TITLE: Aging Gracefully in Place: An Evaluation of the Capability of the CAPABLE© Approach

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ABSTRACT

As American adults live longer, society must prioritize effective strategies promoting safe aging-in-place and decreasing institutional healthcare costs. Social determinants of health, especially housing, critically influence older adult health, particularly for disadvantaged, low-income older adults.

Johns Hopkins University developed CAPABLE,© a client-centered, home-based program to improve older adults' function and capacity to age in place. This evaluation studied CAPABLE's longer-term effectiveness in four distinct locations in California, North Carolina, Pennsylvania, and Vermont. Seven months post-CAPABLE, intervention group participants experienced greater improvements than the control group in ADL limitations (2-point versus 0.7-point improvement, p=0.012), falls efficacy (8.9-point improvement versus 0.1-point worsening, p=0.012), depression (1.3-point improvement versus 0.4-point worsening, p=0.021), and pain (1.5-point improvement versus 0.3-point worsening, p=0.002). These results add to existing research on short-term effectiveness in urban locales, showing CAPABLE yields longer-term health improvement for older adults in micropolitan and small urban locations, with different implementation organizations, housing stocks, and clients.

KEYWORDS

Older adults, CAPABLE model, physical function, depression, falls

INTRODUCTION

The number of people 65 years and older will grow from 49.2 million in 2016 to 94.7 million in 2060 (US Census Bureau, 2017). Over 75% of adults 65 and older have at least one physical function difficulty (National Center for Health Statistics, 2018). According to the National Aging in Place Council, a 70-year-old with no functional impairments can expect to remain active and without impairment for about nine more years, while one in poor health will remain active only two years before an impairment makes it difficult for them to live in their own home (National Aging in Place Council, undated). These data emphasize the need to develop, test, and implement creative, effective strategies to promote safe and healthy aging in place while decreasing older adult healthcare costs.

For disadvantaged older adults living in poverty, aging in their own homes is often challenging, despite the fact that aging-at-home intervention costs are far lower than long-term care costs such as skilled nursing facilities (SNF) (US Department of Housing and Urban and Development, 2013). The US Department of Health and Human Services (HHS), 2018 reports that in 2014, long-term care payments (totaling $152 billion) were almost one-third of all Medicaid spending, with $55 billion spent on nursing facility care alone.

Acute-care costs, i.e., costs associated with short-term, immediate medical care for traumatic injuries (e.g., fall-related broken bones), are also burdensome. For example, about $50 billion/year is spent on nonfatal fall injuries, $29 billion of which is paid by Medicare, $9 billion by Medicaid, and $12 billion by private and other payers. (Florence et al., 2018).

Reducing the high psychological, emotional, and financial costs of medical care and SNF care through cost-effective interventions is a public health priority.

In 2009, researchers at Johns Hopkins University (JHU) developed the Community Aging in Place-Advancing Better Living for Elders (CAPABLE) program© to help reduce Activities of

Daily Living (ADL[a]) disabilities and allow frail, low-income, older participants to age in place in safe homes (Szanton et al., 2011). Researchers and policymakers have found that limitations in multiple ADLs or Instrumental Activities of Daily Living (IADLs)[b] are the leading modifiable predictor of nursing home admission (Gaugler et al., 2017; Salive et al., 2011). Many earlier programs addressed either the individual's underlying impairment or environmental barriers, but not both (Szanton et al., 2011). Szanton et al. (2016) reported that CAPABLE yielded a 49% improvement in the number of ADL limitations and saw improvements in IADLs and depression.

Most CAPABLE data stem from studies conducted in Baltimore, MD (Szanton et al., 2011, 2014, 2015, 2016, 2019). These studies have generally shown CAPABLE's short-term (e.g., one-month post-intervention) efficacy; however, the CAPABLE program must prove feasible, appropriate, and acceptable in a wide variety of communities and over a longer term before it can be brought to scale across the country. In this paper, we evaluate whether CAPABLE can be successful over a seven-month follow-up period in four diverse communities (NC, PA, VT, and CA) with different types of implementation organizations, housing stocks, and participants of varying backgrounds.

We conducted a randomized controlled effectiveness study of the CAPABLE program's impact on ADL and IADL limitations and other function-related parameters. Through this evaluation, the study team sought to directly benefit enrolled individuals, prove the CAPABLE program's longer-term effectiveness, and help promote more widespread adoption of similar approaches across the country.

METHODS

Overview of the CAPABLE Program Intervention

CAPABLE's integrated, in-home approach has been described in detail elsewhere (Szanton et al., 2014, 2017, 2019). In summary, three interventionists—an occupational therapist (OT), a registered nurse (RN), and a handyman or home repair professional (HR)—work in tandem with a participant over a 4- to 5-month period. The participant brainstorms with the OT and RN to set and work on self-identified functional goals, and the HR modifies the home to meet these goals. This person-directed approach to both the built environment and the individual is what guides CAPABLE and makes it unique (Szanton et al, 2014).

Partner Teams

An Institutional Review Board (IRB) approved the study before data collection (Pro00018950). Different organizational types led each of the four partner teams:

- NC: Community Housing Solutions, Greensboro, NC, a nonprofit providing home repair and new homes to low-income households, partnered with Cone Health for OT services and Triad HealthCare Network for RN services.

[a] ADLs are defined as eight activities essential to daily self-care: walking across a small room, bathing, upper and lower body dressing, eating, using the toilet, transferring in and out of bed, and grooming.

[b] IADLs are defined as eight independent living skills: using a telephone, shopping, preparing food, light housekeeping, washing laundry, traveling independently, taking medications independently, and managing finances independently.

- PA: Catholic Social Services, Wilkes-Barre, PA, a faith-based social service organization, contracted with Allied Services for OT and RN support and a local contractor for home repair services.
- VT: Cathedral Square Corporation, South Burlington, VT, manager of affordable, service-enriched housing communities for older adults and people with special needs, utilized on-staff RNs and home maintenance personnel and contracted with the University of VT Medical Center for OT support; and
- CA: Family Health Centers of San Diego, a Federally Qualified Health Center, utilized on-staff nursing support, hired per-diem OT contractors, and contracted with Rebuilding Together San Diego for home repair services.

These partner leaders assembled their own CAPABLE teams. JHU provided CAPABLE training to all RNs and OTs and supported these interventionists throughout the study. The National Center for Healthy Housing trained HR personnel. Except for JHU-set CAPABLE requirements, partners were free to design and run CAPABLE programs in a manner best fitting their communities.

