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Preventing Recurrent Falls In Elderly Home Bound Health Plan Members

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Preventing Recurrent Falls in Elderly Home Bound Health Plan Members

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In Partial Fulfillment of the Requirements of the Degree

Doctorate of Nursing Practice

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The DNP Project is accepted in partial fulfillment

of the requirements for the degree Doctorate of Nursing Practice.

May 24, 2021

Signed: *Debra Sylvester, MSN, RN, GNP*

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May 24, 2021

Acknowledgments

This project is dedicated to Elinor, my mom who died as a result of complications from falling.

My hope is this work will have some impact on preventable,

complications and the suffering recurrent falls have on older adults.

I owe a debt of gratitude to my life partner Terri,

who provided unwavering encouragement of my dreams.

To my family and guardian angels

Elinor, Marion, Curt, John, Ellen, Margie, Mike & Molly

for their support and encouragement.

I owe a sincere debt of gratitude to my advisor Lisa Corbett, who provided expertise, thoughtfulness and challenged me be a more confident leader and think like a scholar.

I owe heartfelt thanks and gratitude to all my Yale classmates.

We learned much from one other,

as we shared tears, trials, tribulations, joys, struggles and laughter.

"No One Left Behind"

Abstract

Falls have become a major public health concern. As the population ages, the prevalence of falls among older adults continues to increase, as does mortality and morbidity. Evidence-based assessment and intervention tools are widely available, though in practice, providers experience challenges utilizing them. Homebound older adults are at particular risk since they have mobility and transportation barriers that prevent access to community fall screening and primary care sites. This project focused on the provision of fall assessment, interventions, and coordination of fall-prevention services for community-dwelling, homebound older adults covered by a managed health plan. A standardized fall assessment and intervention pilot program using evidenced based tools was successful in reducing recurrent falls in this population by 50%. Based on the data analysis, a multidisciplinary approach with tailored care plans to mitigate recurrent falls in an older adult homebound population proved beneficial to members. The project provides a model for scalable adoption by managed care plans that coordinate care for medically complex, homebound older adults. Providing an adoptable multidisciplinary fall management model for managed care plans that coordinate members care will address the multifactorial risks and causes of falls, and tailor appropriate interventions.

Keywords: falls, fall assessment and intervention, older adults, geriatric population

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Chapter 1

Introduction

Falls have become a major public health concern. One in four Americans over the age of 65 fall each year. Every 11 seconds, an older adult is treated in the emergency room for a fall; every 19 minutes, an older adult will die because of a fall. Falls are the leading cause of fatal injury and the most common cause of nonfatal trauma-related hospital admissions among older adults (National Council on Aging, 2018). The consequences of falls have led to 2.8 million injuries treated in emergency rooms, over 800,000 hospital admissions, and more than 27,000 deaths (National Council on Aging, 2018). Many falls are preventable and employing evidence-based assessments and interventions to mitigate recurrent falls will reduce the rising costs, morbidity and mortality related to fall injuries.

Problem Statement

As the population ages, the prevalence of falls among older adults continues to increase, as does the resulting mortality and morbidity. Falls-related health care spending is estimated to reach $100 billion by 2030 (Houry et al., 2015). Evidence-based assessment and intervention tools are widely available, though in practice, providers experience challenges utilizing them. Homebound older adults are at particular risk since they have mobility and transportation barriers that prevent access to community fall screening and primary care sites. Managed health plans, as the payor and provider of care for vulnerable populations, strive to reduce harm and control costs for members. This project aims to focus on the provision of fall assessments, interventions, and coordination of fall-prevention services for community-dwelling homebound older adults covered by a managed health plan.

Background

The Significance of Falls. Falls are the most frequent cause of traumatic injury, disability, institutionalization, and mortality among older adults in the United States (Guirguis-Blake et al., 2018). According to the Centers for Disease Control and Prevention (CDC, 2019), falls are the number one cause of fatal and non-fatal injuries in Americans aged 65 and older. Of the fall-related injuries that lead to hospitalizations, hip and brain injuries are the most common (Bergen et al., 2014). Advanced age, frailty, and pre-existing medical conditions contribute to decreased ability to recover from injuries. A study conducted by researchers at the University of Mississippi found that adults older than age 70 experienced a three-fold increase in their risk of death after a fall when compared with those 69 and younger (Botek, 2017). It is estimated that 30% of community-dwelling people over 65 years and 50% of those over 80 years fall at least once a year and that approximately 5% of those who fall experience a fracture (Finnegan et al., 2017). In addition, psychological consequences of falling, such as depression and fear of falling, can occur and be long standing (Fahlstrom et al., 2017).

The steady increase in elderly falls is attributable to many factors, including rising longevity, polypharmacy, and multi-morbidity. The rate of fatal falls for adults over 75 more than doubled during the same time, from 51.6 per 100,000 people in 2000 to 122.2 per 100,000 people in 2016 (Hartholt et al., 2019). As the baby boomer generation ages with a preference to age in the community, the CDC projects that 49 million older adults will fall each year, resulting in 12 million injuries (Houry et al., 2015).

Fall-Related Healthcare Costs. Rising fall-related injuries also contribute to rising healthcare costs and utilization. Fall injuries are among the 20 most expensive medical conditions, costing an average of $30,000 per fall injury. Treatment costs for a fall injury

increase proportionally with age. In 2015, direct medical costs totaled $637.5 million for fatal falls and $31.3 billion for non-fatal falls (Burns et al., 2016). The CDC projects that by 2030 elderly falls will cost over $100 billion dollars annually (Houry et al., 2015).

Standardizing Clinical Practice. Intersociety Clinical Practice Guidelines (CPGs) have been developed to respond to the burden and harmful impact of falls (American Geriatrics Society/British Geriatrics Society, 2011). These guidelines recommend primary care screening with standardized questionnaires on falls, gait, and balance history. A positive history of falls triggers patient evaluation and an in-depth multifactorial risk assessment including history, exam, functional gait balance assessment, environmental assessment, and medication review. Additionally, the US Preventive Services Task Force created recommendations for exercise, physical therapy, and vitamin D supplementation for those at risk of falling (Guirguis-Blake et al., 2018). These two clinical practice guidelines continue to be the standard of practice for the evaluation and management of falls in community-dwelling older adults (Ganz & Latham, 2020). Since the initial CPG was published, many additional tools and guidelines have proliferated. Medicare has made fall screening assessments required for reimbursement of the annual visit. However, this incentive has not significantly translated into improved screening behaviors by providers.

Recurrent Falls. The incidence of people who have recurrent or repeated falls is increasing alongside the number of total falls. Previous fallers have a greater than 50% chance of having recurrent falls within the year (Nevitt et al., 1989). In one study of 325 of community-dwelling older adults, 102 subjects (31%) had two or more falls and 62 subjects (19%) suffered three or more falls. After an initial fall, over 30% of people develop a fear of falling that results in increased risk of future falls (Masud & Morris, 2001). In a retrospective study of patients over

65 who presented to the emergency department after a fall, 23% experienced a recurrent fall within six months and 32% had a subsequent hospitalization. Additionally, a history of falls or hip fracture in the past three months was predictive of recurrent falls (Sri-on et al., 2017).

Gaps in Current Knowledge

Studies show significant gaps exist in the administration of recommended screenings for falls in the elderly population. Fewer than half of seniors receive a comprehensive fall risk assessment in a primary care office setting (Phelan et al., 2016). Less than 47% of primary care providers (PCP's) conduct annual fall risk assessments, and many only screen for falls when patients express concerns about falling (Jones et al., 2011; Nyrop et al., 2012; Gaboreau et al., 2016).

Jones et al. (2011) sought to understand the barriers preventing PCP's from conducting in-office fall assessments. They found conducting a multifactorial in-depth fall assessment including BP, gait and balance screen and medication review was too time consuming for most PCPs. Further, respondents indicated that fall assessments were not a priority during office visits. Other identified barriers include lack of understanding on fall prevention interventions and lack of ability to coordinate a fall prevention care plan with other disciplines.

Project Rationale

Previous work shows a gap between the evidence-based prevention screening and case-coordinated treatment interventions that exist to prevent falls in homebound older adults and the usage of these resources. This prevention and implementation gap compounds the risk for recurrent falls. The rationale for this project is to develop a model that can reduce recurrent falls among the elderly using a multidisciplinary approach. To this end, evidence-based fall assessment and intervention tools will be adapted for health plans that serve homebound older

adult members. A successful model could be adopted by other health plans serving similar populations.

Chapter 2

Review of the Literature

To understand the significance of falls in older adults, a comprehensive literature review was conducted utilizing the following databases: Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL), Scopus, PubMed, OVID, Google Scholar, Centers for Disease Control and Prevention (CDC) Database, and the Cochrane Database of Systemic Review. The grey literature, including factsheets, government documents, committee reports and thesis and dissertations, was reviewed for possible inclusion. The search strategy used in the literature search included Medical Subject Heading (MESH) terms and free text terms used in various combinations in each database as well as Boolean terms. The searchable terms included: falls elderly, geriatric falls, fall prevention, interventions, fall assessments, fall screening, community-dwelling elders, fall interventions, STEADI, STEADI effectiveness. I excluded articles related to falls in inpatient settings, acute care, skilled nursing facilities or long-term care settings, as well as articles that were not written in English and articles that were not published between 2015 and 2020.

The goal of the literature search was to determine the best possible evidence for: a) the costs, mortality, and mobility of falls in older adults; b) effective approaches and tools for fall assessment and intervention strategies for community-dwelling older adults c) the effectiveness of STEADI algorithm and toolkit developed by the CDC.

Fall Assessment and Intervention Strategies

Many risk assessment tools to evaluate older adult falls have been published. Some assessment tools are specific to settings, such as inpatient, outpatient or older adults with certain health conditions, while other tools are not specific. For the purposes of this DNP project, the

goal is to target strategies specific to community-dwelling older adults, with a focus on assessments and interventions to mitigate repeated falls.

In a meta-analysis of thirty-one fall assessment tools, Park (2018) concluded that using multiple measures (two or more assessment tools) would more accurately evaluate the risk of falls. This conclusion was reached due to the multitude of factors for predicting fall risk (Park, 2018). In a similar study of fall risk assessment tools for older adults, Ruggieri et al. (2018) attempted to identify validated fall risk assessment tools frequently used internationally. Although the authors identified 33 different fall risk assessment tools, they were not able to identify one tool that was suitable for all settings. Internationally, the most used tools are the Falls Efficacy Scale-International (FES-1) and Activities-specific Balance Confidence Scale (ABC scale). These fall assessment tools have been translated into several languages and found to be reliable as a measure of fear of falling but limited in scope (Ruggieri et al., 2018).

Researchers from Portugal developed a multifactorial screening tool based on key risk factors for falls (Martins et al., 2018). They conducted an extensive review of validated measures to include in the multifactorial assessment. The measures chosen included a history of falls, lower limb strength, gait, and balance impairments. The authors found that a fear of falling can have long lasting effects. These effects contribute to a progressive functional decline, lower quality of life, and increased risk of needing long-term nursing home care.

The American Geriatrics Society/ British Geriatrics Society Clinical Practice Guideline, (AGS/BGS CPG, 2011) identify several chronic health conditions documented as significant risk factors for falling. These include: arthritis, heart disease, incontinence, Parkinson’s disease, and vision and hearing problems. In addition, the guidelines identify benzodiazepines, opioids, and hypnotics as being associated with falls. The CPG suggests fall assessments should include

validated mobility assessment measures, such as the timed “get up and go test”, “30 second sit to stand” and “four stage balance tests” (AGS/BGS, 2011). For community-dwelling older adults, home safety evaluations to identify home hazards, such as clutter or a lack of adequate lighting, should be utilized to reduce falls (Martins et al., 2018). Utilizing assessments that include evidence-based elements and are appropriate to the care setting is critical to identify needed interventions to reduce recurrent falls.

Fall Prevention Interventions

In a Cochrane review of current evidence, Sherrington et al. (2019) examined the evidence regarding exercises that target balance, gait, and muscle strength to prevent falls in community-dwelling older adults. The review included 108 randomized controlled trials with 23,407 participants in 25 countries. The evidence found exercise can reduce the rate of falls by 23%, and highlighted the benefit of exercise for anyone over the age of 65, regardless of the risk of falls. Exercise programs that include multiple exercise modalities are more effective in preventing falls. When multiple types of exercise, including balance, functional, and resistance exercises, are employed, the number of falls is reduced up to 34% and the number of people experiencing one or more falls drops by 22%. Tai Chi may reduce falls by 19% as well as reduce the number of people who experience falls by 20%. Overall, the review concluded with high certainty that exercise programs reduce the rate of falls and the number of people experiencing falls. There was no evidence that flexibility or endurance programs had any impact on reducing falls (Sherrington et al., 2019).

Multiple intervention strategies have been developed to reduce falls. In a separate systematic review published by Cochrane, the authors found that addressing multifactorial interventions, rather than any single intervention, based on a patient’s individual risk factors

results in fall reduction. Multifactorial intervention strategies include exercise programs, medication review and addressing home hazards (Hopewell et al., 2018).

The Effectiveness of Stopping Elderly Accidents Deaths & Injuries (STEADI) Toolkit

The AGS/BGS CPG (2011) recommends a multifactorial approach to fall prevention including: provider interview, assessment for modifiable risk factors, gait and balance assessment, and medication review. Intervention recommendations include strength and balance exercises and medication adjustments. The CDC National Center for Injury Prevention and Control developed the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) initiative based on AGS/BGS guidelines, health behavior theory, and input from health care providers. This initiative offers health care providers a framework and easy-to-use-tools for older adult fall prevention (Stevens & Phelan, 2013). The STEADI Toolkit is a comprehensive and effective approach to fall risk assessment, prevention of falls and interventions and can be utilized in many settings—primary care, residential living, acute and chronic facilities and in the community (see Appendix A for more detail on this algorithm).

