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Teaching a Primary Prevention Falls Program: Using the Stop Elderly Accidents, Deaths, and Injuries (STEADI) Toolkit

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Teaching a Primary Prevention Falls Program: Using the Stop Elderly Accidents, Deaths, and

Injuries (STEADI) Toolkit

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Abstract

Problem: Falls in the community dwelling older adult (CDOA) are a growing health concern, placing large financial and social burdens. Primary care providers (PCPs) are not engaging in falls assessment and prevention activities due to lack of knowledge and time. **Context:** Falls are the leading cause of fatal and nonfatal injuries, and is projected to worsen with the rapid increase in the aging population. The Stop Elderly Accidents, Deaths, and Injuries (STEADI) fall assessment and prevention toolkit was created by the CDC to tackle this problem and designed to address the fall knowledge and practice gaps of PCPs. **Interventions:** A Doctor of Nursing Practice project was crafted and implemented to train Advanced Practice Nurses to be proficient in falls risk assessment and prevention using the STEADI toolkit. The educational program took place in two different settings and consisted of a PowerPoint presentation, case studies, and creation of a falls simulation case scenario. **Measures:** Metrics included a post interventional participant questionnaire which evaluated fall/STEADI knowledge, confidence, and likelihood to conduct a fall assessment in the future, and potential barriers to performing a fall assessment. **Results:** At the end of the educational intervention, participants were more knowledgeable, confident, and were more likely to comply with fall prevention guidelines using STEADI materials to assess falls in the CDOA. **Conclusions:** Screening and managing risk factors to prevent the occurrence of falls is imperative in reducing the traumatic and non-traumatic injuries in the CDOA. Using the STEADI Toolkit and algorithm is an effective mechanism to increase PCPs confidence and compliance in utilizing fall assessment and prevention measures, and may have an effect on reducing the occurrence of falls in this population.

Keywords: Falls, Risk Assessment, Management, Screening, Primary Care, Nurse Practitioners, Community, STEADI, Prevention, Seniors, Older Adult, Geriatric, Aged

Table of Contents

Section I	
Abstract	2
Section II. Introduction	
Problem Description	6
Available Knowledge	8
Rationale	29
Specific Aims	32
Section III. Methods	
Content	32
Intervention	34
Study of the Intervention	42
Measures	43
Analysis	45
Ethical Consideration	46
Section IV. Results	
Results	47
Section V. Discussion	
Summary	50
Interpretation	51

Limitations	53
Conclusions	54
Section VI. Other Information	
Funding	55
Section VII. References	56
Section VIII. Appendices	
Appendix A – USPSTF Clinical Practice Guidelines	66
Appendix B – AGB/BGS Clinical Practice Guidelines	67
Appendix C – Evidence Table	
Table C1 PCP Barriers	71
Table C2 Effective Fall Prevention Measures	72
Table C3 Benefits of Simulation Learning	72
Appendix D – Evaluation Table	73
Appendix E – Figure of Roger’s Innovation of Diffusion Theory	81
Appendix F – Table of Roger’s Innovation of Diffusion Theory	82
Appendix G – Figure of Information Processing Theory	83
Appendix H – Table of Information Procession Theory	84
Appendix I – USF Non-Research Approval/Statement of Determination	85
Appendix J – Gap Analysis	89
Appendix K – Letter of Support from Agency	
Document K1 Advanced Assessment Course	91
Document K2 CANP Letter	92
Document K3 Lunch and Learn Letter	93

Appendix L – All Materials Used for Implementation	
L1 Falls PowerPoint Presentation	94
L2 STEADI Algorithm and Toolkit Samples	102
L3 Falls CSA Simulation Template	107
Appendix M – Gantt Chart	132
Appendix N – Work Breakdown Structure	134
Appendix O – SWOT Analysis	135
Appendix P – Responsibility/Communication Matrix	136
Appendix Q – Budget	137
Appendix R – Cost Benefit/Avoidance Analysis	138
Appendix S – Return on Investment Plan	139
Appendix T – Data Collection Tool	140
Appendix U - CQI Method	142
Appendix V – Student Simulation Objectives	143
Appendix W – Results	
Table W1 Results of Quantitative Analysis	144
Table W2 PCP Participant Barriers	145
Table W3 Results of Qualitative Analysis	145

Section II

Introduction

Problem Description

Epidemiology of falls. It is estimated that one third of American seniors fall each year and the incidence increases with age and level of frailty (National Council on Aging [NCA], 2016). In 2014, the CDC estimates that there were about 29 million falls and of those seniors who fell, about 37.5% required some type of medical treatment or experienced restricted activity (Bergen, Stevens, & Burns 2016). Furthermore, the likelihood of sustaining another fall can be as high as 41% (Hung et al., 2017; Wu et al., 2013). Accidental falls are the leading cause of fatal and nonfatal injuries among those Americans over the age of 65, and in 2014 have led to 2.8 million injuries treated in the emergency departments, caused over 800,000 hospital admissions, and more than 27,00 deaths (Administration on Aging [AOA], 2016; Bergen et al. 2016; Centers for Disease Control [CDC], 2017; Hung et al., 2017; NCA, 2016; Wu et al., 2013). Of the fall related hospitalizations, hip and head injuries were the most common reasons for admissions (CDC, 2016; Lukaszuk et al., 2016; Stevens, Corso, Finkelstein, & Miller, 2006).

Consequences of falls. The injuries and complications as a result from falling can have devastating long-term effects on the independence and quality of life of our seniors. Falls often lead to pain and limited physical ability, thereby reducing the activities and functional abilities of fallers (Boye et al., 2012; Peeters et al., 2015; Terroso, Rosa, Torres, & Simoes, 2014). Specifically, falls are associated with functional, physical, and social decline as a result of the decreased capacity to carry out activities of daily living skills (Hartholt et al., 2011; Peeters et al., 2015; Phelan, Mahoney, Voit, & Stevens, 2015; Terroso et al., 2014). This decline increases the likelihood of a community dwelling older adult (CDOA) losing their independence and being

placed in a skilled nursing facility (Holland et al., 2015). Unfortunately, this often leads to depression, social isolation, feelings of helplessness, and further physical deterioration (CDC, 2016; NCA, 2016; Boye et al., 2012).

Costs of falls. Direct medical care costs from fall injuries are also high and are among the 20 most expensive medical conditions (CDC, 2016). These expenses rose from \$31 billion in 2012 to \$32 billion in 2015 (Burns, Stevens, & Lee, 2016). The incidence and costs of falling increases as a person ages and are also higher in women (Bergen et al., 2016; Burns et al., 2016; 2015; Town, Ory, & Smith, 2014). With the aging population projected to rise to 83.7 million by 2050, these statistics suggest that the burden of falls in the U.S. will worsen, highlighting the significance of utilizing fall risk reduction measures (Ortman & Velkoff, 2014). In fact, by 2030 the number of falls is projected to reach 100,000 with an associated cost of \$100 billion (Houry, Florence, Baldwin, Steven, & McClure, 2016). This number will continue to rise and impact health care systems if strides are not taken to increase fall prevention measures.

Best practice guidelines. In response to the anticipated steady population growth of senior citizens and rising numbers and burdens of falls, many state and local governments have enacted laws and policies to address this issue in their communities. In addition, clinical practice guidelines (CPG) have been developed for the prevention and management of falls. In 2012, the United States Preventive Services Task Force (USPSTF) created new recommendations (grade B) for exercise or physical therapy and vitamin D supplementation in order to increase strength and balance as a way to prevent falls in those CDOA who are at increased risk of falling (Moyer, 2012). CPG developed by the American Geriatric Society in partnership with the British Geriatric Society (AGS/BGS) advise primary care practitioners (PCP) to annually ask all seniors age 65 and over whether or not they have fallen in the past year or have difficulty with gait and

balance. Any CDOA who reports a positive history of falls or gait and balance problem should be evaluated using one of the standardized gait and balance tools. In addition, a multi-factorial risk assessment (MFRA) should also be completed. This in-depth assessment should include a focused history, physical examination, functional, and environmental assessment to evaluate fall risk factors. Other things to consider are a medication review, and an assessment of gait, strength, and balance. After completing the MFRA, interventions that are individualized to the identified falls risk factors should be instituted along with a suitable exercise program and vitamin D supplementation (AGS/BGS, 2010; Bergen et al., 2014). See Appendix A and B for the complete USPSTF and the AGS/BSG fall prevention guidelines.

Provider compliance. Following AGS/BGS and USPSTF clinical practice guidelines can prevent falls in the CDOA. Unfortunately, research has shown that a considerable number of PCP are not following CPGs to annually screen for falls and/or provide fall prevention interventions (Jones, Ghosh, Horn, Smith, & Vogt, 2011; Smith et al., 2015). Only 28% to 47% of PCPs were found to have conducted annual falls risk assessments and many only screened for falls when patients expressed concerns about falling. (Gaboreau et al., 2016; Jones et al., 2011; Nyrop, Zimmerman, Sloane, & Banqdiwala, 2012). A Washington state analysis found that a majority of the CDOA service providers surveyed did not regularly offer fall prevention services to their geriatric clients (Liang, Silver, York, & Phelan, 2011). These findings are similar to another report which discovered that only 36% of the PCPs studied collaborated with staff in order to reduce risk factors (Nyrop et al., 2012). The fact that many CDOA are not being assessed and/or managed for falls suggest a gap in the primary care setting and contributes to the rising numbers of falls in this population.

Available Knowledge

In an effort to understand why provider compliance was low in following fall prevention CPG set out by the USPSTF and the AGS/BGS, a review of literature was conducted to look at PCPs barriers. In addition, literature was examined to determine evidence-based interventions and methods that could be used to decrease those barriers and thereby have an effect at decreasing the rates and consequences of falls in the CDOA. Through the literature search, the Stop Elderly Accidents Deaths and Injuries (STEADI) algorithm and toolkit developed by the CDC was discovered and was used to help guide the development of this Doctor of Nursing Practice (DNP) change of practice project. According to the literature, the CDC developed STEADI to address the knowledge and practice gaps of PCPs. This toolkit was established to help PCPs incorporate a simple but comprehensive and effective approach to falls risk assessment and prevention into routine clinical practice (Stevens, 2013). STEADI was drafted and grounded on research evidence and AGS/BGS clinical practice guidelines. To make it user-friendly in the primary care setting, it incorporated feedback from healthcare providers (Stevens & Phelan, 2013). The toolkit contains a collection of resources devised to help clinicians integrate falls risk assessment, treatment, and referral processes by offering an algorithm and specific activities. Based on PCPs surveys, the resources presented are direct, succinct, easy-to-read and includes checklists, one-pagers, and on-line information (Stevens & Phelan, 2013). The STEADI toolkit has many benefits. The greatest strengths are that the tools are based on current evidence, utilizing standardized and previously validated tests and fall prevention interventions. It also emphasizes identifying and addressing individualized risk factors for falls. Based on favorable PCP feedback, the toolkit is practical, easy-to-use and manageable for use in a time-constrained practice setting (Stevens & Phelan, 2013). It offers an array of printed and online

resources for both the practitioner and the patient which can be located at

<https://www.cdc.gov/steady/>.

PICOT question. The PICOT question that guided this DNP evidence-based change of practice project was: Will a DNP/Family Nurse Practitioner (FNP) led primary prevention falls program with STEADI resources using didactic and simulation education for advanced practice nurses (APN) increase fall assessment knowledge and prevention and increase its utilization in the primary care setting?

Review of evidence.

Search strategy methods. A comprehensive review of literature was conducted utilizing the databases of the Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL), PubMed, Joanna Briggs Institute (JBI), Google Scholar, Ovid, Cochrane Database of Systematic Review, and the online catalogue for the University of San Francisco Library. In addition, applicable grey literature was reviewed and included factsheets, governmental documents, white papers, committee reports, and article pre-prints. Reference lists of some of these published articles were also examined for possible inclusion. The goal of the literature search was to determine best possible evidence regarding: a) PCP barriers to fall assessment and prevention; b) the most effective approaches for fall assessment and prevention measures; c) the effectiveness of the STEADI algorithm and toolkit; and d) effective teaching methods of providing education and training to APN. The terms used for the search process included both Medical Subject Heading (MESH) terms as well as free-text terms and were used in different combinations in each of the databases. The search was limited to English only and included articles published in peer-reviewed journals after 2010. In some instances, landmark studies published prior to 2006 were included. Randomized controlled trials (RCT), Meta-analysis, and

systematic reviews were preferred for inclusion due to their high level of evidence but also included qualitative and exploratory survey studies.

PCP barriers. The initial literary search sought to examine evidence related to why compliance in fall assessment and prevention guidelines are not being met and the barriers faced by PCP for not following them. Searchable terms included: *primary care, physician, health care providers, fall prevention, assessment, screening, barriers, geriatric, and fall risk.* Studies were included in this review if they met the criteria for describing reasons for PCP non-compliance and/or barriers to fall assessment and prevention strategies in the primary care or community setting of seniors aged 65 and over only. Studies that looked at fall assessment and/or prevention strategies in an institutional setting were excluded. A total of six qualitative survey articles were selected for analysis.

Effective fall assessment and prevention measures. The purpose of the second search was to scrutinize the evidence for effective fall assessment and prevention methods. The following keywords included: *fall prevention, interventions, assessment, screening, evaluation, geriatric, seniors, and clinical practice guidelines.* Studies were only accepted for review if they evaluated fall screening and prevention interventions for the CDOA, aged 65 and over. Again, studies that utilized fall assessment or prevention interventions in the in-patient setting were excluded. A total of three systematic review and meta-analysis articles were selected that met the inclusion and exclusion criteria.

Effectiveness of STEADI. After discovering STEADI, the CDC's fall prevention program, an exploration of the literature was scoured to learn more about its tools and materials. Furthermore, a search to determine its effectiveness, ease in use, and whether or not the resources increased falls assessment and prevention measures in the primary setting was carried

out. Combinations of searchable Boolean terms included: *STEADI, CDC, fall prevention, effectiveness, falls screening, assessment, and intervention*. Since STEADI is a relatively new program, the search did not yield many results. Only one pilot RCT article and one non-experimental, exploratory study was extracted and used in the evidential appraisal regarding the effectiveness of STEADI. An absence of studies was discovered which looks at the effects of STEADI in reducing fall rates and risks.

Effectiveness of simulation and case-based learning. Finally, a quest to determine the most effective methods for providing education and training to APN was conducted. Keywords utilized in the search included: *physician, primary care practitioner, education methods, simulation, nursing education, effectiveness, systematic reviews, advanced practice nurse, case studies, problem-based learning*. After an initial exploration of the literature, it was determined that simulation and case-studies were valid mechanisms to providing critical thinking and skill based learning to healthcare professionals. Therefore, research articles were accepted if they specifically looked at either the effectiveness or the best methods of utilizing simulation and case-based learning techniques in nursing or medical education. Studies were excluded if they looked at using these teaching strategies in other professional disciplines. A total of six studies were extracted that analyzed the effectiveness of simulation in learning and included three experimental studies and three systematic review studies. It was difficult to locate any studies that evaluated the effectiveness of using case studies as a teaching method. There were plenty of review articles that discussed its benefits and worth. A total of two articles was selected for this review, one literature review article and qualitative study.

Critical appraisal of evidence. The John Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Appraisal tool (Newhouse, Dearholt, Poe, Pugh, & White, 2007) was used

to evaluate the research articles included in this review. It was selected for its ease of use and clearly defined concepts and criteria to effectively critique the validity and applicability of study findings to nursing practice. To evaluate systematic reviews, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist (Moher, Liberati, Tetzlaff, & Altman, 2009) was utilized. This tool was selected for its comprehensive and methodical approach for finding, analyzing, and reporting studies.

PCP barriers. From the six qualitative surveys that were extracted from the literature, reasons why compliance in fall prevention guidelines are not being met have been identified and are listed in the Evidence Table (see Table C1, Appendix C). A cross-sectional survey by Jones, Ghosh, Horn, Smith, & Vogt (2011) examined 493 French PCPs and found that 88% of PCP reported experiencing some type of barrier to conducting and managing falls risk assessment. Lack of knowledge, training, or skill was the most prevalent barrier and was cited by five out of the six studies reviewed (Chou, Tinetti, King, Irwin, & Fortinsky, 2006; Dickenson et al, 2011; Loganathan, Ng, Tan, & Low, 2015; Smith et al., 2015; Liang et al., 2011). Reasons included practitioners lack of awareness of the problem of falls, the significance of conducting annual fall prevention screens, or the existence of standardized and evidence-based methods for falls risk assessment (Chou et al., 2006; Stevens, 2013). Understanding how to intervene once a fall risk problem has been identified has also been an issue. As a result, appropriate referrals were not being made which led to fragmented and uncoordinated care (Chou et al., 2006; Dickenson et al., 2011). Another factor found in three of the studies is the limited geriatric and fall prevention education received by PCPs during their medical training (Chou et al., 2006; Gaboreau et al., 2016; Loganathan et al., 2015).

Time constraints and competing health care demands are other barriers facing PCPs (Chou et al., 2006; Gaboreau et al., 2016; Jones et al., 2011; Smith et al., 2015). Due to the multiple risk factors associated with falls, conducting a MFRA is a lengthy process. The complex nature of reviewing all possible fall risk factors is often daunting and overwhelming. Coupled with the shrinking time allotments to see patients with multiple health care problems, falls assessment is not placed as a top priority. Another obstacle found in two of the studies is the negative perceptions and attitudes of PCP regarding falls (Gaboreau et al., 2016; Loganathan et al., 2015). These negative attitudes are most likely a result of the previously mentioned factors, like unfamiliarity with falls, limited time constraints, and competing healthcare demands. Finally, lack of financial gains or knowledge of how to get reimbursed in screening and managing falls are other reasons found to influence PCP non-compliance in following fall CPG (Chou et al., 2006; Jones et al., 2011; Smith et al., 2015). Findings from these factors (limited education and training, time constraints, and PCP perceptions) highlight the importance of providing provider education and training on fall risk screening and management as a means to reducing the occurrence of falls in our community of seniors and was the basis for the development of this DNP project. See Table C1, Appendix C to view the evidence table for PCP barriers to fall prevention.

Fall prevention measures. There has been a plethora of research demonstrating the effectiveness of fall prevention measures shown to shrink the incidence and impact of falls. Due to their positive impact on falls, many of the USPSTF and AGS/BGS practice guidelines were derived from studies such as those regarding vitamin D supplementation, MFRA, exercise, and physical therapy programs. (AGS/BGS, 2010; Moyer, 2012). The following systematic reviews were analyzed to gauge the strength of evidence in providing support of employing these

interventional approaches for fall prevention and management to effectively reduce the risk or rate of falls by CDOA. The evidence for the fall prevention measures can be viewed in Table C2 in Appendix C.

