicated that his/her organization conducted or hosted a falls program (evidence-based or other related activities) in 2012, a second more detailed survey (Coordinators' Survey) was sent to a staff person designated by the Director.

Directors' Survey: Directors were asked whether their organizations had conducted or hosted a falls prevention program (evidence-based or other related activities) during 2012; if so, Directors were provided with a list consisting of evidence-based programs and asked to check all that apply. If 'other' was selected, Directors were provided with a list of related activities and asked to check all that apply. If any falls prevention program or activity was provided (evidence-based or other related activities), Directors were asked for the contact information of a designated Coordinator who could provide

programmatic details for the indicated programs. Directors were then asked whether their organizations intended to conduct or host any falls prevention programming during 2013-2014. Finally, Directors were asked about the salience of falls prevention within the context of their organization's mission and service mix. The Directors' Survey took 5-10 minutes to complete.

Coordinators' Survey: This survey was sent to individuals designated by Directors who indicated that at least one falls prevention program was conducted or hosted by the organization in 2012. Designated Coordinators were asked to confirm that a falls prevention program had been conducted or hosted in 2012, and, as in the Directors' survey, they were asked to identify which programs were conducted using lists of evidence-based programs and other related activities. For each evidence-based program identified by Coordinators, we collected the following information on each iteration thereof: (1) start date; (2) end date; (3) location; (4) whether the program was offered directly, or hosted by the organization. When programs began in 2011, but ended in 2012 or began in 2012 and ended in 2013, they were considered to have occurred in 2012 the index year.

Cross-Sectional Sample:

We asked a series of questions related specifically to the **last evidence-based program** offered. This served as a cross-sectional sample of the characteristics of all documented evidence-based programs, without having to collect data on all programs. Although last programs might differ in some respects with preceding programs, we believe that the characteristics described below generally represent the characteristics of the evidence-based programs we inventoried.

For the last evidence-based program delivered in 2012, the Coordinators' survey asked about (1) number of participants enrolled in the program, (2) number of participants completing 80% of the program, (3) whether the programs were led by lay people or human service professionals (Lay individuals are those with no formal healthcare background, while professionals are those with some healthcare credentials.), (4) whether facilitators had received training for the programs they led, (5) the professional

background of the facilitators, (6) information about how the program was funded, and (7) whether fees were charged for program participation. The last program served as a cross-sectional sample of all of the programs offered during the index year (2012).

Data Analysis

The purpose of this project was to describe falls prevention programming in Massachusetts during the index year 2012 with regard to types of programs, locations of programs, numbers of older adults served, and characteristics of those facilitating programs. Accordingly, much of the data presented is aggregated across organizational categories. When relevant, however, some data is presented by organizational categories to provide information on the kinds of organizations that have taken the lead in falls prevention programming in Massachusetts. Such information is of potential use for strategic planning relative to future deployment of resources for falls prevention in the state. We present data in two ways: aggregated across all organizations surveyed; and, by individual organizational categories. This report presents aggregated data.

The number of older adults served was calculated by averaging the reported number of participants for last programs, and multiplying this by the overall number of evidence-based programs documented by responding organizations.

In the case of AAA/ASAPs, data were missing on the number of Directors who designated Coordinators to complete the second component of the survey. Thus, it was not possible to calculate a response rate for AAA/ASAP Coordinators, because the denominator was not available, thus making it difficult to calculate an overall Coordinator response rate. Accordingly, we assumed that the number of Coordinators designated by AAA/ASAP Directors was equal to the number of responding Coordinators (e.g., 100% response rate). Given the very high response rate of AAA/ASAP Directors, this approach seemed reasonable.

Feedback

At the conclusion of the survey for each category of organization, we prepared a report for the DPH and MCFP and sent this organization-specific report to the Directors of all surveyed organizations in the category.

3. RESULTS

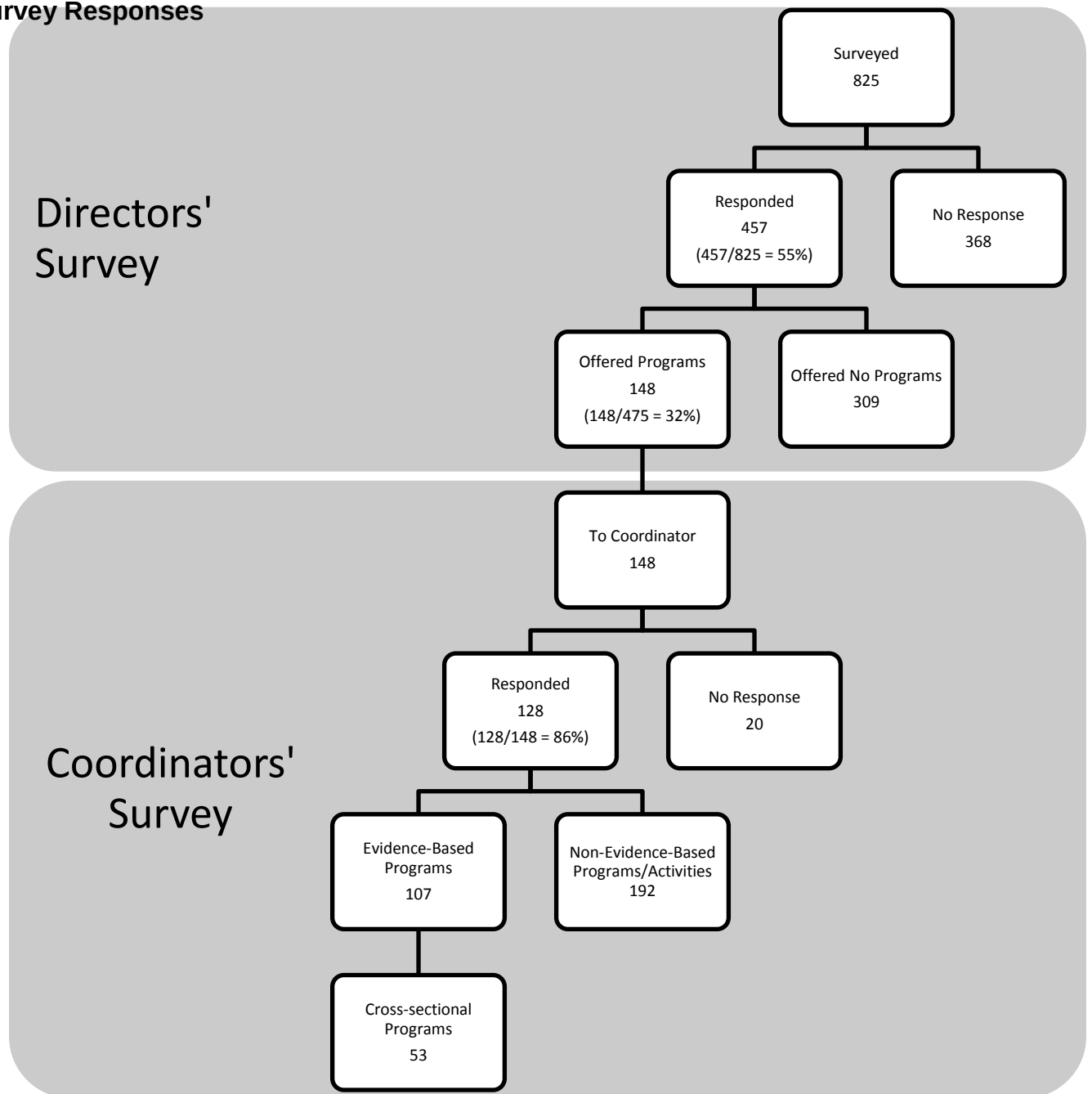
Organizations Surveyed

We surveyed 825 organizations in seven categories that we believed might have offered falls prevention programs to Massachusetts older adults during 2012, our index year. In each case, we surveyed a census of all of the organizations based upon lists provided by interest groups (e.g. Massachusetts Alliance of YMCAs) and/or state registries. We did not sample because one aim of this project was to create an inventory of evidence-based programs. Several types of organizations that might have also offered falls prevention programs were not surveyed, including hospitals, housing authorities, and municipal recreation departments. These groups were not surveyed because: (1) falls prevention is secondary to their missions and (2) each group has a large number of members, which would have made it difficult to obtain response rates yielding reliable data. Thus, our inventory likely undercounts falls prevention programs delivered in Massachusetts during 2012. Table 2 shows the number of organizations surveyed. Figure 1 is a flow chart showing the survey responses to the Directors' and Coordinators' surveys.