The STEADI initiative includes standardized materials (e.g., clinical algorithm, fact sheets, and training videos) to help health care providers discuss fall risks with older adults and to incorporate effective fall prevention into their practices. STEADI includes these core elements: a.) screening to identify older adults with an increased falls risk, b.) assessing to identify modifiable risk factors (e.g., medication review, functional ability test, measuring visual acuity, orthostatic blood pressure, podiatry review, and home hazard evaluation), and c.) intervening to reduce fall risk using evidence-based strategies (e.g., strength and balance program, medication management, occupational therapy, and corrective eyewear).

STEADI is the most widely disseminated fall risk screening management and intervention program. Among 12,346 primary care patients, investigators found that implementation of the STEADI risk screening and preventions strategies reduced fall-related hospitalizations (Johnston et al., 2019). STEADI also includes resources for providers and patients to reduce the risk of outpatient falls. Some of STEADI's strengths over other fall-risk tools include its design to follow the AGS/BGS practice guidelines closely and address fall prevention in individuals at all levels of risk. STEADI is a broader screening assessment than most other ambulatory fall risk assessments, with fewer subjective elements that may reduce predictive accuracy. Findings have considerable importance in clinical practice, where one goal is to reduce provider burden by using the fewest assessments while maximizing clinically relevant information.

In an analysis using data from the National Health and Aging Trend Study (Crow et al., 2018), researchers analyzed data from a cohort of 7,392 community-dwelling elders that were assessed for physical function. They found STEADI had a much stronger predictive value than frailty measures. This study provides evidence for outpatient care providers that STEADI alone is a clear, validated algorithm that can be used in lieu of other frailty assessments if the goal is fall risk prediction.

As evidence of the utility of the STEADI Program, the American Academy of Geriatric Physical Therapy assembled an expert panel to review the current fall-related CPGs and make recommendations for physical therapy practice in community-dwelling fall reduction. After an extensive review of the literature, three clinical practice guidelines were recommended for use, including the STEADI Toolkit. The components of the STEADI Toolkit are consistent with the recommendations for physical therapists in the clinical guideline statement (Avin et al., 2018).

The STEADI Toolkit can also be used in a variety of settings. In a study by Sri-On et al. (2018), the researchers studied patients aged ≥ 65 years who had an accidental fall or presented to the emergency department in two urban teaching hospitals and followed them for 6 months. Data were gathered about fall-relevant comorbidities, high-risk medications for falls, and the responses to 12 questions from the STEADI guideline recommendation. The outcomes tracked were the number of 6-month adverse events, defined as mortality, emergency room re-visit, subsequent hospitalization, recurrent falls, and a composite outcome. Seven questions from the STEADI guideline predicted various outcomes. The questions "had previous fall," "feels unsteady when walking sometimes," and "lost some feeling in their feet" predicted recurrent falls. In addition to recurrent fall risk, the supplemental questions "use or have been advised to use a cane or walker," "take medication that sometimes makes them feel light-headed or more tired than usual," "take medication to help sleep or improve mood," and "have to rush to a toilet" predicted other adverse outcomes.

The STEADI Toolkit is based on current evidence, utilizing standardized, previously validated tests and fall prevention interventions. It also emphasizes identifying and addressing individualized risk factors for falls (Stevens & Phelan, 2013). The STEADI Toolkit has been validated for use in a variety of settings including in the homebound population.

A 2016 study aimed to use administrative data and patient-reported information to predict community-dwelling health plan members risk for future falls (Jennings et al., 2016). The observational study used insurance claims data and self-report questions extracted from the STEADI assessment to predict future falls. The findings concluded that using comorbidity data and member report of two or more falls in previous year was a strong predictor of future falls (Jennings et al., 2016),

Gaps in The Literature

Most of the literature on fall assessment and interventions is conducted in primary care settings or in facilities such as hospitals, nursing homes, and assisted living centers. However, there is a gap in the literature on mitigating recurrent falls for community-dwelling, homebound older adults with multiple chronic conditions.

Older adults with multiple chronic conditions and decreased mobility are becoming increasingly homebound, with limited ability to leave their residences without significant assistance. Many rely on an array services provided to meet their medical and social needs at home. The literature on falls in older adults shows the need for a multidisciplinary approach for assessment and for intervention using an individualized plan of care. There is a lack of literature studying methods to reduce recurrent falls by implementing enhanced care management and care coordination or by deploying multidisciplinary teams. Effective and comprehensive approaches to reduce recurrent falls in homebound populations may provide incentives for other health plans to adopt similar methods.

Practice Model/Framework

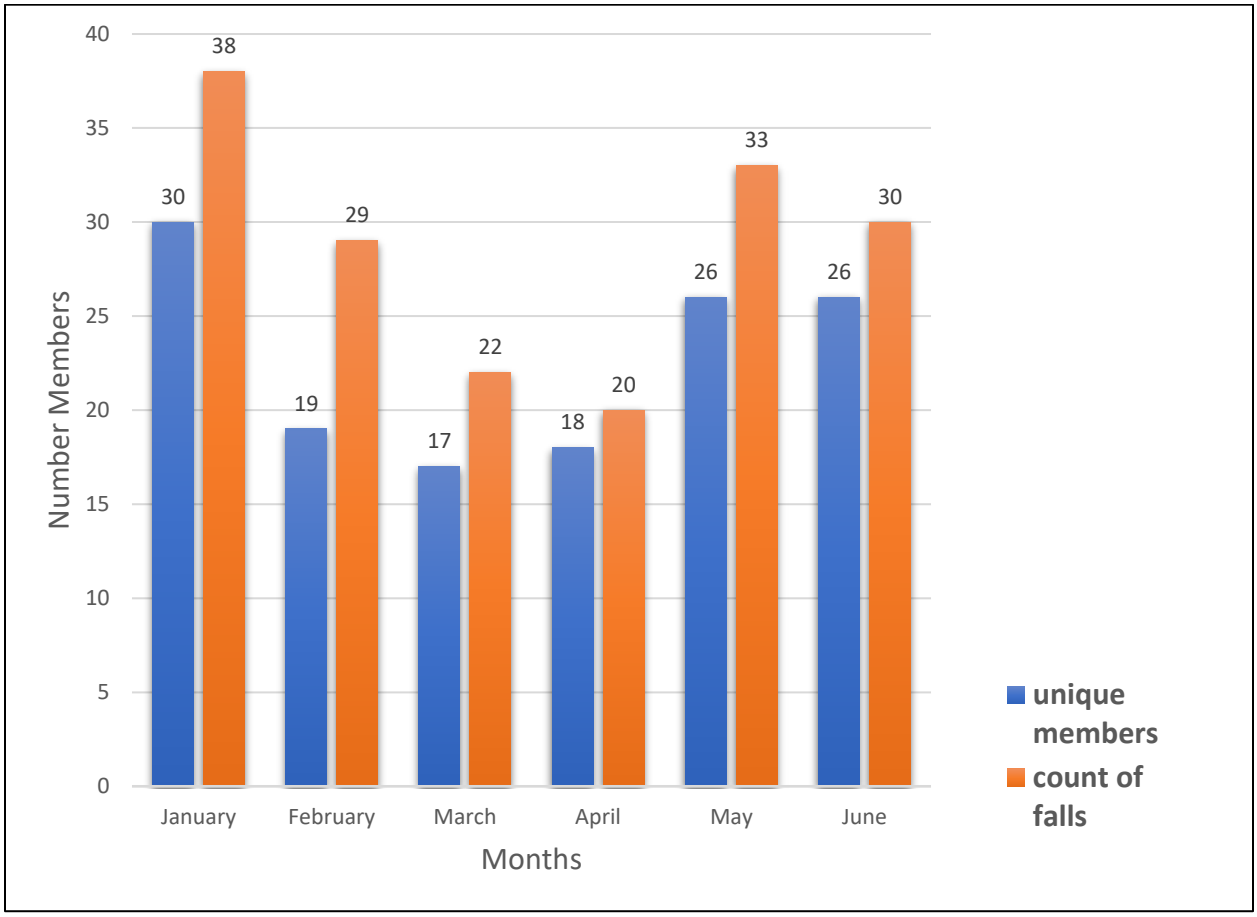
To translate evidence into practice, the Rosswurn and Larrabee's Model for Evidence-Based Change to Practice (1999) is utilized for this Doctorate of Nursing Practice (DNP) project. This model was designed to guide the implementation and translation of evidence-based change to clinical practice. For this project, the model will guide translation of fall prevention evidence to clinical practice in the population of community, homebound, health plan members. The Evidence-Based Change to Practice model is based on theory and research related to evidence-based practice, research utilization, standardized language, and change theory. In this model, practitioners are guided through the entire process of developing and integrating an evidence-

based practice change. The model supports evidence-based practice changes from a combination of sources: quantitative and qualitative data, clinical expertise, and contextual evidence. The following is a description of the six steps of the model (Larrabee, 2009) and integration with the project.

Step 1. Assess the need for change in practice by comparing internal data with external data. For the target population, community-dwelling older adults covered under a managed health plan, aggregate data confirmed the need for a change in practice. Internal (health plan) and external (healthcare utilization) data confirmed a high number of members with recurrent falls and associated healthcare resource use. The organization currently does not have an evidence-based, standardized process to mitigate recurrent falls (Figure 1).

Figure 1

Home Bound Health Plan Members with Recurrent Falls (January 2019 to June 2019)



Note. Baseline data from organization demonstrated the occurrence of falls and supported the need for change in practice.

Step 2. Link the problem with interventions and outcomes (standard interventions, if possible). The problem of recurrent falls in community-dwelling elders was linked to the qualitative and quantitative evidence supporting the benefit of a comprehensive falls program. The interventions proposed are standardized through strong evidence, clinical practice

guidelines, and toolkits applicable to this population. The organizational assessment demonstrated support for the project.

Step 3. Synthesize the best evidence (research and contextual evidence). A comprehensive review of the literature revealed specific best practice strategies suited to the population. Synthesis of best evidence produced falls assessment and intervention tools to meet the needs of the covered population.

Step 4. Design a Change in Practice. The practice changes included design, assessment, planning to include process changes, work flow revisions, and changes in staff roles. The purpose of the change was to facilitate the adoption of evidence-based assessment and interventions to reduce falls.

Step 5. Implement and evaluate the change in practice, including processes and outcomes. A pilot project to implement the falls assessment and intervention program was developed, proposed, and executed. An evaluation plan was devised to measure outcomes.

Step 6. Integrate and maintain the change in practice using diffusion strategies. The practice change will require working with staff on an ongoing basis to ensure sustainability. Results will be shared with organizational leadership, who will be provided with updated evidence of changes in member care and reduction in recurrent falls.

The Rosswurn and Larrabee's Model for Evidence-Based Change to Practice (1999) was chosen for this project to improve the care of homebound older adults by implementing an evidence-based, care coordination model for falls. The desired outcome is to have a model of falls prevention that could be adapted for other health plans and accountable care organizations.

Organizational Description

Commonwealth Care Alliance (CCA) is a Medicare Advantage Health Plan, serving dually eligible Medicare & Medicaid members. The organization has a rich history and began in 1979 when a group of visionary Massachusetts clinicians, advocacy groups, community organizers, government agencies, and policymakers collaborated to build a strong network of community health centers in low-income neighborhoods. This model introduced a range of care delivery innovations to improve the lives and independence of vulnerable populations, including the frail, the elderly, the sick, and those with disabilities (CCA, 2018). The core vision was an integrated model of primary care using an interdisciplinary team to provide and coordinate the full spectrum of care—primary care, behavioral health, and social services and supports.

Today, CCA is nationally recognized as a leader in the care of medically complex populations. CCA has been awarded numerous prestigious grants, and CCA's One Care Plan has been recognized for three years in a row (2017, 2018, and 2019) as a top-rated health plan based on the Consumer Assessment of Healthcare Providers & Systems (CAPHS) survey that is administered by the Centers for Medicare & Medicaid Services (CMS) (CCA, 2018). CCA is a national model for serving populations with medical and behavioral health complexity. Today, CCA covers approximately 12,000 medically complex frail geriatric members. The vast majority of CCA members qualify for a nursing home level of care, but with CCA support, they can live in the community.

The growth in members has challenged CCA with the need to bring its programs to a larger scale. Leadership at CCA is seeking evidence to ensure the effectiveness of its geriatric programs. CCA is fully committed to lead in innovative care strategies for vulnerable geriatric populations by implementing evidence-based care coordination and intervention models to

improve member care, to reduce costs, and to replicate findings to ensure that CCA continues to be a national model for care delivery. To that end, the organization endorsed the DNP falls pilot project to achieve their overall organizational mission, and specifically to decrease the falls experienced by their members.

Project Goal

Managed health care plans serving homebound older adults aim to reduce harm, such as falls, and reduce healthcare costs through the delivery of individualized coordinated services. Currently, there is no specific model for falls reduction in this population. The project site, CCA, does not have an evidence-based fall reduction program to manage fall risk or multidisciplinary interventions for its members. From baseline data, falls occur in this population at an annualized rate of 12%. Notification of member falls comes from a variety of sources: self-report, family/caregiver, emergency department staff, home care agencies, or personal emergency response devices. An evidence-based multidisciplinary coordinated fall assessment and intervention model is desired to decrease falls for homebound members from the current level. A successful falls assessment and intervention program could be replicated for other health plans to keep members healthy and save on preventable health care costs.

Project Aims

AIM 1. Implementation of fall notification protocol for community-dwelling older adults who sustain falls at home.

AIM 2. To develop a best practice evidence-based program for fall assessment and interventions for older adults because of a literature review.

AIM 2.1 To educate staff on the STEADI fall prevention, assessment and intervention training program and documentation.

AIM 3. To implement a fall assessment tool and a fall interventions protocol for older adult members of CCA who experience a fall.

AIM 4. To implement a monitoring and evaluation system to monitor the impact of the fall assessment and interventions.