Chang et al., 2004. Chang et al. (2004) was one of the earlier systematic review and meta-analysis to exclusively evaluate RCTs that sought to measure the effectiveness of fall prevention interventions in older adults. Interventions that were specifically assessed included MFRA and management, exercise, environmental modifications, and education. Inclusion criteria included a focus on falls prevention, data on participants age ≥ 60 , and only RCTs. Out of 830 articles that were collected and reviewed from multiple databases, 40 RCT met inclusion criteria and were used in the meta-analysis. Each of the RCT evaluated were assessed for methodological quality using the Jadad tool. This evaluative instrument assigns a score from 0-5 based on level of randomization, blinding, and flow of patients, and where a higher score equates to a higher strength of evidence and quality (Jadad et al., 1996). From the quality assessment, four trials scored 1, 22 trials scored 2, and 14 trials scored 3. To assess and compare the magnitude of effect of each of the interventions, studies were analyzed using a meta-regression model. Of those participants who fell at least once, fall prevention interventions were shown to significantly reduce the risk of falling with a risk ratio (RR) of 0.88 and a 95% confidence interval (CI) of 0.82-0.95. Results also indicated a significant reduction in the monthly rate of falling (RR 0.8, CI 0.72-0.88). The intervention that demonstrated the most statistical difference on reducing both the risk (RR 0.82, CI 0.72 – 0.94) and monthly rate of falling (RR 0.63, CI 0.49-0.83) is the MFRA and management programs. Risk factors that were most frequently assessed included drugs, vision, environmental hazards, and orthostatic hypotension. Exercise is another intervention that was found to have statistically reduced the risk of falling with an

adjusted incidence RR of 0.86, (0.75-0.99) and was found to have the largest number of studies. A second meta-regression analysis did not detect any statistical differences in the efficacy between different types of exercises. Environmental modification and education did not demonstrate any significant effect in reducing the risk of falling. The researchers conclude from their findings that the most practical way of implementing a MFRA and management program is by targeting selected seniors with a history of falls and by offering exercise programs to the general population of seniors.

Using the JHNEBP tool to critically appraise this systematic review and meta-analysis, the Chang et al. (2004) study scored a 1A. Strengths of this study includes the evaluation of multiple RCT, the large sample size, and generalizability of findings to similar populations and this DNP project. Another strength is the assessment in the quality of the RCT used in their analysis with the Jadad tool. The PRISMA checklist was also used to evaluate the completeness of this systematic review and appears to contain a majority of required reporting elements. Based on JHNEBP and PRISMA appraisal tools, this study demonstrates a high quality strength of evidence, supporting the benefits of utilizing MFRA and exercise in fall reduction management plans.

Gillespie et al, 2012. An updated Cochrane Review by Gillespie et al. (2012) assessed the effects of fall prevention interventions in reducing the incidence of falls in CDOA. Databases from the Cochrane, MEDLINE, CINAHL, and online trial registers were searched for RCT that analyzed effectiveness of interventions that reduced falls in CDOA. Studies that met inclusion criteria included 159 RCT with 79,193 participants and mostly involved trials that compared a fall intervention with no intervention. In this study, rate of falls between groups were calculated using rate ratios (RaR) and 95% CI, whereas risk of falling was calculated using RR and 95% CI

based on the number of fallers in each group. Similar to the study in Chang et al. (2004), exercise was the most frequent intervention tested. Interventions that had a statistical positive significance in reducing both the rate and risk of falling were group (RaR 0.71, CI 0.63-0.82; 16 trial; 3622 participants/RR 0.85, CI 0.76-0.96, 22 trials; 5333 participants) and home (RaR 0.68, CI 0.58-0.80; 7 trials; 951 participants/RR 0.78, CI 0.64-0.94; 6 trials; 714 participants) exercise programs, especially programs that included strength and balance exercises. In addition, home safety interventions also demonstrated positive effects in reducing both the rate (RaR 0.81, CI 0.68-0.97; 6 trials; 42308 participants) and risk (RR 0.88, CI 0.80-0.96; 7 trials; 4051 participants) of falling. Tai chi as an exercise intervention only reduced the risk of falling (RR 0.71, CI 0.57-0.87; 6 trials; 1624 participants) but did not have an effect in reducing fall rates (RaR0.72, CI 0.52-1.00; 5 trials; 1563 participants). Conversely, MFRA significantly decreased the rate of falls (RaR 0.76, CI 0.67-0.86; 19 trials; 9503 participants), but not in reducing the risk of falling (RR 0.93; CI 0.86-1.02; 34 trials; 13,617 participants). Findings also suggest that treatment plans crafted based on the identified fall risks effectively reduces the number of CDOA falls. Finally, vitamin D supplementation only appeared to have statistical benefits in people who already had lower vitamin D levels prior to initiation of treatment.

The JHNEBP rating for the Gillespie et al. (2012) study earned a rating of 1A due to its large sample size of RCT and research participants studied and its meta-analysis design, providing a good strength of evidence. The thoroughness in the study data collection process and statistical analysis of the review adds vigor to this study and is given a high quality rating, effectively meeting all of the required reporting elements on the PRISMA checklist. In addition, being a Cochrane review itself adds to the power of evidence on effective fall prevention interventions, as the Cochrane review is internationally recognized as the highest standard in

healthcare evidence. Given these stated strengths, this study adds more evidential support to the use of exercise, MFRA and individualized treatment plans based on identified risk, and home safety interventions as fall prevention strategies in CDOA.

Michael et al., 2010. Michael et al. (2010) is a systematic review commissioned by the USPSTF to analyze RCT regarding the benefits and harms of fall prevention interventions used by PCP to prevent falls in CDOA. RCT articles with good or fair quality were abstracted from multiple quality databases and national and governmental websites. Articles were included if they met the criteria for RCT of CDOA, age ≥ 65 , primary care settings, and trials assessing fall prevention based on an assessment of falling or falls. Trials were excluded if the settings occurred outside of primary care or did not contain a control group. Data was synthesized and analyzed using summary tables and stratification of evidence by similar intervention categories. Separate analysis for each intervention grouping were analyzed for presence and magnitude of statistical heterogeneity among studies. In addition, random-effects meta-regression models were used to examine potential sources of heterogeneity in falls risk. Findings from 54 RCT (26,102 participants) were extracted and appraised. From the review, exercise or physical therapy interventions from 16 RCT (RR 0.87, 95% CI 0.81-0.94) and vitamin D supplementation from 9 RCT (RR of 0.83, CI of 0.77-0.89) demonstrated positive statistical evidence in reducing the risk of falling among CDOA. No statistical benefit was correlated with MFRA and management interventions in reducing the risk of falling (RR 0.94, CI 0.87-1.02; 19 RCT). An important finding to their study is that interventional groups did not experience increased serious clinical harms compared to the control group while utilizing these fall prevention interventions.

Similar to the previous systematic reviews, Michael et al. (2010) received a critical appraisal JHNEBP rating of 1A, which is of high quality. The strengths of this systematic review

is the large number of RCT and participants used in their inquiry. In addition, the article was very descriptive in their study design and meta-analysis, and used appropriate statistical analysis to evaluate their findings. Methods to avoid risk biases were also taken. Based on these strengths, this systematic review also rated highly in meeting all of the required reporting elements of the PRISMA. Findings from this systematic review provides strong evidential support for the use of vitamin D supplementation and exercise as interventions to be used to decrease the risk of falling in CDOA.

In summary, exercise has been found to be the most effective fall prevention intervention and has been the most studied intervention. This is followed by conducting a MFRA with management and providing vitamin D supplementation. Based on the strong evidential support for these interventions, clinical practice guidelines from the USPSTF and AGS/BGS for fall prevention have been derived from the findings of these studies and are included in the STEADI toolkit. See Table C2 in Appendix C for more information on the evidence for fall prevention interventions.

Effectiveness of STEADI.

Casey et al., 2016. Because the STEADI toolkit was established and published in 2013, it is a relatively new fall prevention program. Hence, there remain very few studies that tests its internal validity. According to Stevens and Phelan (2013), pilot testing of the toolkit is presently being conducted in three states to evaluate provider training and its adoption and impact of the STEADI tool. One of those studies is an exploratory non-experimental study by Casey et al. (2016). Commissioned by the CDC and the Oregon state health department, their goal was to evaluate the feasibility of adopting STEADI guidelines into a large academic internal medicine clinic in Oregon. This article describes the implementation process used in adopting STEADI,

data collection and analysis methods, and measurements of clinic adoption success. Results indicate that STEADI was successfully implemented by aligning and integrating the STEADI algorithm and tools into their usual clinic flow and into their electronic health record (EHR). Training and employing clinical champions within the practice to identify and respond to barriers added to their success. Data on the number of patients being screened with STEADI was collected by analyzing monthly reports of Current Procedural Terminology category II codes (CPT II codes) along with retrospective chart reviews. A 21-question survey was also used to elicit feedback from participants. Data was analyzed using descriptive statistics, which was used to evaluate STEADI workflow and the EHR tool. After an 18-month period, results demonstrated that 45% of patients (N=870) were screened for falls. They found that STEADI had become a recommended practice by its medical faculty and residents, where screening increased weekly from 30%-50%, documentation of falls risk factors ranged from 77%-90%, and a falls-related care plan was initiated in 90% of their patients. The authors cite that development of their EHR tools allowed participants to confidently and efficiently complete all components of the STEADI algorithm. Due to the success of their implementation program, STEADI was incorporated into Medicare Wellness Visits across all of the institution's primary care clinics. In addition, because of the success of implementing STEADI into their EHR system, Epic, a widely used EHR system released a new electronic clinical program with instructions and tools for integrating STEADI into any healthcare system that utilizes electronic documentation on Epic.

Because of the exploratory and non-experimental nature of this study, the Casey et al. (2016) study earned a JHNEB level 3A in its strength and quality of evidence in determining the impact of STEADI and PCP adoption. The strengths of this study include its large sample size of elderly fall risk patients (N=870), detailed implementation methods descriptions, consistent and

reliable results collected from EHR data, definitive conclusions, and consistent recommendations. Given the strengths of this study, it is graded with having high quality. Despite the fact this was not a RCT, this study still provides important information on the feasibility of successfully implementing STEADI into primary care practices and increasing falls screening and prevention of CDOA.

Greenberg et al., 2015: A prospective pilot RCT by Greenberg et al. (2015) tested the effects of the STEADI protocol by looking at the impact of the STEADI decision tree on 52 elderly fall risk patients in the emergency department. Participants were enrolled into the study if they were English speaking, age ≥ 65 , being discharged home, and reported to either have a fall within the last year, worried about falling, or admitted to feeling unsteady when walking or standing. Both the interventional (N=27) and control (N=25) group participants were counseled on their risk of falling and given educational material from the CDC containing standardized information about how to control risk of falling. Interventional participants were additionally given personalized assessment and interventions based on their falls risk with opportunities to have input on their treatment plan. Follow-up phone calls demonstrated that 84.6% of the test participants compared to 25% of the control participants reported choosing a fall prevention strategy ($P < .001$). Fall prevention interventions included beginning a regular exercise programs, reviewing medications with their PCPs, having their vision checked, or making their homes safer. This article was critically appraised using the JHNEB tool. Due to the lack of randomization descriptions in the article, the strength of evidence was rated at a level 2. Despite its limitations due to its small sample size, this study appeared to have adequate control and definitive conclusions regarding the impact of using STEADI, giving rating of level B, which is of good quality. Findings from this study provide moderate evidence that individualized MFRA

and fall prevention strategies can have an effect on assisting and encouraging fall prevention behaviors by CDOA.

Despite the positive results of these two studies and the multiple benefits that STEADI has to offer, more research is needed to validate its use. Examining STEADI's impact on reducing the occurrence of falls and on the effectiveness of provider compliancy with conducting fall risk screening and fall prevention management is desperately needed.

Effective teaching/learning strategies). Since the primary objective of this DNP project was designing and implementing an educational program to train APN on fall assessment and prevention strategies using STEADI materials, literature was reviewed to determine the best teaching methods for this audience of learners. Results from this literature search helped to formulate the process and learning methods used in the development of this DNP falls educational program. See Table C3, Appendix C for the evidence table for simulation benefits.

Case study learning. Case study learning is a common teaching method used in medical, science, and nursing education to teach problem-based learning and promotes the development of analytical skills and clinical reasoning (Bonney, 2015). Its focus is on the learner instead of the teacher and is believed to improve student's levels of cognition through active learning (Dutra, 2013). According to Kim et al. (2006), case-based teaching requires learners to continuously add to prior knowledge, collect clinical information, mine patient perspectives, and synthesize this information to formulate and test diagnostic hypothesis. A literature review by Popil (2011) demonstrate that case studies are based on real life situations and are effective in stimulating the development of critical thinking and in facilitating active learning to assist with clinical problem solving, analysis, and problem identification. Kim et al. (2006) conducted a literature review and synthesis of qualitative studies to develop a conceptual framework used to

assist educators in developing case studies for teaching. After searching 13 databases and screening references from reviewed articles, 100 out of 974 reports were used for this review. Findings from their analysis identified five core attributes to the conceptual framework: relevant, realistic, engaging, challenging, and instructional. A description of how to develop case studies based on each of those attributes was discussed. Unfortunately, no RCT studies were found that measured the effectiveness of using case-based teaching compared to conventional didactic learning.

Simulation. Similar to case study learning, simulation-based learning has become a common method of teaching in nursing curriculums. It is an experiential form of learning that allows the learners to acquire clinical skills through deliberate practice with simulation tools or standardized patients (Abdulmohsen, 2010). Simulation often replicates real-life clinical scenarios. It utilizes simulation tools or standardized patients that serve as an alternative to tangible patients where learners can make mistakes and learn from them in a safe and controlled environment. A systematic review by Norman (2012) evaluated the effectiveness of simulation-based learning in undergraduate nursing programs. Search results yielded 117 references, from which 17 studies made inclusion criteria and were accepted for review. Outcome measurements examined knowledge, skills, safety, communication, clinical safety, satisfaction, confidence, and clinical evaluation. These concepts were grouped into three categories: external outcomes, internal outcomes, and evaluation outcomes. In reviewing external outcomes, a number of study findings demonstrated significant increases in knowledge, skills, communication or safety and was especially beneficial when used in conjunction with the clinical practicum. Despite the small sample size, overall study findings found that simulation helped to improve internal outcomes of satisfaction, anxiety, and clinical judgement. Findings from two of the studies

demonstrated significant increase in self-confidence when students worked with standardized patients. The use of simulation in the clinical evaluation of students yielded inconsistent results. Limitations of this study is that this review was conducted by only one researcher, which may have introduced a selection of criteria bias. Another limitation is that this study did not solely include RCT.

A systematic review that did evaluate the effectiveness of medium to high simulation utilizing RCT was conducted by Cant & Cooper (2010). Findings from their appraisal of 12 RCT statistically supported the use of medium to high fidelity simulation using manikins as an effective teaching and learning strategy. In addition, six of the studies showed statistical increases in student knowledge, critical thinking, perceived clinical confidence, or satisfaction.

Since this DNP educational project is designed to teach an audience of APN, a search of the literature to validate the effectiveness of simulation in APN education was conducted. Jeffries et al. (2011) conducted a multi-center, prospective, quasi-experimental intervention to assess outcomes of a newly developed simulation-based cardiovascular assessment curriculum for APN. Educational interventions included faculty led simulation-based case scenarios and independent learning sessions with a computer-based program. Findings from this study demonstrate statistical pre-to-posttest improvements in cognitive knowledge and cardiovascular assessment skills.

Another study by Warren, Luctkar, Godfrey, & Lukewich (2016) conducted a systematic review to investigate the effectiveness of high fidelity simulation-based education in nurse practitioner (NP) programs compared to traditional lecture models. Their review of ten studies of various quantitative research designs explored outcome measurements of NP student knowledge, attitudes, skills, and satisfaction. Despite the small sample size, results of this review

demonstrated that high fidelity simulation increased NP student satisfaction and attitudes in boosting their self-confidence learning. In addition, knowledge and skill was increased when comparing pre and post simulation knowledge scores.

A study by Kowitlawakul, Chow, Salam, & Ignacio (2015) explored the experiences and perceptions of APN students using standardized patients in their simulation-based learning. This was an explorative, qualitative study that used semi-structured questions to guide focus group interviews. Results of this study revealed that APN students felt the use of standardized patients was useful and realistic for developing skills in history taking, communication, and responding to emergency situations.

A final analysis looked at the effectiveness of using simulation-based learning to teach geriatric medicine to medical students (Fisher & Walker, 2013). During the simulation intervention, medical students practiced assessing the geriatric conditions of delirium, falls, elder abuse, and breaking bad news on low to high fidelity simulators as well as to a standardized patient. Data was collected on 74 participants to measure student knowledge with a 3-item questionnaire on three assessments and was compared to a control group. In addition, data was collected with a 5-point questionnaire for student feedback regarding their simulation experiences. Findings from this study demonstrate statistical significant differences ($p < 0.001$) between test scores in each test question by the interventional group. From the feedback questionnaires, students provided favorable responses and felt simulation was a valuable learning experience and helped to facilitate positive perceptions in geriatric medicine. In addition, 97% of the medical students felt better equipped to deal with patients who had fallen as a result of the simulation experience. Findings from these last two studies provide supportive data on the

applicability of utilizing simulation with standardized patients to teach APN geriatric and fall assessment techniques.

In summary, case-study and simulation based learning are effective mechanisms to teach APNs knowledge and skills. These teaching modalities also appear to increase the participant confidence, satisfaction and critical thinking skills. More information on the evidence of simulation based learning can be viewed in Table C3, Appendix C. Because of the beneficial results of these studies, both case-study and simulation-based learning were adopted and used in the formation of this DNP teaching implementation project.

Summary of evidence/practice implications. Results of the evidence from the studies reviewed can be seen in Appendix D. In summary, qualitative analysis of six studies suggest that the predominate barriers facing PCP in complying with fall prevention CPG include lack of knowledge, training, or skill (Chou et al., 2006; Dickenson et al, 2011; Jones et al., 2011; Loganathan et al., 2015; Smith et al., 2015; Liang et al., 2011). A contributing factor may be the limited geriatric and fall prevention education received by many of the PCP during their medical training (Chou et al., 2006; Gaboreau et al., 2016; Loganathan et al., 2015). Other barriers include time constraints, competing healthcare demands, negative perceptions, and lack of financial gains (Chou et al., 2006; Gaboreau et al., 2016; Jones et al., 2011; Loganathan et al., 2015; Smith et al., 2015). Findings from these studies emphasize and provide support for the needs of educating and training PCP on fall risk screening and management. In addition, the findings suggest the importance of finding and utilizing quick and easy screening tools and methods to accomplish that task of following fall prevention practice guidelines. See Table C1, Appendix C for Evidence Table for PCP barriers.