Table 2: Number of Organizations Surveyed by Organization Category

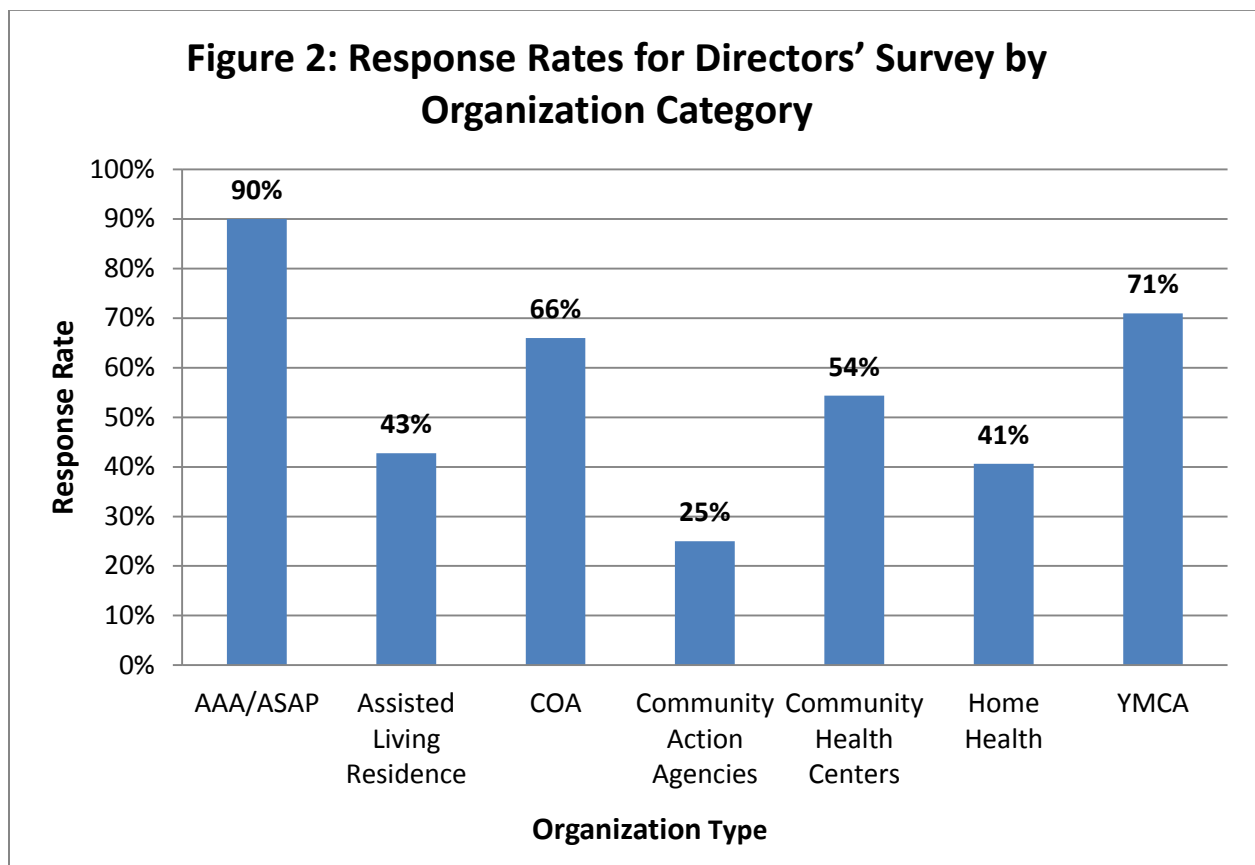
AAA/ASAPs	30
Assisted Living Residence	213
COA	347
Community Action Agencies	24
Community Health Centers	57
Home Health Agencies	123
YMCA	31 (representing 82 YMCA branches)
Total Organizations Surveyed	825

**Figure 1: Flow Chart of
Survey Responses**

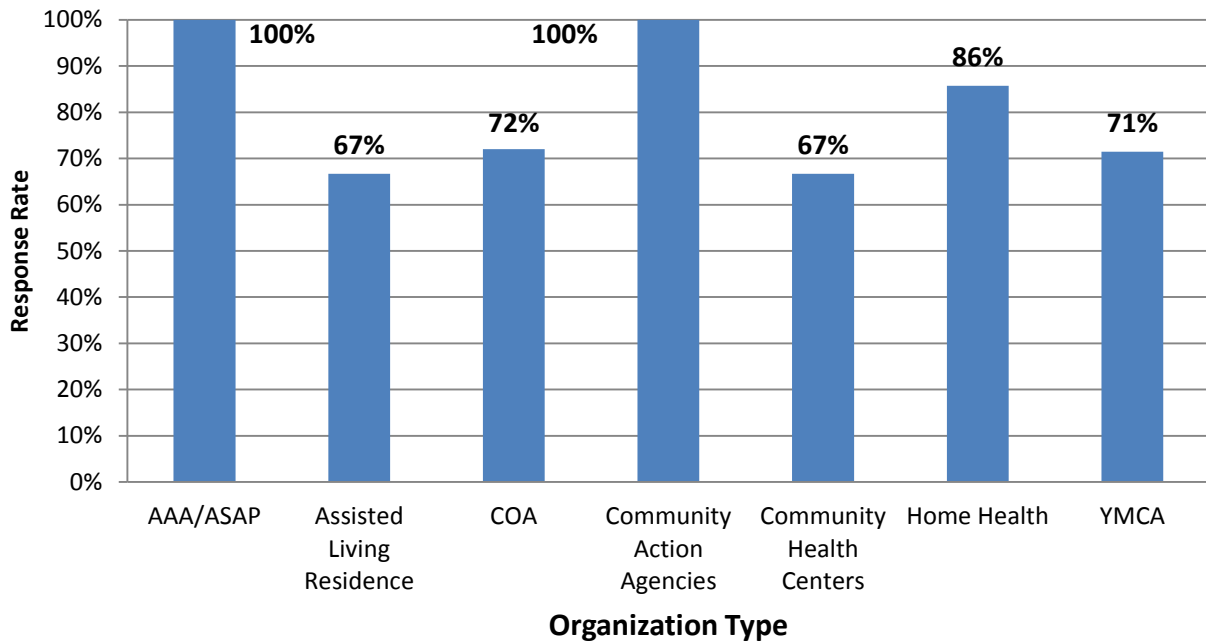


Response Rates

For each category of organization surveyed, there were two response rates: the rate for the Directors' Survey and the rate for the Coordinators' survey (see Methods). Figures 2 and 3 array the response rates for the Directors' and Coordinators' surveys by organization category. For the Directors' survey, response rates varied from 25% to 90%; for the Coordinators' Survey, response rates varied from 57% to 100%. The overall response rate was 55% (457/825) for the Directors' Survey and 86% (128/148) for the Coordinators' Survey.