Chapter 3

Methods

As a result of high morbidity, mortality, and cost of falls among community-dwelling older adults, health systems and health plans need to develop evidence-based programs to reduce the recurrence of falls. The project site, Commonwealth Care Alliance (CCA), lacked an evidence-based fall assessment and intervention program. After analyzing the baseline falls data at CCA, it was determined that during a six-month period (January 2019 to June 30, 2019) an average of 33 members sustained a fall each month. For that 6-month timeframe, a total of 174 unique members accounted for 223 falls, which indicates that 30% of these members had multiple falls. A total of 61 members had two falls and 19 members had three or more falls. The six-month cost of emergency care for all members' that sustained falls totaled $99,590. The total inpatient costs for all members related to falls during the first 60 days after a fall totaled $933,919. The pre-implementation cost analysis validated the prevailing evidence that community-dwelling elders experience falls that are costly to the healthcare system. Subsequently, an evidence-based program was designed and implemented to assess and intervene when members fall, and to identify member care needs and services to mitigate recurrent falls. The anticipated outcome of the project is to demonstrate a reduction in the number of recurrent falls after implementation of a fall assessment and intervention protocol.

Approach to AIM 1

To implement a fall notification protocol for community-dwelling older adults who sustain falls at home. If a member of the health plan sustains a fall, the health plan can be notified from a variety of sources. Fall notification sources include a member's self-report, or a report from family/caregivers, emergency room staff, home health aides, VNA agencies, or

personal emergency response providers. When a fall notification is received, it is documented and the member's Care Manager is notified. The plan for the project was to develop a standardized fall notification methodology and review aggregate data from fall notifications weekly. Because of the pandemic, no contractual changes could be made to the personal emergency response reporting system at CCA. Fall notification continues to be multi-modal, as revision of the fall notification system was outside the scope of the project. For the two-month pilot, aggregate data of falls from all sources was summarized weekly. See Appendix B Fall Pilot Assessment and Intervention Workflow.

Approach to AIM 2

To develop a best practice evidence-based program for fall assessment and interventions for older adults as a result of a literature review. As a result of the literature review, the evidence-based STEADI Fall Risk Screening, Assessment and Intervention Tools were selected for this project, (see Appendix A and C. It was determined that these tools were the most comprehensive and validated tools for elders living in the community. This project adopted the STEADI core elements: 1.) screen patients to identify their fall risk, 2.) assess patients' modifiable fall risk factors, and 3.) intervene to reduce fall risk by using effective clinical and community-based strategies. A list of possible interventions was developed to flow from the assessment tools (Appendix D). Combined, the improved screening and intervention protocol was proposed reduce falls in the study population.

Approach to AIM 2.1

To educate staff on the STEADI fall prevention, assessment and intervention training program and documentation. After literature review, the CDC STEADI provider training webinar was selected to provide standardized provider education for the project

(Appendix E). All staff were provided the opportunity to participate in a standardized training utilizing the STEADI assessment and intervention tools on the CDC-STEADI provider training module website. In addition, staff were provided training via Zoom on the documentation elements to include in member's electronic medical record. These elements include circumstances of the fall and identified risk factors from the Fall Risk Factor Checklist (Appendix C). The Rehabilitations Manager, and Physical and Occupational Therapists were required to complete this training in our Western Massachusetts office.

Because of the COVID-19 pandemic, all in-person classroom educational offerings were suspended. After description of the pilot project, personnel were asked via Zoom meeting and e-mail to complete the training listening to the webinar on the CDC website. One limitation of the project was that there was no assurance that all required personnel completed this training. Anecdotally, rehabilitation staff conveyed feedback that they were already familiar with the subject matter content.

Approach to AIM 3

To implement a fall assessment tool and fall interventions protocol for older adult members of CCA who experience a fall. To achieve this aim, a Fall Assessment and Intervention Pilot Project was implemented from December 1, 2020 to January 31, 2021. Following from the evidence review, a specific workflow was designed and adopted for the pilot (see Appendix B). Upon notification of a member fall, a referral was made to the Rehabilitation Department for review of the circumstances of the fall. The rehabilitation staff would review the electronic medical record (EMR) documentation, and if the staff identified any skilled occupational or physical therapy rehabilitation needs, they would contact the member. Otherwise, the fall notification is sent to a nurse who will contact the member. In either case,

staff will review the fall assessment survey questions over the phone. During the telephone fall assessment, staff attempt to identify factors contributing to the member's most recent fall based on the results of the fall risk assessment. Staff attempted introduce interventions to prevent further falls (see Appendix D for Interventions to Reduce Fall Risk Factors). Any follow up service or DME needs of members will be documented in the EMR as well. A weekly EMR review is conducted to ensure staff are documenting complete answers to the fall assessment tool (see Appendix D), as well as documenting recommended fall interventions (see Appendix D) and any follow up needs of the members. An electronic dashboard of the fall of each member was created to tack the data in real time.

Approach to AIM 4

To implement a monitoring and evaluation system to monitor the impact of the fall assessment and interventions. To measure the impact of the fall assessment and interventions pilot in reducing recurrent falls in the study population, selected outcome data was analyzed. A monitoring and tracking system tracks member outcomes. In addition, outcome measures were analyzed by CCA's business intelligence group, including claims data for healthcare expenditures related to emergency visits or hospital admissions. Aggregate data was analyzed to determine outcomes of the project. The combination of this data provided useful information on the frequency and assessment of falls, contributing factors to the fall, and effectiveness of interventions to reduce recurrent falls. This program did not require additional costs as the majority of the assessments were done by telephone due to COVID-19 restrictions. Methods for data collection and analysis were revised due pandemic related delays in the project.

Statement on Human Subjects

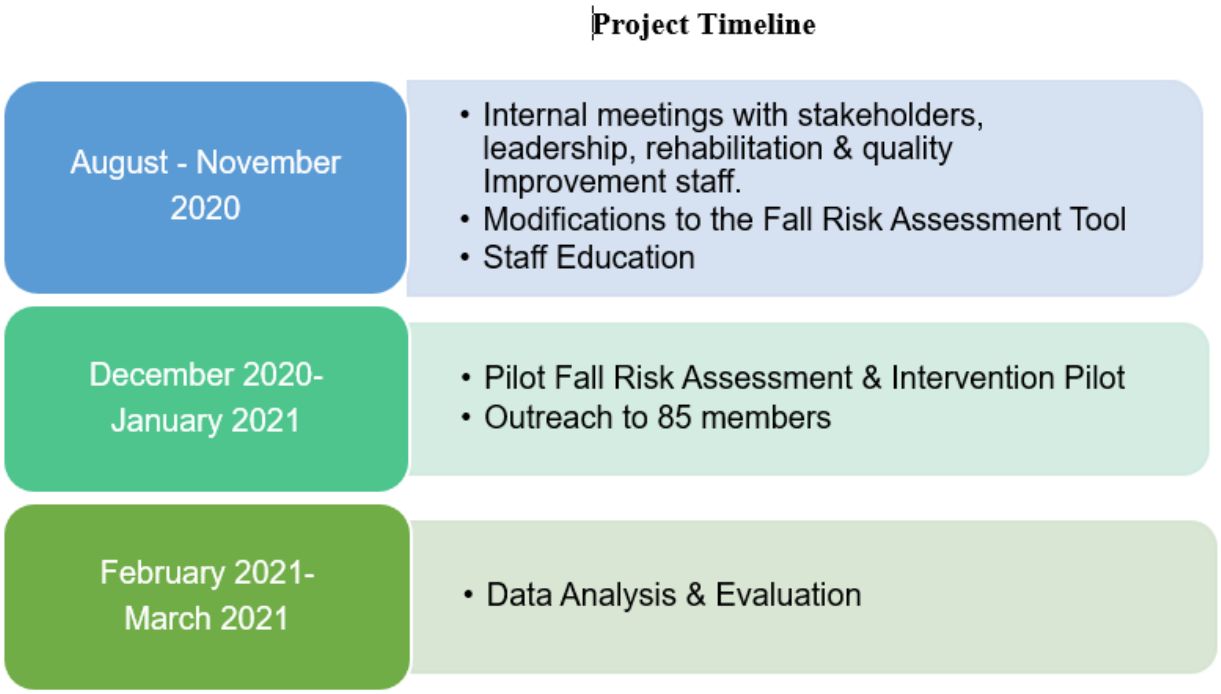
This project is a quality improvement project. Data was aggregated and de-identified of member information. This project posed no risk to patients and met the guidelines as a quality improvement project through the Quality Department at CCA. IRB Exempt Status has been obtained through Yale University for this project as it is an educational initiative to benefit practice through clinical quality improvement.

Immersion Plan

The objective of the project was to pilot the use of the CDC's STEADI Fall Assessment Screening Tool to identify fall risk factors and develop member care plans to mitigate recurrent falls. See Appendix F for a Gantt Chart for Project Timeline. The timeframe for the immersion of this DNP project was March 2020 to March 2021. This timeframe included the initial presentation of the proposal, modifications of the fall assessment due to COVID-19-related restrictions to home visits, implementation, monitoring, data analysis and evaluation. The setting for the immersion plan was a Massachusetts based Special Needs Health Plan, serving medically complex members on Medicare and Medicaid.

Figure 2

Falls Assessment and Intervention Project Immersion Plan



Chapter 4

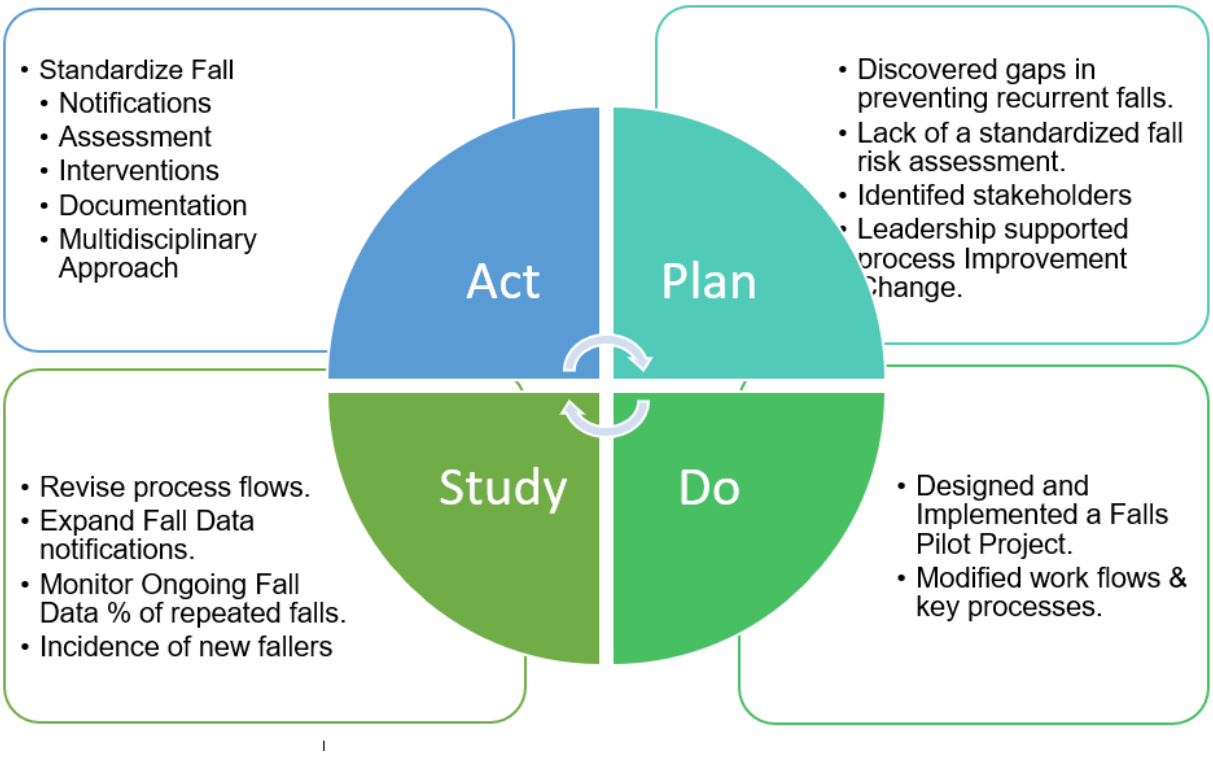
Results

Effectiveness of Practice Change & Quality Improvement Cycle

This quality improvement DNP project was guided by Rosswurn and Larrabee's Model for Evidence-Based Change to Practice and structured by the Plan-Do-Study-Act (PDSA) cycle (Figure 3). A pre-implementation organizational assessment was conducted to measure leadership support, and determine the organizational processes for fall notifications, pre-intervention assessment, documentation, and implementation of fall-reduction activities. In addition, fall frequency data was reviewed to assess the frequency of recurrent falls.

Figure 3

Falls Assessment and Intervention Project PDSA Cycle



Note: Falls Assessment and Intervention Project PDSA Cycle outlines project planning changes and improvements.

Plan

Staff from several internal departments, including Rehabilitation, Quality Improvement, and Clinical Care Management, were interviewed to discuss current protocols, processes, and work-flows in relation to falls. A plan was developed and presented to senior leadership and senior quality staff. Leadership agreed unanimously that mitigating falls to reduce injuries in members was an important initiative to pursue, and fully supported the project. In addition, experts in the field of aging were consulted for the project and contributed thoughtful ideas on implementation. These experts included Dorothy Baker at the Yale School of Medicine and Janice Mack, DNP, a former fellow at the CDC's STEADI program.

Do

A pilot project was designed to identify, assess, and intervene with members who experienced a fall. Modifications to improve workflows and processes were implemented because of the COVID-19 pandemic and incorporated into the project.

Study

After meetings with the rehabilitation staff to review the notification process, it become evident that different processes needed to be employed to capture member falls and to respond in a timely manner. We returned to a planning phase to develop a more effective workflow. The effectiveness of the fall reduction program data will be measured on an ongoing basis by monitoring data on fall incidence, percentage of repeat fallers, and number of days between incidence of falls.

Act

Standardization was developed after implementing a more efficient process, resulting in an increase in fall notifications and appropriate assessment, documentation, and interventions. In addition, a Fall Rounds Team Meeting discussion was started to bring together a multidisciplinary approach to comprehensively review members with multiple falls.