Participant Data Collection

Participants were eligible for the study if they (1) were aged 65 and older; (2) had an household income ≤80% of area median income (AMI); (3) did not reside in a direct service medical care facility; (4) had difficulties with ≥ one ADL or ≥ two IADLs; (5) were cognitively intact based on the Stanford School of Medicine (undated) Short Portable Mental Status Questionnaire (SPMSQ); (5) were able to stand with or without assistance; (6) had not been hospitalized overnight >4 times in previous year; (7) were not receiving in-home OT, RN, PT services, outpatient PT services for balance or muscle strengthening, or active cancer treatment; and (8) were comfortable speaking English (adapted from Szanton et al. 2014).

Partners used phone screens for the first three eligibility criteria, after which they confirmed eligibility during in-home (baseline) visits and provided fall recovery education (Philips Lifeline, undated). Participants gave informed consent and were randomly assigned to an intervention group or control Group. CAPABLE teams began providing services to intervention group participants immediately after enrollment. After baseline, partners collected evaluation data from both cohorts at two additional visits: short-term follow-up (approximately five-months post-baseline for both cohorts; one-month post-CAPABLE for the intervention group) and longer-term follow-up (twelve-months post-baseline for both cohorts; seven-months post-CAPABLE for the intervention group). During the follow-up period, partners periodically phoned control group participants to refresh fall recovery education. For the control group, CAPABLE teams began services after partners finished with the twelve-month post-baseline visits.

At each evaluation visit, partners collected self-reported health status data on seven health outcomes that CAPABLE's holistic approach may impact: ADL limitations (Katz et al., 1963); IADL limitations (Lawton and Brody, 1969); quality of life (EuroQOL ED-5D^{TM}, 1998); falls efficacy (Tinetti and Powell, 1989); depression (Patient Health Questionnaire, PHQ-9; Spitzer et al., 2020); pain interference with normal, everyday activities (adapted from the "Brief Pain Inventory, Cleeland and Ryan, 1994); and number of falls in past year (US CDC/National Center for Health Statistics, 2009).

Participants rated their ability to perform each of eight ADLs and eight IADLs on a three-point scale (0=no difficulty and needs no help, 1=difficulty but needs no help, 2=needs help regardless of difficulty), with total scores ranging from 0 (best) to 16 (worst). Each of five EuroQOL domains were scored on a three-point scale (1=no problem, 2=small problem, 3=large problem), with total scores ranging from 5 (best) to 15 (worst). For falls efficacy, participants rated their confidence they could do each of ten activities without falling on a ten-point scale, with total scores ranging from 0 (confident) to 100 (not confident at all). Depression was rated on four-point scale of how frequently participants were bothered by nine problems over a two-week period (0=not at all, 1=several days, 2=more than half the days, and 3=nearly every day), with possible scores ranging from 0 (best) to 27 (worst).

Partners also conducted a visual home safety assessment adapted from CDC (2015) and US Consumer Products Safety Commission (2009) checklists.

For the analysis dataset, we included only those participants who had both baseline and twelve-months post-baseline evaluation data. Intervention group participants were included if they completed ≥6 CAPABLE visits and interventionists reported full completion of the CAPABLE program.

Partners reached enrollment goals while adhering to randomization requirements; however, some participants were lost to follow-up before beginning CAPABLE. Funders paying for CAPABLE services required 142 older adults to participate in CAPABLE; therefore, partners replaced those lost to follow-up before they began providing CAPABLE services. NC and PA assigned each replacement to the treatment group which had lost a participant; however, VT and CA, who began the project months later, non-randomly assigned replacements to the intervention group because insufficient project time remained to assign them to the control group (i.e., wait a year before beginning CAPABLE services). Figure 1 provides phone screen, home-visit eligibility, and attrition data.

Data Entry and Management

Data were collected and managed using the Research Electronic Data Capture (REDCap) platform (Harris et al., 2009, 2019). We exported REDCap data into SAS and Excel for periodic reporting and data analysis.

Data Analysis

Comparability of the intervention and control groups at baseline. We used Fisher's exact test for nominal variables, the Cochran-Mantel-Haenszel (CMH) for ordinal variables and two-sample t-tests for continuous and count variables to assess the balance between the intervention and control groups at baseline.

Changes in Key Outcomes Within and Between Groups, Baseline to Twelve-Months Post-Baseline. Within each group (intervention and control group), a paired t-test was used to test the hypothesis that the mean results for seven key outcomes changed from baseline to twelve months post-baseline.

For the between-group analysis, a two-sample t-test was used to test the separate hypothesis that mean changes in these seven outcomes over this time period differed between the intervention and control groups.

For both the within-group and between-group analyses, we mitigated the risks associated with multiple comparisons of these key outcomes by using the Holm-Bonferroni method to control the probability that one or more Type I errors will occur (Holm, 1979). We adjusted the rejection criteria for each of the individual hypotheses to achieve an overall alpha of 0.05.

Home Safety. We compiled participant responses to 27 checklist questions to calculate a home hazard score for each home at each visit and used a paired t-test to analyze the mean change between visits within each cohort and a two-sample t-test to determine if the mean between-visit change differed between cohorts.

CAPABLE Service Cost Compilation. The sites measured the per-participant cost of OT and RN visits and itemized costs for home modifications, durable medical equipment (DME), assistive equipment (AE), and home safety items.

Medical Event Cost Demonstration. We collected self-reported data on unplanned hospital and emergency room (ER) visits during one-year pre- and post-baseline. We filtered these reports to include only those visits that could reasonably be linked to chronic health, acute physical function, or medication issues that could be impacted by CAPABLE services.

We used Medical Expenditure Panel Survey (MEPS) data converted to 2018 dollars (midpoint for the project) to extract mean inpatient hospitalization discharge expenditures per visit and ER expenditures[c] per visit for adults 65+ in three pertinent US regions (west, northeast, and south). We subtracted hospital inpatient costs for patients who were admitted but did not spend a night (US Agency for Healthcare Research and Quality, 2015). We based cost inflators on CMS (2020) estimates of yearly national health expenditure increases (4.3%, 3.9%, and 4.6% in 2016, 2017, and 2018, respectively, totaling 13.1% between 2015 and 2018). We used these mean MEPS data to calculate mean total expenditures for three medical event types—ER visits, ER visits leading to hospitalization, and hospitalization only—for both cohorts.

RESULTS

Intervention group and control group demographics were statistically similar (Table 1), trending toward low-income, white, high-school-educated females living alone. Demographics were similar across partner sites, except NC and CA had more black and Hispanic participants, respectively (Supplemental Table 1). Half of participants had incomes ≤30% AMI, 69% lived alone, and most had long tenures in their homes (mean 20 years, range <1 to 75 years).