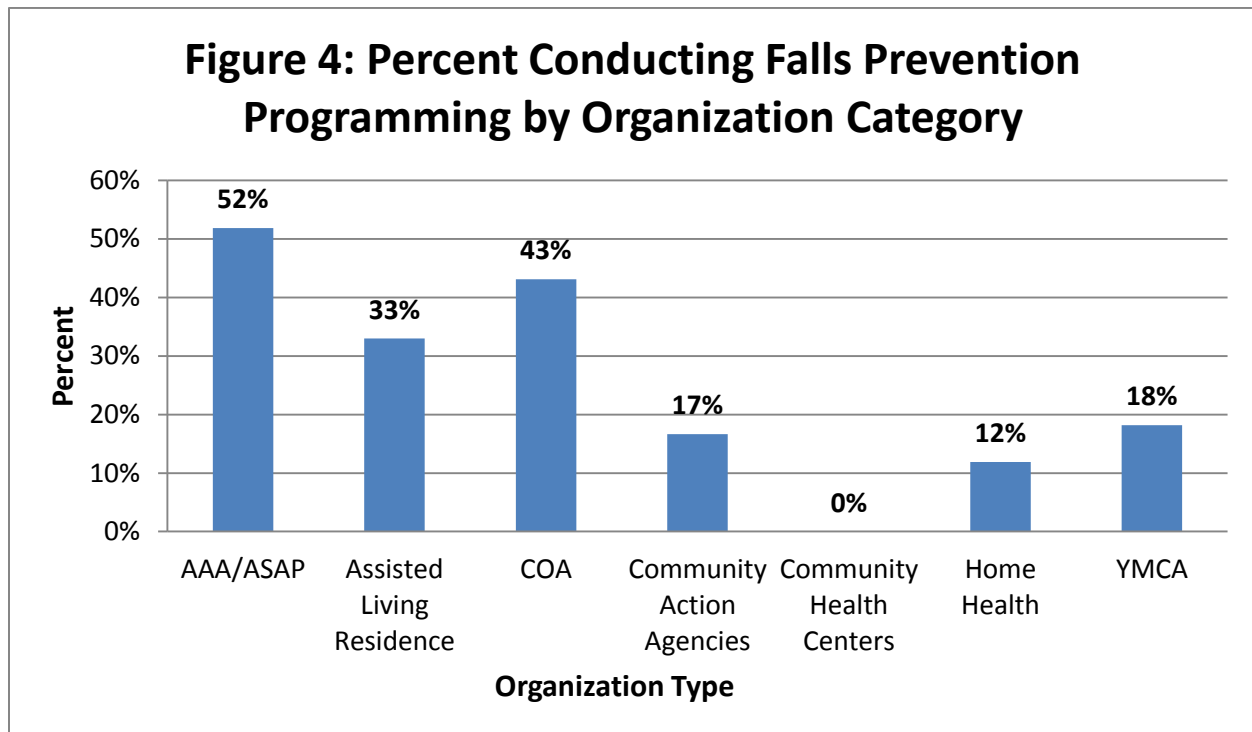
**Figure 3: Response Rates for Coordinators' Survey
by Organization Category**



DIRECTORS' SURVEY

Falls Prevention Programming by Organization Type

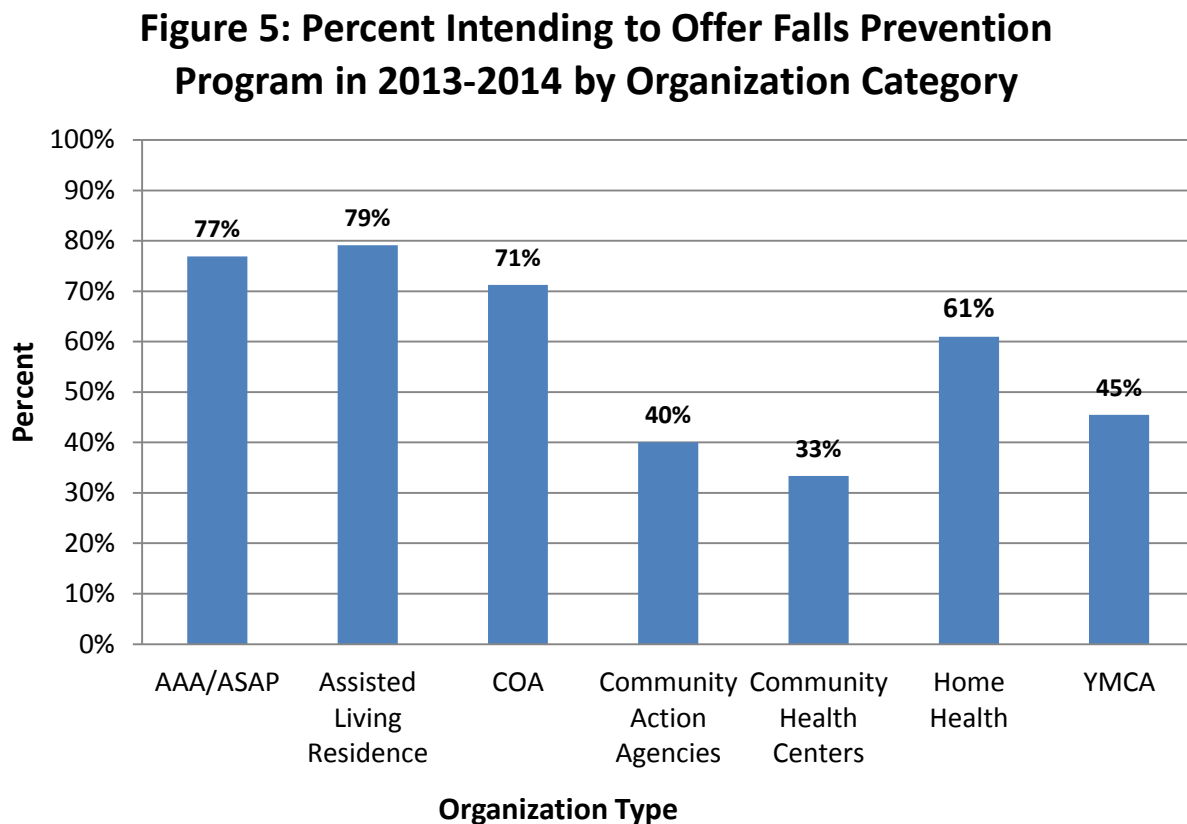
Figure 4 presents the proportion of organizations offering falls prevention programs within each organization type. Responses indicate that AAA/ASAPs had the largest proportion of organizations offering programs, followed by COAs and ALRs. Overall, 32% (148/457) of responding organizations reported offering a falls prevention program in 2012. Of the organizations with Directors responding to the survey (457), only Community Health Centers indicated that they offered no falls prevention programs during the 2012 index year.



Intentions to Offer Falls Prevention Programming by Organization Type

The Directors' Survey asked whether the organization intended to offer falls prevention programs during the years 2013-2014. Overall, the number of organizations indicating intention to offer programs was double (310/148) the number that had actually offered programs during the 2012 baseline year. This suggests that salience of falls prevention is increasing, and that relative to 2012, organizational capacity to deliver falls prevention programs is increasing. Figure 5 arrays the percent of organizations indicating intention to offer programs in 2013-2014 by type of organization. The percentages in the figure below are based on the responses of the 457 responding Directors.

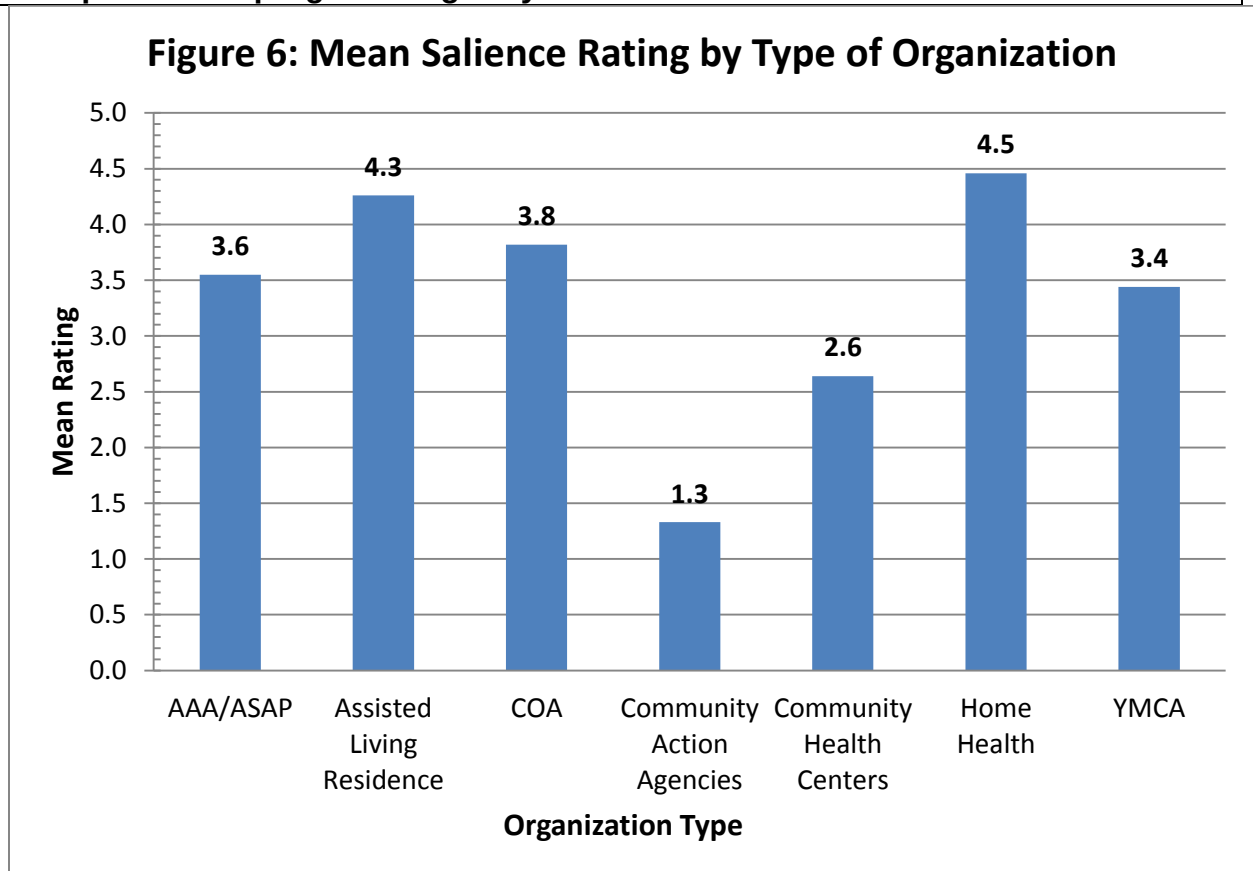
Q. Does your organization intend to directly provide or host a falls prevention program for your clients during 2013-2014?