Pilot Sample Results

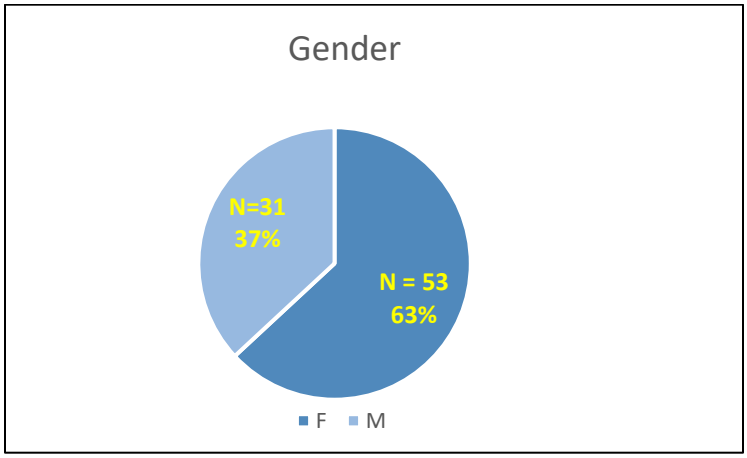
The pilot sample was a convenience sample drawn from a regional population of covered members of Commonwealth Care Alliance (CCA), a Medicare Medicaid Managed Care Plan. The members of the plan meet the criteria for nursing home placement. However, they live in the community with support services provided by the health plan. These members are enrolled in the Senior Care Product and are aged 65+. They live in Western Massachusetts and come from a variety of ethnic backgrounds. The members were identified for the project because they had experienced a fall and that information was reported to the health plan Care Manager. A total of 104 health plan members were identified as having a fall between December 1, 2020 and January 31, 2021. Twenty members were excluded due to one of the following factors: unreachable by phone after three attempts, inpatient in a hospital or SNF during follow up period, or advanced dementia. A total of 84 members completed a telephone fall risk screening assessment and participated in interventions, representing an 81% completion rate from the targeted sample.

Pilot Demographics

The pilot sample gender distribution consisted of 53 female members (63%) and 31 male members (36%) (Figure 4). Similar studies found that two thirds of fallers tend to be female (Eckstrom et al., 2017, Sri-On et.al., 2018). Although not well studied, this data is further evidence that females have a higher likelihood of falls than males.

Figure 4

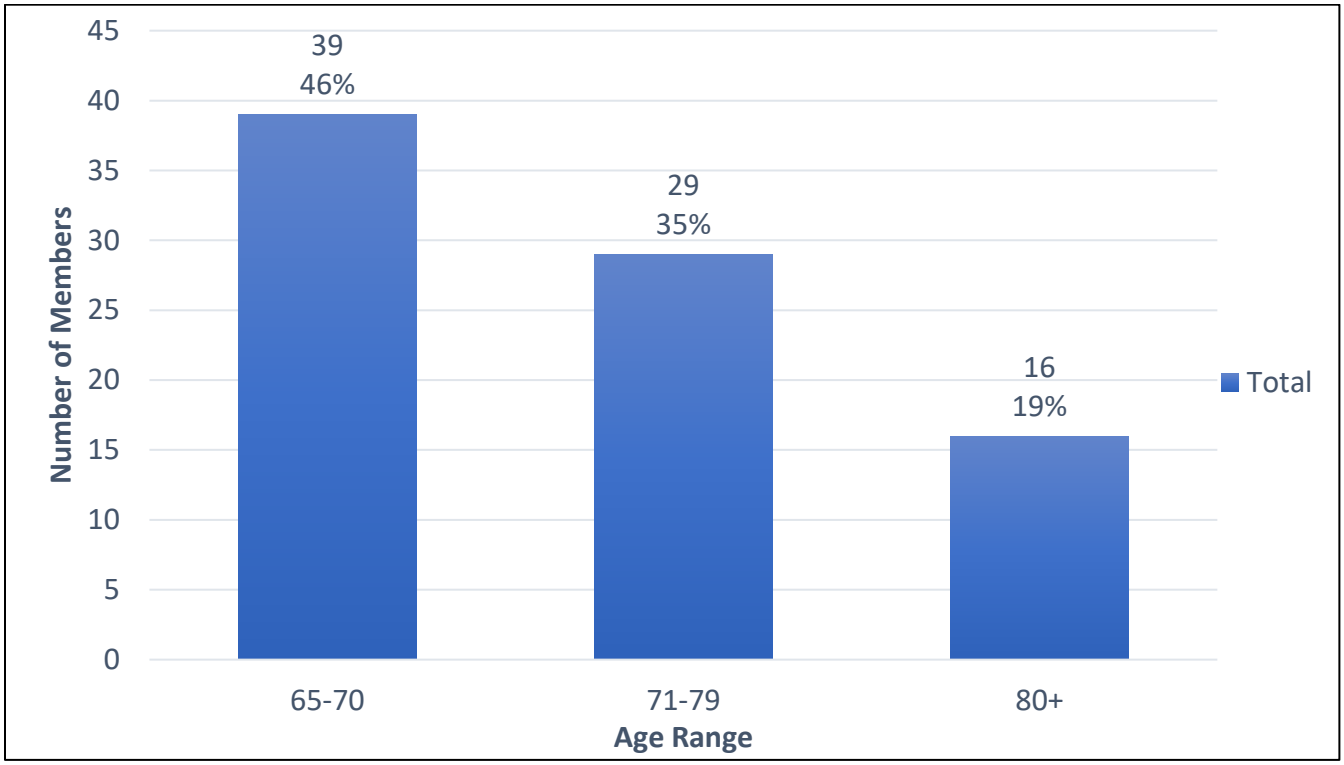
Pilot Sample by Gender



The age range of the sample revealed 39 members (46%) were between 65-70 years old, 29 members (35%) were between 71-79 years old and 16 members (19%) were 80+ (Figure 5). The age distribution of fallers in this Pilot/CCA sample had the largest group of fallers in the age 65 to 70 range. By comparison, this sample was younger than a study cohort of fallers seeking emergency room care after a fall and patients screened in a primary care practice, where the age of fallers averaged 76 years old (Eckstrom et al., 2017, Sri-On et al., 2018). Given the number of chronic conditions and medical complexity of the Pilot/CCA group, the younger distribution of fallers is not surprising.

Figure 5

Pilot Sample Falls by Age Group



Fall Survey Results

Members were asked to respond to a 15-question fall risk assessment, administered over the telephone by a staff member of the rehab department (55%) or by a nurse (44%). The fall risk assessment utilized for this project is the STEADI tool developed by the CDC. The tool is normally administered face-to-face as it includes assessments such as the Get Up and Go Test, 4-Stage Balance Test, Chair Stand test, vision test, and blood pressure monitoring. The tool was modified to administer over the telephone by including fall risk questions without the physical assessments. This modification was a result of limited home visits due to COVID-19 pandemic restrictions. The Fall Assessment Screening Questions can be found in Figure 6.

Figure 6

Pilot Modified Fall Assessment Screening Questions

Fall Assessment Screening Questions Based on CDC STEADI Guideline
1. Did you get injured from the fall?
2. Need for ED or admission?
3. Can you tell me how or what made you fall?
4. Any other falls in the last year?
5. Do you have a fear or falling?
6. Do you feel unsteady when standing or walking?
7. Balance, could you stand on one foot?
8. Do you feel dizzy or lightheaded when getting out of bed or standing?
9. Do you use an assistive device or equipment, cane, walker, grab bars?
10. Are you able to get out of chair without holding on to the arms of the chair?
11. Do you have any vision problems or worsening vision over the past year?
12. Do you have any problems with your feet or footwear?
13. Any problems with incontinence, bowel, or bladder?
14. Are you on any medications that makes you tired or affect your memory?
15. Are there any hazards in the home that can contribute to falls for example: throw rugs, slippery floors, clutter?

Note:. Fall Assessment Screening Questions Based on CDC STEADI Guideline, modified to administer telephonically.

Frequency of Falls. The data was stratified into two groups for analysis: first-time fallers (those who had experienced a first fall and were considered low risk for recurrent falls), and multiple fallers (those who had ≥2 falls and were considered high risk for recurrent falls). About 37 members (44%) reported this was the first time they fell. There were a larger group of members that had experienced repeated falls, and over half of the 47 members who experienced multiple falls (56%) had greater than two falls. Members with two or more falls are at high risk for continuing to fall (Figure 7). A higher number of Pilot/CCA members experienced previous falls, compared to primary care patients (50%) and ED patients (41%) (Eckstrom, et al., 2017, Sri-On, et al.,2018).

Figure 7

Pilot Sample Frequency of Falls

Fall = 1	Fall 2-4	Fall 5+
37 (44%)	41 (49%)	6 (7%)

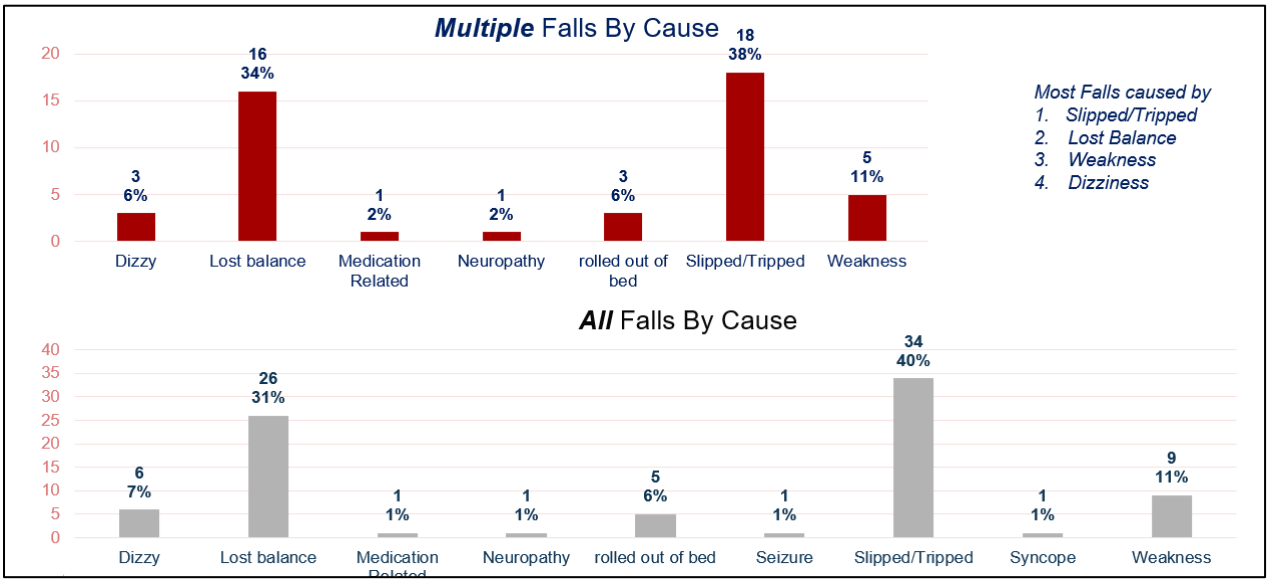
Note:. Breakdown of fall frequency.

Reasons for Falling

One of the fall risk assessment questions sought to determine the cause of falls. For both one-time fallers and multiple fallers, the most common causes were slips/trips, loss of balance, weakness, feeling dizzy, and rolling out of bed (Figure 8). These findings are consistent with Ganz & Latham (2020), who found most falls are a result of a combination of risks factors including balance impairment and slipping/tripping.

Figure 8

Pilot Sample Reason for Falling

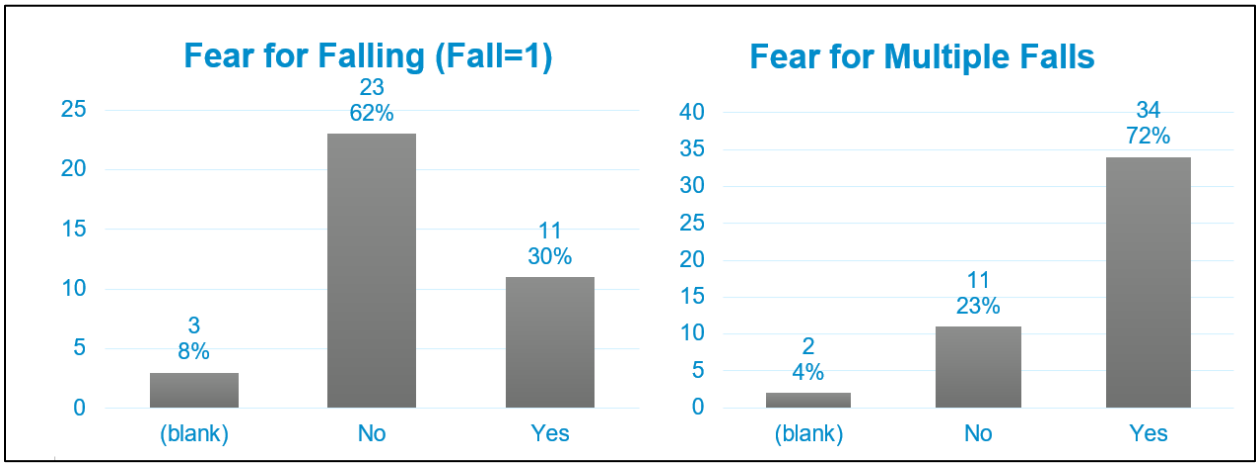


Fear of Falling

Pilot members were asked if they had a fear of falling. Those who fell multiple times were more than twice as likely to report being fearful of falling (34, 72%) compared to the 11 (30%) first-time fallers (Figure 9). In the Sri-On (2018) study, 38% of all fallers reported feeling worried about falling. A meta-analysis with 3,112 elderly found elderly who have a fear of falling have a 12 to 15 times higher risk of falling (Guimarães et al., 2019).

Figure 9

Pilot Sample Fear of Falling Unsteady and Dizzy While Walking or Standing



Members were asked about feeling unstable or dizzy while walking or standing. Less than half (17, 46%) of the first-time fallers reported feeling unsteady, compared to 83% of multiple fallers who reported feeling unsteady (Figure 10). A study by Eckstrom and colleagues (2017) had very similar findings to the CCA sample with 41.3% of low-risk fallers and 72.2% of high-risk fallers feeling unsteady with walking or standing. In the Sri-on study (2018), (50%) reported feeling unsteady when walking sometimes. In this study, reports of feeling dizzy was an issue for over half (57%) of the multiple faller group, but only 35% of the first-time faller group (Figure 11).