Participants were evenly split between apartments/condominiums (51%) and single-family homes (49%). VT had this same 50-50 housing split; 62% and 98% of PA and CA participants, respectively, lived in apartments/condominiums; and all NC participants lived in single-family homes. About 25% of homes had interior problems (e.g., peeling paint, visible evidence of pests, and/or broken furniture or lamps), ranging from 0% in PA to 42% in NC. Overall and in VT, the median year constructed was between 1961-1980. PA and NC participant homes were slightly older (1941-1960), while CA homes were newer (2001-2016).

CAPABLE Service Delivery Results

Of the 153 participants who had baseline visits and at least one of the two follow-up visits, 132 completed an average of ten combined OT and RN visits over the five-month CAPABLE program. Partners provided participants with over 250 types of home modifications, DME, and

[c] Expenditures=funds that were actually transferred, not costs, which can be two to four times higher than expenditures.

AE—divided into 24 categories—to fulfill participants' CAPABLE goals. Modifications and equipment focused on participant goals of personal care and fall prevention (Table 2). Early in their planning, NC strategically decided they would add accessibility modifications such as access ramps or outdoor concrete step repair to more "typical," lower-cost CAPABLE home modifications such as grab bars, if such modifications fit the client goals of being able to move independently and safely from their homes into yards or communities.

Participants in single-family homes tended to get more home modifications than DME/AE, while participants in apartments or condominiums tended to get more DME/AE. Anecdotally, several apartments were already furnished with fall prevention items such as grab bars, while in other settings, landlords were reportedly reluctant to provide items in one apartment that were infeasible or unneeded in every apartment.

Changes in Home Safety Hazards

Between baseline and twelve-months post-baseline (seven-months post-CAPABLE), the improvement in home hazard scores for intervention group homes (11.1 at baseline vs. 6.3 at twelve-months post-baseline) were significantly greater than those in control group homes 11.6 at baseline vs. 9.9 at twelve-months post-baseline, $p<0.001$, Supplemental Table 2). Hazard components showing the greatest improvements included the presence of papers, books, or other objects on the floor; tubs and shower having no non-slip rubber mats or surfaces; tubs and showers having no grab bars inside or outside; no raised toilet seat; and no shower chair.

Of the four partners, NC and CA had the highest mean baseline home hazard scores (12.8 and 14.3, respectively) and the greatest reductions in scores between baseline and twelve-month post-baseline, with declines of 4.9 and 7.0, respectively (Supplemental Table 2). PA and VT homes both had baseline mean home hazard scores of 7.9. VT's intervention group reduction (2.9) was not significantly different from the control group's (1.7) ($p=0.218$). PA's intervention group had a significant reduction (3.4) while the control group's hazard score reduction was small but insignificant (0.1).

Key Health Outcomes

Seven months after completing CAPABLE (twelve-months post-baseline), intervention group participants showed greater improvements than the control group in all seven key health outcomes, including the number of falls in the past year, with three outcomes—ADLs, falls efficacy, and pain interference with normal activities—reaching statistical significance after accounting for multiple comparisons (Table 3).

In general, of the four partners, NC and CA had intervention group participants who experienced greater longer-term improvements in most key health outcomes than control group participants (Supplemental Tables 3-6). For the primary outcome—changes in ADL limitations scores—in NC and CA, the intervention groups had greater ADL limitations score reductions than the control group. Both VT and PA had smaller sample sizes than NC and CA, making it more difficult to discern changes. CA's intervention group participants showed greater improvements than control group participants for five of the six secondary outcomes (mean quality of life, falls efficacy, IADLs, depression, and number of falls in the past year), while NC's showed greater improvements for four (mean falls efficacy, depression, pain interference, and number of falls in the past year).

Cost Evaluation

CAPABLE Program Costs in Aging Gracefully Project. Of the 132 participants who completed CAPABLE, CAPABLE program cost data (OT, RN, home modification, and DME/AE cost per participant) were available for 122 participants. Overall, the median CAPABLE program cost per participant was $2,352, but partner medians were highly variable (Table 4). VT, which did not have to separately pay their staff RN to conduct CAPABLE RN visits, had the lowest median cost ($1,328).

In their Baltimore research, Szanton et al. (2016) reported that spending on CAPABLE home repairs and modifications ranged from $72 to $1,398 per participant. PA, VT, and CA CAPABLE home repair costs were generally close to this range (with a few outliers contributing to the higher maximum costs for PA and VT). NC's maximum cost was almost an order of magnitude higher. NC's costs were generally higher because they did both typical CAPABLE home modifications and accessibility modifications.

Medical Event Cost Analysis. The intervention group showed a slight decrease in the percentage of participants who went to the ER and were subsequently hospitalized for at least one night (from 23.7% one-year pre-baseline to 18.4% one-year post-baseline), while the control group showed a slight increase (from 20.3% to 23.7%); however, these changes were not significant (p=0. 337). The percentage of participants who visited the ER at least once (but were not hospitalized overnight) increased slightly for the intervention group (from 0% to 1.3%) but decreased for the control group (from 22.0% to 13.6%), p=0.932. When MEPS cost data were applied to these findings, both the intervention group and control group showed reductions in mean unplanned healthcare cost rates between one-year pre-baseline and one-year post-baseline. The total one-year post-baseline mean cost rate for the intervention group ($2,434) was slightly less than that for the control group ($2,968); however, the control group's cost reduction (37%) exceeded that of the intervention group (24%) (Table 5).

DISCUSSION

This study supports and strengthens other researchers' findings of longer-term (seven-months post-CAPABLE) improvement in ADL disability scores due to CAPABLE (Szanton et al., 2019). Our finding—that CAPABLE's positive effects last over several months—prove the longer-term effectiveness of CAPABLE implementation in diverse micropolitan and urban settings having different and small-scale organizational healthcare support systems. Given the time-limited (five-month) nature of CAPABLE's interventions, it is promising to find that participants continue to experience physical and mental health improvements months after the program ends. This finding is in keeping with CAPABLE training, which emphasizes that older adults can continue to apply the practices learned (e.g., exercise, physician communication, safe use of DME and AE) to decision-making when faced with future functional challenges (Szanton et al., 2014). An older person who has less difficulty conducting basic activities over the longer-term (e.g., bathing, toileting, and getting in and out of chairs) is less likely to utilize costly healthcare or skilled nursing facilities.

The CAPABLE program holds great promise to help low-income older adults. As the Bipartisan Policy Center's (BPC's) Senior Health and Housing Task Force noted in 2016, "Millions of older adults understand all too well that their health and well-being depend as much on their housing as they do on their health insurance and monthly Social Security check. The upside of a more integrated approach to older adult health and housing is significant: By more tightly linking the two, the United States has the potential to improve health outcomes for older adults, reduce

costs borne by the health care system, and enable millions of Americans to 'age in place' in their own homes and communities." Our study results add to the growing data showing great value in implementing CAPABLE in a variety of communities.