Many of the fall prevention CPG for CDOA are generated from the USPSTF and the ABG/BGS and are evidenced based. These guidelines include vitamin D supplementation, exercise and/or physical therapy, and MFRA and management (AGS/BGS, 2010; Moyer, 2012). There has been a plethora of studies that investigated and provided strong statistical evidence in their effectiveness in either reducing the risk and/or rate of falls by CDOA (Chang et al., 2004; Gillespie et al., 2012; Michael et al., 2010). Three systematic reviews with meta-analysis, which provides the strongest strength of evidence, validate exercise as having strong statistical benefits in reducing fall risks and/or rates (Chang et al, 2004; Gillespie et all, 2012; Michael et al., 2010). The fact that two of the systematic reviews report that exercise had the largest number of studies, strengthens this evidence (Chang et al, 2004; Gillespie et al., 2012). In addition, Gillespie et al (2012) found that strength and balance exercise were more effective in helping to reduce both the risk and rate of falling. The benefits of conducting a MFRA with management had positive statistical evidence in two of the studies; one recommending the use of individualized treatment plans based on identified fall risk factors (Chang et al., 2004; Gillespie et al., 2012). Finally, the use of vitamin D supplementation was strongly encouraged in the findings of Michael et al. (2010) but was found by Gillespie et al. (2012) to only be effective in patients who started with lower vitamin D levels. All three of these systematic meta-analysis review studies scored high on the JHNEBP (1A) and the PRISMA reporting tools, providing strong evidence and confidence in using these interventions as part of fall prevention CPG measures.

A method that appears to address both the barriers facing PCP as well as follow established fall prevention CPG is the STEADI algorithm and toolkit. In fact, STEADI was created specifically by the CDC to assist PCP in complying with fall prevention measures. An attempt was made to investigate the effectiveness of using STEADI, but since this is a new

program created in 2013, there is a paucity of research on this topic in the literature. The exploratory and non-experimental study by Casey et al. (2016) provides some promising evidence in the implementation and utilization of STEADI in primary care clinics. Data analysis from their report demonstrated progressive increases in falls screening and documentation of fall risk factors and treatment plans. Another promising study by Greenberg et al., (2015) found that conducting a MFRA and providing individualized treatment plans based on identified fall risk factors helped to encourage CDOA patients engage in fall prevention behaviors. A limitation to these studies is that they were both of fair quality. Despite the diminished quality of these studies and the dearth of research looking at the impact of STEADI, these findings provide sufficient evidence in using STEADI to assist PCP in fall prevention measures. The recent creation and implementation of STEADI by the CDC and lack of research on STEADI provide clues that PCPs are not familiar with this toolkit and feeds the basis of this educational DNP project. These factors also speak to the needs of more research in this area. Investigations examining STEADI's impact on reducing the occurrence of falls and on the effectiveness of provider compliancy with conducting fall risk screening and prevention measurements should be explored.

This review of evidence supports the need for a well-structured educational intervention program and use of STEADI for PCPs. To accomplish that goal, literature was examined to determine the best methods off imparting information to the target audience of APN. From the literature, it appears that case studies and simulation-based learning are effective strategies to employ. Simulation appeared to significantly increase nursing students' knowledge, skills, critical thinking, satisfaction, and self-confidence (Cant & Cooper, 2010; Jeffries et al., 2011; Norman, 2012; Warren et al., 2016). Improvements in cognitive knowledge and skills from

engaging in simulation-based learning was also evident in APN curriculums and appeared to be effective in developing skills in assessment, history taking and communication (Jeffries et al., 2011; Kowitlawakul et al., 2015; Warren et al., 2016). Finally, the use of simulation appeared to be an effective teaching strategy in teaching geriatric and fall assessment to medical students (Fisher & Walker, 2013). Despite the lack of statistical evidence for the use of case studies, the literature supported the validity of using it as a teaching and learning modality. See Table C2, Appendix C for Evidence Table on benefits of simulation.

In conclusion, the literature review provides strong evidence for the need of a PCP fall prevention and management education and training curriculum. This educational program should employ an evidenced based fall screening and management program that is quick and easy to use in order to increase fall screening in the primary care setting. The STEADI toolkit meets that criteria. Evidence supports using case-based studies and simulation with standardized patients to educate and train APN the knowledge, process and skills of using geriatric fall prevention assessment and management techniques contained in the STEADI toolkit.

Rationale

A Healthy People 2020 goal is improving the health, function, and quality of life of older adults through the delivery of preventive and quality health services. Specifically, their objective is to work on injury prevention to reduce the number of seniors with functional limitations as well as to increase the proportion of physically active seniors (Health People, 2010). One way for PCPs to comply with this initiative is to tackle the growing incidence of falls in the CDOA population. As seen through the literature review, PCPs are not participating in these prevention strategies due to their lack of awareness, expertise, and resources in conducting a fall risk screen of all CDOA. The purpose of this DNP educational project is to bridge this knowledge gap

through the introduction and training of the STEADI program to assist PCP by making it easier to address and manage fall prevention.

Conceptual and theoretical frameworks.

Roger's Innovation of Diffusion Theory. Since the core of this project involved the communication and adoption of a new protocol, Rogers's Innovation of Diffusion (2003) is the theoretical framework chosen to guide this project. This model explains how Roger's innovation (i.e. STEADI model) is communicated and adopted through certain channels over time among the members of a social system (i.e. PCP). A diagram of Roger's theory can be seen in Appendix E. The model includes four main elements of diffusion: 1) the *innovation*; 2) the *communication channels*; 3) *time*; and 4) the *social system* (context). An *innovation* is defined as a perceived new idea, practice, or object by an individual or unit of adoption. The characteristics that determine an innovation's rate of adoption are: relative advantage, compatibility with existing values and practices, simplicity and ease of use, trialability, and observable results to those people within the social system (Robinson, 2009). A *communication channel* is the means by which messages get shared about the new innovation. The thought is that most individuals evaluate and adopt an innovation from peers who have already adopted the innovation themselves. The dimension of *time* is involved in diffusion in three ways. The first is the innovation-decision process. This is a five-step process that starts where an individual becomes aware of an innovation and ends with confirmation of the new idea (knowledge, persuasion, decision, implementation, and confirmation). The second is innovativeness, which is the degree to how early an individual or unit of adoption is in adopting the innovation compared to other members of the social system. It consists of five classifications: innovators, early adopters, early majority, late majority, and laggards. The third and final dimension of time, is an innovation's

rate of adoption. This is the relative speed with which an innovation is adopted by members of a social system within a given time period. *Social system*, the last element of diffusion, is the set of interrelated units that are engaged in joint problem solving to accomplish a common goal. Here, the structure and the norms of the social system dictates or influences how an idea gets diffused (Rogers, 2009). Understanding and using the Diffusion of Innovations theory was valuable in providing structure and guidance in helping current and future APNs to understand and adopt falls related clinical practice guidelines and the STEADI program into their practice in order to prevent falls and be viewed in a table in Appendix F.

Information Processing Theory. Since teaching and learning is the primary interventional modality of this DNP project, the Information Processing Theory (IPT) was the conceptual model used to guide the development of the fall prevention curricula. See Appendix G for a visual diagram of this model. IPT is a common cognitive learning framework used by teachers to assist them in their development of teaching methods. In this theory, the human mind is equated to a computer, in that it receives input from information assembled from our senses, processed and delivered by our brain, then produces an output in the form of behavioral responses. These make up the three key concepts of *sensory memory*, *working/short-term memory*, and *long-term memory* (JL Learning Theories, 2015). According to Dutra (2013), these concepts can be broken down into six components to develop specific teaching methods for nursing students. The first is to link new knowledge (i.e. falls assessment and prevention) to prior knowledge in order for learning to be meaningful. The second and third is that presentation of new concepts should be organized and presented at the appropriate educational level for the student (i.e. APN). Fourth, to avoid information overload, teaching strategies to deliver content should be varied (i.e. case studies and simulation). Finally, the fifth and sixth concept is that

learning should be active and come from the student and not from the environment (teacher) which enhances student awareness of their own learning styles and improves their learning aptitude. A table that explains how the IPT was incorporated into this DNP project can be found in Appendix H.

Specific Aims

Project aim. The global aim of this project is to increase the knowledge and skills of PCP in screening and managing CDOA falls utilizing the STEADI algorithm and toolkit. See Appendix I for AIM statement.

Project objectives.

Project objective #1 – Heighten APN/NP awareness on the importance of fall prevention screening and management in the CDOA population.

Project objective #2 – Introduce and provide an evidenced –based fall prevention program that can be easily adopted and used in the primary care setting (STEADI).

Project objective #3 – Increase clinician confidence in the ability to screen and manage fall prevention.

Project objective #4 – Increase clinician change of practice to screen and manage falls in the CDOA.

Section III

Methods

Context

Organizational setting. The University of San Francisco (USF) is a Jesuit university located in the heart of San Francisco with multiple campuses in the greater San Francisco Bay Area, offering many undergraduate and graduate programs. The School of

Nursing and Health Profession (SONHP) at USF is a recognized nursing school offering baccalaureate, masters, and doctoral degrees in nursing. The Family Nurse Practitioner (FNP) tract is one of the programs offered by the School of Nursing. In following the 2014 National Organization of Nurse Practitioner Faculties' (NONPF) nurse practitioner core competencies, all students must take a required advanced assessment course which incorporates didactic and simulation learning. This final DNP falls education project implementation took place in this compulsory advanced assessment didactic and practicum course (N735/N736) and used simulation-based learning as the chosen instructional method to teach the falls educational program to APN. In addition, a PowerPoint presentation and case study using the STEADI toolkit was given during a special Lunch and Learn session opened to all DNP/FNP students at USF.

The California Association of Nurse Practitioners (CANP) is a professional nurse practitioner organization with multiple chapters throughout California. The goals of the organization are to provide continuing education, fellowship, resources, and political action to advance and protect the profession and scope of nurse practitioners. Many of the chapters hold monthly meetings that provide opportunities for networking and job prospects. Each year CANP hosts an annual four-day educational and networking conference where hundreds of advanced practice nurse attendees participate in a variety of clinical educational sessions and poster presentations. Presentation of the fall prevention PowerPoint and case study using the STEADI toolkit was given during one of these in-tract breakout lecture sessions on March 18th at the Hyatt Regency San Francisco Airport Hotel in Burlingame, CA.

Key stakeholders. Identifying key stakeholders is essential for project success in order gain support for the mission, as well as to acknowledge and establish goals and expectations.

Primary key stakeholders for this DNP project included the USF faculty for the compulsory advanced assessment didactic and practicum course (N735/N736), the USF simulation lab manager, the USF DNP program assistant, and the CANP conference coordinator. These four key stakeholders were important in providing support for the project by acknowledging the need for the falls prevention educational content and by allowing a venue for the educational intervention to take place. In addition, they provided access to the targeted population of APN. Other important stakeholders included the simulation teaching assistant, conference moderator, and technical team. These stakeholders were important in providing assistance during the teaching intervention and helping to alleviate and/or solve barriers that came up. Finally, the standardized patient was another essential stakeholder, who volunteered their time in order to make the learning experience a meaningful one for the participant learners.

Intervention.

GAP analysis. To determine and analyze the problem of the deficient knowledge in falls risk assessment and management and the STEADI program among PCPs, a gap analysis was conducted prior to developing the project's plan. Currently, FNP students and PCP are not familiar with falls CPG and the use of the STEADI algorithm and toolkit for fall prevention and management. In addition, there is no fall education curriculum provided to FNP students at the University of San Francisco's FNP program. This was determined through a review of the FNP curriculum crosswalk. In addition, as a current student going through the FNP curriculum, this DNP student has first-hand knowledge that falls education was not taught in any of the FNP courses. As a result, geriatric patients are not getting their annual fall risk screening and at-risk geriatric patients are not being adequately managed for fall prevention. Therefore, many geriatric individuals are susceptible for falling and developing fall-related injuries. These

demonstrated deficiencies provided an opportunity to develop a falls assessment education curriculum using the STEADI algorithm and resources to educate and encourage PCP and future FNP's to assess and prevent falls. See Appendix J for a table of the gap analysis.

Project intervention. This educational project was authorized by the USF FNP faculty to have this DNP student come into the N735/N736 Advanced Assessment course to teach the STEADI program to course participants who are future primary care providers. In addition, an abstract for presentation of the STEADI algorithm and toolkit by this DNP student was already accepted to be given at the CANP Educational Conference in March of 2017 during one of the one-hour and fifteen-minute educational in-tract seminar sessions. Letters of Agreement for implementation of this DNP at both of these institutions can be seen in Appendix K (Document K1 and Document K2).

Project implementation. The interventional arm of this project first started with the development of an educational PowerPoint presentation with the objectives of: a) Identifying the significance of conducting a falls risk screen in the primary care setting on all geriatric patients to prevent injury; b) Identifying falls risk factors in the primary care geriatric patient; c) Introduction and location of STEADI falls risk screening and assessment tools; d) Providing falls risk education and prevention interventions; and e) Creating three case studies to allow for participant practice of utilizing the STEADI algorithm and tools. Samples of the PowerPoint presentation with the case studies as well as samples of the STEADI toolkit used in the seminar can be viewed in Implementation Tools L1 and L2 in Appendix L.

Next, a simulated case study scenario was developed using a standardized geriatric patient with multiple falls risk factors who was being seen in the primary care clinic. The goal was for the FNP student to screen and conduct a falls risk assessment and to be able to provide

falls risk prevention and education to this geriatric client using the STEADI falls algorithm and resources. Construction of the simulated case study was developed using the California Simulation Alliance (CSA) guidelines and will be submitted for adoption into their simulation scenarios library. CSA is an organization that strives to standardize the development of healthcare simulation with overarching goals to enhance and foster simulation as a method for teaching healthcare professionals. Therefore, the purpose of submitting the CSA falls simulation template was to provide a macro perspective for this project by widening the number of clinicians to have access to this educational falls program and be trained in fall assessment and prevention. A sample of the falls CSA simulation template can be examined in Implementation Tool L3 in Appendix L.

Presentation of the falls education and simulation program using a standardized geriatric patient was first piloted to a group of FNP students enrolled in the Advanced Assessment course at USF on September 9, 2016. Later, the opportunity opened up to provide an educational seminar to a group of FNP students during a Lunch and Learn lecture series at USF on February 24, 2017 (See document 3K for letter of agreement). Even though this was not part of the initial project plan, this DNP student took the opportunity to provide the fall prevention PowerPoint presentation to this group of FNP students in order to further expand the number of clinicians being trained in fall prevention. Doing this could potentially increase the screening rates of CDOA falls in the primary care setting. In addition, giving the bonus PowerPoint presentation offered an opportunity for extra presentation practice prior to the educational conference and make any adjustments to the presentation. Finally, the falls prevention PowerPoint presentation was then given on March 18th, 2017 at the 40th CANP Education Conference in San Francisco at the Hyatt Airport Hotel.

GANTT narrative (milestones/timeline). Project development began Spring 2016 semester with an initial literature review, draft of project plan proposal, and formulation of the DNP committee. Statement of Determination for DNP project was also submitted and approved by the DNP committee. Summer of 2016 was spent writing and submitting the falls manuscript and completing the mandatory IRB modules. After submitting the manuscript, the DNP project committee chair advised this author to submit a speaker abstract to the 40th CANP Education Conference (Jo Loomis, personal communication, July 2016). Fall 2016 was spent conducting the pilot falls simulation to the Advanced Assessment practicum course. It also included writing and submitting the DNP falls project prospectus. Developing the content for the final falls prevention curricula including the PowerPoint presentation, case studies, and CSA simulation case scenario was completed during the spring semester of 2017. This also included practicing and implementing the educational content to DNP students at USF and to NP participants at the CANP Education Conference. Data analysis and evaluation of the DNP project and submission and beta testing of the CSA simulation case scenario is projected to be completed Summer of 2017 along with completion of the DNP project write-up and presentation. See Appendix M for the GANTT chart and timeline table. The work breakdown structure can be seen in Appendix N.

SWOT analysis.

Strengths. There are many strengths that helped this DNP project take root. The first is that USF's SONHP is already certified by the Commission of Certified Nursing Education (CCNE) with available learning and teaching resources (classrooms and media support) and knowledgeable staff and faculty. In addition, the institution has an updated simulation center that is also certified by CSA. An added bonus is that the simulation center has a director and manager with whom the DNP student has previously worked with and who had full support and trust in

the DNP student in conducting the project. Another strength is the availability and access of various STEADI materials online, which made it easier for the DNP student to access and use for the teaching sessions. Easy access to these resources also makes it simpler for PCP to incorporate falls CPG guidelines into their clinical practice. Personal strengths included having expert knowledge of the topic at hand, as well as being adjunct faculty of USF, which provided the DNP student with firsthand knowledge of the organizational structure, staff/faculty, and the institutional processes. Another personal strength was having teaching and simulation experience, which contributed to the training sessions and the development of the simulation case scenario. Finally, having the abstract already accepted for presentation at the CANP conference was a huge strength to the project. A final strength to the project is the billable reimbursement gains that PCP providers can receive for conducting fall risk screening and assessment during Medicare's Initial Preventive Physical Exam and Annual Wellness Visits.

Weaknesses. A major weakness to the project was this DNP student's lack of experience in presenting at a professional educational conference and in developing evaluation metrics. Unfamiliarity with using microphones, room set up, and in engaging participants presented a new challenge. Another weakness was the inexperience in expectations and process of how to submit the PowerPoint presentation to CANP. Limited experience in creating case studies and the CSA simulation template was also challenging.

Opportunities. Opportunities for the DNP project to take root were the many governmental and health related trends and initiatives created to increase the safety and health education of patients, like the Healthy People 2020 initiative mentioned earlier. The rise in the aging population in combination with the local community demographics of CDOA was another opportunity for the project to succeed and played an important role for both institutions to accept

and support this DNP project. Implementation of this project helps standardize and provide quality falls risk screening, management, and patient education into the primary care setting. This has the potential to decrease CDOA falls and injuries leading to decreased health care associated costs and social burdens. The opportunity to reach more clinicians on falls prevention presented itself during the course of the project. The Lunch and Learn seminar provided a bonus opportunity to reach and train more PCP on fall prevention. In addition, as USF faculty learned of the project, many have requested STEADI resources to be provided to their students and are making room for the educational sessions to be placed into their course calendars.