Figure 10

Pilot Sample Unsteady when Standing or Walking

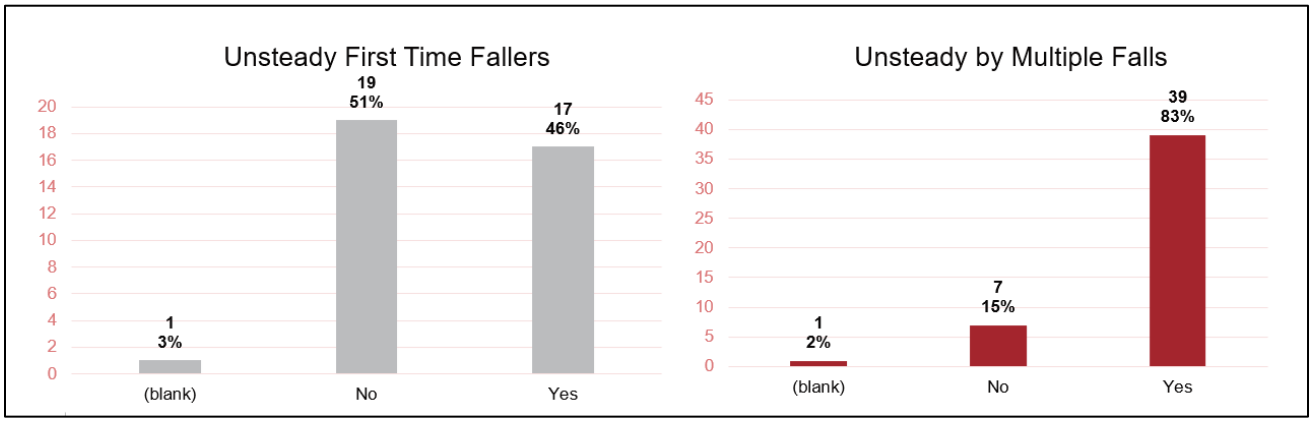
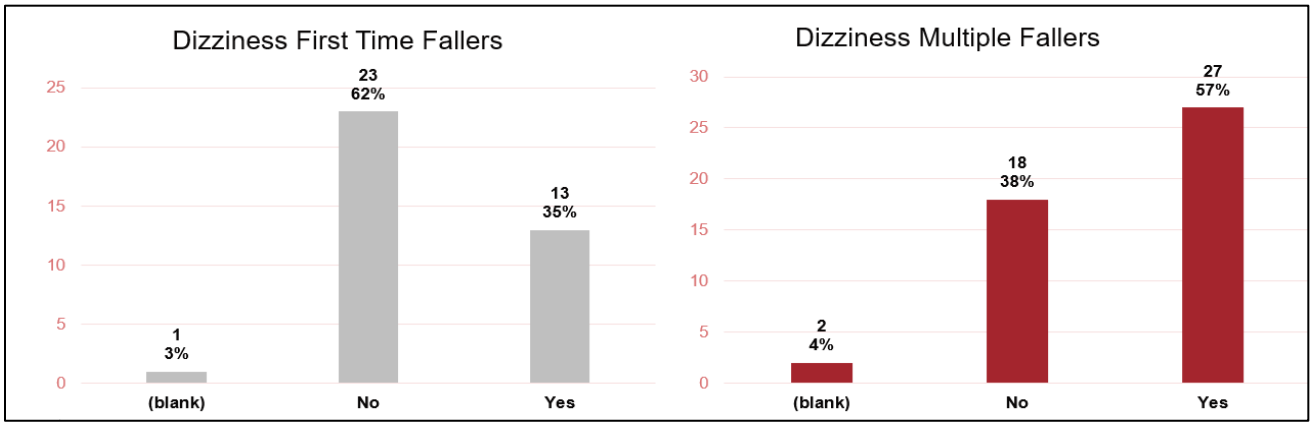


Figure 11

Pilot Sample Dizzy or Lightheaded when Getting Out of Bed or Standing



Functional Ability

Members were asked two questions in the survey related to their functional abilities. The first question was relative to their ability to stand on one foot and balance. The second queried their ability to raise themselves out of the chair without holding on the arms of the chair. In both first-time fallers and the multiple fallers, over 80% indicated they were unable complete these

two functional tasks (Figures 12 & 13). In comparison to the literature, this is worse than seen in other studies where 49% of people who fall reported they could not get out of a chair (Sri-on, et al., 2018). This indicates the poor functional abilities of the pilot sample/CCA group as compared to population.

Figure 12

Pilot Sample Balance on One Foot Results

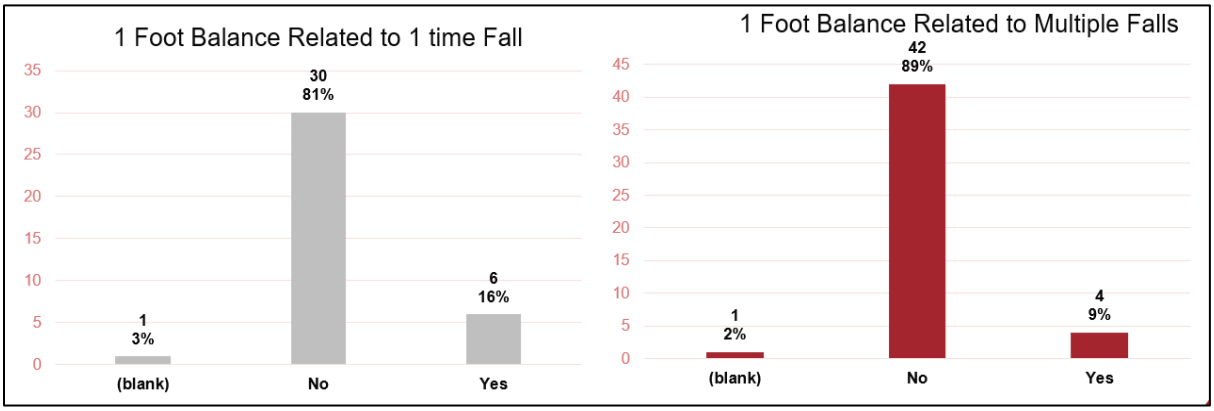
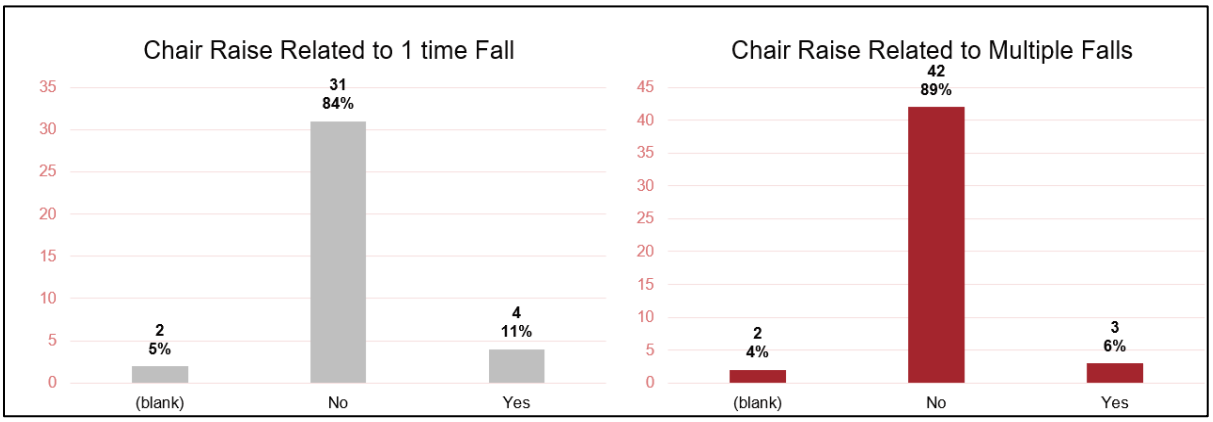


Figure 13

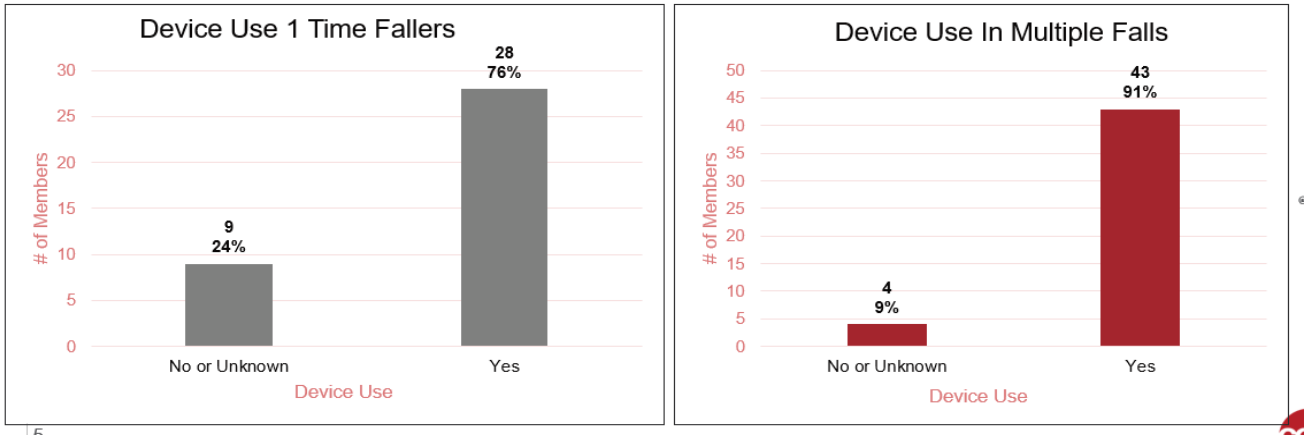
Pilot Sample Get Out of Chair Without Assistive Devices Results



Among the pilot sample of CCA members, there was a high use of assistive devices, including canes, walkers, and rollators. Among the 28 first time fallers, 76% reported using a device. Among multiple fallers, device use increased to 91% (Figure 14). In similar studies by Eckstrom et al. (2017) and Sri-on et al. (2018), less than half of recurrent fallers (47.6% and 44.4%, respectively) reported using or have been advised to use an assistive device, cane, or walker. These results likely reflect the managed care population which includes coverage/provision of devices for home safety.

Figure 14

Pilot Sample Use of Assistive Devices



Medical Conditions Known to Contribute to Falls

During the pilot, assessment questions were asked to help identify certain medical conditions as contributing factors of falls. Specific questions pertained to worsening vision over the last year, problems with feet, or incontinence. Approximately one-third of the sample reported poor vision as a factor related to their fall (approximately 30% in the first-time faller group and 34% in the multiple faller group; Figure 15). A larger group reported problems with

their feet, including general foot problems, neuropathy, or edema. Nearly 94% of multiple fallers reported having problems with their feet (Figure 16). By comparison, in the Sri-on et al. (2018) study, a greater percentage of the sample compared to this pilot data (30%) reported “Lost some feeling in Feet”, a specific indication of neuropathy. The pilot data on self-reported neuropathy is validated by the frequency of neuropathy in the Diagnosis Related Conditions data (Figure 18).

Figure 15

Pilot Sample Vision Problems

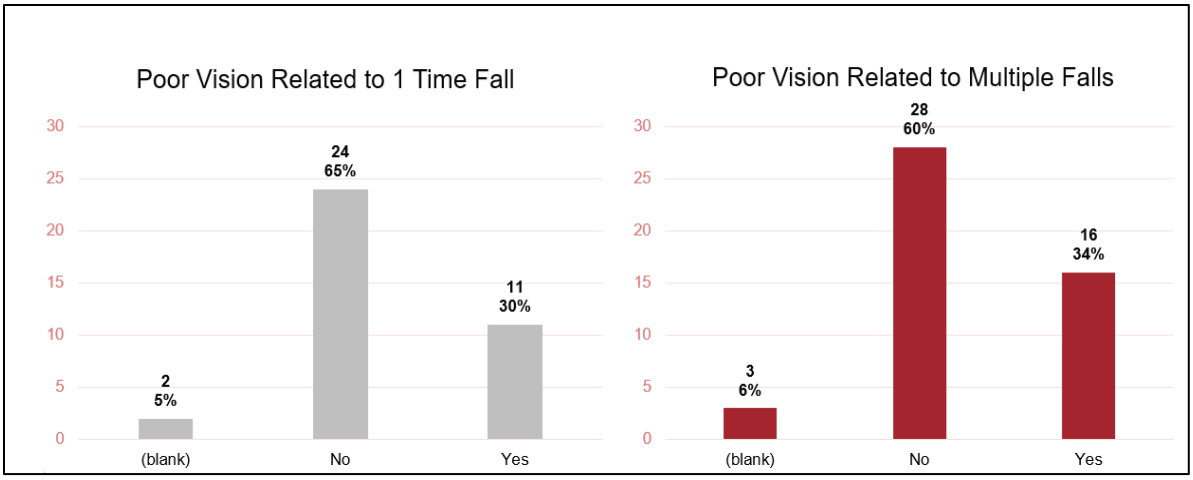
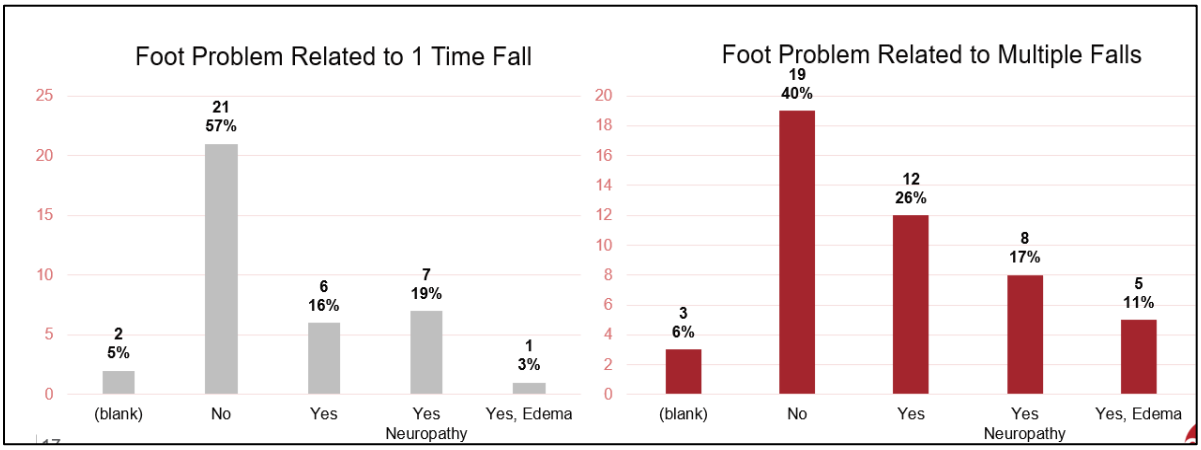