Continued post-CAPABLE contact with participants may help sustain benefits. NC stayed in touch with several participants after CAPABLE services were completed, which may have contributed to NC's particularly positive findings. Michigan's CAPABLE program maintains monthly telephone contact post-CAPABLE under Medicaid waiver services (Spoelstra et al., 2019). Szanton et al. (2019) suggests calls or booster visits may be useful in promoting continued CAPABLE benefits.

To qualify for a Medicaid SNF, one must be impoverished (Aging Care, 2020). Programs like CAPABLE help avoid enforced poverty by not only deferring or avoiding SNF placement but also by providing supports to reduce avoidable out-of-pocket expenses. The physical function improvements enable exercise necessary to reduce medication dosages (Naci et al., 2018). Even a small dosage reduction can reduce the financial medication burden on a low-income older adult. Housing is a keystone of economic independence and advancement. An older, functioning resident in a safe and healthy home can save money and focus time and resources on other basic needs. Housing modifications address deferred maintenance and repairs, such as NC's non-CAPABLE home repair work.

This project has the potential to leverage current healthcare spending in Medicaid waivers, accountable care organizations, and other capitated systems, saving healthcare costs as well as improving low-income older adults' ability to age safely at home with improved quality of life. Spoelstra et al. (2019) found fewer hospitalizations for older adults in Medicaid waiver programs. Our findings in urban and micropolitan communities with participant demographics differing from those in other CAPABLE studies help build the case for widespread adoption of similar programs.

Research to determine CAPABLE's effectiveness in rural locations is critical. Although CAPABLE has been adopted in over 40 cities and rural areas (Johns Hopkins School of Nursing, 2021), most published research is from urban settings like Baltimore, MD (Szanton et al., 2015, 2018, 2019). Our study population generally came from micropolitan or smaller urban areas. Partners used a wide variety of recruitment methods (e.g., public and private agency referrals, senior center and library visits, physician referrals, fliers); however, recruitment in rural areas proved difficult. Future studies could explore other recruitment methods as described by Nkimbeng et al (2018). On average, people in the rural US are older than those in urban areas. More than one in five Americans live in rural areas, many in states where more than half the older population lives in rural locations (US Census Bureau, 2020). Further research on CAPABLE's effectiveness over even longer follow-up periods (e.g., ≥two years) could be especially beneficial for these older rural populations, where healthcare and long-term care options are scarcer than in urban areas.

There are three main study limitations. First, this study lacked sufficient sample size to evaluate whether CAPABLE's longer-term effectiveness differed by income or helped prevent the need for long-term services and supports (LTSS). Liu et al (2020), however, found individuals with financial strain benefited more from CAPABLE than those without financial strain, and Gleason et al (2017) found participants with high food-related financial strain were more likely to respond well to intervention approaches like CAPABLE. In a single-arm clinical trial, Szanton et al

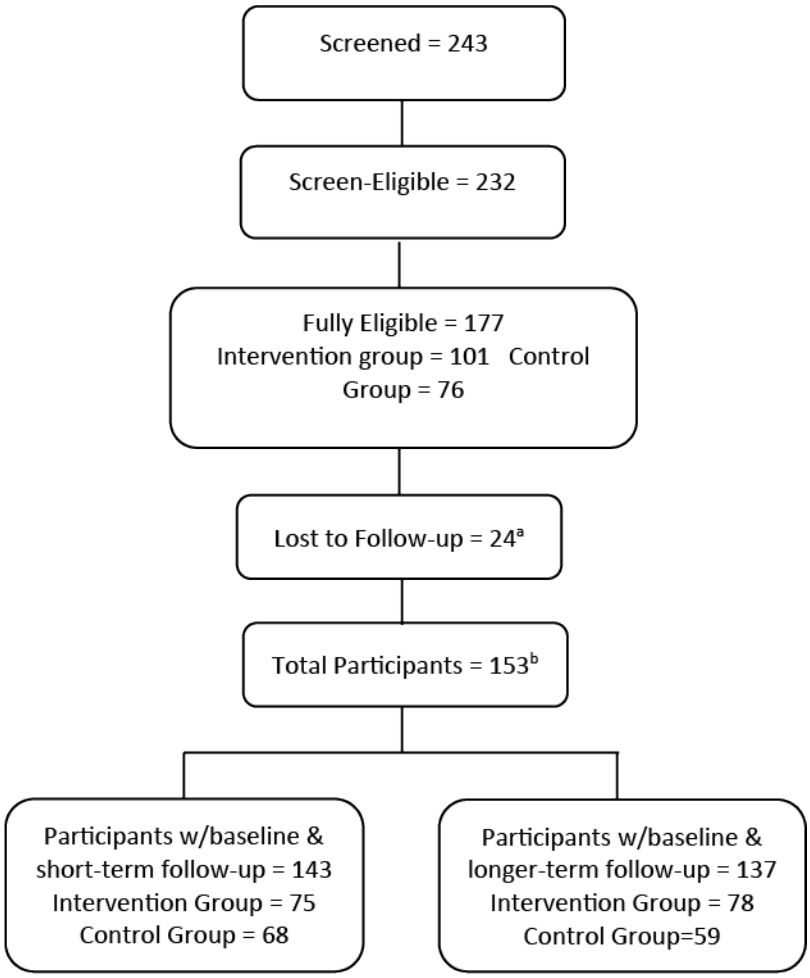
(2018) found mean Medicaid spending per CAPABLE participant was $867 less per month than that of matched comparison counterparts, with largest expenditure reductions in inpatient care and LTSS. Second, with respect to falls, participants' ability to recall and self-report on the number of falls in previous years may have been limited; however, any resulting bias is somewhat mitigated by the fact that each participant's self-report of one-year pre-baseline falls was compared with the same participant's self-report of twelve-month post-baseline falls. Future studies may benefit from a fall diary, allowing participants to record monthly fall frequency over one-year periods (Miko et al., 2018). Finally, when VT first began enrollment, they enrolled individuals from another older adult program called Support and Services at Home, or "SASH". When we became aware of this, we asked VT to enroll people not yet participating in SASH. SASH nursing services may have partly overlapped with CAPABLE (e.g., in-home wellness nurse visits, health coaching); however, SASH wellness nurses cover hundreds of people and make fewer visits. Since SASH includes neither OT nor home modification services, and SASH nursing services differ from CAPABLE nursing services, we decided it was acceptable to include all eligible VT older adults in the study.

CONCLUSIONS

The JHU CAPABLE program proved feasible for partner teams in four micropolitan and urban locations to implement. The program greatly improved both physical function and mental health outcomes, while also making homes safer, even seven months after residents completed the program.