Threats. A threat to the project was having access to a group of FNP students to beta test the simulation case scenario. Implementation of the falls education simulation was projected to occur at the beginning of Spring 2017 in the Advanced Assessment course. Unfortunately, there was a master scheduling error for that course during both the 2017 spring and summer semesters, where the course ended being cancelled and simulation beta testing and presentation of the material has not yet been given. Presentation of the material is slated to be given the Fall of 2017. Another threat to the project was an unfamiliarity and a reliance on technology during the CANP conference. Because a different computer was provided for the DNP student to use for the presentation, the conference technology assistant had to be called twice to assist with technical errors and unfamiliarity with the mechanics of using that particular computer. See Appendix O for the SWOT analysis table.

Responsibility and communication matrix. The primary responsibility in the execution and communication of this DNP project rested with the DNP student. This included synthesizing evidence, designing the project matrix, developing the didactic content, creating the case studies and the simulation case scenario, delivering the educational curriculum, and developing and

analyzing project metrics. The DNP chair and committee responsibility was to provide advice and support for the project. The Advanced Assessment faculty's responsibility was to schedule the falls prevention education curriculum into the course calendar. The simulation manager's responsibility was to schedule the simulation room, set up the simulation room, and secure and coach the standardized patient for the simulation. The CANP conference coordinator's responsibility was to provide speaker guidelines and serve as a contact person for the DNP student. The responsibilities of the simulation assistant and the technology crew was to provide assistance with technology and room set up prior to and during implementation of the presentation. Finally, the responsibility of the standardized patient was to assist with simulation experience. See Appendix P for a table of the responsibility matrix.

Project budget. The falls prevention education project did not incur significant expenses. The associated expenditures of designing, implementing, and evaluating this DNP project was mainly related to human resource costs. This includes the expense of utilizing the time for simulation personnel support to set up and run the simulation lab and was estimated to be about \$36 (\$18 x 2 hours). In addition, the expense for faculty time during the didactic, simulation, and evaluation is about \$100 (\$50 x 2 hours) and the cost of the simulation manager's cost is about \$80 (\$40 x 2 hours). The time spent by the DNP student to design, implement, and analyze the project were volunteer hours and did not accrue any costs. It is unknown what the CANP costs were for having the DNP student there be a guest speaker at the Education Conference, but should be considered. Out of pocket costs to the DNP student were about \$850. This included the costs of attending the conference which includes hotel costs (\$525) and registration fees (\$275) as well as the costs for printing the STEADI learning

materials, handouts, and evaluation metrics (\$50). Total costs spent for the project is about \$1066, see Appendix Q for budget and expense details.

Cost benefit analysis/cost avoidance. The primary return on investment (ROI) of this falls education project is improvement in the knowledge base of current and future NP's in the screening, prevention, and management of CDOA falls. Development of this educational program benefits the university and CANP by contributing to their FNP curriculum; the APN will gain knowledge on the use of the STEADI toolkit, which will lead to increased screening and prevention of elder falls by NPs. This will hopefully lead to a reduction in falls in the CDOA. Performing annual falls risk screening and utilizing STEADI tools with CDOA benefit all involved. The community benefits by reducing social burdens associated with hospitalization and medical care costs related to fall injuries paid out by Medicare and insurance companies. In examining savings to the nation, the average costs of hospital admissions for a serious fall injury is over \$30,000 for each incident (CDC, 2016). Therefore, according to the CDC (2015), for every 5000 health care providers who adopt STEADI, 6 million patients could be screened, 1 million falls could be prevented, and \$3.1 billion in direct medical care costs could be saved. The ROI for primary care clinics that adopts falls CPG and STEADI is an assumption that is based on potential billable Medicare reimbursement fees for falls risk assessment for each CDOA that is eligible for an Initial Preventive Physical Exam (IPPE) and Annual Wellness Visit (AWV). A one-time reimbursement for an IPPE is about \$155.89. The initial reimbursement for an AWS is about \$155.89, and subsequent AWS is \$110.96 annually (Centers for Medicare and Medicaid Service, 2012). If a clinic were to screen 500 IPPE Medicare patients and 500 AWV Medicare patients annually, that would equal to be about \$134,000 each year in revenue for the clinic. Therefore, conducting annual falls screening will help to provide income to the clinics and

the added benefit of following CPG for seniors. The goodwill benefit for USF and future and current PCPs is the knowledge gained and increased comfort level of providing quality, evidenced-based, preventive care to geriatric patients. This new knowledge and comfort level of PCPs will hopefully lead to increased falls screening and improved management of falls risks. Finally, the ROI of incorporating STEADI and conducting annual falls risk screening can help senior citizens experience a better quality of life and an improvement in health status and function. See Appendix R and Appendix S for details on the cost benefit/avoidance and ROI.

Study of the Intervention. The quality metrics used for evaluation of the project were measurements related to outcomes, participant/provider experience, and process. Outcomes metrics was utilized to measure the knowledge base of the APN participants before and after the Fall/STEADI training session and to assess performance improvements after project implementation. Another measurement of outcomes was assessing the likelihood of each participant's intention to change practice in screening all of their CDOA for falls and/or utilizing the STEADI toolkit in the future. Analyzing participant experiences in utilizing the screening and fall prevention resources during the simulation and case study helped to determine the efficiency and effectiveness of the toolkit. Process outcome was measured through an evaluation of participant feedback regarding the exercise of accessing and utilizing the toolkit and identifying barriers to using STEADI resources during the educational seminar. Finally, the approach used to evaluate the FNP student simulation experience was completed via a post simulation debriefing of the class to discuss student experience and perceptions in conducting a falls assessment and the use of STEADI resources. Observations during the simulation experience and debriefing discussions helped to determine achievement of intervention objectives.

Measures. A 10--item questionnaire using a 5-point Likert scale titled *STEADI/Fall Knowledge Evaluation* (SFKE) was the instrument used to measure project outcomes. A copy of the questionnaire can be seen in Appendix T. Comparing pre- and post- interventional tests scores is a reliable method of measuring knowledge gained and intervention outcomes. Unfortunately, after consultation with the DNP advisor, it was determined to not have participants complete a pre-test analysis due to the difficulty in logistics and feasibility of having partakers complete a pretest (J. Loomis, personal communication, January 19, 2017). This was a result of the limited timeframe and set up of the in-tract sessions at the CANP conference. Instead, a post intervention tool (SFKE) was created and constructed in a way to assess both pre and post intervention outcomes. The *SFKE* questionnaire was distributed and collected by the CANP conference moderator immediately after the completion of the educational intervention to ensure a high participant response rate in completing the questionnaires. Besides the CANP conference, the SFKE was also distributed and completed by FNP students who attended the fall prevention lecture at USF.

According to Colosi (2006), questionnaires are a commonly used method to collect information when evaluating educational programs, which often capture information related to knowledge, attitudes, and behavior which are defined as: knowledge refers to what participants understand about program content; attitude is the participant's perceptions, feelings, and judgments regarding the topic; and behavior is what people do, will do, or have done related to the area of focus. The STFE questionnaire is an instrument that was composed by the DNP student to measure all three of those concepts. Four out of the nine test questions were constructed to measure participant knowledge regarding falls prevention CPG and STEADI resources:

- Before today's presentation, I was aware of the AGS/BGS's 2012 CPG to screen all seniors 65+ for falls each year.
- Before today's presentation, I had knowledge of STEADI and its resources.
- After today's presentation, I am knowledgeable of the CPG for fall screening and prevention.
- After today's presentation, I know how to access and use STEADI's fall algorithm and resources

Two of the questions measured participant attitudes regarding confidence in using STEADI and perceived barriers to following fall prevention CPG:

- I feel confident in using the STEADI algorithm and related tools
- The following barriers may prevent me from following fall CPG: time constraints, competing healthcare demands/problems, and knowledge of how to assess/screen for falls and/or risk factors.

The last three questions measured behaviors related to participant's intent to change their practice of screening for falls and using STEADI.

- Before today's presentation, I routinely screened seniors 65+ for falls and made fall prevention recommendation.
- How likely are you to annually screen each senior 65+ for falls and make fall prevention recommendations?
- How likely are you to use STEADI algorithm and resources?

A final open-ended response question was available for participants to provide general feedback.

All nine of the post evaluative test questions were assigned a 5-point Likert scale, in which participants rated their degree of agreement with each response: *strongly agree, agree, undecided, disagree, or strongly disagree* for questions #1- #6; and *most likely, likely, undecided, somewhat likely, or not likely* for questions #7-#9c. The purpose of choosing the Likert scale in the evaluative tool is because of its ease, popularity, familiarity, and reliability in measuring attitudes and behaviors (SurveyMonkey, 2016). Since participants are accustomed to the process of filling out Likert-type scales, it was a quick and easy way to assess outcomes. In addition, using a Likert scales provided a quantitative approach of measuring results. The purpose of using the single open-ended question was to elicit qualitative responses regarding participant views on STEADI and/or the educational seminar. After the SFKE questionnaire was formulated, it was reviewed and approved by the DNP advisor for use in the project. See Appendix U table for evaluation and analysis plan.

Analysis. Both quantitative and qualitative methods were used to draw inferences from the data. A comparison of the mean was the primary method used to analyze project data. Comparison of the means for the CANP conference and DNP student groups were each calculated and analyzed separately. The goal of the analysis was to demonstrate a trend in positive changes to knowledge (i.e. fall prevention CPG/STEADI), attitude (i.e. confidence and barriers) and behavior (i.e. intent to change practice) and served as an indication of project intervention success. This was accomplished by calculating and comparing the mean scores of similar test questions for each category. For instance, comparing the mean score of fall prevention CPG knowledge prior to and following the educational intervention and then determining if the post intervention mean score exceeded the pre intervention knowledge score. Using this concept with the Likert-type questions, the goal was for the mean scores to be greater than 3. A 3 (*undecided*) on a 5-point

Likert scale represents an unbiased score, and anything higher (4=*agree/likely*; 5=*strongly agree/most likely*) demonstrates greater agreement with the concept at hand. Thus, a score higher than a 3 indicates a positive interventional effect like increased knowledge, intent to change practice, and confidence levels. Mean scores lower than a 3 (2=*disagree/somewhat likely*; 1=*strongly disagree/not likely*) indicate a negative trend where goal attainment measures are not met. The qualitative method used to analyze the intervention was to scrutinize and categorize participant responses to the open-ended test question and the FNP student post simulation debriefing discussion.

Ethical Considerations. This evidenced-based change of practice DNP project was created utilizing quality improvement procedures to educate and promote implementation of fall prevention CPG by PCP in order to decrease fall risks and rates, and improve quality of life of CDOA. Quality improvement is one of the core values of both the *Institute for Healthcare Improvement* (IHI) and the *Institute of Medicine* ([IOM] IHI, 2017; IOM, 2001). This DNP QI project was also created following the nine NP Core Competencies of the National Organization of Nurse Practitioner Faculties (NONPF): scientific foundation, leadership, quality, practice inquiry, technology and information literacy, policy, health delivery systems, ethics, and independent practice (NONPF, 2012).

Execution of this DNP project was compatible with the core values of the *American Nurses Association Code of Ethics (ANA COE) for Nurses with Interpretive Statements*.

Screening for falls in CDOA is in line with Provision 3 of the ANA COE which specifically stipulates that the nurse has the responsibility to “protect the patient, the public, and the profession from potential harm” (ANA, 2015, p. 13) and “must be alert to and must take appropriate action in all instances of incompetent, unethical, illegal, or impaired practice or

actions that places the rights or best interests of the patient in jeopardy” (ANA, p.12). In addition, the educational component of this DNP project is congruent with the Jesuit principle of “Forming & Educating Agents of Change” by “teaching behaviors that reflect critical thought and responsible action on moral and ethical issues” (Jesuit Society of Jesus, 2017).

The author of this DNP QI project completed the three required Health and Human Service online modules to insure understanding and assurance in protecting the welfare of research subjects. A Statement of Determination form was completed and reviewed by this author’s DNP advisor, committee, and faculty (see Appendix I). The project was deemed to have met the requirements of an evidence-based change of practice project as outlined in the DNP project checklist and was viewed not as a research project. Thus, a USF Institutional Review Board for the Protection of Human Subjects (IRBPHS) approval was not necessary for submission. To protect anonymity for participants in completing the post intervention questionnaires, no names were placed on the evaluation tools. No other discernable conflicts of interests or concerns were identified for this project.

Section IV

Results

Between September 2016 and March 2017, three fall prevention educational intervention sessions were implemented. The first was a pilot simulation utilizing a standardized patient with a group of nine (N=9) FNP students enrolled in the Advanced Assessment course in September 2017. During that pilot session, a brief introduction to fall assessment and STEADI tools was provided to the student participants by this DNP student. Observation of the simulation by this author and the Advanced Assessment faculty member determined that the student participants had successfully accomplished the simulation objectives of performing a fall assessment screen

using STEADI tools, identifying fall prevention risk factors, and made fall prevention recommendations (see Appendix V). Results of this pilot study provided information on how to better craft the PowerPoint and case study portion of the didactic fall presentation as well as the development of CSA fall prevention simulation case scenario.

On February 2017, the full didactic fall prevention presentation which included the PowerPoint presentation and three case studies was presented to ten interventional participants (N=10) during the Lunch and Learn seminar. This included nine FNP students and one FNP faculty member. Results from the SFKE post interventional questionnaire demonstrated a favorable improvement in the three studied outcomes where a threshold of mean scores greater than 3.0 (*undecided*) on the Likert-type scale indicated a positive outcome for goal attainment. Mean scores for the test items measuring knowledge went from 2.1 (*disagree*) to 4.7 (*agree*) related to fall prevention CPG knowledge (question #1 and #3) and from 2.3 to 4.8 related to knowledge and accessing STEADI (question #2 and #5). Confidence scores in using STEADI (question #2 and #6) went from 2.3 (*disagree*) to 4.7 (*agree*). Similarly, average scores that exhibited an intent to change in practice grew from 3.3 (*undecided*) to 4.5 (*likely*) for likelihood to annually screen for falls (question #3 and #7) and from 2.3 to 4.4 on likelihood of using STEADI resources (#2 and #8). Mean scores of the potential barriers to prevent PCP compliance with following fall prevention CPG (question# 9a-9c) include time constraints (3.9), competing healthcare demands (3.8), and fall assessment knowledge (1.7). A response from the open-ended question provided useful advice on having the STEADI algorithm available during presentation of the case studies. The suggestion was then followed and incorporated into the next presentation where a copy of the algorithm was provided to each of the participants at the beginning of the CANP presentation. An unexpected benefit that occurred after the presentation

of this educational program at the Lunch and Learn seminar is the implementation of the STEADI toolkit into the primary care setting of one of the FNP students' workplace that works with a large CDOA population.

Outcome measures from the March 2017 CANP presentation reflected similar positive outcome criteria trends as the Lunch and Learn results. During the CANP presentation, there were a total of 33 NP participants (N=33). Mean scores for the test items measuring knowledge went from 2.8 (*disagree*) to 4.6 (*agree*) related to fall prevention CPG knowledge (question #1 and #3) and from 2.4 to 4.6 related to knowledge and accessing STEADI (question #2 and #5). Confidence in using STEADI (question #2 and #6) went from 2.4 (*disagree*) to 4.5 (*disagree*). Similarly, mean scores that exhibited an intent to change in practice grew from 3.6 to 4.3 for likelihood to annually screen for falls (question #3 and #7) and from 2.4 (*somewhat likely*) to 4.2 (*likely*) on likelihood of using STEADI resources (#2 and #8). Average scores of the potential barriers to prevent PCP compliance with following fall prevention CPG (question# 9a-9c) include time constraints (3.5), competing healthcare demands (3.5), and fall assessment knowledge (2.7). Comments from the open-ended question provided favorable review of the educational presentation.

Based on the results of the outcome metrics from both the Lunch and Learn and CANP participants, the fall prevention education intervention was successful at goal attainment by increasing PCP knowledge base of fall prevention and increasing their intent to change practice by scoring higher than the threshold of 3 on the Likert scale. Both groups scored an average of 4.6 and 4.3 respectively on their post interventional scores compared to their pre-interventional scores of 2.4 and 2.4. Outcome metrics also helped to determine that time constraints (3.9) and competing healthcare demands (3.6) was the most identified barriers to following fall prevention

CPG and STEADI and not related to knowledge of how to screen for falls (2.2). This was evident by the higher average rating scores when ranking the three scores. See Tables W1-W3 in Appendix W to view the results of the analysis.

Findings from the pilot simulation experience demonstrated success in meeting fall screening and prevention objectives. Process outcomes analysis from both groups suggest that the teaching methods employed to teach the educational content were successful, as both groups of participants were engaged in the case studies and provided feedback on the usefulness of the educational content and the STEADI tools. Utilization of these techniques probably helped to increase the confidence levels of the participants in fall prevention screening. In addition, process analysis of the pilot simulation provided cues on the success of using simulation for teaching assessment and working with geriatric issues. Unfortunately, simulation data regarding the effectiveness of the newly constructed fall prevention CSA template from the FNP student Advanced Assessment students was not able to be attained due to cancellation of that course for two semesters during the implementation phase of this DNP project.

Section V

Discussion

Summary. Findings from this DNP led evidenced based change of practice project indicated successful goal attainment of project objectives. The overall improvement in post interventional test scores provides evidence that the DNP falls prevention educational program described in this paper was effective in increasing the knowledge and confidence levels of PCPs in fall risk assessment and prevention using STEADI. Another positive outcome is the PCPs stated intent to increase CDOA fall prevention screening and management into their practice.

A lesson learned was utilizing and producing an educational program that best meets the needs of the content being taught for the intended audience. Using a PowerPoint presentation to deliver content information supplemented with case studies and/or simulation to promote active learning and critical thinking was effective in reinforcing the learning material. In addition, having the falls screening algorithm as a handout and knowledge of how to access the STEADI toolkit was effective in helping participants practice using the toolkit during the case study. Another lesson is to be familiar with the use of technology when providing a presentation, especially using technology that the presenter is not accustomed to. Perhaps finding out before the speaking engagement, the types of technology that is available and if possible, practicing the presentation with that new technology. Despite having technology difficulties during the CANP conference, this author was still successful in implementing the educational intervention and meeting project outcomes. Based on participant feedback, the educational presentation was well received and was probably due in part to the expertise and confidence this author developed while creating and implementing this fall prevention project.