Figure 16

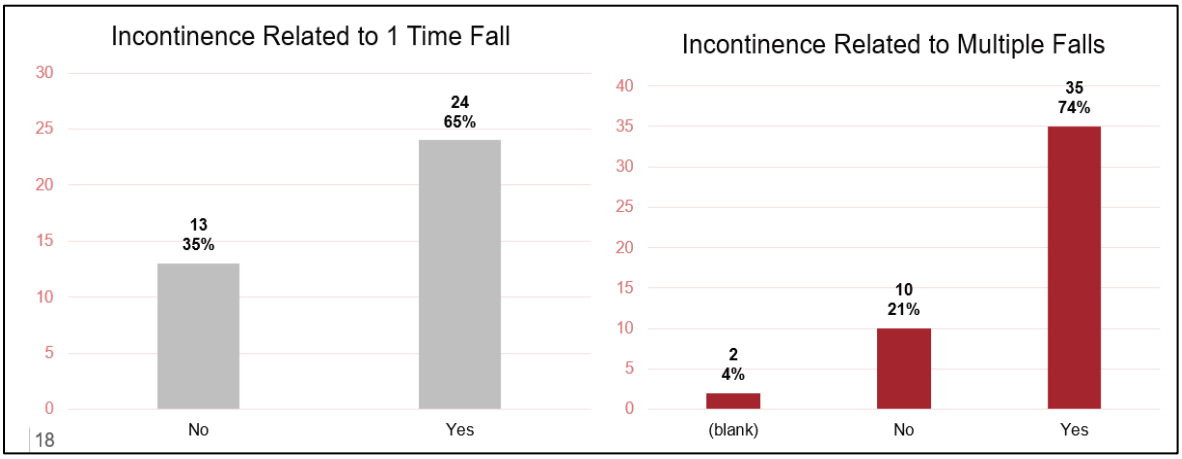
Pilot Sample Foot Problems



Members in both groups, first time fallers and the multiple fallers, combined at 72%, reported having bowel or bladder incontinence related to falls (Figure 17). Whereas in published literature, less than half (48%) of respondents reported "Having to rush to the toilet" as a factor in fall occurrence (Sri-on et al., 2018). The results of a meta-analysis conducted by Chiarelli, Mackenzie & Osmotherly (2009) revealed a clear association between falls and urinary incontinence. In addition, their review highlighted that falls are predominantly associated with symptoms of overactive bladder rather than those of stress incontinence. This is significant as it may support various interventions related to incontinence management for persons at risk for falls.

Figure 17

Pilot Sample Bowel or Bladder Incontinence



Data was extracted from the pilot members diagnosis list (by the CCA analytics team) to identify common medical conditions contributing to falls. The top four were diabetes (36%), neuropathy (17%), incontinence (16%), and arthritis (12%; Figure 18). The CCA pilot sample is consistent with another study of primary care patients reporting that 36% of fallers had a diagnosis of diabetes (Eckstrom et al., 2017). Interestingly, the Sri-on, et al. (2018) sample found a much lower rate (19%) of patients with diabetes.

Figure 18

Pilot Sample Diagnosis of Related Conditions

Common Diagnosis Related To Falls		
DX	***Count***	***%***
Diabetes	31	36%
Neuropathy	15	17%
Incontinence	14	16%
Arthritis	10	12%
Obesity	9	10%
Unsteady	4	5%
Dizziness	3	3%

Types of Injuries

Nearly half of the pilot sample members reported sustaining an injury as a result of falling (Figure 19). The most common types of injuries were bruises/muscle pain, abrasions/lacerations, head strike, and fractures. Around 41% of members who reported their first fall was injured, 48% required care in the emergency room, and two required hospital admission. However, members who had multiple falls reported fewer injuries (27%), thus requiring fewer members receiving care (41%) and one hospital admission (Figure 19 & 20).

Figure 19

Pilot Sample Fall-Related Injuries

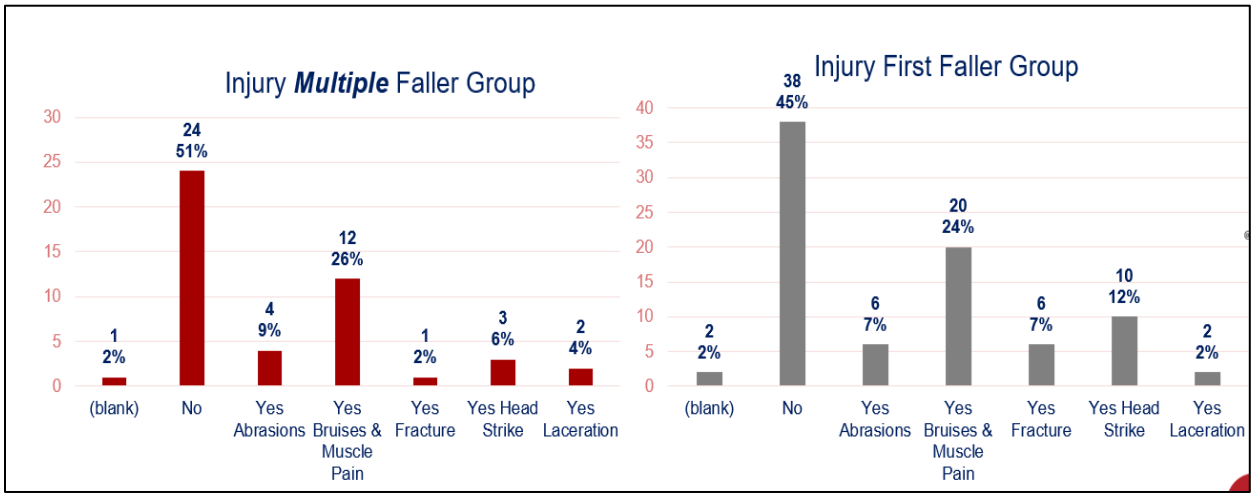
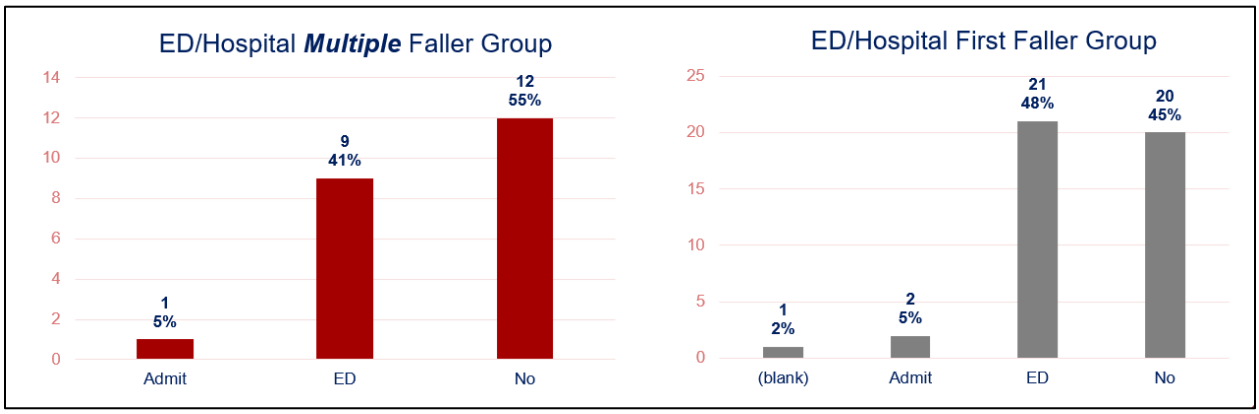


Figure 20

Pilot Sample Falls Requiring Hospital Emergency Department (ED) or Admission



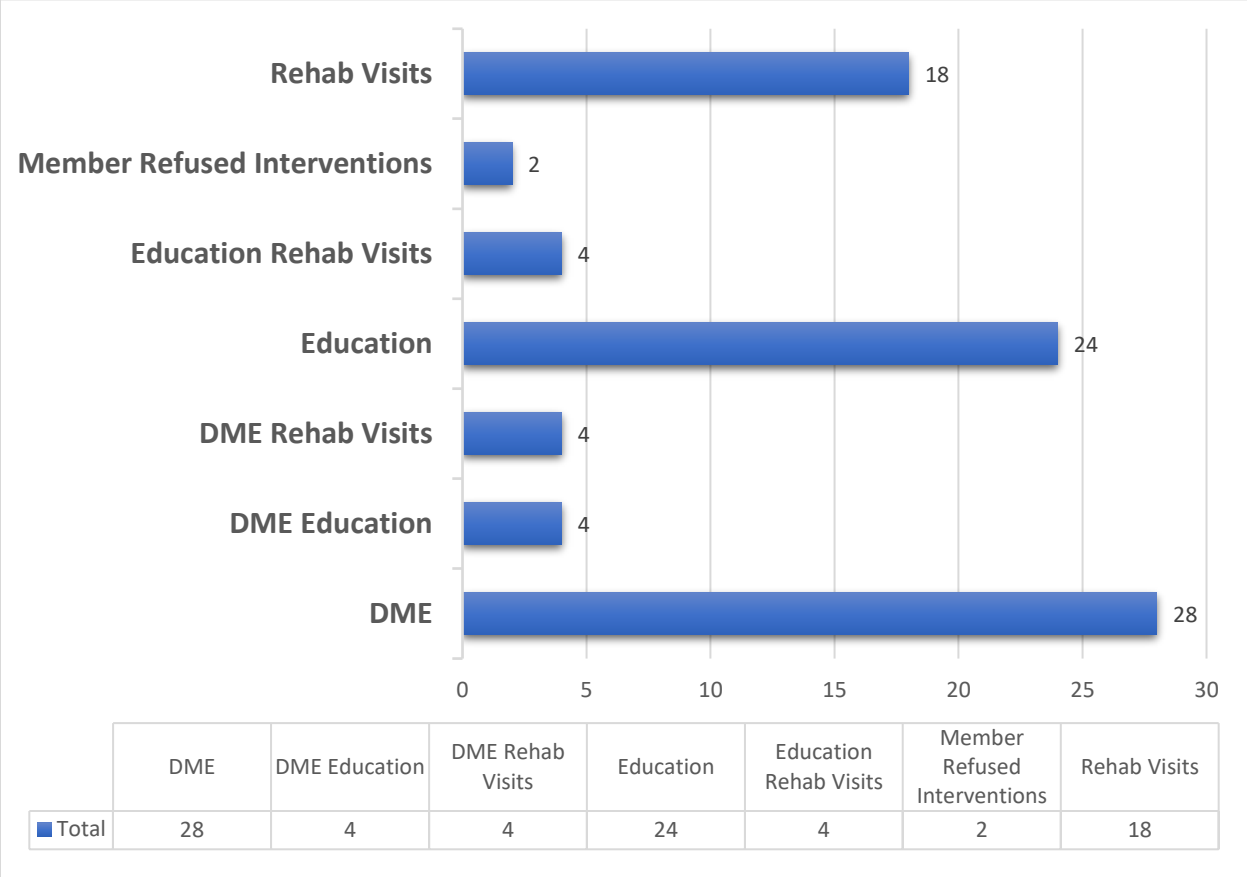
Fall Interventions

As a result of the fall assessment, the rehabilitation or nursing personnel made recommendations for interventions according to professional judgement or the proposed fall interventions listed in Appendix D. The most prevalent categories of interventions recommended were durable medical equipment (DME) supplies or equipment (33%), providing the member

with fall prevention education (29%), and rehabilitation evaluation or visits (21%). Approximately 14% (*n*=12) of members received a combination of interventions which included Rehab evaluation/visits and education or DME and Education or DME and rehab visits. Two members refused any interventions (Figure 21).

Figure 21

Pilot Sample Fall Interventions



	DME	DME Education	DME Rehab Visits	Education	Education Rehab Visits	Member Refused Interventions	Rehab Visits
Total	28	4	4	24	4	2	18

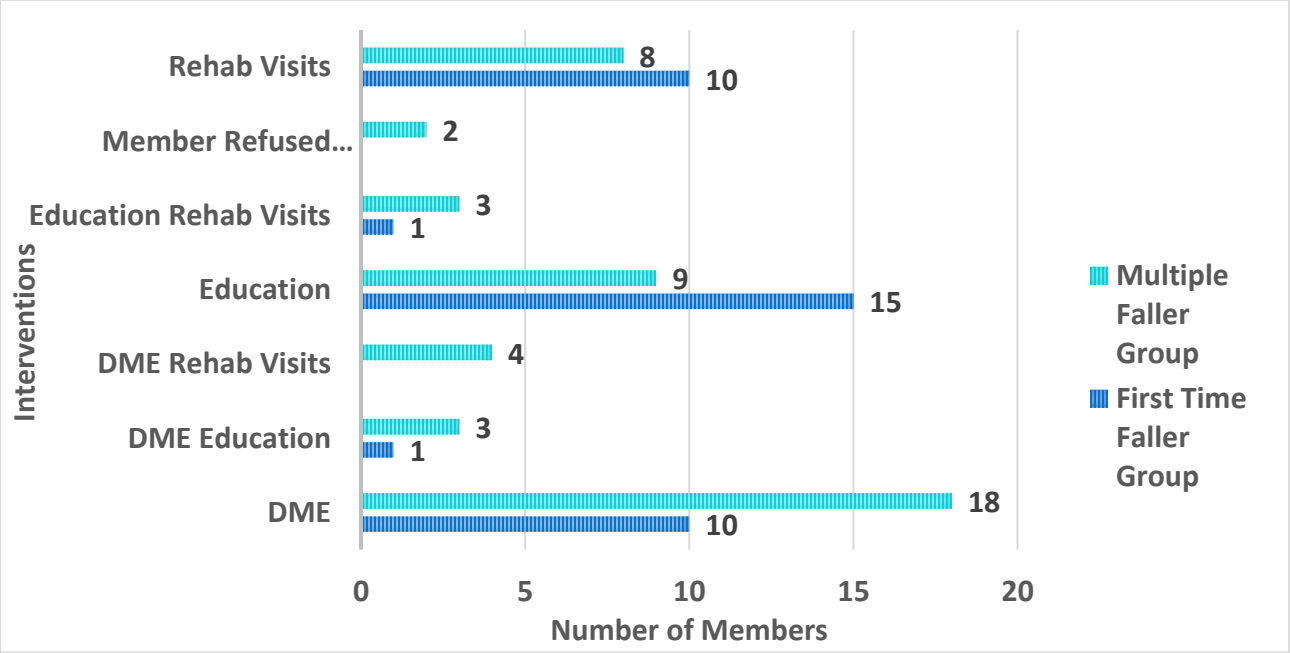
Note:. Breakdown of the type of interventions provided to members in the sample pilot.