Based on our evaluation results, we believe that more widespread or even national expansion of CAPABLE would yield strong societal benefits. CAPABLE and similar programs have the potential to meet a growing need in serving underserved populations. All four partners were successful in enrolling extremely low-income participants, and CA focused on formerly homeless older adults who were unlikely to access a health clinic. Other studies have shown CAPABLE provides cost savings through reduced nursing home costs and reduced Medicare and Medicaid costs. As the U.S. population continues to age, successful CAPABLE implementation in other communities, particularly rural locations, would be particularly promising for underserved or isolated populations.

Figure 1 Phone Screen, In-Home Eligibility, and Attrition Statistics



[a]Of the 24 participants lost to follow-up, 4 were unable to be contacted after repeated attempts; 4 moved into an assisted living or other facility offering medical services; 3 no longer wished to participate (one did not feel well enough, one's husband recently passed away, one reason unspecified); 2 passed away; 2 had mental health issues that prevented further progress; 2 became ill or injured in a manner which prevented their further participation in CAPABLE; and 7 finished services too late to be included in the dataset or did not complete either a short-term or longer-term follow-up visit.
[b]153 Participants completed a baseline visit and either a short-term or longer-term follow-up visit.

Table 1 Aging Gracefully Participant Demographics and Characteristics Summary

Characteristic	ALL (N=153)[a]	Intervention Group (N=83)[a]	Control Group (N=70)[a]	Intervention vs Control Group P
# (%) Female	112 (73%)	60 (72%)	52 (74%)	0.855
Mean Age at Enrollment (SD)	77.3 (8.1)	78.2 (8.7)	76.4 (7.4)	0.168
Income:				0.205
# (%) >50% to ≤80% AMI	29 (19%)	19 (24%)	10 (14%)	
# (%) >30% to ≤50% AMI	45 (30%)	20 (25%)	25 (36%)	
# (%) ≤30% AMI	76 (51%)	41 (51%)	35 (50%)	
Race/Ethnicity:				0.102
# (%) White, non-Hispanic	93 (61%)	52 (63%)	41 (59%)	
# (%) Black, non-Hispanic	44 (29%)	20 (24%)	24 (34%)	
# (%) Hispanic/White, Hispanic	12 (8%)	9 (11%)	3 (4%)	
# (%) Other[b]	4 (2%)[a]	2 (2%)	2 (3%)	
Highest grade of school completed:				0.392
# (%) 0 to <12 years	35 (23%)	20 (24%)	15 (21%)	
# (%) High school degree or equivalent	74 (48%)	36 (43%)	38 (54%)	
# (%) Associate degree and above	44 (29%)	27 (33%)	17 (25%)	
Mean #Years in Current Home (SD)	19.5 (18.8)	21.0 (20.9)	17.8 (15.9)	0.274
Live in Apt or Condo in Multi-Unit Building:	84 (55%)	47 (57%)	37 (53%)	0.745
Median Year of Home Construction	1961-1980	1961-1980	1961-1980	0.601
Live Alone	106 (69%)	54 (65%)	52 (74%)	0.291
In Moderate or Severe Pain	137 (90%)	75 (90%)	62 (89%)	0.794
Mean # of ADL Limitations (SD)	3.7 (1.7)	3.7 (1.7)	3.6 (1.8)	0.725
Mean # of IADL Limitations (SD)	3.7 (1.9)	3.7 (1.9)	3.7 (2.0)	0.810
Mean # of Chronic Conditions (SD)	3.1 (1.2)	3.0 (1.2)	3.2 (1.2)	0.363

[a] Sample sizes are as shown in the headers, except: Income: Intervention group N=80, control group N=70, Total N=150; Mean # of ADL Limitations: Intervention group N=82 control group N=70 Total N=152; Year of home construction: Intervention group N=81, control group N=64 Total N=145.

[b] Other reported race/ethnicities=Other, White/Hispanic/Other, White/Other, White/Pacific Islander/Other.

Table 2 Summary of Home Modifications, Durable Medical Equipment (DME), and Assistive Equipment (AE) Provided to Participants in Single Family Homes (SF), Apartments (Apts) and All Homes

Home Modification Category	% Participants in all homes (n=125)	% Participants in SF homes (n=63)	% Participants in apts (n=62)
General Fall Prevention, Grab bars	42%	64%	23%
Misc. home repairs	34%	64%	6%
Home Organization	27%	10%	42%
Floor repairs	19%	27%	12%
Home safety devices	18%	30%	6%
Door repairs	18%	36%	2%
Home Accessibility	12%	22%	3%

DME/AE Category	% Participants in all homes (n=125)	% Participants in SF homes (n=63)	% Participants in apts (n=62)
General Fall Prevention, non-grab bar	75%	80%	71%
Bathroom fall prevention, small	61%	63%	59%
Personal Care Items	46%	36%	55%
Sleep-Related Items	24%	5%	41%
Bathroom fall prevention, large	23%	39%	9%
Other IADL Aids	23%	17%	29%
Pain Reduction Items	22%	15%	29%
Safe Mobility/Transfer Equipment	21%	15%	26%
Exercise items	15%	12%	18%
Walkers	15%	5%	24%
Cooking Aids	14%	3%	24%
Nursing-related items	13%	3%	21%
Vision Items	13%	5%	20%
Home Cleaning Aids	12%	7%	16%
Stress Reduction	12%	5%	18%
Hearing Items	6%	5%	6%
Walking Items, small	6%	2%	11%

Table 3. Changes in Key Health Outcomes, Baseline to Twelve-Months Post-Baseline

Outcome (range)	Intervention Group					Control Group					Interven-tion vs. Control
	N	Baseline (95% CI)	12-month post-baseline (95% CI)	Change (95% CI)[a]	P [b]	N	Baseline (95% CI)	12-month post-baseline (95% CI)	Change (95% CI)[a]	P [b]	P [c]
Mean ADL Limitations Score (0-16)	69	4.4 (3.9,5.0)	2.5 (1.8,3.1)	-2.0 (-2.7,-1.3)	<0.001**	57	4.3 (3.7,4.9)	3.6 (2.8,4.4)	-0.7 (-1.4, 0.1)	0.071	0.012*
Mean Quality of Life (5-15)	70	8.9 (8.6,9.3)	8.2 (7.7,8.6)	-0.8 (-1.2,-0.3)	<0.001**	57	9.1 (8.6,9.5)	8.6 (8.1,9.1)	-0.5 (-0.9,-0.1)	0.009*	0.377
Mean Falls Efficacy (10-100)	70	31.5 (26.6,36.4)	22.6 (18.7,26.6)	-8.9 (-13.9,-3.8)	<0.001**	57	34.1 (29.3,38.9)	34.2 (28.0, 40.5)	0.1 (-4.8, 5.1)	0.955	0.012*
Mean IADL Limitations Score (0-16)	69	5.6 (4.8,6.5)	4.5 (3.6,5.4)	-1.1 (-1.8,-0.4)	0.002**	57	5.1 (4.3,6.0)	5.0 (3.9,6.0)	-0.2 (-1.1,0.7)	0.728	0.093
Mean PHQ-Depression (0-27)	70	5.9 (4.9,6.9)	4.6 (3.8,5.4)	-1.3 (-2.3,-0.3)	0.009**	57	6.2 (5.1,7.4)	6.6 (5.5,7.7)	0.4 (-0.7,1.5)	0.484	0.021**
Pain interference w/normal activities (0-10)	70	4.7 (4.0,5.5)	3.2 (2.4,4.0)	-1.5 (-2.3,-0.7)	<0.001**	57	5.0 (4.2,5.8)	5.2 (4.3,6.1)	0.3 (-0.6,1.1)	0.537	0.002**
# of Falls in past year	69	1.3 (0.9,1.6)	0.3 (0.2,0.5)	-0.9 (-1.3,-0.6)	<0.001**	57	1.2 (0.8,1.5)	0.7 (0.4,1.1)	-0.4 (-0.7,-0.1)	0.010*	0.037