A barrier to implementation was the inability to beta test the fall prevention CSA case scenario. The plan is for this DNP student to still beta test this CSA case scenario in the Fall 2017 semester and then submit the template into the CSA library. The purpose is to provide more opportunities for dissemination of this fall prevention education to other PCP. Another method of bringing attention and awareness to other NPs is the future publication of this DNP's manuscript introducing STEADI to APNs in *The Nurse Practitioner* journal. Hopefully, these methods will promote and encourage more fall risk screening and management of CDOA by more APNs.

Interpretation. The anticipated outcome of educating and training PCP on fall prevention CPG and the use of STEADI resources was a success. Findings demonstrated that the educational

intervention aided in building clinician confidence and skill as well as promoted the practice of fall risk screening and management of CDOA in the primary care setting. A positive outcome that was not anticipated was the successful adoption of the STEADI toolkit by a primary care practice that works with seniors. This adoption represents the effectiveness of the teaching intervention and of the STEADI resources. Findings from this study are consistent with a study by Casey et al., 2016) that demonstrated how education and implementation of the STEADI toolkit is effective and has the potential to increase fall risk screening and management by their providers. The intention of the participants to change their practice helps to support *Roger's of Innovation of Diffusion Theory* as it represents their adoption of the new fall prevention CPG.

In addition, creating an educational program that involves development of confidence, critical thinking and assessment skills by APN can be successfully achieved through case study and simulation-based learning strategies. Evidence in the effectiveness of using simulation-based studies are consistently found in other simulation studies and have been shown to demonstrate similar results (Fisher & Walker, 2013; Jeffries et al., 2011; Kowitlawakul et al., 2015; Warren et al., 2016). Using the *Information Processing Theory* was effective in establishing a framework for utilizing these alternative teaching methods.

Implications to the successful implementation of this DNP change of practice project is to promote the adoption of STEADI resources into more primary care practices. This can effectively be done by training PCP on fall risk assessment and introducing them to STEADI resources. Another way is to train clinician experts on fall assessment and prevention that could be used as consultants and as trainers. Findings from this project identified time constraints and competing healthcare demands as PCP barriers to following fall prevention CPG. This is similar to the findings by (Chou et al., 2006; Gaboreau et al., 2016; Jones et al., 2011; Smith et al.,

2015). Addressing these barriers while promoting and encouraging the adoption of STEADI into primary care settings will be important for implementation success. Since STEADI is a new program, there is very few studies on its effectiveness and impact in reducing risks and rates of fall rates. Research in this area is vitally needed. Finally, supporting educational programs to continue using simulation as a teaching modality is encouraged.

Limitations. Limitations of this project was the inability to conduct a more extensive pre-intervention analysis for comparing post-intervention outcomes due to time constraints and the set-up of the educational settings. An attempt to offset this was by creating a single tool that measured both pre and post intervention outcomes. Another limitation is that a small percentage of the participants did not complete the entire post-intervention questionnaire, which has the potential to skew project results and analysis. Possible explanations are that participants had personal limited time to complete the evaluation tool or did not see that a second side of the evaluation tool existed. Ensuring full participation in the falls prevention evaluation was mitigated by having the tool available to the participants prior to the end of the PowerPoint presentation by the conference moderator. In addition, the bottom of the first page of the evaluation tool contained a statement to “Continue to Next Page →”. Finally, there was an attempt to not make the tool burdensome to complete, by limiting the number of evaluation questions and using the Likert-like scale for each question.

Another limitation is that project implementation was conducted solely through educating current and future NPs and not to the general group of PCP including physicians and physician assistants. Since STEADI was specifically created for the general use of PCP, the ability of using STEADI with that population is still valid. Finally, the inability to provide the PowerPoint

presentation and beta test the newly created CSA simulation case scenario to the Advanced Assessment class limits the findings of this DNP project.

Conclusions. Screening and managing risk factors to prevent the occurrence of falls is imperative in reducing traumatic and non-traumatic injuries in CDOA. Unfortunately, many PCP do not have the knowledge of annual falls risk screening and management and therefore are not engaging in falls risk preventive activities that can decrease its incidence in the CDOA. After conducting a gap analysis through the literature, this issue was apparent. It was also determined that there were no specific falls education curriculum in the FNP program at USF and that many providers are unaware of the STEADI algorithm and toolkit. In order to bridge this gap in falls education and lack of falls screening assessment and management, it was determined that educating and training future and current PCP on the use of STEADI algorithm and toolkit was a viable solution to fall prevention. The goal was to ensure that these educational sessions would encourage implementation of the STEADI protocol into clinical practice in the primary care setting, which will translate to increased patient fall risk screening and management. This will target the ultimate Healthy 2020 goal of increasing the health, function, and quality of life of older adults through the delivery of preventive and quality health service.

Implementation of this DNP evidenced-based change of practice project was successful at meeting those educational and practice objectives and has the potential to reach and educate more PCP. A DNP/FNP clinician is perfectly suited to take on the leadership role to further create, implement, market and sustain a fall prevention and management program using STEADI in other primary care settings. This is because a DNP/FNP has been trained and equipped with the knowledge and skills of identifying patient and population health problems and using evidenced-base strategies to manage and/or solve problems. In addition, they are skilled at

coordinating care and collaborating with other healthcare professionals and clinicians. Therefore, the use of a DNP/FNP in promoting fall prevention is an essential component to safeguarding the health and wellbeing of community dwelling seniors.

Section VI

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Appendix A

USPSTF Fall Prevention Clinical Practice Guidelines

Final Recommendation Statement

Falls Prevention in Older Adults: Counseling and Preventive Medication

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Recommendation Summary

Summary of Recommendations

Population	Recommendation	Grade (What's This?)
Community-Dwelling Older Adults, Aged 65 Years or Older	The USPSTF recommends exercise or physical therapy and vitamin D supplementation to prevent falls in community-dwelling adults aged 65 years or older who are at increased risk for falls. No single recommended tool or brief approach can reliably identify older adults at increased risk for falls, but several reasonable and feasible approaches are available for primary care clinicians. See the Clinical Considerations section for additional information on risk assessment.	B
Community-Dwelling Older Adults, Aged 65 and Older	The USPSTF does not recommend automatically performing an in-depth multifactorial risk assessment in conjunction with comprehensive management of identified risks to prevent falls in community-dwelling adults aged 65 years or older because the likelihood of benefit is small. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the balance of benefits and harms on the basis of the circumstances of prior falls, comorbid medical conditions, and patient values. See the Clinical Considerations section for more information about providing this service for individual patients.	C

Note: Retrieved from the United States Preventive Task Force (2012). Final recommendation

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Appendix B

AGS/BGS Fall Prevention Clinical Practice Guidelines



**2010 AGS/BGS Clinical Practice Guideline:
Prevention of Falls in Older Persons**

Summary of Recommendations

SCREENING AND ASSESSMENT

1. All older individuals should be asked whether they have fallen (in the past year).
2. An older person who reports a fall should be asked about the frequency and circumstances of the fall(s).
3. Older individuals should be asked if they experience difficulties with walking or balance.
4. Older persons who present for medical attention because of a fall, report recurrent falls in the past year, or report difficulties in walking or balance (with or without activity curtailment) should have a multifactorial fall risk assessment.
5. Older persons presenting with a single fall should be evaluated for gait and balance.
6. Older persons who have fallen should have an assessment of gait and balance using one of the available evaluations.
7. Older persons who cannot perform or perform poorly on a standardized gait and balance test should be given a multifactorial fall risk assessment.
8. Older persons who have difficulty or demonstrate unsteadiness during the evaluation of gait and balance require a multifactorial fall risk assessment.
9. Older persons reporting only a single fall and reporting or demonstrating no difficulty or unsteadiness during the evaluation of gait and balance do not require a fall risk assessment.
10. The multifactorial fall risk assessment should be performed by a clinician (or clinicians) with appropriate skills and training.
11. The multifactorial fall risk assessment should include the following:

Focused History

- a) History of falls: Detailed description of the circumstances of the fall(s), frequency, symptoms at time of fall, injuries, other consequences
- b) Medication review: All prescribed and over-the-counter medications with dosages
- c) History of relevant risk factors: Acute or chronic medical problems, (e.g., osteoporosis, urinary incontinence, cardiovascular disease)

Physical Examination

- a) Detailed assessment of gait, balance, and mobility levels and lower extremity joint function
- b) Neurological function: Cognitive evaluation, lower extremity peripheral nerves, proprioception, reflexes, tests of cortical, extrapyramidal and cerebellar function

- c) Muscle strength (lower extremities)
- d) Cardiovascular status: Heart rate and rhythm, postural pulse, blood pressure, and, if appropriate, heart rate and blood pressure responses to carotid sinus stimulation
- e) Assessment of visual acuity
- f) Examination of the feet and footwear

Functional Assessment

- a) Assessment of activities of daily living (ADL) skills including use of adaptive equipment and mobility aids, as appropriate
- b) Assessment of the individual's perceived functional ability and fear related to falling (Assessment of current activity levels with attention to the extent to which concerns about falling are protective [i.e., appropriate given abilities] or contributing to deconditioning and/or compromised quality of life [i.e., individual is curtailing involvement in activities he or she is safely able to perform due to fear of falling])

Environmental Assessment

- a) Environmental assessment including home safety

INTERVENTIONS**OLDER PERSONS LIVING IN THE COMMUNITY**

12. The multifactorial fall risk assessment should be followed by direct interventions tailored to the identified risk factors, coupled with an appropriate exercise program.[A]
13. A strategy to reduce the risk of falls should include multifactorial assessment of known fall risk factors and management of the risk factors identified.[A]
14. The components most commonly included in efficacious interventions were:
 - a) Adaptation or modification of home environment [A]
 - b) Withdrawal or minimization of psychoactive medications [B]
 - c) Withdrawal or minimization of other medications [C]
 - d) Management of postural hypotension [C]
 - e) Management of foot problems and footwear [C]
 - f) Exercise, particularly balance, strength, and gait training [A]
15. All older adults who are at risk of falling should be offered an exercise program incorporating balance, gait, and strength training. Flexibility and endurance training should also be offered, but not as sole components of the program. [A]
16. Multifactorial/multicomponent intervention should include an education component complementing and addressing issues specific to the intervention being provided, tailored to individual cognitive function and language. [C]
17. The health professional or team conducting the fall risk assessment should directly implement the interventions or should assure that the interventions are carried out by other qualified healthcare professionals. [A]

Prevention of Falls in Older Persons
Summary of Recommendations

18. Psychoactive medications (including sedative hypnotics, anxiolytics, antidepressants) and antipsychotics (including new antidepressants or antipsychotics) should be minimized or withdrawn, with appropriate tapering if indicated. [B]
19. A reduction in the total number of medications or dose of individual medications should be pursued. All medications should be reviewed, and minimized or withdrawn. [B]
20. Exercise should be included as a component of multifactorial interventions for fall prevention in community-residing older persons. [A]
21. An exercise program that targets strength, gait and balance, such as Tai Chi or physical therapy, is recommended as an effective intervention to reduce falls [A]
22. Exercise may be performed in groups or as individual (home) exercises, as both are effective in preventing falls. [B]
23. Exercise programs should take into account the physical capabilities and health profile of the older person, (i.e., be tailored) and be prescribed by qualified health professionals or fitness instructors. [I]
24. The exercise program should include regular review, progression and adjustment of the exercise prescription as appropriate. [I]
25. In older women in whom cataract surgery is indicated, surgery should be expedited as it reduces the risk of falling. [B]
26. There is insufficient evidence to recommend for or against the inclusion of vision interventions within multifactorial fall prevention interventions. [I]
27. There is insufficient evidence to recommend vision assessment and intervention as a single intervention for the purpose of reducing falls. [D]
28. An older person should be advised not to wear multifocal lenses while walking, particularly on stairs. [C]
29. Assessment and treatment of postural hypotension should be included as components of multifactorial interventions to prevent falls in older persons. [B]
30. Dual chamber cardiac pacing should be considered for older persons with cardioinhibitory carotid sinus hypersensitivity who experience unexplained recurrent falls. [B]
31. Vitamin D supplements of at least 800 IU per day should be provided to older persons with proven vitamin D deficiency. [A]
32. Vitamin D supplements of at least 800 IU per day should be considered for people with suspected vitamin D deficiency or who are otherwise at increased risk for falls. [B]
33. Identification of foot problems and appropriate treatment should be included in multifactorial fall risk assessments and interventions for older persons living in the community. [C]
34. Older people should be advised that walking with shoes of low heel height and high surface contact area may reduce the risk of falls. [C]
35. Home environment assessment and intervention carried out by a health care professional should be included in a multifactorial assessment and intervention for older persons who have fallen or who have risk factors for falling. [A]

Prevention of Falls in Older Persons
Summary of Recommendations

36. The intervention should include mitigation of identified hazards in the home, and evaluation and interventions to promote the safe performance of daily activities. [A]
37. Education and information programs should be considered part of a multifactorial intervention for older persons living in the community. [C]
38. Education should not be provided as a single intervention to reduce falls in older persons living in the community. [D]

OLDER PERSONS IN LONG-TERM CARE FACILITIES

39. Multifactorial/multicomponent interventions should be considered in long-term care to reduce falls. [C]
40. Exercise programs should be considered to reduce falls in older persons living in long-term care settings with caution regarding risk of injury in frail persons. (C)
41. Vitamin D supplements of at least 800 IU per day should be provided to older persons residing in long-term care settings with proven or suspected vitamin D insufficiency. [A]
42. Vitamin D supplements of at least 800 IU per day should be considered in older persons residing in long-term care settings who have abnormal gait or balance or who are otherwise at increased risk for falls. [B]

OLDER PERSONS WITH COGNITIVE IMPAIRMENT

43. There is insufficient evidence to recommend for or against multifactorial or single interventions to prevent falls in older persons with known dementia living in the community or in long-term care facilities. [I]

Strength of Recommendation Rating System

[A]	A strong recommendation that the clinicians provide the intervention to eligible patients. <i>Good evidence was found that the intervention improves health outcomes and the conclusion is that benefits substantially outweigh harm.</i>
[B]	A recommendation that clinicians provide this intervention to eligible patients. <i>At least fair evidence was found that the intervention improves health outcomes and the conclusion is that benefits outweigh harm.</i>
[C]	No recommendation for or against the routine provision of the intervention is made. <i>At least fair evidence was found that the intervention can improve health outcomes, but the balance of benefits and harms is too close to justify a general recommendation.</i>
[D]	Recommendation is made against routinely providing the intervention to asymptomatic patients. <i>At least fair evidence was found that the intervention is ineffective or that harm outweighs benefits.</i>
[I]	Evidence is insufficient to recommend for or against routinely providing the intervention. <i>Evidence that the intervention is lacking, or of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</i>

Note: Retrieved from American Geriatric Society/British Geriatric Society, (2010). Summary of the updated American Geriatric Society/British Geriatric Society clinical practice guideline for prevention of falls in older persons. *Journal of American Geriatrics Society*. 59, 148-157.

Appendix C

Evidence Table

Table C1

PCP Barriers to Fall Prevention Screening and Management

	<u>Gabore au et al. 2016</u>	<u>Loganath an et al. 2015</u>	Smith et al. 2015	Jones et al. 2011	Laing et al. 2011	Dickinso n et al. 2011	Chou et al. 2006
Time Constraints	x			x			x
Competing Healthcare Demands			x	x			x
Lack of Knowledge or skills		x	x	x	x	x	x
Limited Geriatric or Fall Education	x	x					x
Negative PCP Perceptions/Attitu des	x	x					
Lack of Financial Gains				x			x

Note: PCP = primary care practitioners

Table C2

Effective Fall Prevention Measures Shown to Decrease the Rate and/or Risk of Falls

Fall Prevention Interventions	Chang et al. 2004	Gillespie et al. 2012	Michael et al. 2010
Multi-Factorial Risk Assessment and Management	Risk and Rate	Rate	
Exercise	Risk	Risk and Rate	Risk
Physical Therapy			Risk
Vitamin D supplementation		Risk	Risk
Home Modification		Risk and Rate	

Table C3

Benefits of Simulation-Based Learning

	Norman 2012	Cant & Cooper 2010	Jeffries et al. 2011	Warren et al. 2016	Kowitlawakul et al. 2015	Fisher & Walker 2013
Knowledge	x	x	x	x		x
Skill	x		x		x	
Confidence	x	x		x		x
Safety	x					
Critical Thinking		x				
Satisfaction		x		x	x	x

Note: Rate = decreased rate of falls; Risk = decreased risk of falls

Appendix D

Evaluation Table

Citation	Design/ Method	Sample/ Setting	Variables Studied & Their Definitions	Measurement	Data Analysis	Findings	Limitation	Appraisal
PCP Barriers								
Jones et al., 2011 "PCP perceptions and practices regarding FP in adult's 65 and over"	CS	N=99 PCP random sample State PCP database	PCP » Knowledge » FP attitudes » FP practices » Barriers » FP resources	Database survey/questionnaire	Multiple logistic regression	» 88% reported barriers » Only 8% follow CPG » Frequent barriers: lack of time; pressing issues, lack of educational materials » Lack » Only screened if pt expressed concern » Lack of FP literature » Ranked falls screening lowest concern	» Self-reported surveys » Low response rate (68%) » Small sample size	3B
Chou et al., 2006 "Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice"	QL	N=18 PCP 13 Primary care offices	» PCP barriers to FP » PCP facilitators to FP	Semi-Structured phone interviews	Descriptive analysis Data coding	<u>3 Themes</u> » PCP factors: fall awareness/attitude, competing risks & priorities, lack of training » Logistical factors: transit, reimbursement, scheduling, lack of pt reporting, family involvement, time requirements » MD perceptions: reporting, attitudes of RX, positive feedback	» Small sample size; low response rate	3C
Dickinson et al., 2011 "The role of health professionals	EXP/QL	N=164 Asian CDOA 4 geographical	Pt perceptions of facilitators/barriers to FP participation	Structured interviews	Constant comparative approach; data coding	» PCP's response to falls plays major role in pt participation in FP » PCP failed to refer for FP	» Language barrier » Convenience sampling	3C

in promoting the uptake of FP interventions: a qualitative study of older people's views"		communities in England						
Loganathan et al., 2015 "Barriers faced by HC professionals when managing falls in older people in Kuala Lumpur, Malaysia: A qualitative study"	QL	N=20 PCP University medical center primary care clinic in Malaysia	PCP barriers to manage falls	Semi-structured interviews	WebQDA software Descriptive analysis	Four themes: » Perceived barriers: falls normal for aging process, stigma, reluctance to use assistive devices, denial » PCP barriers: trivialization of fall, lack of skill & training, lack of collaboration » Lack of caregiver support; reinforce aging views, » HC system barriers: lack of HC providers, lack of transitions , FP education, no fall CPG	»Small sample size »recruitment of convenience »Self-reported data	3C
Smith et al., 2015 "Healthcare providers' perceptions and self-reported FP practices: Findings from a large NY health system"	QL *CDC funded study	N=38 PCP 11 HC practices in New York health system	PCP knowledge, beliefs, and practices for FP	35-item questionnaire	Descriptive analysis	» Falls ranked lowest HC priority » <40% screened for falls » <25% referred to PT or exercise » <20% referred to community base FP program *results suggest STEADI could address knowledge gap	»Small sample size »Pre-intervention data »Self-reported data	3B
Gaboreau et al.	CS	N= 493 PCP	Factors affecting fall screening by	Multiple logistic	Dichotomous scale	» 65% considered annual FP screen useful	Sample selection	3B