Salience of Falls Prevention Programming by Organization Type

The Directors' Survey asked Directors to rate the importance of falls prevention to their organization within the context of their organization's primary mission. Not surprisingly, those organizations whose primary mission is service to the elderly were most apt to indicate high salience for falls prevention. Figure 6 arrays mean salience rating by type of organization. The overall weighted mean salience score for all Directors was 3.9.

Q. Given the various services that comprise your organization's mission, please indicate on a scale of 1 to 5 (1 = low priority and 5 = high priority) the priority of falls prevention programming for your clients?



COORDINATORS' SURVEY

Evidence-based Falls Prevention Programs Offered in 2012

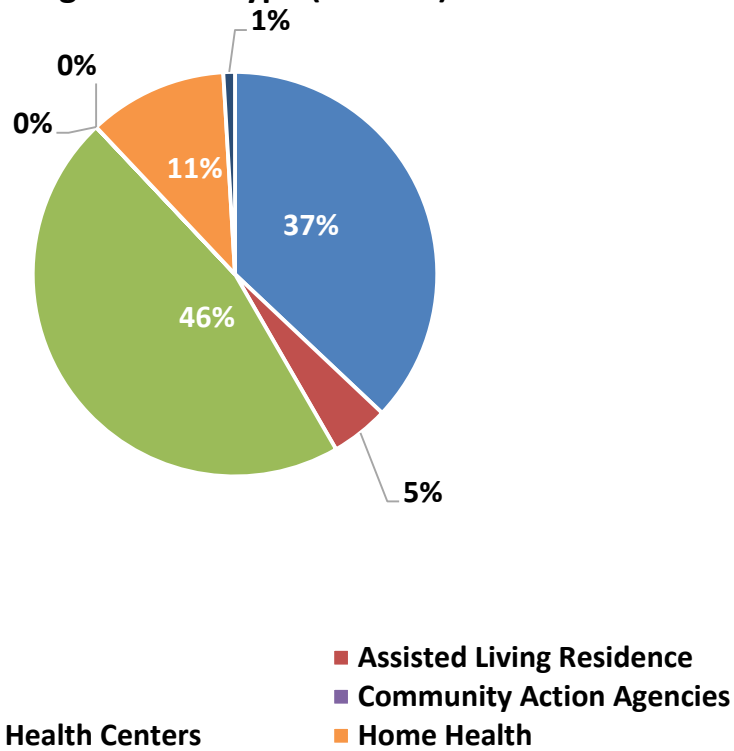
In total, the Coordinators' Survey was sent to 148 Coordinators designated by their Directors. Of these, 128 (86%) responded and their information forms the basis of the data presented in this section.

The Coordinators' Survey asked whether or not their organization had provided directly or hosted an evidence-based falls prevention program for older adults. In some cases, the Director indicated that the organization had provided evidence-based programs, but the Coordinator indicated that this was not the case. When there was conflicting information regarding the offering of programs, we relied on the Coordinators' data based on the assumption that Coordinators were most apt to have accurate information. It is possible, however, that a few Directors might have indicated that no falls prevention programs were offered by their organization during 2012, when there were in fact programs offered. In this case, the Director would not designate an individual to complete the Coordinators' Survey and if a program had been offered, it would not have been documented by this survey. Nonetheless, conflict in information provided by Directors and Coordinators was relatively rare, and thus we assume that error in collected data was infrequent. Of the 107 evidence-based programs we documented, almost half (46%) were conducted by COAs and a third (37%) by AAA/ASAPs.

Q. In 2012, did your organization directly provide or host an evidence-based

falls prevention program?

Figure 7: Distribution of Evidence-Based Program Offerings by Organization Type (N = 107)



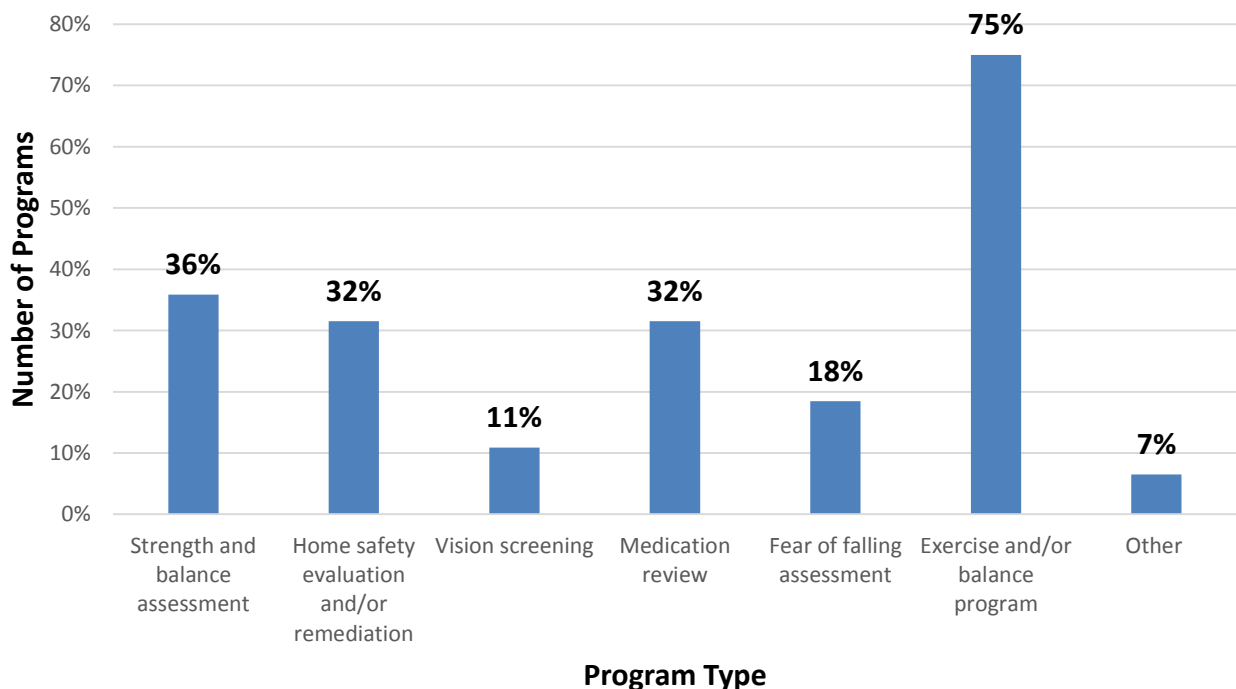
Overall, 12% (53/457) of the organizations responding to our survey indicated that they had offered at least one evidence-based falls prevention program during the index year 2012.

Other Falls Prevention Services Offered in 2012

The Coordinators were also asked about other falls prevention services offered to clients. Specifically, they were asked whether during 2012 they had provided any of six types of services: strength and balance assessment; home safety evaluation and/or remediation; vision screening; medication review; fear of falling assessment; and exercise and/or balance programs. Figure 8 shows the percent of organizations that conducted these other falls prevention activities, using only organizations that conducted any falls prevention programming as a denominator. Some organizations may have provided more than one type of program.