Differences were notable in interventions prescribed for the first fallers compared to members with multiple falls (Figure 22). The first-time faller group was provided education most often (40%), followed by rehabilitation evaluation/visits (27%), and DME (27%). The multiple

faller group most often received DME (38%), followed by education (19%), and rehabilitation visits/evaluation (17%). More members of the multiple faller group received a combination of interventions (Figure 22).

Figure 22

Differences in Interventions Between the First Time Fallers Compared to Multiple Faller Group



Care Coordination

Case study exemplars demonstrating the types of fall scenarios in this sample population and the process of individualized, multidisciplinary intervention are depicted in Table 1. The pilot project individual data graphs capture the frequency of factors related to fall occurrence. However, this project demonstrated the complexity of each member's situation and the demand for an individualized, multidisciplinary approach.

A member's assigned care manager has the overall responsibility for arranging and ensuring effective coordination among a wide range of clinical and nonclinical services for the member. The Care Manager also has a multidisciplinary team to provide support to meet the member's individual needs. The multidisciplinary team includes a clinical pharmacy team to help with medication management, a rehabilitation team for functional evaluations, a treatment team, specialized DME, an array of community clinicians to see members at home for nursing, behavioral health, chronic disease management, and health outreach workers to address social determinants of needs. In addition, the paramedic service can be deployed for members for urgent health issues (see Appendix B).

Despite numerous fall prevention strategies, a lack of coordination between clinical and community-based practice has prevented widespread impact. A good example is the STRIDE study (Bhasin et al., 2020). A multi-center study used CDC fall risk assessment and intervention tools, in addition to a fall coordinator placed in primary care practices to facilitate interventions. The study revealed several barriers participants faced to comply with fall prevention recommendations. For example, participants encountered barriers to finding transportation to community exercise programs, paying insurance copayments, getting insurance authorization approval and coverage for physical therapy services suggested by the fall's facilitator, and referrals to local community centers. Despite these barriers, no additional referrals for other fall prevention services were offered. In addition, no follow up was done to determine if participants complied with recommended interventions (Bhasin et al., 2020).

Table 1

Fall Reduction Case Study Exemplars

Exemplar Cases
Case #1 Mary is a 72-year-old female with significant intellectual disabilities, obesity, diabetes, incontinence, mobility impairment, and non-compliance with treatment plans. She lives alone and is supported by a home health aide and personal care services. Mary has had 10 falls in six months. She was seen by rehab staff several times, but refused to comply with exercises or home safety recommendations. She has a full complement of DME equipment, including a wheelchair, walker, transfer bench, lift chair, and grab bars. She had a personal care assistant daily in the morning and afternoon. After a multidisciplinary team meeting, several recommendations were made. The clinical pharmacist contacted the PCP to address a discrepancy in Mary's antidepressant dosage. A review of the time of Mary's 10 falls revealed that eight of the 10 falls occurred between 6:00pm and 9:30pm. The schedule of her personal care assistant was changed to coincide with this time and to help her prepare for bedtime. These strategies were successful in preventing additional falls. **Case #2** Bill is a 74-year-old male with DM, neuropathy, incontinence, and he has experienced several falls in the last 6 months. Bill reported an enlarged prostate and had the urge to urinate every 45 minutes throughout the night. He was not eligible for prostate surgery and medications were not helping. He experienced falls due to feeling exhausted from lack of sleep. Bill was provided a

Exemplar Cases (Cont.)
bedside urinal so he did not have to go into the bathroom, but this did not mitigate falls. At the multidisciplinary team meeting, it was recommended Bill be given a condom catheter to wear at night to alleviate him needing to get up. Per the case manager, this member is satisfied with this intervention and he has not had any more falls. **Case #3** Betty is a 75-year-old female with repeated falls to due to worsening symptoms of dizziness. Betty notified her PCP of worsening vertigo; he did not provide additional recommendations for the treatment of worsening symptoms, and she continued to fall. The Medical Director reached out to the PCP to suggest referral to the vertigo/vestibular clinic. Betty has not had any more recurrent falls.

Pilot Results

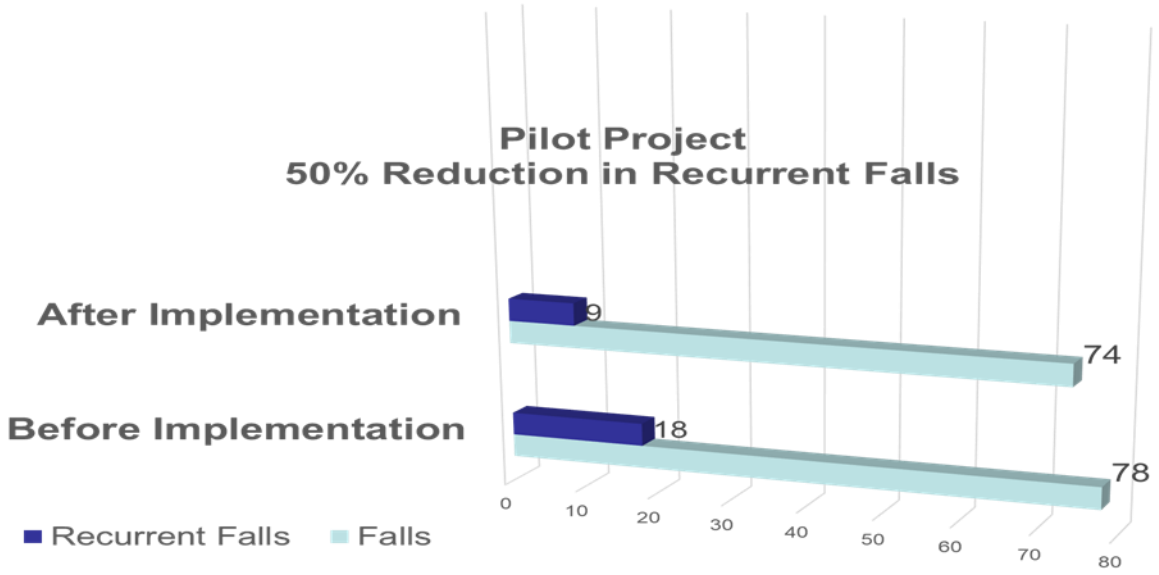
The pilot project was conducted over nine weeks. Pandemic concerns and academic timetable constraints prevented a longer-term analysis of recurrent fall outcomes specific to the pilot sample. However, 30-day recurrent fall rates were compiled for the sample and compared to a control group consisting of members covered during the same time during the previous year. Utilizing the same time from the previous year accounted for similar conditions such as weather and possible travel outings during the holidays.

In the pilot group, followed from December 2020 to January 2021, nine of 84 members who had participated in the pilot assessment and interventions had a subsequent fall in the 30-day follow-up period, for a rate of 12% recurrent falls. In the control group, December 2019 to January 2020, 96 members had reported a fall with 18 experiencing recurrent falls (23%) within

30 days (Figure 23). The fall pilot group demonstrated a 50% reduction in recurrent falls compared to the control group when standardized fall management and a multidisciplinary approach is utilized to mitigate recurrent falls.

Figure 23

Pilot Sample Outcome: Recurrent Falls Compared to Control Group



The 50% reduction in recurrent falls has resulted in projected savings from potential hospital admissions and ED visits of about $46,000. Exact cost analysis related to falls reduction is unavailable delay inn administrative data.

Chapter 5

Discussion & Conclusions

Key Findings

In this project with a limited sample of homebound, community-dwelling, older adults covered under a special needs health plan, a standardized, evidence-based fall assessment and intervention pilot program was successful in reducing recurrent falls by 50%. Based on the data analysis, a multidisciplinary approach with tailored care plans to mitigate recurrent falls in an older adult homebound population was shown to be qualitatively and quantitively beneficial. Providing an adoptable, coordinated, multidisciplinary fall assessment and intervention model for managed care plans will address the multifactorial risks and causes of falls for members. The results of this project contrast with fall programs conducted through primary care or community agencies that may be unable to successful coordinate all the needed services due to resource constraints.

Limitations

The COVID-19 pandemic posed challenges to this project in several ways. First, home visits by the rehabilitation staff were suspended and outreach was achieved via telephone. A majority of the health plan membership do not have computer or smart phone access; therefore, telehealth or virtual visits were limited. As a result, member touchpoints were reduced below optimal levels, and it is estimated that the full potential of a comprehensive fall program was impacted due to the barriers imposed by the pandemic. Second, the notification process of member falls from the personal emergency response provider, Lifeline, was inconsistent and problematic related to contractual issues and funding. As a result, the project had to rely on multiple sources of falls notification and verification, making the protocol less streamlined than

originally designed. Third, some of the care providers encountered resistance to change during the initial phase of the project. A majority of the rehabilitation staff declined to participate in the standardized CDC Fall Assessment & Intervention training, as they felt they had adequate knowledge of fall assessment tools within their own discipline. The Lewin Change Theory (1951) theorized a three-stage model of change known as unfreezing-change-refreeze model that requires prior learning to be rejected and replaced. Lewin observed that people naturally resist change, gravitate toward what's familiar, and seek out comfort zones. This theory could explain the staff resistance to change and adapt to a new approach and process for fall assessments and interventions.

Implications & Practice Change

The implications of this project can be translated to micro-, meso-, and macro-organizational impact. First, the project demonstrated a methodology for translating and implementing evidence-based practice change in an organization that delivers care to a medically complex, homebound population. It underscored the need to engage staff to approach member falls with curiosity and understanding of the multifactorial risk factors associated with falls. Second, the project demonstrated the benefit of adoption of an individualized, multidisciplinary, and multi-factorial approach to the fall problem in this population and highlighted the care management model used by special needs health plans. Third, the project is scalable to any health plan covering this type of population with predictions of cost savings and increased patient safety within the US homebound community-dwelling population.

Health Care Policy Implications

The impact of falls on the healthcare system, as well as mortality and morbidity, has garnered much attention from federal and state policy makers. In 2019, the United States Senate

convened a Committee on Aging, led by Senator Susan M. Collins of Maine and Senator Robert P. Casey, Jr. from Pennsylvania (Collins, Casey, 2019). The goal of the Committee was to address the impact of falls on older adults, their caregivers, and the healthcare system. As part of its examination of falls among older adults, the Committee sought comments, recommendations, and best practices from federal and state governments, organizations representing older adults and people with disabilities, universities, and others throughout the country. The Committee received approximately 200 responses. The Committee identified four key areas of work for policy makers, academics, and stakeholders to focus on in an effort to prevent falls and better address falls-related injuries, including: 1.) raising awareness about fall-related risks, prevention and recovery at the national, state, and local levels, 2.) improving screening and referrals for those at risk of falling so that individuals receive the care necessary to avoid a fall or recover after one, 3.) targeting modifiable risk factors, including increasing the availability of resources for home safety evaluations and modifications, so that older adults can remain in their homes and communities, 4.) reducing polypharmacy so that health care providers and patients are aware of any potential side effects that could contribute to a fall.

These recommendations have cascaded down to state and local communities as areas of focus. Additionally, national and state health policy incentives for healthcare payers and providers have promoted fall prevention initiatives. Core elements of these initiatives involve enhancing multidisciplinary care coordination for medically complex populations. This pilot project, and the potential scalable model that ensues, exemplifies the integration of the core elements of best-practice policy.

Dissemination Plan

Dissemination of various parts of this Falls Assessment & Intervention DNP project has been ongoing and will continue. During the months of July and August 2020, I contributed to the publication of a caregiver handbook. I provided editing suggestions, feedback on cover design, testimonial on the back cover and contributed to the section related to Falls (Tasto, D. (2020) *Titled: Thriving at Home, A Handbook for Preventing Hospital Stays.* Open Sesame Productions). In April 2021, I will be presenting this work to the Massachusetts Falls Prevention Coalition, a statewide falls coalition with 38-member health care organizations. I plan on submitting an article or project summary to geriatric journals. I will be submitting an abstract for presentation at the 2021, Gerontological Advanced Practice Nurses Association. I plan on contacting Managed Care Plans Trade Association to explore avenues to disseminate this information to other Medicare/Medicaid Special Needs Plans that serve similar populations.

Conclusions

As the payor and provider of care for vulnerable populations, managed care plans are in a unique position to successfully adopt evidence-based fall assessment and interventions strategies. The adoption of these strategies facilitates identifying and mitigating fall risk factors and implementing targeted interventions and care plans for vulnerable older adults. The Massachusetts Prevention and Wellness Trust Fund is developing integrated approaches to falls preventions. They are working on finding ways to link clinical and community assessments and interventions on a small scale. Managed care plans and special needs health plans already have coordination or care and care delivery structures established as both payers and providers of care.