2016		Blinded email survey	PCP	regression to identify factors affecting falls screening		<ul style="list-style-type: none"> » 28.8% implemented FP CPG » Barriers: lengthy time to do FP assessment: pt selecting, forgetting to screen, unsuitable working conditions, lack of time or knowledge, lack of financial compensation 	process:	
Fall Prevention Measures								
Chang et al., 2004	SR/MA	N= 40 RTC	Effectiveness of FP measures in OA <ul style="list-style-type: none"> » MFRA and management » Exercise » Home modification » Patient education » Fall rates » FR 	Jadad tool (quality) Sensitivity analysis	Meta-regression model	<p>FP measures significantly</p> <ul style="list-style-type: none"> » ↓ FR (RR 0.88; CI 0.82-0.95) » ↓ Rate of falling (RR 0.8, CI 0.72-0.88) (0.8 RR) » MFRA and management programs had most effect: drugs, vision, environmental hazards, and orthostatic hypotension » Exercise also significantly ↓ falls; had largest # studies » Environmental modification and education no significant effect in reducing the risk of falling 	Strength; scored high on PRISMA	1A

Gillespie et al., 2012 "Interventions for preventing falls in older people living in the community"	SR/MA	N= 159 RCT N=79,193 participants	Effectiveness of FP interventions in reducing the incidence of falls in CDOA: » Fall rates » FR	Cochrane handbook to prevent risk of bias	Sensitivity analysis Random effects model	» Group and home exercise ↓ both FR and rates especially strength and balance » Tai chi ↓ fall risk » MFRF ↓ fall rates » Treatment plans based on the identified FR ↓ # falls » Vit D only benefit people who already have ↓ vit D levels » Exercise had largest number of studies	Strength: Cochrane review Scored high on PRISMA	1A
Michael et al., 2010 "Primary care-Relevant interventions to prevent falling in older adults: A systematic evidence review for the USPSTF"	SR/MA * USPSTF study	N= 54 RCT N= 26,102 participants	Benefits and harms of fall prevention interventions used by PCP to prevent falls in CDOA.	USPSTF guidelines » Do primary care interventions ↓ risk or rates of fall » What are adverse effects » MFRA and management » patient education or counseling » Home modification » Exercise » Single	Random effects meta-regression model	» Exercise or physical therapy interventions ↓fall risk » Vit D ↓fall risk » MFRA and management did not have significant benefits » No increased serious clinical harms compared to the control group while utilizing FP interventions.	Scored high on PRISMA	1A

				intervention				
Effectiveness of STEADI								
Casey et al., 2016 “Lessons learned from implementing CDC’s STEADI falls prevention algorithm in primary care”	EXP retrospective study *CDC study	N= 452 EHR chart reviews Large academic PCP clinic	Feasibility of adopting STEADI into PCP CPT codes: » Documentation of falls » Assessment of falls » FP care plan	» Kotter framework » 21-item questionnaire	Descriptive statistics	Successful implementation r/t: » Integration of CPG into EHR » Use of clinical champions » STEADI became part of recommended practice by faculty and residents » 45% of 870 patients were screened » Screening increased from 30% to 50% weekly » Epic released new EHR fall prevention clinical program using STEADI due to success of this study » STEADI adopted institution wide based on its success » Documentation for falls went from 78%-91% » 90% had FP care plan		3A
Greenberg et al., 2016 “Emergency department STEADI program”	P RCT Pilot	N= 52 CDOA in ED with follow up phone interviews	Effects of STEADI on patient FP behaviors	Follow up phone interviews	Descriptive statistics	» 84.6% of the test participants compared to 25% of the control participants reported choosing a FP strategy (P<.001) » FP interventions include: beginning a regular exercise programs, reviewing medications with their PCPs, having their vision checked, or making their homes safer.	Convenience sampling Small sample size Limited study design descriptions	2B
Effective Learning Strategies								
Kim et al., 2006	QL/SR	N= 100	Identify strategies for	» Content » Structure	Descriptive statistics	Core attributes of case studies:		3B

“A conceptual framework for developing teaching cases: A review and synthesis of the literature across disciplines”			construction case-base studies Goal: development of conceptual framework	»Attribute »Process		» Relevant » Realistic » Engaging » Challenging » Instructional		
Popil, 2010 “Promotion of critical thinking by using case study as teaching method”	LR	N=0	Use of case studies as a teaching method to promote & facilitate critical thinking and promote learning			Case studies are based on real life situations and are effective in stimulating the development of critical thinking and in facilitating active learning to assist with clinical problem solving, analysis, and problem identification		
Norman, 2012 “SR of the literature on simulation in nursing education”	SR	N= 17 studies	Effectiveness of SB: » Undergraduate nursing program » human patient simulators » English		Descriptive Analysis	3 Themes » External Outcome (learning factors): knowledge, skills, safety, communication » Internal Outcomes (learner’s perception): clinical judgment, satisfaction, self-confidence » Evaluation Outcomes: evaluation of internal and external outcomes » Significant increases in knowledge, skills, communication or safety and was especially beneficial when used in conjunction with the clinical practicum	Single researcher	3B

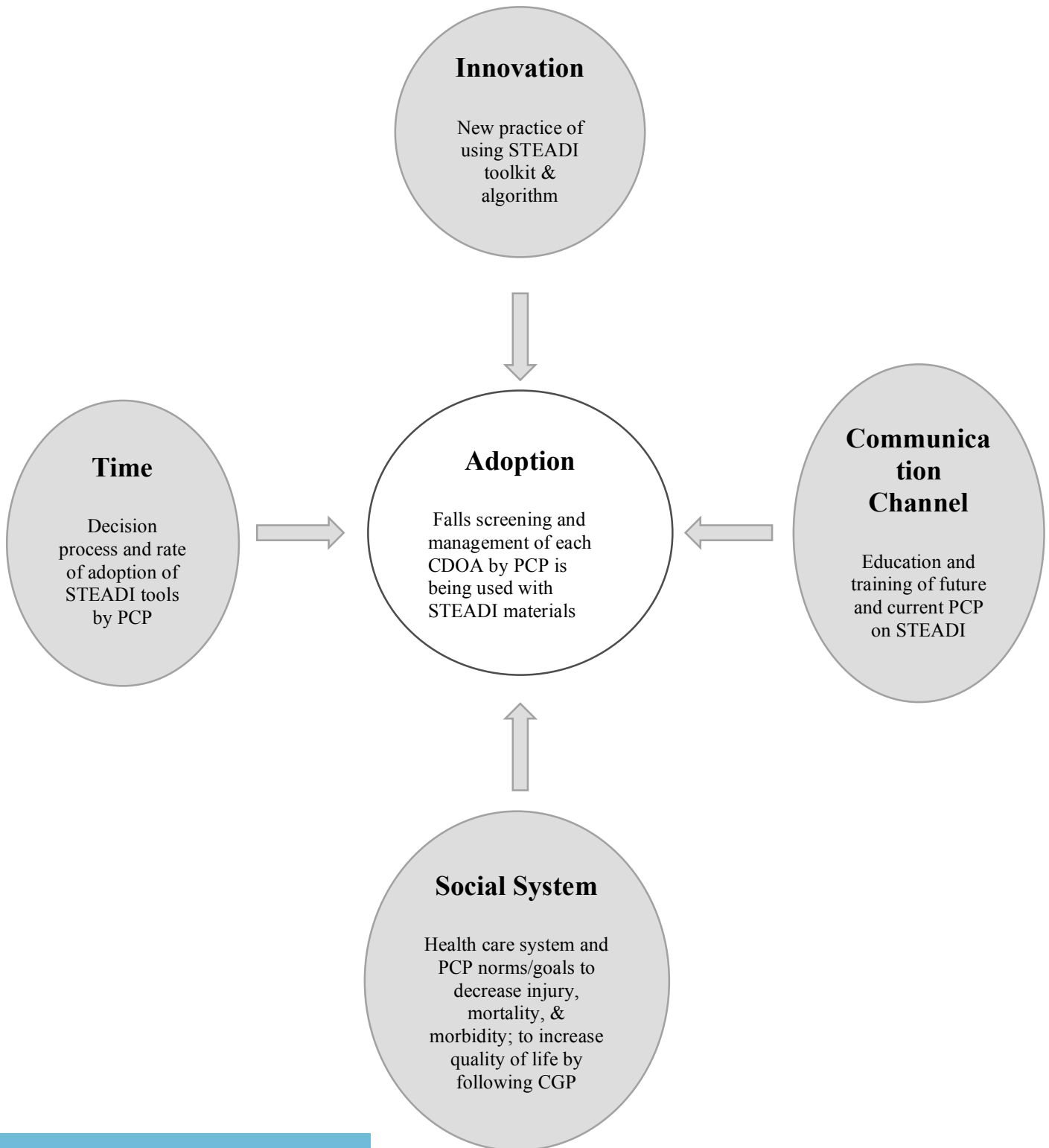
Cant & Cooper, 2009 "Simulation-based learning in nurse education: A SR"	SR	N= 12 QE	Effectiveness for medium to high fidelity SB	Quality assessment using Critical Appraisal Skills Program of the Public Health Resource Unit, England	Descriptive analysis	» Positive statistical significance in use of medium to high fidelity SB and using manikins as an effective teaching and learning strategy » SB had statistical increases in student knowledge, critical thinking, perceived clinical confidence, or satisfaction		3B
Jeffries et al., 2011 "Multi-center development and testing of a SB cardiovascular assessment curriculum for APN"	P QE	N= 36 4 university schools of nursing	Evaluate outcomes of a newly developed SB cardiovascular assessment curriculum for APN: » Training time on simulators » Student self-confidence » Student satisfaction » Instructor self-confidence » Instructor satisfaction	13-item skills checklist 13-item pre and post test	Content Analysis	» Positive statistical pre-to-posttest improvements in cognitive knowledge and cardiovascular assessment skills » APN students able to perform accurate assessments » 22%-point gain in knowledge » Improvement in self-confidence » Instructors had high satisfaction and confidence with SB curriculum		3B
Warren et al., 2016 "A SR of the effectiveness of SB"	SR	N= 10 Experimental trials	Effectiveness of high fidelity SB on learning outcomes in NP programs: » Learner	Joanna Briggs Institute Meta-Analysis of	Content Analysis	» High fidelity SB increased NP student satisfaction and attitudes in boosting their self-confidence learning » Knowledge was increased but no differences compared	Small sample size	2B

education on satisfaction and learning in nurse-practitioner programs”			satisfaction » Knowledge » Attitudes » Skill performance	Statistics Assessment and Review Instrument		to other teaching methods		
<u>Kowitlawakul et al, 2015</u> “Exploring the use of standardized patients for SB learning in preparing APNs”	EXP QL	N=	» Perceptions of APN students using standardized patients in their SB » Effects of standardized patients in future clinical encounters	Semi-structured group interview	Content Analysis Descriptive statistics	APN students felt the use of standardized patients was useful and realistic for developing skills in history taking, communication, and responding to emergency situations.		3B
Fisher & Walker, 2013 “A new-age approach to an age old problem: Using simulation to teach geriatric medicine to medical students”		N= 74 3 rd year medicine students at Newcastle University	Effect of SB on student learning: » Geriatric Knowledge » Attitudes towards geriatric medicine	3 item Pre and Posttest given 3 times 5-point feedback questionnaire	Paired t-test	» Positive statistical significant differences (p<0.001) between test scores in each test question by the interventional group » Students felt SB was a valuable learning experience and helped to facilitate positive perceptions in geriatric medicine » 97% felt better equipped to deal with patients who had fallen as a result of the simulation experience		2B

Note: APN – advanced practice nurse; CDOA = community dwelling older adult; CPG = clinical practice guidelines; CS = cross-sectional study; ED = emergency department; EXP = Exploratory study; FR = fall risks; FP = fall prevention; HC = healthcare; LR = literature review; MA = meta-analysis; MFRA = multifactorial risk assessment; P = prospective study; PCP = primary care practitioners; QE = quasi-experimental study; QL = qualitative study; RCT = randomized control trial; SB = simulation-based learning SR = systematic review

Appendix E

Falls Project Using Roger's Diffusion of Innovation Theory



Appendix F

Implementation of Fall Educational Program Using Roger's Innovation of Diffusion Table

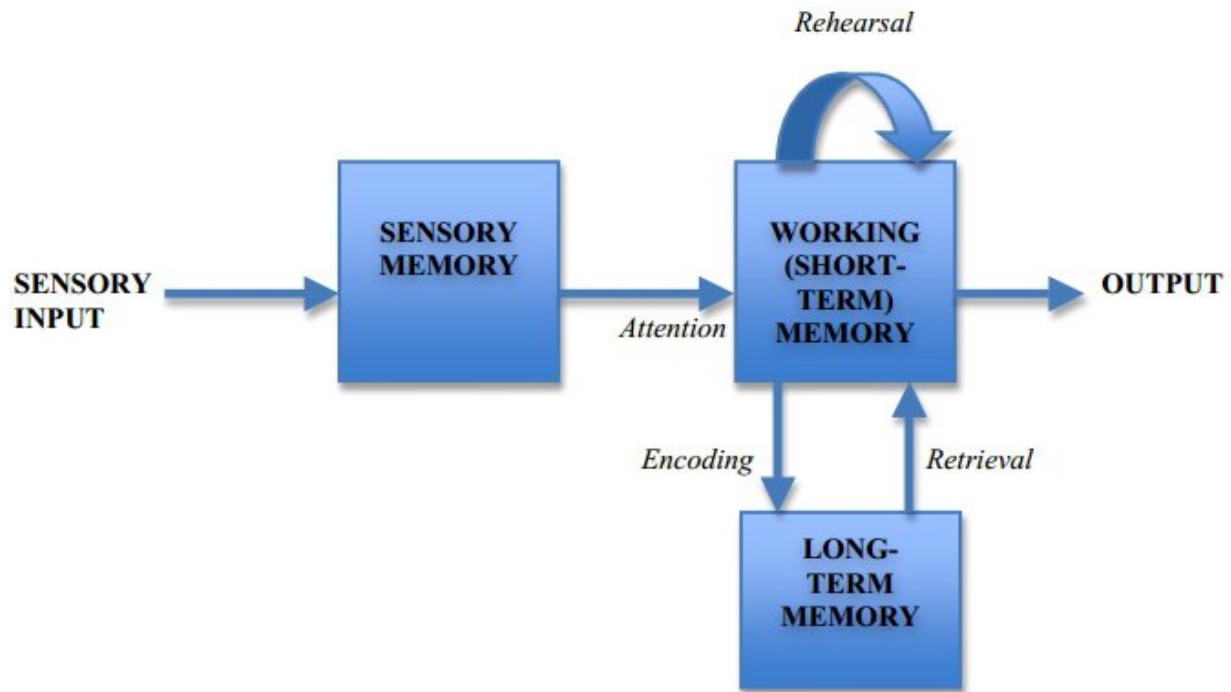
Elements of Roger's Innovation of Diffusion Theory	Definition of Elements	DNP Educational Project Components
The Innovation	Perceived new idea, practice or object	Fall CPG using STEADI resources by NPs
Communication Channel	Means by which messages get shared about the new idea	Didactic and Simulation education of the Falls CPG and STEADI resources to future and current NPs
Time:		
<ul style="list-style-type: none"> Innovation-Decision Process 	5-step process leading to awareness and confirmation of new idea	Active learning of Falls CPG using STEADI via simulation and case study participation
<ul style="list-style-type: none"> Innovativeness 	5 classifications of how early each individual adopts new idea	Determined through analysis phase of project via post fall educational session questionnaire
<ul style="list-style-type: none"> Rate of Adoption 	Speed of how new idea is adopted within a given time period	Determined through analysis phase of project via post fall educational session questionnaire
Social System	The structure and norms of social system that influences diffusion of new idea	<ul style="list-style-type: none"> Healthy 2020 Goals to work on injury prevention New curriculum course requirements to complete Fall Education program National and State programs sponsoring fall prevention Evidence based data supporting use of Fall prevention through screening and management

Note. Adopted from Rogers, E.M. (2003). *The diffusion of innovations* (5th ed.). New York, NY:

The Free Press.

Appendix G

Information Processing Theory



Note: Adopted from Pappas, C. (2014). Instructional design models and theories: Information Processing Theory. Retrieved 6/17/17 from <https://elearningindustry.com/information-processing-theory>.

Appendix H

Implementation of Information Processing Theory Table

Elements of Information Processing Theory	Elements	DNP Educational Project Components
Sensory Memory:	<ul style="list-style-type: none"> • New knowledge, concepts, ideas • Prior Knowledge 	Fall CPG using STEADI resources by NPs
Working/Short Term Memory	<ul style="list-style-type: none"> • Means by which new knowledge gets stored • Organized • Appropriate Level • Varied Teaching Methods 	<ul style="list-style-type: none"> • PowerPoint Presentation • Case Study Learning • Simulation
Long-Term Memory	<ul style="list-style-type: none"> • Active Student Learning • Student Centered 	<ul style="list-style-type: none"> • Knowledge of Fall CPG/STEADI • Knowledge of how to conduct fall assessment/management • Knowledge of how to access and use STEADI

Appendix I



DNP Statement of Non-Research Determination Form

Student Name: Janice A Mark, RN, MSN

Title of Project: Evidence Based Change in Practice in the Primary Care Setting Through the Implementation of a Primary Prevention Falls Program Using Didactic and Simulation for Advanced Practice Nursing Students

Brief Description of Project: This primary prevention project is intended to change the practice of conducting a thorough falls risk assessment of all geriatric patients in the primary care setting by advanced practice nurses through the use of a didactic and simulation falls educational program. The educational program will be used to train nurse practitioner students enrolled in their advanced assessment course with the goal of allowing them to gain competence in falls risk assessment and prevention. A secondary goal is to educate and implement the falls risk assessment and prevention strategies to health care practitioners in a primary care clinic.