Q. What kind of other falls prevention program(s) did you offer in 2012?
(Check all that apply)

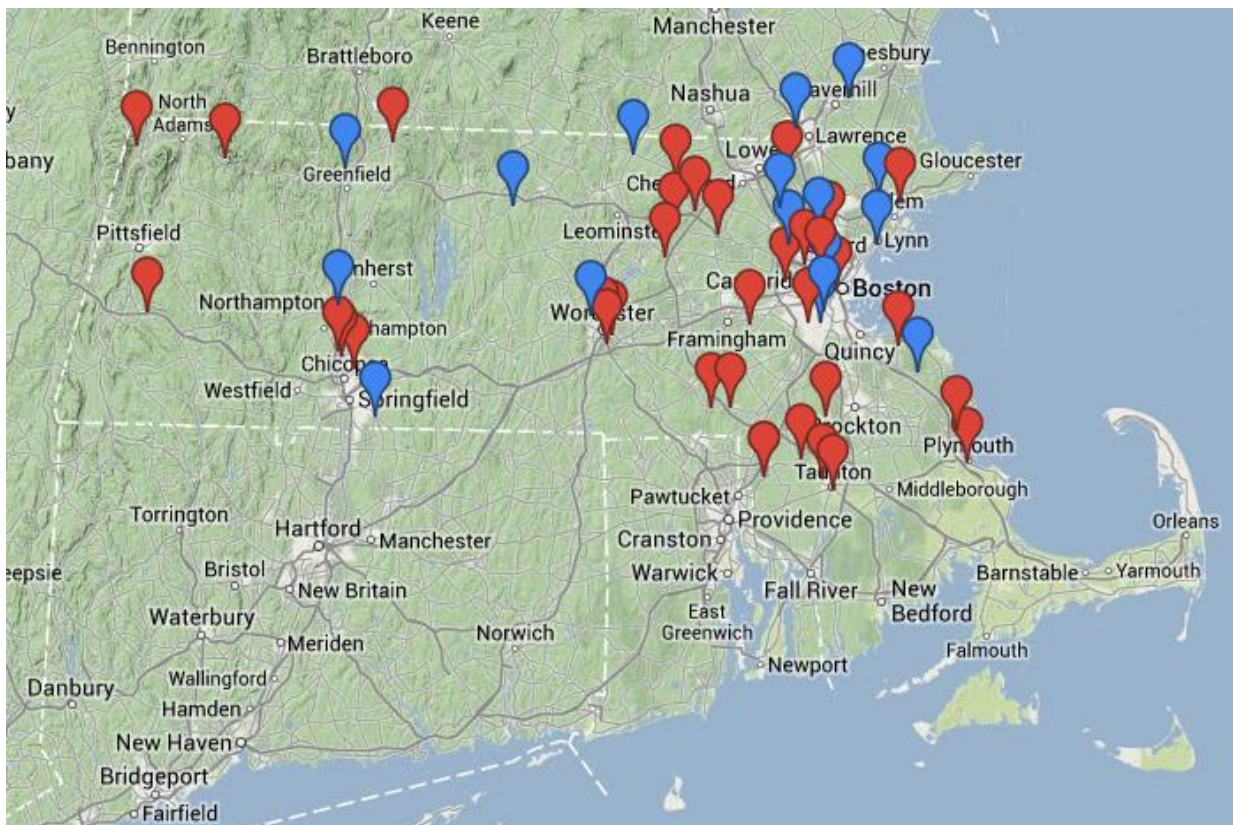
Figure 8: Other Related Falls Prevention Services Offered by Organizations that Conducted any Falls Prevention Programming in 2012 (N = 61)



Geographic Distribution of Evidence-Based Programs

The Coordinators' Survey asked about the following descriptors for each evidence-based program offered by their organization during the 2012 baseline year: (1) start date; (2) location; (3) number of participants. In total, we documented 107 evidence-based falls prevention programs, serving an estimated total of 1127 Massachusetts older adult residents. Most of these programs were offered in the eastern portion of the state, with the greatest density in the Boston metro area. Figure 9 shows the geographic distribution of these programs. The list of documented programs captured by our survey is included in Appendix 1.

Figure 9: Geographic Distribution of Inventoried 2012 Falls Prevention Programs



Note: Blue pins represent multiple programs offered at the same site and figure does not include pins for programs where no data were provided.

Barriers to Falls Prevention Programming

Coordinators were asked about barriers to providing falls prevention programming for their clients. This question used a list of 13 potential barriers, and provided an “other” category. Within the response options, Coordinators were free to select more than one barrier. Of the 128 Coordinators that completed the survey, only 14% (18/128) indicated that they experienced barriers to providing fall prevention programs. The most frequently cited barrier was “fall prevention is a matter for clients and their health care providers”. Table 3 arrays the frequency of these barriers for the surveyed organizations.

Table 3: Some significant barriers to providing falls prevention programs included (Check all that apply):	
Barrier	Number of Coordinators (N = 112) Citing as a Barrier
Fall prevention is a matter for clients and their healthcare providers	8
Fall prevention programs are not included in our organization’s mission	6
Falls were not a problem for our clients	6
Funding was unavailable	6
Most of our clients were too frail to participate in falls prevention programs	6
We did not have facilities for such programs	4
Offering falls prevention programs might have increased liability exposure	3
Other (please cite)	2
Other local organizations provide fall prevention programs which were attended by our clients	2
Although initially successful, it was difficult to sustain demand among our clients for falls prevention programs	1
Our clients' healthcare providers did not encourage participation in falls prevention programs	1
Our clients were not interested in participating in falls prevention programs	1
Qualified personnel to lead programs were not available	1

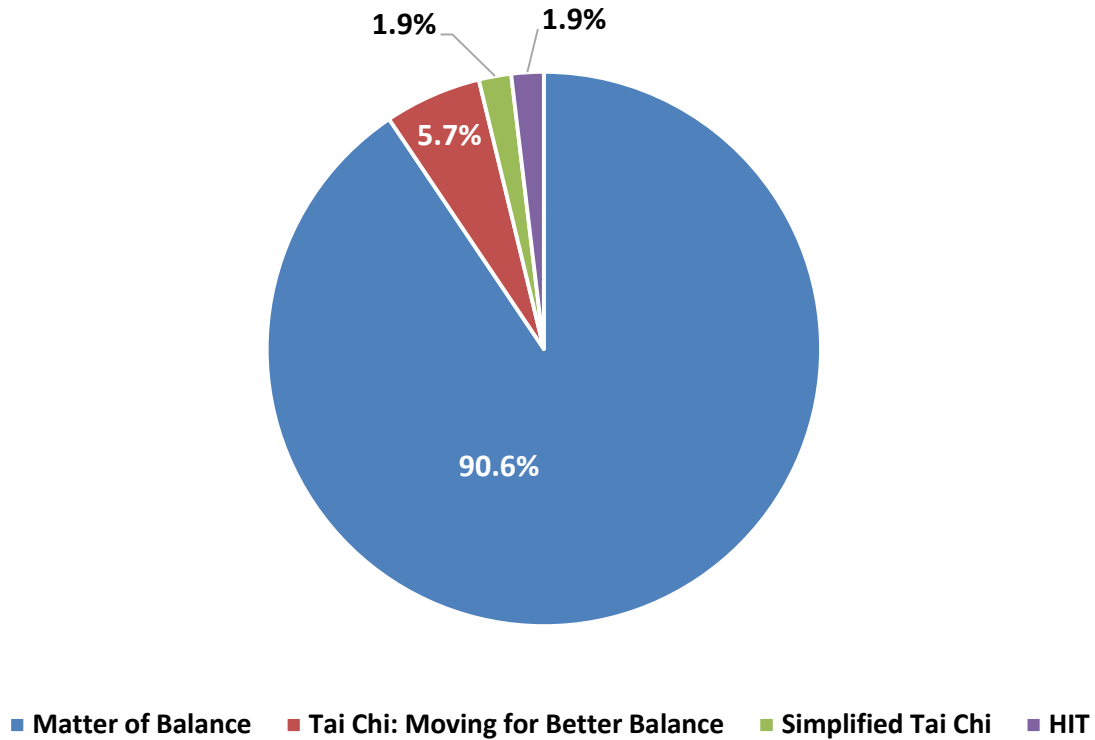
CROSS-SECTIONAL SAMPLE

We asked a series of questions related specifically to the **last evidence-based program** offered (N=53) (see Methods). This served as a cross-sectional sample of the characteristics of all documented evidence-based programs, without having to collect data on all programs. Although last programs might differ in some respects with preceding programs, we believe that the characteristics described below generally represent the characteristics of the evidence-based programs we inventoried.