Future Work

Many falls in the elderly population can be prevented. It is especially important to mitigate recurrent falls to prevent mortality and morbidity. Previously, it has been the responsibility of PCPs to conduct multifactorial fall assessments, and intervention plan studies have found fall assessments are not a priority for PCPs. They are too time consuming to conduct during a time-constrained primary care visit. Managed care plans that are both payer and provider organizations can intervene in a multidisciplinary way in fall assessments and interventions, especially for populations that are homebound or with limited ability to venture out. In addition, there is a role for new fall technology to sense changes in gait and balance and send alerts to prevent the onset of falls.

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Figures & Tables

Appendix

Appendix A. STEADI Algorithm for Fall Risk Screening, Assessment and Intervention for Community-dwelling Adults

Appendix B. Fall Pilot Assessment and Intervention Workflow

Appendix C. STEADI Fall Risk Factor Checklist

Appendix D. Pilot Project Interventions to Reduce Fall Risk Factors

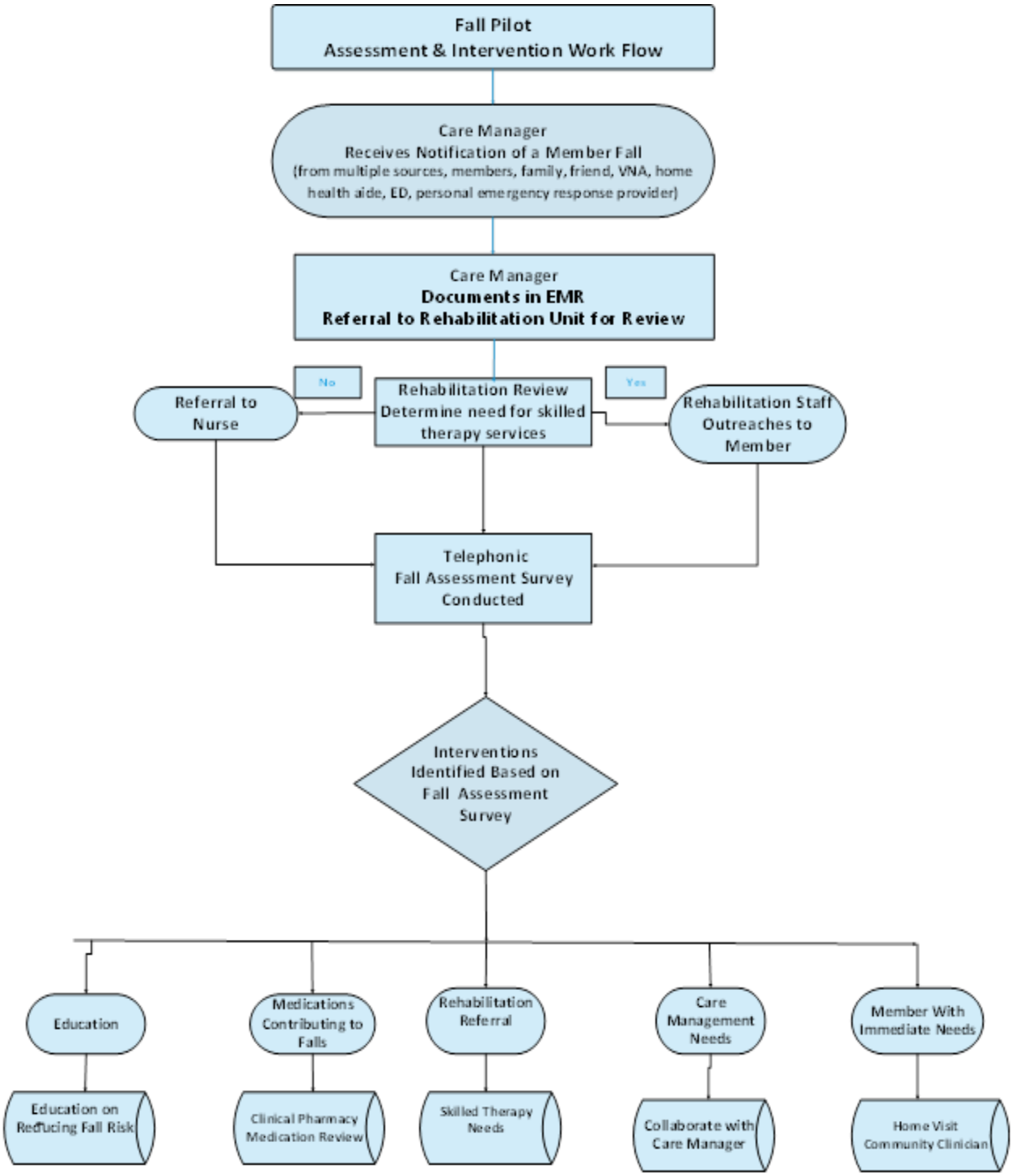
Appendix E. STEADI Training Webinar for Health Care Providers

Appendix F. Gantt Chart & Project Timeline

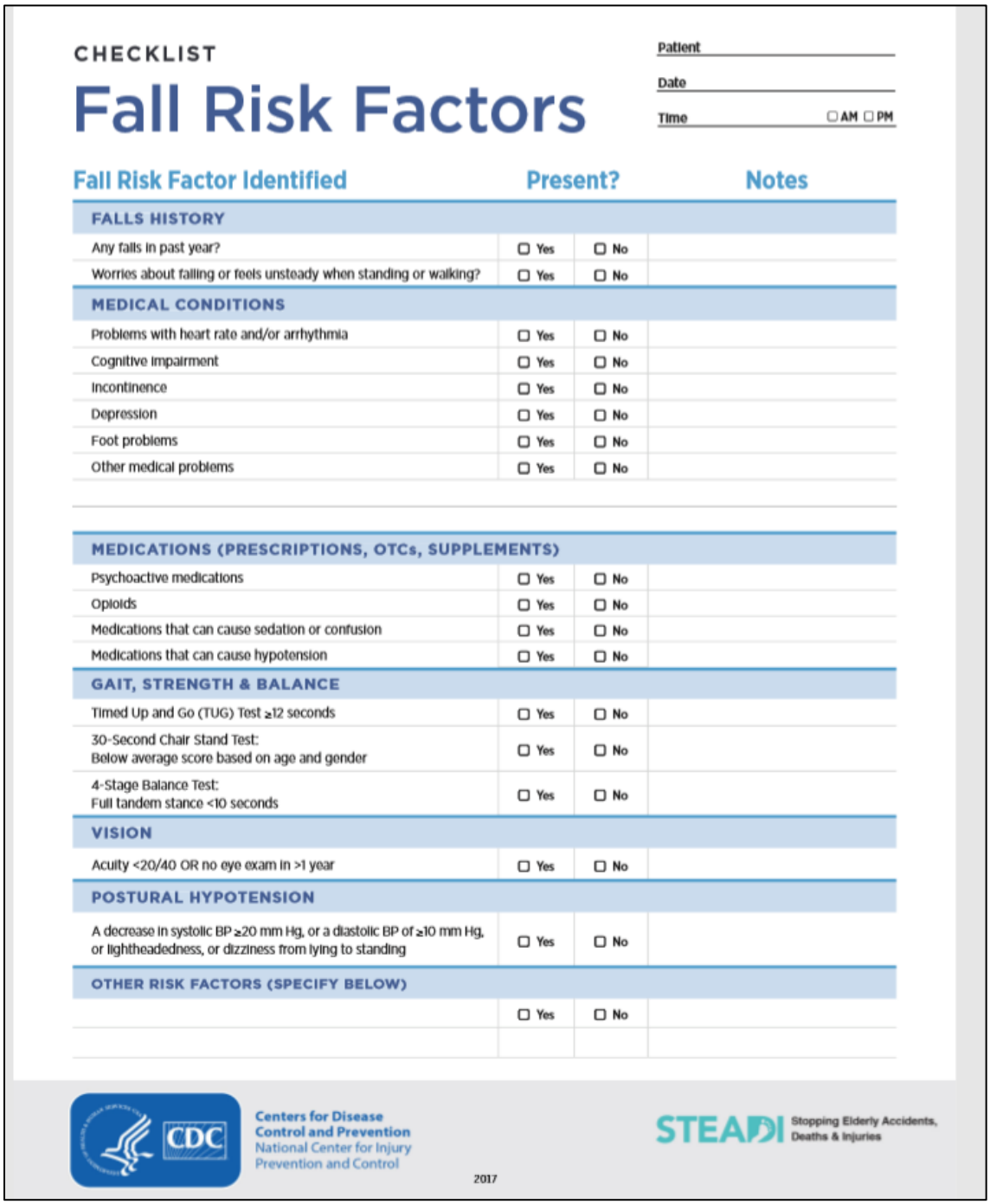
Appendix A STEADI Algorithm for Fall Risk Screening, Assessment and Interventions

Retrieved from: Centers for Disease Control https://www.cdc.gov/steadi/pdf/STEADI-Algorithm-508.pdf

Appendix B Fall Pilot Assessment and Intervention Workflow



Appendix C STEADI Fall Risk Factor Checklist



CHECKLIST

Fall Risk Factors

Patient _____

Date _____

Time _____ ☐ AM ☐ PM

Fall Risk Factor Identified	Present?		Notes
FALLS HISTORY			
Any falls in past year?	☐ Yes	☐ No	
Worries about falling or feels unsteady when standing or walking?	☐ Yes	☐ No	
MEDICAL CONDITIONS			
Problems with heart rate and/or arrhythmia	☐ Yes	☐ No	
Cognitive impairment	☐ Yes	☐ No	
Incontinence	☐ Yes	☐ No	
Depression	☐ Yes	☐ No	
Foot problems	☐ Yes	☐ No	
Other medical problems	☐ Yes	☐ No	
MEDICATIONS (PRESCRIPTIONS, OTCs, SUPPLEMENTS)			
Psychoactive medications	☐ Yes	☐ No	
Opioids	☐ Yes	☐ No	
Medications that can cause sedation or confusion	☐ Yes	☐ No	
Medications that can cause hypotension	☐ Yes	☐ No	
GAIT, STRENGTH & BALANCE			
Timed Up and Go (TUG) Test ≥12 seconds	☐ Yes	☐ No	
30-Second Chair Stand Test: Below average score based on age and gender	☐ Yes	☐ No	
4-Stage Balance Test: Full tandem stance <10 seconds	☐ Yes	☐ No	
VISION			
Acuity <20/40 OR no eye exam in >1 year	☐ Yes	☐ No	
POSTURAL HYPOTENSION			
A decrease in systolic BP ≥20 mm Hg, or a diastolic BP of ≥10 mm Hg, or lightheadedness, or dizziness from lying to standing	☐ Yes	☐ No	
OTHER RISK FACTORS (SPECIFY BELOW)			
	☐ Yes	☐ No	

CDC Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

2017

Retrieved From: Centers for Disease Control https://www.cdc.gov/steadi/training.html

Appendix D Pilot Project Interventions to Reduce Fall Risk Factors

IDENTIFIED RISK FACTORS	INTERVENTION OPTIONS
Poor gait, strength & balance	✓ Determine members ability/willingness to attend a community exercise fall prevention program (contact Geriatric Director for local programs) ✓ Referral for physical therapy evaluation for members that are homebound or refuse community program.
Medications, polypharmacy	✓ Contact PCP to discuss medications of concern. ✓ Referral to CCA pharmacy consultant for a medication review. ✓ Consult with Geriatric Director
Orthostatic Hypotension observed	✓ Encourage adequate fluid intake ✓ Review medications that may be contributing to hypotension. ✓ Contact PCP to discuss medications of concern. ✓ Referral to CCA pharmacy consultant for a medication review. ✓ Consult with Geriatric Director ✓ Consider ordering compression stockings.
Visual Impairment Observed	✓ Referral for a complete eye exam ✓ Contact PCP ✓ Review medications for anticholinergics.
Feet or footwear issues identified	✓ Provide education on shoe fit, traction and heal height. ✓ Referral to podiatry for exam, nail care, diabetic foot exam, need for orthotics
Home Hazards identified	✓ Clutter, furniture in the way, hoarding. Referral for heavy chore services if member agrees.
Durable Medical Equipment needs identified.	✓ Referrals submitted for DME equipment, canes commodes. ✓ Referral for physical therapy evaluation for other equipment needs.
Medical conditions as a contributing factor, for example: arrhythmia, depression, cognition, incontinence, other	✓ Contact PCP to discuss medical conditions management. ✓ Refer to Geriatric Manager

Appendix E STEADI Training Webinar for Health Care Providers

Provider Training

STEADI: Empowering Healthcare Providers to Reduce Fall Risk

With this training, STEADI: Empowering Healthcare Providers to Reduce Fall Risk, you can make fall prevention a part of your clinical practice.

Continuing education is available for this free accredited course.

More Information

- STEADI: Empowering Healthcare Providers to Reduce Fall Risk [PDF – 110 KB] Physicians, nurses, pharmacists, physical therapists, and other health professionals can receive free continuing education for this training by registering on CDC Training and Continuing Education (TCE) Online, searching for course number WB4310, and completing the evaluation.
- Stopping Elderly Accidents, Deaths & Injuries (STEADI)
- Coordinated Care Plan to Prevent Older Adult Falls [PDF – 64 pages]
- Building Clinical Strategies to STEADI Your Older Patients Slide Deck [PPT – 3MB]

Web Badges

STEADI Provider Training

Copy the code below to embed this badge (315 x 260)


```
<a
href="https://www.cdc.gov
/steadi/provider-
training/index.html?
s_cid=steadi_02"
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teadi/images/STEADI-
Module-A-badge-
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Retrieved From: Centers for Disease Control https://www.cdc.gov/steadi/training.html

Appendix F Gantt Chart & Project Timeline

	Fall 2019	Spring 2020	Summer 2020	Fall 2020	Spring 2021
Literature Review Complete	Spring				
Data Utilization and cost of falls.	Oct				
Presentation to Senior Leadership	Oct				
Fall Assessment Tools Identified	Oct				
Alert Notification process	Nov				
Reporting of Falls Workflow	Nov				
Chapters 1,2,3 Draft and final revisions	Feb				
Present Proposal		March			
Convene Implementation workgroup		Feb			
Develop Training Curriculum		Jan			
Schedule Trainings		March			
Data collection of members that fell				December January	
Project Data analysis					February
Write and Submit Project write up					March
DNP Project Presentation					April