[a] Negative change=improvement, positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to twelve-months post-baseline.

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

**Holm-Bonferroni multiple comparison significance at overall alpha=0.05; *marginal significance at overall alpha=0.1

Table 4. Summary of CAPABLE Program Per-Participant Costs[a]

Partner	Discipline	Minimum	Mean	Median	Maximum
NC (N=37)	OT	$900	$900	$900	$900
	RN	$600	$600	$600	$600
	HR	$492	$2,686	$2,255	$10,678
	DME/AE	$0	$63	$57	$192
	Total	$2,043	$4,249	**$3,905**	$12,323
PA (N=26)	OT	$1,500	$1,500	$1,500	$1,500
	RN	$1,000	$1,000	$1,000	$1,000
	HR	$0	$547	$25	$4,600
	DME/AE	$0	$290	$253	$901
	Total	$2,589	$3,337	**$2,894**	$7,100
VT (N=29)	OT	$300	$750	$900	$900
	RN	$0	$0	$0	$0
	HR	$0	$563	$353	$3,860
	DME/AE	$19	$160	$179	$388
	Total	$323	$1,472	**$1,328**	$4,987
CA (N=33)	OT	$400	$462	$480	$480
	RN	$80	$284	$320	$320
	HR	$0	$295	$250	$855
	DME/AE	$70	$508	$449	$1,203
	Total	$550	$1,549	**$1,5**	$2,468
ALL (N=125)	OT	$300	$837	$900	$1,500
	RN	$0	$438	$320	$1,000
	HR	$0	$1,117	$525	$10,678
	DME/AE	$0	$250	$179	$1,203
	Total	$323	$2,642	**$2,352**	$13,323

[a]Home repair costs included overhead and administrative costs paid to home repair personnel. DME costs included shipping and taxes.

DME= durable medical equipment; AE=assistive equipment; HR=home repair; OT=occupational therapist; RN=registered nurse

Table 5. Medical Event Costs, by Treatment Group

Type of Medical Event[a]	Visit	Mean Expendi-ture/ Event (AHRQ,2015)	Intervention Group (N=78)		Control Group (N=59)	
			# of Events[b]	Mean Cost Rate	# of Events[b]	Mean Cost Rate
ER	1 yr pre-baseline	$ 647	29	$ 241	17	$ 186
	1-yr post-baseline	$ 647	13	$ 108	8	$ 88
ER + Hospitalization	1 yr pre-baseline	$12,139	19	$ 2,957	21	$4,321
	1-yr post-baseline	$12,139	14	$ 2,179	14	$2,880
Hospitalization	1-yr pre-baseline	$11,492	0	$ 0	1	$ 195
	11-yr post-baseline	$11,492	1	$ 147	0	$ 0
Total Baseline Cost	1-yr pre-baseline			$ 3,197		$4,702
	1-yr post-baseline			$2,434		$2,968
Cost (%) Difference[c]				-$764 (-24%)		-$1,734 (-37%)

[a] ER=ER visit without subsequent hospitalization. ER+hospitalization=ER visit w/hospital admission for ≥1 night. Hospitalization=urgent care or office visit with hospital admission for ≥1 night (added cost of urgent care or office visit assumed negligible compare w/hospitalization cost.
[b] Intervention group sample sizes for #Events=48 for one-year pre-baseline and 28 for one-year follow-up. control group sample sizes for #Events=39 for one-year pre-baseline and 22 for one-year follow-up.
[c] Negative cost difference=lower cost during 1-year follow-up than in the year before baseline.

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Supplemental Table 2. Aging Gracefully Client Demographics Summary, by Partner Site

Characteristic	NC (N=43)[a]	PA (N=28)[a]	VT (N=33)	CA (N=49)	ALL (N=153)[a]
# (%) Female	34 (79%)	21 (75%)	24 (73%)	33 (67%)	112 (73%)
Mean Age at Enrollment (SD)	76.6 (7.1)	82.3 (8.6)	81.6 (6.9)	72.3 (6.2)	77.3 (8.1)
Income:					
# (%) >50% AMI to ≤80% AMI:	18 (44%)	3 (11%)	7 (21%)	1 (2%)	29 (19%)
# (%) >30% to ≤50% AMI:	16 (39%)	9 (33%)	12 (36%)	8 (16%)	45 (30%)
# (%)≤30% AMI:	7 (17%)	15 (56%)	14 (42%)	40 (82%)	76 (51%)
Race/Ethnicity:					
# (%) White, non-Hispanic	10 (23%)	28 (100%)	33 (100%)	22 (45%)	93 (61%)
# (%) Black, non-Hispanic	33 (77%)	0	0	11 (23%)	44 (29%)
# (%) Hispanic/White, Hispanic	0	0	0	12 (24%)	12 (8%)
# (%) Other[b]	0	0	0	4 (8%)[a]	4 (2%)[a]
Highest grade of school completed:					
# (%) 0 to <12 years	9 (21%)	4 (14%)	9 (27%)	13 (27%)	35 (23%)
# (%) High school degree or GED	19 (44%)	19 (68%)	16 (48%)	20 (41%)	74 (48%)
# (%) Associate degree and above	15 (35%)	5 (18%)	8 (25%)	16 (32%)	44 (29%)
Mean #Years in Current Home (SD)	31.9 (16.7)	24.1 (24.3)	19.6 (16.9)	6.2 (5.1)	19.5 (18.8)
% Who Live in Apt or Condo in Multi-Unit Building:	2 (4.7%)	17 (61%)	17 (52%)	48 (98%)	84 (55%)
# (%) Public Housing	0	11 (65%)	0	0	11 (13%)
# (%) Project-Based Section 8 housing	0	1 (6%)	2 (12%)	2 (4%)	5 (6%)
# (%) LIHTC	0	2 (12%)	8 (47%)	36 (75%)	46 (55%)
# (%) Section 202 housing	0	0	5 (29%)	0	5 (6%)
# (%) Condominium	2 (100%)	0	0	0	2 (2%)
# (%) Unknown housing type	0	3 (17%)	2 (12%)	10 (21%)	15 (18%)
Median Year of Home Construction	1941-1960	1941-1960	1961-1980	2001-2016	1961-1980
% Who Live Alone	26 (60%)	20 (71%)	19 (58%)	41 (84%)	106 (69%)
% in Moderate or Severe Pain	37 (86%)	27 (96%)	26 (79%)	47 (96%)	137 (90%)
Mean # of ADL Limitations (SD)	3.4 (1.4)	3.0 (1.3)	3.0 (2.0)	4.8 (1.5)	3.7 (1.7)
Mean # of IADL Limitations (SD)	2.7 (2.1)	3.9 (1.9)	4.0 (1.7)	4.3 (1.6)	3.7 (1.9)
Mean # of Chronic Conditions (SD)	2.6 (0.8)	3.1 (1.2)	3.1 (1.3)	3.7 (1.3)	3.1 (1.2)