Evidence-Based Falls Prevention Programming by Organization Type

Of the last 53 evidence-based falls prevention programs offered by the organizations we surveyed, the vast majority (90.6%) were A Matter of Balance. Figure 10 shows the distribution of falls prevention programs by type of programs.

Figure 10: Distribution of Documented Evidence-Based Falls Prevention Programs by Type of Program (N = 53)

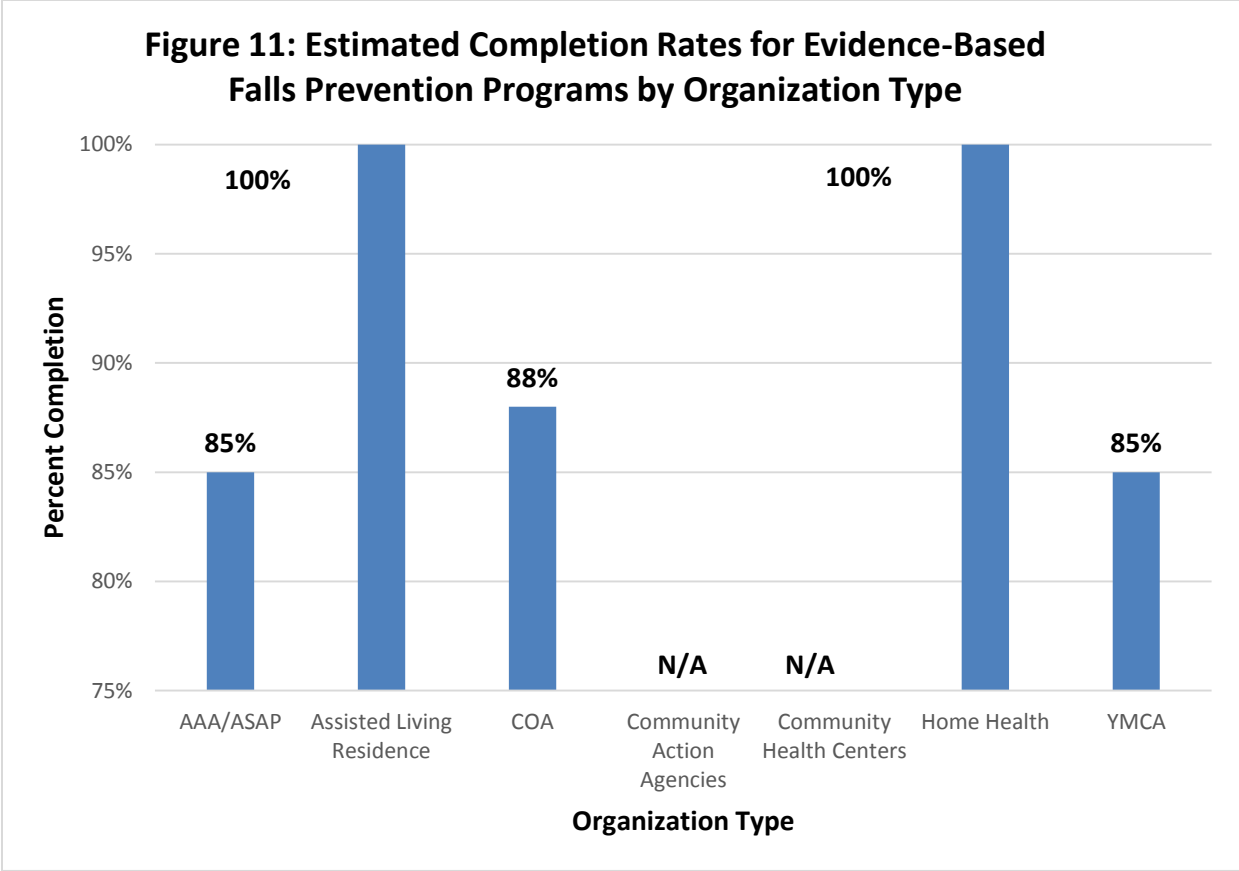


Estimated Participation in Evidence-Based Falls Prevention Programming

To estimate the number of older adults served statewide by falls prevention programs in 2012, we multiplied the number of evidence-based programs we identified (107) by 10.53 (the average number of participants enrolled in last programs). This approach yields a total of 1127 participants. As noted elsewhere, the estimates surely undercounted the actual number served in 2012, due to survey non-response and the omission of some types of organizations (e.g. hospitals). Nevertheless, even if the magnitude of the undercount was half (i.e. 2254 participants) the number of older adults served would be small relative to the approximately 1 million Massachusetts residents 65 years or older.

Estimated Completion Rates for Evidence-Based Falls Prevention Programs

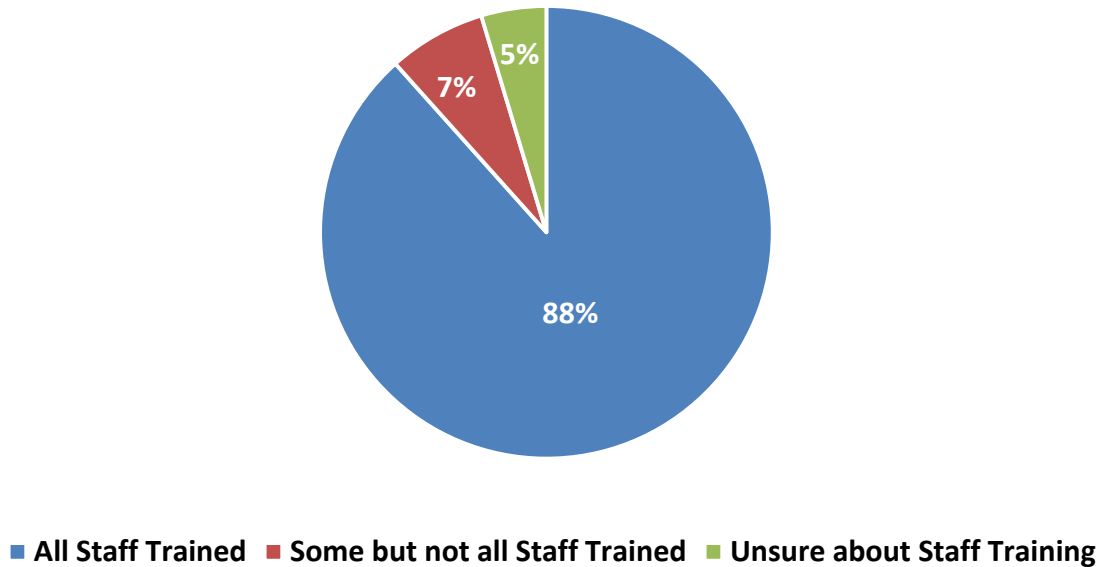
Coordinators provided information on program completion rates for 79% (42/53) of the last evidence-based programs offered. Program completion was defined as participants completing 80% or more of the sessions for their class of the program. For the 2012 index year, Home Health Agencies and Assisted Living Residences were calculated to have the highest completion rates, followed by Councils on Aging. Figure 11 arrays the completion rates for programs offered for each organization grouping.



Facilitator Training for Evidence-Based Falls Prevention Programs

Coordinators provided information on facilitators’ training for 81% (43/53) of the last evidence-based programs offered. Eighty-eight percent (38/43) of facilitators for these programs had been trained to deliver the programs. Figure 12 displays the distribution of training received by facilitators of evidence-based falls prevention programs.

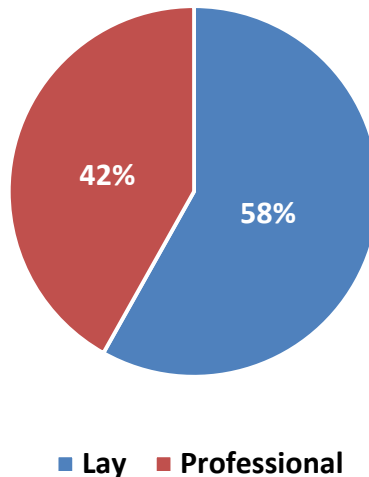
Figure 12: Facilitator Training for Evidence-Based Falls Prevention Programs (N = 43)



Lay vs. Professional Facilitators

The distribution of facilitators by professional status for the last evidence-based programs is arrayed in Figure 13. Eighty-one percent (43/53) of Coordinators answered the question about professional vs. lay status of facilitators for the last evidence-based program offered. Lay individuals are those with no formal healthcare background, while professionals are those with some healthcare credentials. More than half (58%) of the facilitators of the last evidence-based programs offered were lay persons, likely reflecting the preponderance of lay-model MOB programs.