A) Aim Statement: By July 31, 2017, 95% of the DNP/FNP nursing students enrolled in the N735/N736 Advanced Assessment Course at the University of San Francisco will be able to conduct a comprehensive falls risk assessment on all geriatric patients aged 65 and over in the primary care setting and will be able to identify and provide falls risk prevention interventions and education to at risk clients.

B) Description of Intervention:

1. Develop an educational power-point presentation with the objectives of: a) Identifying the importance of conducting a falls risk screen in the primary care setting on all geriatric patients to prevent injury; b) Identifying falls risk factors in the primary care geriatric patient; c) Locating and using falls risk screening and assessment tools; d) Providing falls risk education and prevention interventions
2. Provide education and training to DNP/FNP nursing students enrolled in the N736 Advanced Assessment didactic course on the developed falls risk educational program
3. Develop a simulated case study with a standardized geriatric patient with multiple falls risk factors who is being seen in the primary care clinic. The goal is for the FNP student to conduct a falls risk assessment and be able to provide falls risk prevention and education to the geriatric client
4. Conduct the falls risk simulation experience for the DNP/FNP nursing students



enrolled in the N735 Advanced Assessment Practicum course who went through the falls risk educational program in their co- N736 course

5. Submit the developed simulated case study to the California Simulation Alliance for adoption into their simulation scenario library.

6) Provide education and training to primary care providers in a primary care clinic on the developed falls risk educational program and explain the importance of adopting and implementing this falls risk assessment with all of their geriatric patients seen in clinic

C) How will this intervention change practice? This primary prevention intervention will standardize the practice of conducting a comprehensive falls risk assessment program to all geriatric patients seen in the primary care setting. The goal is to reduce the incidence of injury and death in the geriatric population living in the community.

D) Outcome measurements: Outcome measurements will look at:

1. Knowledge base of DNP/FNP nursing students pre and post training of the falls risk factors, use of falls risk screening tools, and falls risk prevention interventions and education with the use of a survey.

2. The percentage of falls risk assessment conducted by the DNP/FNP students during their simulated falls risk case study.

3. Knowledge base of clinic's primary care providers pre and post training of the falls risk factors, use of falls risk screening tools, and the falls risk prevention interventions education with the use of a survey.

4. The percentage of falls risk assessment conducted by primary care provider post educational training over "X" period of time.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:

(<http://answers.hhs.gov/ohrp/categories/1569>)

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.



Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST ***Instructions: Answer YES or NO to each of the following statements:**

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	✓	
The specific aim is to improve performance on a specific service or program and is a part of usual care . ALL participants will receive standard of care.	✓	
The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.	✓	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.	✓	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.	✓	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	✓	
The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	✓	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	✓	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>“This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”</i>	✓	



ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Janice A Mark, RN, MSN

Signature of Student: Janice A Mark RN, MSN **DATE** 5/2/16

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):
Dr. Jo Loomis

Signature of Supervising Faculty Member (Chair): _____
DATE _____

Appendix J

Gap Analysis of Fall Risk Knowledge and Screening

Desired State	Current State	Deficiencies	Action Plan
DNP/FNP students enrolled in the N753/N736 course will be able to knowledgeable of fall prevention CPG and demonstrate ability to screen and manage CDOA for falls using STEADI and incorporate this as part of routine standard practice	<p>-FNP students have not received education regarding current falls CPG to screen all geriatric patients for falls annually or to provide individualized fall prevention interventions in their FNP courses</p> <p>-FNP students have not been educated about the STEADI algorithm and toolkit for fall prevention in their FNP courses</p> <p>-There is no curriculum regarding falls education and screening embedded into the USF FNP program curriculum</p>	<p>-Geriatric patients are not getting annual fall risk screening</p> <p>-At risk geriatric patients are not getting appropriate falls prevention interventions based on their risk factors</p> <p>-The STEADI algorithm and toolkit resources are not being used for fall prevention measures</p>	<p>-Develop and present a falls risk prevention and management educational power point presentation</p> <p>-Introduce and train FNP students on how to use the STEADI algorithm and toolkit</p> <p>-Develop a simulated falls risk case study scenario for moderate-high fidelity practice and learning of fall screening and management using a standardized patient</p> <p>-Submit the simulated case study scenario to the California Simulation Alliance for adoption into their simulated scenario library to further educate future NPs and PCP</p>
PCP attending an educational conference will be able to knowledgeable of fall prevention CPG and demonstrate ability to screen and	<p>-Review of literature demonstrate that PCPs are not annually screening geriatric patients for fall risk or conducting further fall risk assessments</p>	<p>Geriatric patients are not getting annual fall risk screening</p> <p>-At risk geriatric patients are not getting appropriate falls prevention</p>	<p>-Develop and present a falls risk prevention and management educational power point presentation to educate PCP</p> <p>-Introduce and train PCP on how to use</p>

<p>manage CDOA for falls using STEADI and incorporate this as part of routine standard practice.</p>	<p>-Review of literature demonstrate that PCPs are not providing individualized fall prevention measures based on risk factors -Review of literature demonstrate that PCP are not knowledgeable about using the STEADI algorithm and toolkit to assist with fall prevention assessment and management</p>	<p>interventions based on their risk factors -The STEADI algorithm and toolkit resources are not being used for fall prevention measures</p>	<p>the STEADI algorithm and toolkit for fall prevention and management -Use case studies to help PCP practice and use STEADI resources and develop fall prevention critical thinking and assessment</p>
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Appendix K

Letter of Support from Agency

Document K1

Verbal Agreement for Advanced Assessment Simulation

Support and authorization for conducting the Falls Prevention education and simulation in the N735/N736 Advanced Assessment course to the DNP/FNP students enrolled in that course was agreed through verbal agreement with the faculty member who taught that class (J. Loomis, personal communication, August 30, 2016).

Document K2

CANP Letter of Agreement



1415 L Street, Suite 1000
Sacramento, CA 95814
916 441-1361 o | 916 443-2004 f
canpweb.org

Dear Speaker,

Thank you for agreeing to participate at the California Association for Nurse Practitioner's (CANP) 40th Annual Educational Conference, March 16-19, 2017 at the Hyatt Regency San Francisco Airport Hotel, Burlingame, California. For more than three decades, CANP has represented thousands of nurse practitioners and other health care professionals across the state. Actively engaged in the legislative process, we are committed to the advancement and protection of the nurse practitioner profession. We are proud of the strides we've made and, as health care reform continues to unfold, we remain dedicated to improving California's health care delivery system. Our journey has been a collaborative and spirited one, and we couldn't have done it without passionate educators like you.

This contains all of the information related to your presentation, conference registration, hotel travel information, as well as all of the required information we need for AANP accreditation. For your convenience, a summary of all the applicable deadlines are included.

We thank you for your assistance and look forward to seeing you in March. If you have any questions, please do not hesitate to contact CANP Events Director, Sulema H. Peterson at sulema@canpweb.org or 916 441-1361 ext. 5.

Sincerely,

Karen Bradley,

Karen Bradley
CANP Conference Committee Chair

Document K3

*Lunch and Learn E-mail Agreement***Prabjot K Sandhu**

To: Janice Mark

Re: Lunch and Learn

February 14, 2017 at 11:50
Archive - Usfca (All Mail) 

PK

Janice

You are confirmed for a lunch and learn presentation on STEADI, on 2/24 from 12-1 at Co 316 following morning class with Dr Van Leuven. An announcement has been sent to faculty and students, please feel free to invite anyone else you would like. Lunch will be provided. I hope to be present, but if not, break a leg, Good luck!!!!!!...)

Kindly,

Jodie Sandhu DNP, MSN, FNP-C, RN, PA-C, CNL
Director of Clinical Training- NP programs
Assistant Professor
University of San Francisco
School of Nursing and Health Professions
Cowell Hall 225
2130 Fulton St.
San Francisco, CA 94117
Office: (415) 422-4244
Fax: (415) 422-5618
Cell: (925) 819-2328

*"If you can't fly, then run. If you can't run, then walk. If you can't walk, then crawl.
But whatever you do, you have to keep moving forward" - Dr Martin Luther King*

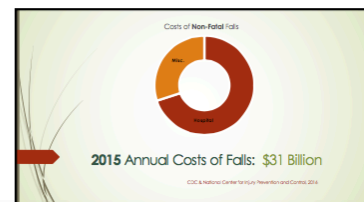
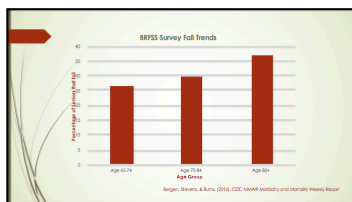
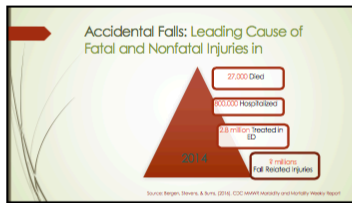
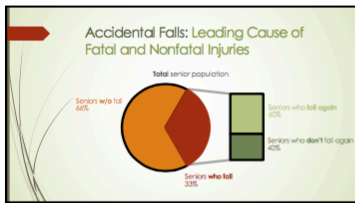
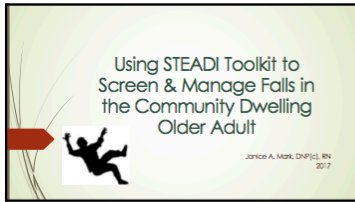
[See More from Janice Mark](#)

Appendix L

Implementation Tools:

Document L1

PowerPoint Presentation



Direct Medical Costs for Falls

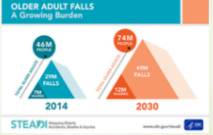
- Hospital and Nursing Home Care
- Doctor and Professional Services fees
- Rehabilitation
- Community-based Services
- Durable Medical Equipment
- Prescription Drugs
- Insurance



CDC & National Center for Injury Prevention and Control, 2016


Future Trends

OLDER ADULT FALLS A Growing Burden



STEADI: Stepping Up to Prevent Falls in Older Adults

Future Trends: 2030



Source: Moore et al. (2016), Am J Geriatr Med

Consequences of Falls



Consequences of Falls

Consequences of Falls


- ↓ ADL skills
- ↓ Physical/Social Activity Levels
- ↓ Independence
- Depression
- Social Isolation
- Helplessness
- Further Physical Decline



Select Nursing

Clinical Practice Guidelines (CPG)


- US Preventive Task Force (2012) Recommendations
 - Exercise or Physical Therapy
 - Vitamin D Supplementation:
 - 800 - 1000 U daily PD



Source: Moore (2012), Am J Geriatr Med

Clinical Practice Guidelines

- American Geriatric Society/British Geriatric Society (AGS/BGS) Recommendations (2010)
- Ask if:
 - Any falls in past year
 - Any gait or balance difficulty
 - Worried about falling



Source: AGS/BGS (2010), Am Geriatr Soc


Positive History of Falls

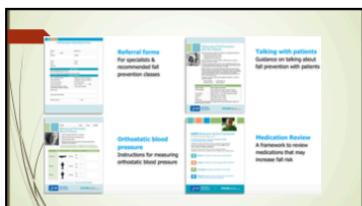
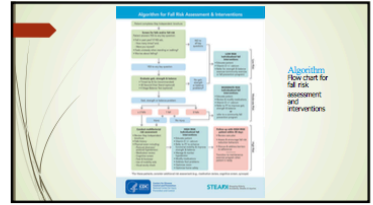
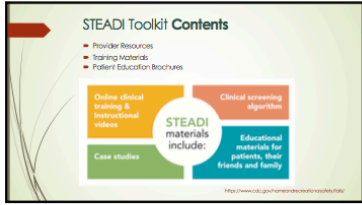
- Standardized gait and balance test
- Multifactorial risk assessment
 - Medication Review
 - Functional Assessment
 - Vision Assessment
 - Environmental Assessment
- Individualized interventions specific to identified risk factors
- Start exercise program:
 - Strength, balance, gait



Provider Compliance to CPG

- Only 35% - 47% of PCP conducted annual falls risk assessment
- PCP screen for falls only when patients expressed fall concerns
- Only 30% of PCP collaborated with staff to reduce fall risk factors.





Patient Education Materials

- Stay Independent: A validated self-risk assessment brochure
- Prevental Intervention: What it is and how to manage it
- What You Can Do to Prevent Falls: Proven strategies to prevent falls
- Check for Safety: A home safety brochure
- Chair Rise Exercise: One-page instructional handout



Fall Interventions: All and Low Risk Patients

- Fall Prevention Education
 - Discuss Fall Prevention based on Stages of Change model
 - STEADI Patient Education Materials
 - What You Can Do to Prevent Falls
 - Check for Safety
 - Chair Rise Exercise handout
- Vitamin B Supplementation: 800-1000 IU daily
- Referral for strength and balance exercise program
 - Fac Clin
 - Community Exercise Program
 - Community Fall Prevention Program

Fall Interventions: Moderate Risk

- Refer to Physical Therapy to improve gait, strength, & balance

Fall Interventions: High Risk

- Manage and/or for hypotension
- Review Medications
 - Stop or switch unnecessary Rx
 - Reduce dosages to lowest effective dose
 - Anticholinergics
 - Allotropes, sedatives, insulin, vaso, analgesics
- Address Foot Problems
- Optimize Vision
- Optimize home safety
- Follow-up within 30 days

Case Study 1

- Mr. Flores is a 68 yo Hispanic male who lives independently in his own home with his wife. He comes into your primary care clinic for a routine annual wellness exam.

Stay Independent Brochure

Gait, Strength, & Balance Test

- Timed Up & Go Test: 11 seconds. Lifts arm swing, but normal gait
- 30 Second Chair Stand Test: 4 completed stands. Able to push up from chair without using arms to push up from chair.
- 4-Stage Balance Test: Able to hold all 4 positions for 10 seconds unsupported without sway.

Time	Score	Mean
0:00	0.00	0.00
0:10	0.00	0.00
0:20	0.00	0.00
0:30	0.00	0.00
0:40	0.00	0.00
0:50	0.00	0.00
1:00	0.00	0.00
1:10	0.00	0.00
1:20	0.00	0.00
1:30	0.00	0.00
1:40	0.00	0.00
1:50	0.00	0.00
2:00	0.00	0.00
2:10	0.00	0.00
2:20	0.00	0.00
2:30	0.00	0.00
2:40	0.00	0.00
2:50	0.00	0.00
3:00	0.00	0.00
3:10	0.00	0.00
3:20	0.00	0.00
3:30	0.00	0.00
3:40	0.00	0.00
3:50	0.00	0.00
4:00	0.00	0.00
4:10	0.00	0.00
4:20	0.00	0.00
4:30	0.00	0.00
4:40	0.00	0.00
4:50	0.00	0.00
5:00	0.00	0.00

Fall History

- History: Mr. Flores stated that he fell 2 months ago by slipping over the dining room rug because it had curled up corners. He states he did not injure himself and it was the only time he fell. He feels he is at risk for an accident and is at a high risk of falling again.
- He denies any unsteadiness when walking and is not afraid of falling.
- He states he is active and takes a morning walk with his wife for 30 minutes around the park daily.
- He states that he has to rush to go to the bathroom for about 1-2 hours after having his "morning" pill and sometimes has a problem leading urine.
- Recently he has been experiencing some dizziness when getting from the couch to the chair to "stand." He gets some dizziness when getting from the couch to any syncope, dyspnea, vertigo, or pain associated with his dizziness.

History

Medical Problem List

- Atrial fibrillation
- Gait
- HTN
- Dant
- HTN

Medication List

- Rosuvastatin 20 mg QD
- Metoprolol 20 mg BID
- Digoxin 0.25 mg daily
- Ambien 5 mg q HS prn insomnia
- Clopidogrel 75 mg QD
- Folicin 5 mg daily

History and Physical Exam

- **ROS:** Nocturia 2 times/night, hemiparesis, mild incontinence, c/o dizziness
- **Physical Exam:**
 - **Cardiovascular:** Not assessed, not assessed and normal, objective A2 > P2
 - **Vital Signs:** 20/11, supine BP 130/80 sitting 70/100, resting 74/120, HR 102
 - **HEENT:** Normocephalic, equal pupils, no changes in vision since last exam
 - **CV:** Regular rhythm, trace sinus bradycardia
 - **Respiratory:** Clear to auscultation bilaterally
 - **Abdomen:** Soft, non-tender with positive bowel sounds x 4
 - **MSK:** No strength or atrophy, no joint tenderness or edema. Foot exam shows no edema, color, temperature, and DTR's
 - **Neuro:** Recall 30 items on cognitive screen; no tremor, normal muscle tone, sensation, coordination, and DTR's
 - **Psych:** PHQ-2 = 0/6

What are Identified Fall Risk Factors?

- **Stay Independent brochure**
 - Patient is **unable** to fall in past year; dizziness, urinary urgency, sleep #
- **Gait, Strength, & Balance Tests**
 - Normocephalic, gait, and strength tests
- **History:**
 - History cardiac disease, Gait, HTN
 - HTN, takes 1 prescription (Ambien), 2 anti-hypertensive (Propranolol, Lisinopril)
 - History of nocturia and incontinence
- **PE:**
 - Blood pressure changes

Fall Prevention Recommendations: LOW

- **Patient Education**
 - Discuss fall prevention using Steadi of Change model. Explain that falls are not just related to accidents, but can happen again.
 - Provide fall prevention brochures "What You Can Do to Prevent Falls" and discuss for safety.
 - Counsel on self-management of symptoms, medication and provide "Propranolol" prescription, which is used to manage HTN.
 - Recommend **night lights** in bathroom or overnight bathroom lights to reduce risk of falling when getting up to toilet.
 - Recommend removing or replacing dining room rug to avoid further falls/injuries.
 - Recommend **home modifications** to reduce changes of falling again.

Fall Prevention Recommendations: LOW

- Refer for community strength & balance exercise program
- Prescribe **Vitamin D 800 IU daily**
- Consider **revisiting, changing, or re-evaluating dosage of medications**
 - by weaning and stopping Ambien
 - Consider decreasing the dose and frequency of the Rosuvastatin Change to 10 mg 1x/week
 - Consider whether dose of Metoprolol can be reduced.