[a] Sample sizes are as shown in the column headers, except for the following: (1) Mean age at enrollment: NC N=42, total N=152;
(2) Income: NC N=42, PA N=27, Total N=151; and (3) Year of home construction: NC N=35, Total N=145.

[b] Other reported race/ethnicities=White/Black/Hispanic, White/Pacific Islander/Other, White/Other, and White/American Indian/Alaskan Native.

Supplemental Table 2. Changes in Mean Home Hazard Score, Baseline to Twelve-Months Post-Baseline

Location (sample size)	Study Group				Control Group				Study vs. Control
	Base-line	Follow-Up	Change[a]	P [b]	Base-line	Follow-Up	Change[a]	P [b]	P [c]
All Homes (Intervention gp=78, Control gp=59)	11.1	6.3	-4.8	<0.001**	11.6	9.9	-1.6	<0.001**	<0.001**
NC Homes (Intervention gp=21, Control gp=18)	12.8	7.9	-4.9	<0.001**	14.6	12.9	-1.7	0.020**	0.002**
PA Homes (Intervention gp=17, Control gp=10)	7.9	4.5	-3.4	<0.001**	5.8	5.7	-0.1	0.906	0.004**
VT Homes (Intervention gp=17, Control gp=14)	7.9	4.9	-2.9	0.002**	9.9	8.2	-1.7	0.006**	0.218
CA Homes (Intervention gp=23, Control gp=17)	14.3	7.2	-7.0	<0.001**	13.1	10.6	-2.5	0.007**	<0.001**

[a] Negative change=improvement, and a positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to 12-month post-baseline.

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

**significant at p<0.05; *marginally significant at 0.05≤p<0.1

Supplemental Table 3. Changes in Key Health Outcomes for NC, Baseline to Twelve-Months Post-Baseline

Outcome (range)	Intervention Group					Control Group					Interven-tion vs. Control
	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	P[c]
Mean ADL Limitations Score (0-16)	21	4.1 (3.2,5.1)	1.4 (0.5,2.4)	-2.7 (-3.8,-1.6)	<0.001**	18	3.9 (2.8,5.0)	3.0 (1.3,4.7)	-0.9 (-2.2,0.4)	0.160	0.028
Mean Quality of Life (5-15)	21	8.9 (8.3,9.5)	7.3 (6.4,8.3)	-1.5 (-2.2,-0.8)	<0.001**	18	8.8 (7.8,9.7)	7.9 (6.9,8.9)	-0.9 (-1.4,-0.4)	0.001**	0.126
Mean Falls Efficacy (10-100)	21	31.0 (21.1,40.8)	14.0 (9.1,18.8)	-17.0 (-25.5,-8.5)	<0.001**	18	30.8 (21.3,40.4)	27.5 (14.7,40.3)	-3.3 (-11.8,5.2)	0.419	0.023
Mean IADL Limitations Score (0-16)	21	3.9 (2.4,5.4)	2.8 (1.1,4.6)	-1.1 (-1.9,-0.3)	0.007*	18	3.8 (1.9,5.7)	4.4 (1.9,6.9)	0.6 (-1.4,2.5)	0.552	0.108
Mean PHQ-Depression (0-27)	21	7.6 (5.2,10.0)	4.3 (2.5,6.2)	-3.3 (-5.5,-1.1)	0.006**	18	6.8 (4.6,9.0)	6.2 (3.6,8.9)	-0.6 (-2.4,1.2)	0.475	0.057
Pain interference w/normal activities (0-10)	21	4.0 (2.5,5.4)	1.6 (0.4,2.8)	-2.4 (-3.8,-1.0)	0.002**	18	4.6 (2.9,6.2)	4.5 (2.2,6.8)	-0.1 -1.7,1.5)	0.943	0.029
# of Falls in past year	21	1.2 (0.5,1.8)	0.3 (-0.0,0.6)	-0.9 (-1.6,-0.2)	0.010*	18	0.9 (0.3,1.6)	0.7 (-0.1,1.5)	-0.2 (-0.7,0.2)	0.331	0.086

[a] Negative change=improvement, and a positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to 12-month post-baseline.

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

** Holm-Bonferroni multiple comparison significance at overall alpha=0.05; *marginal significance at overall alpha=0.1

Supplemental Table 4. Changes in Key Health Outcomes for PA, Baseline to Twelve-Months Post-Baseline