Figure 13: Programs Facilitated by Lay People vs. Professionals (N = 43)

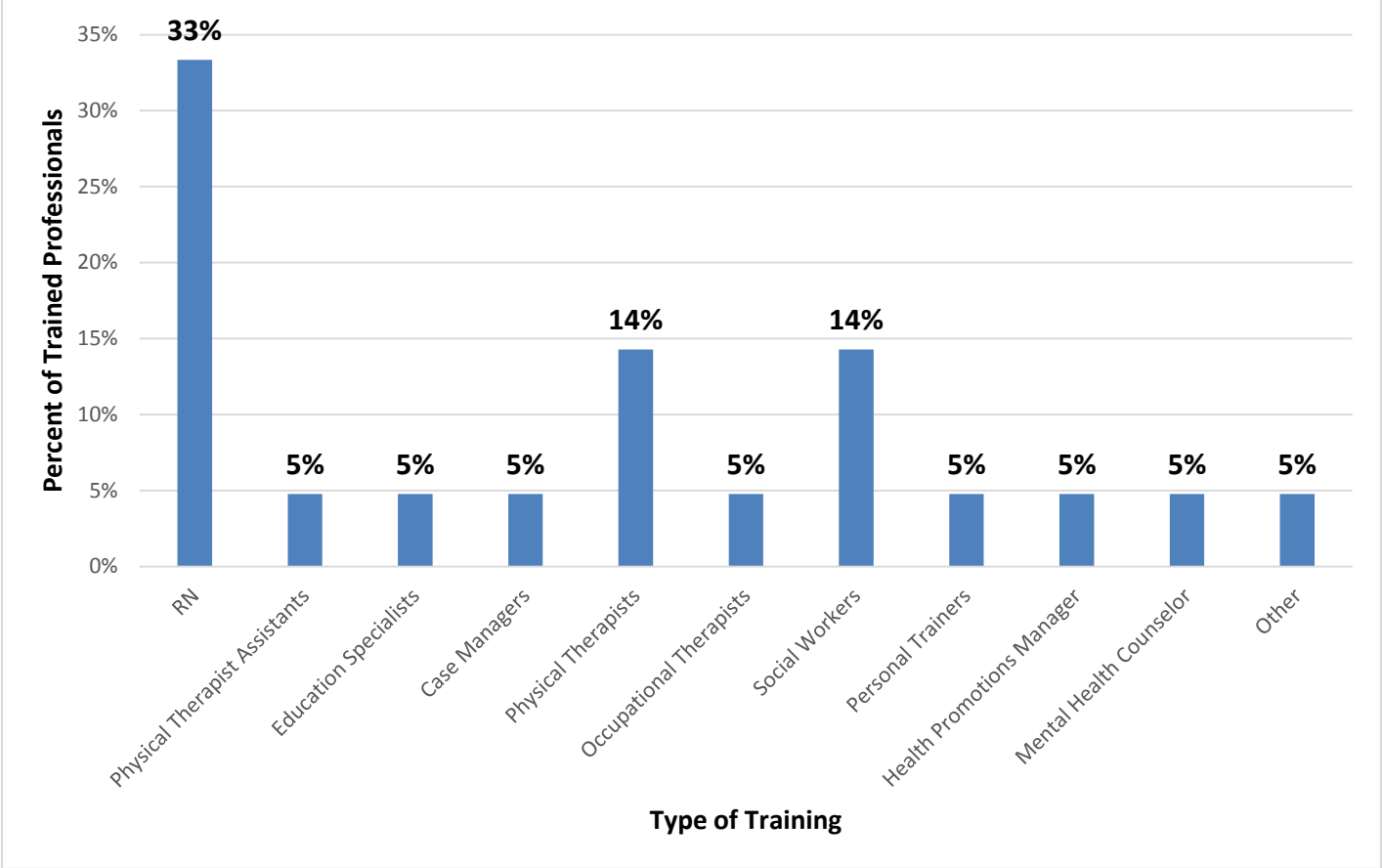


Facilitators' Professional Backgrounds

Figure 14 presents the array of human services professions among those who led the evidence-based programs. Of the 21 facilitators with backgrounds as human services providers, RNs made up the largest proportion (33%) followed equally by Physical Therapists and Social Workers at 14%.



Figure 14: Occupational Background Distribution of Professional Program Facilitators for Evidence-Based Programs*



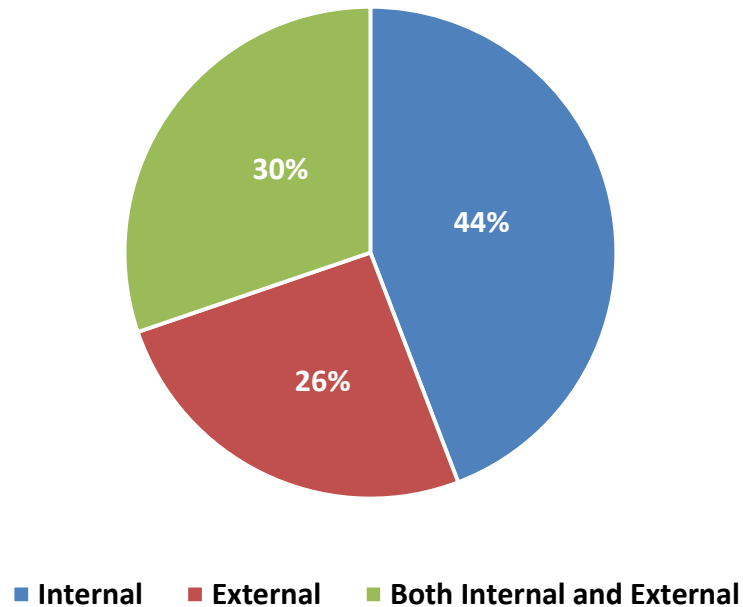
*Some programs may have had more than one facilitator and therefore total exceed 100% because there are more facilitators than there are programs

Funding for Falls Prevention Programs

Of the 53 last evidence-based programs offered, funding information was provided for 43 (81%). Funding sources for these evidence-based falls prevention programs are displayed in Figure 15. Almost half of the programs (19/43) were internally funded; 26% (11/43) were externally funded; and, 30% (13/43) were funded by both internal and external funds.



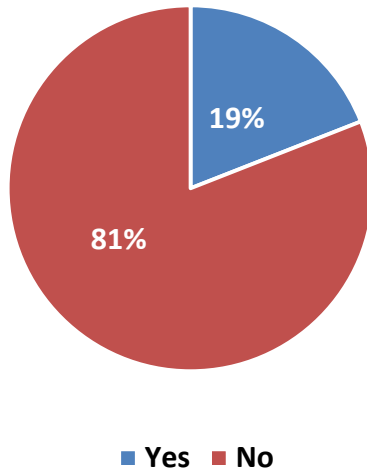
Figure 15: Evidence-Based Falls Prevention Program Funding Sources (N = 43)



Fees Charged for Falls Prevention Programs

Of the 53 last evidence-based programs, information about participant fees charged was provided for 79% (42/53) programs. This information is shown in Figure 16. Eighty-one percent (34/42) programs charged no fees.

Figure 16: Percent of Organizations Charging Fees vs. Not Charging Fees for Evidence-Based falls Prevention Programs (N = 42)



4. DISCUSSION

Interpretation of our results should be informed by two considerations. First, it is likely that results do not represent a complete inventory of evidence-based falls prevention programs offered to Massachusetts older adults in 2012. Thus, the number of programs and the number of program participants are likely undercounted. This undercounting could result from several factors:

- Not all organizations providing programs were surveyed (e.g., hospitals, housing authorities);
- Some surveyed organizations that provided programs may not have responded to the survey;
- The Directors of some surveyed organizations that provided programs may not have been aware of, or may not have recalled, these programs, in which case a Coordinators' survey would not have been sent.

On the other hand, we had relatively good response rates from the categories of organizations that likely conducted the majority of programs (Figures 1, 2). Thus, we believe that the characteristics of programs described in our results are likely representative.

Observations

It is clear from our results that infrastructure for the dissemination of evidence-based falls prevention programs is developing in Massachusetts. This is evident from the number of programs offered, the geographic distributions of programs offered (Figure 9), the salience of falls prevention among a number of organizational categories (Figure 6) and the expressed intentions of organizations' Directors to offer more programs in the future (Figure 5). It is notable that this dissemination has occurred in the absence of institutionalized funding, organizational mandates, legislative policies, widespread referrals from healthcare providers, and health insurance reimbursement. In other words, for the most part, local organizations at the grass roots level have elected to offer programs and have marketed these programs directly to older adults.

The most widely offered program by far was A Matter of Balance (MOB) (Figure 10). Several factors might account for this. First, the program is well documented and manuals and associated materials are available at relatively low cost. Second, MaineHealth has developed a lay-led version of MOB as well as a train-the-trainer system that allows credentialed and non-credentialed individuals to become master trainers who can in turn train lay program facilitators (coaches). This means that a large



pool of individuals (including retired older adults) is available as a source of program facilitators at low levels of compensation or as volunteers. This combined with the proximity of MaineHealth (Portland ME) and the relatively low cost of master training help to provide the staffing required for program dissemination. Moreover, the dissemination of MOB has been supported by small grants from public agencies (e.g., Executive Office of Elder Affairs) and charitable organizations, most notably in Massachusetts, the Tufts Health Plan Foundation.

Organizations established to serve older adults have taken the lead in providing falls prevention programs (Figures 4, 7). Specifically, AAAs, ASAPs, and COAs, all part of the service network funded by the federal and state offices on aging, provided the majority of programs. Thus, falls prevention programs are natural complements for elder services organizations that already provide senior centers, senior transportation shuttles, exercise programs, yoga, meals on wheels, and other support activities. Also driving the dissemination of falls prevention programs is the fact that, increasingly, public funding agencies are requiring organizations that provide services to older adults to provide evidence-based programs. Since MOB is widely (but not universally) accepted as evidence-based for falls prevention, conducting the program helps publically funded organizations meet funding criteria.

It is noteworthy that most of the evidence-based programs were led by facilitators who had been trained to lead the program (Figure 12). This likely reflects the fact that the majority of programs were MOB and that MOB training is both available and relatively inexpensive. As noted above, access to training probably accounts in part for the extensive deployment of MOB. This observation underscores the importance of accessible training for the future development of falls prevention infrastructure. The DPH recently (2013) sponsored training for a version of Tai Chi endorsed for falls prevention. This training initiative produced a total of 40 facilitators divided among training programs at three locations across the state. The aim was to increase dissemination of falls prevention balance and strengthening programs. This initiative illustrates the potential role of the state in deploying falls prevention infrastructure. The IPC is currently evaluating this training initiative to determine the number of trainees





who conducted programs during the post-training year, the location of these programs, the numbers of older adults served, and the cost of the training program as a function of the number served.

Almost half of the evidence-based programs conducted in the state during 2012 were internally funded (Figure 15). This likely reflects Title III funding from the Federal Administration of Aging, through the state Executive Office of Elder Affairs, to the AAAs, ASAPs, and COAs. Thus, many programs were offered with no fee (Figure 16). But, this finding also underscores the fact that falls prevention programs are inexpensive, relative to many healthcare interventions. Assuming that an organization has free access to space for conducting programs (e.g., senior centers, churches, schools), the per participant cost of MOB or Tai Chi could be as low as \$100-\$150. The low cost of community-based group falls prevention programs also has implications for the development of state-wide falls prevention infrastructure, because it increases the likelihood that health insurers may eventually reimburse for these programs.

Also of note was our finding that in general, completion rates for the programs were high (Figure 11). We operationalized completion as attending at least 80% of program sessions. Our data indicate that completion rates for the evidence-based programs ranged from 85-100%. This suggests that older adults value and/or enjoy participating in these falls prevention programs, thus enhancing program effectiveness (as opposed to efficacy) and increasing demand of program deployment.

5. CONCLUSION

As noted above, our survey undercounts the number of evidence-based community falls prevention programs conducted in Massachusetts during the 2012 index year. Undercounting could be because of nonresponse by some organizations that provided programs and because some organizations that provided programs were not surveyed. We identified 107 evidence-based programs and estimated that these served around 1,100 Massachusetts residents. This is a small number, compared to the nearly one million Massachusetts seniors. Nonetheless, our findings indicate that a nascent



infrastructure for providing community falls prevention exists, despite the limitations on funding and limited referrals to programs by primary care physicians. The fact that the dissemination of community falls prevention programs is in the early stages provides opportunity to shape the development of falls prevention infrastructure for the future.

We do not know the extent to which primary care physicians in the state are assessing their older adult patients for falls risk and intervening pursuant to the joint recommendations of the American and British Geriatric Societies and/or the findings of research on various clinical interventions for reducing falls risk. A survey of Massachusetts primary care physicians regarding their practices around falls prevention would be a useful companion to the present study.

For several reasons, it is likely that within the next five years, the number of community-based falls prevention programs will proliferate in Massachusetts. First, our data suggest that for many organizations, the salience of falls prevention is high. Second, the Directors of many responding organizations indicated intentions to conduct falls prevention program in the future. Third, there is increasing awareness among health care providers and the public in general that many community-dwelling older adults can benefit from participation in falls prevention. This trend will result in greater engagement of health care providers in falls prevention, which in turn will increase referrals and thus increase demand for community-based falls prevention programs. Healthcare provider awareness and engagement will be accelerated by the availability of instruments for assessing falls risk, such as the CDC's STEADI toolkit and reimbursement for falls risk assessment as part of the recommended annual wellness visit reimbursed by Medicare. Fourth, the evidence base for falls prevention strategies continues to grow as more trials are conducted, results published, and findings compiled in literature reviews and meta-analyses. The recent report to Congress by the Centers for Medicare and Medicaid Services included the results of a retrospective cohort study evaluating a number of chronic disease self-management programs. These programs included MOB (a cognitive restructuring program designed to reduce fear of falling) and results suggested that participation in MOB reduced health care costs and had other beneficial health outcomes for older adults. These findings may, at some point, lead to

reimbursement for evidence-based community falls prevention programs by public and commercial health insurers. Finally, the DPH Prevention and Wellness Trust Fund is currently sponsoring demonstration programs aimed at increasing integration of clinical and community-based chronic disease services in nine Massachusetts community-based partnerships. Eight of these partnerships include falls prevention components. If successful, these projects could provide models for other communities, statewide and nationally.

If, indeed, these and other factors result in a rapid expansion of falls prevention programming, new questions about the nature and integrity of developing falls prevention infrastructure could emerge. For example, will a single category of organization become dominant in community-based falls prevention? Our survey findings indicate that AAAs/ASAPs have taken the lead in providing programs, but it is possible that falls prevention programming could shift to health care organizations, such as CHCs, HHAs, managed care organizations, and hospitals. Given incentives included in the Affordable Care Act, healthcare systems that include inpatient and ambulatory care components might form new units combining falls prevention with other behavioral intervention programs aimed at substance use and reduction of chronic disease through self-management. Alternatively, organizations such as YMCAs, which have personnel and facilities that could easily accommodate falls prevention programming, could take the lead. Or, the vendor system could develop as a diverse marketplace that included many types of organizations. Should the state contribute to the development of falls prevention infrastructure by providing funding for programs and or program facilitator training? Should formal quality control systems be implemented by the state or private insurers; should the latter decide to reimburse for community-based falls prevention?

As falls prevention infrastructure develops, many other issues will likely emerge. Massachusetts, however, is poised to assume a leadership role in how and how rapidly the system develops. The recent creation of the MCFP provides an entity to consider these emerging issues, explore solutions to potential problems, and chart a future of falls prevention in the state.



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8. Disclosures

Dr. Howland and colleagues Margie Lachman, PhD, Sharon Tennstedt PhD, RN, and Elizabeth Peterson PhD, OT/R, developed and evaluated the original A Matter of Balance Program (Tennstedt S, Howland J, Lachman M, Peterson E, Kasten L, Jette A. A randomized, controlled trial of a group intervention to reduce fear of falling and associated activity restriction in older adults. J Gerontol B Psychol Sci Soc Sci. 1998 Nov; 53(6):P384-92.)

9. APPENDICIES

Appendix 1: Evidence-Based Falls Prevention Programs Offered in Massachusetts in 2012 (See Separate Document)