Outcome (range)	Intervention Group					Control Group					Interven-tion vs. Control
	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	P[c]
Mean ADL Limitations Score (0-16)	16	4.0 (2.9,5.1)	4.0 (2.3,5.7)	0.0 (-1.3,1.3)	1.000	8	4.3 (2.8,5.7)	5.5 (2.3,5.7)	1.3 (-2.1,4.6)	0.405	0.435
Mean Quality of Life (5-15)	16	8.9 (8.4,9.5)	8.4 (7.7,9.2)	-0.5 (-1.2,0.2)	0.150	8	8.4 (6.7,10.0)	9.0 (7.4,10.6)	0.6 (-1.0,2.2)	0.388	0.166
Mean Falls Efficacy (10-100)	16	29.6 (16.9,46.6)	19.6 (14.6,24.7)	-9.9 (-20.3,0.5)	0.060	8	31.4 (16.1,46.6)	32.9 (12.4,53.3)	1.5 (-13.5,16.5)	0.820	0.173
Mean IADL Limitations Score (0-16)	16	7.7 (5.8,9.6)	6.3 (3.7,8.9)	-1.4 (-3.1,0.3)	0.104	8	5.3 (2.1,8.4)	5.1 (1.3,8.9)	-0.1 (-2.1,1.9)	0.888	0.298
Mean PHQ-Depression (0-27)	16	5.4 (2.8,7.9)	3.4 (1.9,5.0)	-1.9 (-4.3,0.4)	0.104	8	4.5 (1.5,7.5)	7.1 (2.2,12.1)	2.6 (-2.0,7.2)	0.219	0.065
Pain interference w/normal activities (0-10)	16	4.8 (3.3,6.2)	3.3 (1.5,5.0)	-1.5 (-2.7,-0.3)	0.018	8	5.0 (2.1,7.9)	4.6 (1.5,7.7)	-0.4 (-3.3,2.5)	0.768	0.423
# of Falls in past year	16	1.3 (0.6,1.9)	0.4 (-0.1,0.8)	-0.9 (-1.5,-0.2)	0.014*	8	2.1 (0.5,3.8)	1.4 (0.0,2.7)	-0.8 (-2.3,0.8)	0.303	0.870

[a] Negative change=improvement, and a positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to 12-month post-baseline

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

**Holm-Bonferroni multiple comparison significance at overall alpha=0.05; *marginal significance at overall alpha=0.1

Supplemental Table 5. Changes in Key Health Outcomes for VT, Baseline to Twelve-Months Post-Baseline

Outcome (range)	Intervention Group					Control Group					Interven-tion vs. Control
	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P [b]	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P [b]	P [c]
Mean ADL Limitations Score (0-16)	17	3.2 (2.2,4.2)	2.5 (1.1,3.8)	-0.8 (-2.2,0.7)	0.272	14	3.9 (2.2,5.6)	1.9 (0.7,3.2)	-2.0 (-3.2,-0.8)	0.002**	0.161
Mean Quality of Life (5-15)	17	8.2 (7.3,9.0)	8.2 (7.1,9.4)	0.1 (-1.1,1.2)	0.917	14	9.3 (8.5,10.1)	8.1 (7.0,9.1)	-1.2 (-1.8,-0.6)	<0.001**	0.053
Mean Falls Efficacy (10-100)	17	20.5 (14.4,26.6)	27.5 (15.9,39.2)	7.0 (-3.4,17.4)	0.174	14	30.7 20.2,41.2)	28.9 (16.4,41.5)	-1.8 (-13.6,10.0)	0.749	0.242
Mean IADL Limitations Score (0-16)	16	5.8 (4.1,7.4)	4.7 (2.8,6.5)	-1.1 (-3.5,1.4)	0.367	14	7.0 (5.4,8.6)	5.1 (3.1,7.1)	-1.9 (-4.1,0.3)	0.082	0.577
Mean PHQ-Depression (0-27)	17	4.1 (2.5,5.7)	4.9 (3.5,6.4)	0.8 (-0.6,2.3)	0.252	14	7.6 (4.6,10.7)	6.1 (4.5,7.8)	-1.5 (-3.6,0.6)	0.148	0.064
Pain interference w/normal activities (0-10)	17	5.0 (3.4,6.6)	3.6 (1.9,5.4)	-1.4 (-3.3,0.6)	0.155	14	5.4 (3.4,7.5)	5.6 (4.0,7.2)	0.1 (-2.2,2.5)	0.896	0.295
# of Falls in past year	17	1.1 (0.5,1.8)	0.5 (-0.0,1.1)	-0.6 (-1.4,0.2)	0.136	14	1.1 (0.4,1.9)	0.5 (-0.0,1.1)	-0.6 (-1.4,0.2)	0.057	0.911

[a] Negative change=improvement, and a positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to 12-month post-baseline

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

**Holm-Bonferroni multiple comparison significance at overall alpha=0.05; *marginal significance at overall alpha=0.1

Supplemental Table 6. Changes in Key Health Outcomes for CA, Baseline to Twelve-Months Post-Baseline

Outcome (range)	Intervention Group					Control Group					Intervention vs. Control
	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	N	Baseline (95% CI)	12-Month Post Baseline (95% CI)	Change (95% CI)[a]	P[b]	P[c]
Mean ADL Limitations Score (0-16)	15	6.6 (5.4,7.8)	2.3 (1.1,3.4)	-4.3 (-5.7,-3.0)	<0.001**	17	5.0 (3.8,6.2)	4.8 (3.4,6.1)	-0.2 (-1.4,1.0)	0.680	<0.001**
Mean Quality of Life (5-15)	16	9.9 (9.2,10.6)	9.0 (8.3,9.7)	-0.9 (-1.5,-0.2)	0.014*	17	9.6 (8.8,10.3)	9.5 (8.9,10.1)	-0.1 (-0.8,0.7)	0.872	0.097
Mean Falls Efficacy (10-100)	16	45.8 (36.9,54.8)	31.8 (23.2,40.4)	-14.0 (-23.9,-4.1)	0.009**	17	41.6 (33.3,49.9)	46.4 (36.6,56.1)	4.8 (-5.5,15.0)	0.339	0.009
Mean IADL Limitations Score (0-16)	16	5.8 (4.3,7.2)	4.8 (3.3,6.2)	-1.0 (-2.1,0.1)	0.080	17	4.9 (3.7,6.2)	5.5 (4.0,6.9)	0.5 (-0.8,1.8)	0.396	0.068
Mean PHQ-Depression (0-27)	16	6.1 (4.5,7.6)	5.6 (4.3,7.0)	-0.4 (-1.6,0.7)	0.443	17	5.2 (3.6,6.9)	7.2 (5.5,8.8)	1.9 (0.1,3.8)	0.042	0.030
Pain interference w/normal activities (0-10)	16	5.4 (3.4,7.3)	4.8 (3.1,6.4)	-0.6 (-2.7,1.4)	0.529	17	5.1 (4.1,6.0)	6.1 (5.0,7.1)	1.0 (-0.2,2.2)	0.101	0.162
# of Falls in past year	15	1.5 (0.7,2.4)	0.2 (-0.0,0.4)	-1.3 (-2.1,-0.5)	0.003**	17	0.9 (0.4,1.5)	0.6 (0.1,1.2)	-0.3 (-0.9,0.3)	0.289	0.032

[a] Negative change=improvement, and a positive change=worsening.

[b] A paired t-test was used to test the hypothesis that the mean changed from baseline to 12-month post-baseline.

[c] A two-sample t-test was used to test the hypothesis that mean changes were different in the intervention and control groups.

**Holm-Bonferroni multiple comparison significance at overall alpha=0.05; *marginal significance at overall alpha=0.1