Case Study 2

- **Mrs. Archer** is a 75 yo African American woman who lives independently on the second floor of an apartment building. She recently moved to the area to be closer to her grandchildren and is here to establish care at your primary care clinic.

Stay Independent Brochure

Gait, Strength, & Balance Test

- **Timed Up & Go Test:** 14 seconds. Short slides unassisted with little arm swings.
- **30 Second Chair Stand Test:** 3 completed stands in 30 sec. Able to push up from chair without using arms to push up from chair.
- **4 Stage Balance Test:** Able to stand for 10 sec with feet side by side, but for only 8 seconds on tandem stance.

Age	Time	Score
60-69	1:10	< 10
70-79	1:15	< 10
80-89	1:20	< 10
90-99	1:25	< 10
100	1:30	< 10

Fall History

- **History:** Mrs. Archer states that she has **not** had any history of falls. She used a cane earlier this year after her right **Knee** 8 months ago, but has not been using it lately because she feels she does not need it anymore.
- She **denies** feeling **unsteady** or **worried** about falling.
- She has intermittent **joint pain**, 4/4/10 pain and occasionally will take the **Narco** she received from her surgery.

History

Medical Problem List

- DM Type 2
- Essential hypertension
- Typhoid
- Depression
- ADHD
- Insomnia

Medication List

- Pravastatin 20 mg daily
- Carbamazepine 200 mg BID
- Levamisole 50 mg daily
- Albuterol 1mg prn inhaler/2 puffs
- Carbamazepine 200 mg daily
- Warfarin 5mg BID
- Citalopram 200mg BID
- Ativan 0.500mg every 8hr prn

History and Physical Exam

- ROS:** history of stroke, CVA patient, difficulty to walk
- Present Illness:**
 - Cardiac:** Not diagnosed, palpitations, dizziness, present and cooperative
 - ADHD:** Non-medicated, wears glasses daily 20/20 R, 20/30 L
 - CV:** Hypertension treated with home care, no palpitations, no chest pain
 - Respiratory:** Clear to auscultation, healthy
 - Abdomen:** Soft, non-tender, no distention
 - AKS:** Strength, ROM OK, no edema, no tenderness, 4+ knee reflexes
 - Neuro:** No focal deficits, no Babinski
 - Gen:** No gynecomastia, no breast tenderness
 - Rectal:** No hemorrhoids, no anal fissures, no rectal prolapse
 - Genit:** No testicular atrophy, no gynecomastia, no breast tenderness
 - Neck:** No goiter, no carotid bruits
 - Head:** No papilloedema, no anisocoria, no ptosis, no nystagmus, no strabismus, no abnormal eye movements, no abnormal eye reflexes, no abnormal eye findings

What are Identified Fall Risk Factors?

- Older Independent Structure**
 - Age-related decline in muscle mass, decreased sensation to heat, feeling medication to dizziness, vision and hearing, and often leads to or depressed
- Gait, Strength, & Balance Test**
 - Demonstrates some gait, strength, and balance problems
- History**
 - History of depression, CVA with recent TIA, DM
 - ADHD, chronic sleep
 - History of strokes and fall years
- Med**
 - Decreased visual acuity
 - Some elements unsteady
 - Decreased sensation with light touch to both feet

Fall Prevention Recommendations: Moderate

- Patient Education**
 - Discuss fall prevention using Steadi of Change model
 - Provide fall prevention brochures "What You Can Do to Prevent Falls" and "Check for Safety"
 - Provide the "Check for Safety" handout and suggest the begin doing this exercise daily
 - Recommend night lights in bathroom on overnight bathroom trips to reduce risk of falling when getting up to void
 - Recommend installation of grab bars inside and outside the bathtub, near to the toilet, and in the hallway that leads to the bathroom

Fall Prevention Recommendations: Moderate

- Refer**
 - Physical therapy for gait assessment, increase leg strength and improve balance and sensation continued need to care
 - Optimizing for eye exam and update prescription
 - Review current walking, fall signs and symptoms/medications for better fitting shoes
- Consider discontinuing, changing or modifying classes of medications**
 - Consider whether prescriptive drugs can be reduced or eliminated
 - Encourage client to stop taking Xanax
- Add Vitamin D 1000 IU daily**

Case Study 3

- Mr. Hargrove is an 81yo White male who lives by himself in his own home. He is accompanied by his daughter who states that her father has increasingly been asking her to go to the grocery store for him since his last fall 2 weeks ago.

Stay Independent Brochure

Gait, Strength, & Balance Test

- Timed Up & Go Test:** 19 seconds with improper use of walker, shuffling gait with slumped posture, little or no arm swing and an abrupt turning, ataxic gait
- 30 Second Chair Stand Test:** 0 - Unable to stand without using arms
- 4 Stage Balance Test:** Able to with feet side by side for 10 seconds, but only able to stand in semi tandem stance for 5 seconds.

Test	Score	Interpretation
Timed Up & Go	19	High risk
30 Second Chair Stand	0	High risk
4 Stage Balance	10	High risk

Fall History

- History:** Mr. Hargrove has had about 3 falls in the last 6 weeks, 2 weeks ago Mr. Hargrove was seen in the ED for a fall he sustained while trying to go to the bathroom in the middle of the night. He had a large bruise on his left hip, but X-rays were negative for any fractures. He denies hitting his head and states he was not able to get up from his fall.
- Mr. Hargrove's daughter has noticed he has been having more difficulty walking and appears to be having more tremors. Mr. Hargrove concurred and stated he has been taking Xanax. As a result, he feels more unsteady, leading to his falls. The last fall really scared him and is afraid to go out anymore which he used to enjoy.**

WHY Low PCP Compliance?

- **NOT** PCP experienced some type of barrier
 - Time constraints
 - Competing health care demands
 - Lack of knowledge and training in fall screening, assessment, & prevention
 - Limited geriatric and fall prevention education in medical school
 - No awareness of fall problem or existence of CPG
 - Negative PCP perceptions and attitudes
 - Confusion and complexity of reimbursement for fall screening

Time Constraints

- Shrinking time allotments allowed to see patients
- STEADI is lengthy process due to multiple fall risk factors
 - Need confirm history
 - Environmental Assessment
 - Comprehensive history and physical exam
- Fall risk assessment techniques /tools are time-consuming
 - Difficult to fit
 - Call and balance services



Table 1: Healthcare providers' profiles and beliefs about the importance of screen being older adult patients

	n	Median	Mean	SD	Range
Working goals to health condition?					
Diabetes	20	0	0.26	0.44	0-1
Hypertension	20	0	0.20	0.40	0-1
Stroke	20	0	0.15	0.37	0-1
Cholesterol	20	0	0.10	0.30	0-1
Weight management	20	0	0.10	0.30	0-1
Other	20	0	0.10	0.30	0-1
Screening goals for fall risk for older patient?					
Screening fall risk	20	0	0.15	0.35	0-1
Screening vision	20	0	0.10	0.30	0-1
Screening hearing	20	0	0.10	0.30	0-1
Screening medication	20	0	0.10	0.30	0-1
Screening alcohol	20	0	0.10	0.30	0-1
Screening depression	20	0	0.10	0.30	0-1
Screening balance	20	0	0.10	0.30	0-1
Screening gait	20	0	0.10	0.30	0-1
Screening cognition	20	0	0.10	0.30	0-1

WHAT is the STEADI Toolkit?

- Simple
- Comprehensive
- Effective
- Evidence-based

AGS/BGS CPG for Fall Management

- **SCREENING AND ASSESSMENT**
 - All older patients who walk should be screened for the history and physical of the STEADI.
 - Consider individual characteristics that may affect the accuracy of fall risk screening.
 - **SCREENING GOALS:**
 - Screen for history and physical exam components of fall risk assessment and the modifiable activities.
 - Screen for vision with a target for the unaided eye for fall screening.
 - Screen for hearing with a target for the unaided ear for fall screening.
 - Screen for medication use and alcohol use.
 - Screen for depression.
 - Screen for cognition.
 - Screen for balance.
 - Screen for gait.

Incorporated PCP Feedback Interviews

- All 10 AGS/BGS phone interviews regarding fall prevention practices
 - 3 geriatricians
 - 3 PCP
 - 3 NPs
 - 3 PAs
- Interview findings
 - Limited time
 - Competing health care demands
 - Limited educational for fall assessment methods and prevention strategies
 - Limited resources that were clear, concise, & easy-to-read
 - Potential 2-page/20-line pages, 3-4 color illustrations

Incorporated PCP Feedback: Focus Groups

- Draft STEADI materials reviewed by 6 focus groups of HCP
 - 3 geriatricians or general PCP, geriatricians, PAs, NPs, PAs
 - Podiatrists
 - Neurologists
 - Physiatrists
 - Reviewed 11 draft items
 - Materials were revised based on feedback

WHO and When to use STEADI

- **All** Community-Dwelling, **Independently** ambulatory out-patients **age 65+** should be tested with STEADI **annually**

History

Medical Problem List	Medication List
<ul style="list-style-type: none"> Coronary Artery Disease Hypertension Parkinson's Disease COPD Constipation FXD Hydroxyzine GIAD 	<ul style="list-style-type: none"> Levodopa 200mg daily Levamisole 50 mg BID Digoxin 0.125 mg daily Sildenafil 20/100 mg TD Lasix 50mg daily Clonazepam 0.5 mg q HS prn tremor Carbidopa 100 mg BID Allopurinol 30 mg daily Paroxetine 40 mg daily

History and Physical Exam

- ROS:** Positive for weight urinary urgency, orthostatic hypotension, poor appetite
- Physical Exam:**
 - Cardiovascular:** Tachycardia, normal heart sounds, no murmurs, rales, or gallops, **3+ ankle edema, lower extremities**
 - Vital Signs:** 20.44, normal PE, 144/76, 98bpm, 102.7F, 100% O2, 10.0/10.0
 - ENT:** Normal speech, normal gag reflex, 20/40, 20/40, 20/40, 20/40, 20/40, 20/40
 - CV:** Regular rate and rhythm with no murmurs, rales, or gallops, **3+ ankle edema, lower extremities**
 - Respiratory:** Clear to auscultation bilaterally
 - Abdomen:** Soft, non-tender with positive bowel sounds x4, non-distended
 - MSK:** Strength 4/5 in all extremities, mild swelling in lower extremities, large trochanteric bursa pain, pain on heel of foot to pressure to heel and heel of foot to heel of foot
 - Neuro:** **Weging hand tremor, rigid muscle tone and evidence of cog wheeling, diminished reflexes and proprioception in both legs**
 - Psych:** PHQ-2 = 8/8. Cognitive screen = 8/8 items recalled

What are Identified Fall Risk Factors?

- Step independent fracture
- Score 4 positive for multiple falls in last 2 months and use of mobility aids, history of orthostatic hypotension, and history of head without using anti-convulsant therapy
- Gait, Strength & Balance Tests:**
 - Shuffling gait and decreased strength and balance tests
- Blindness:**
 - History of 10/20, 10/20, 10/20, 10/20, 10/20, 10/20
- PE:**
 - History of orthostatic hypotension, 10/20, 10/20, 10/20, 10/20, 10/20, 10/20
 - History of orthostatic hypotension, 10/20, 10/20, 10/20, 10/20, 10/20, 10/20
 - PHQ-2 score 8/8
 - Tremor and abnormal posture, bradycardia and irregular use of mobility aids

Fall Prevention Recommendations: High

- Patient Education:**
 - Discuss fall prevention using Stages of Change model.
 - Provide fall prevention brochures, "Let's See How You Can Do to Prevent Falls" and "Check for Safety"
 - Coordinate self-management of orthostatic hypotension and provide "Postural Hypotension: What's New and How to Manage It" brochure
 - Recommend night lights in bedroom and overnight bathroom lights to reduce risk of falling when getting up at night
 - Recommend installation of grab bars inside and outside the bathtub, next to the toilet, and in the hallway that leads to the bathroom.
- Prescribe Vitamin D 1000 IU daily

Fall Prevention Recommendations: High

- Refer:**
 - Physical therapy for gait assessment, increase leg strength and improve balance and instruction on correct use of walker
 - Ophthalmology for cataracts and eye exam for decreased vision
 - Podiatry for foot exam and assessment of footwear
- Consider eliminating, changing, or modifying dosage of medications:**
 - Consider weaning and discontinuing Clonazepam
 - Consider decreasing Paroxetine and Sildenafil
 - Consider modifying dose of Benazepril to decrease orthostatic hypotension

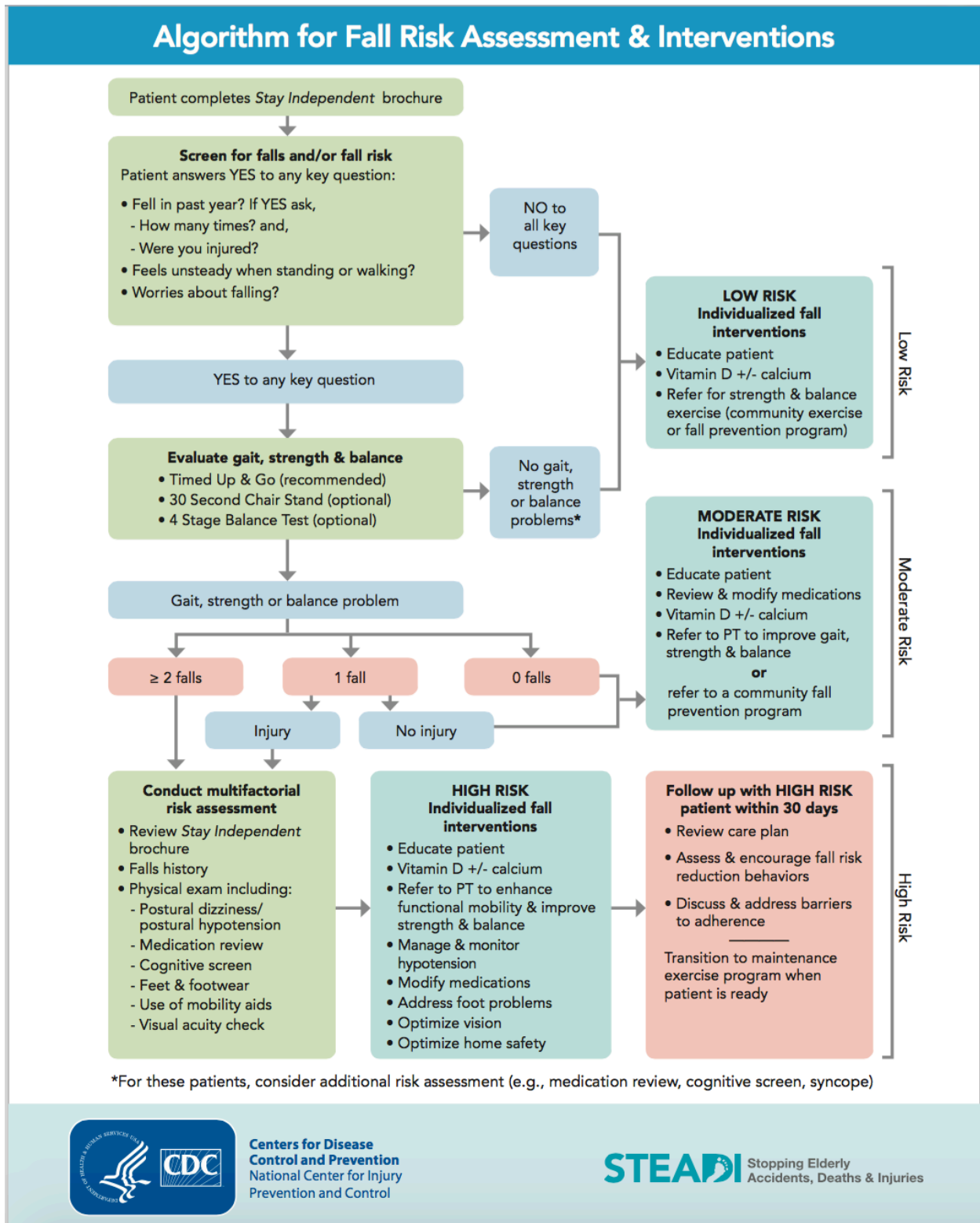
OLDER ADULT FALLS A Preventable Problem

- SCREEN:** Screen for fall risk using a validated tool. (e.g., STEADI, FRAX, or a validated tool)
 - Do you ever slip, trip, or fall?
 - Do you ever feel unsteady when walking?
 - Do you ever feel dizzy when standing?
- ASSESS:** Assess and manage modifiable risk factors.
- RECOMMEND:** Recommend steps to be taken to prevent falls, such as:
 - Review and change medications that increase fall risk.
 - Recommend steps to be taken to prevent falls, such as:
 - Review and change medications that increase fall risk.
 - Recommend steps to be taken to prevent falls, such as:
 - Review and change medications that increase fall risk.

STEADI: Strengthening Evidence to Reduce Falls & Injuries


Document L2

Implementation Tools: STEADI Toolkit



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

STEADI Stopping Elderly Accidents, Deaths & Injuries



Four things you can do to prevent falls:

1. Begin an exercise program to improve your leg strength & balance.
2. Ask your doctor or pharmacist to review your medicines.
3. Get annual eye check-ups & update your eyeglasses.
4. Make your home safer by:
 - Removing clutter & tripping hazards
 - Putting railings on all stairs & adding grab bars in the bathroom
 - Having good lighting, especially on stairs

“It’s not the broken hip, it’s the nursing home I don’t want. I need to be independent, so I take Tai Chi.”
Leonard Jones, age 74

“People who use canes are brave. They can be more independent and enjoy their lives.”
Shirley Warner, age 79


Stay Independent
Falls are the main reason why older people lose their independence.

Are you at risk?

Contact your local community or senior center for information on exercise, fall prevention programs, or options for improving home safety.

For more information on fall prevention, please visit:
www.cdc.gov/steadi

This brochure was produced in collaboration with the following organizations:
VA Greater Los Angeles Healthcare System, Geriatric Research Education & Clinical Center (GRECC), and the Fall Prevention Center of Excellence




Check Your Risk for Falling

Please circle “Yes” or “No” for each statement below.		Why it matters	
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total _____		Add up the number of points for each “yes” answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.	

Your doctor may suggest:

- Having other medical tests
- Changing your medicines
- Consulting a specialist
- Seeing a physical therapist
- Attending a fall prevention program



Talking with your Patient about Falls

If you hear:	You can say:
Precontemplation Stage Falling is just a matter of bad luck.	As we age, falls are more likely for many reasons, including changes in our balance and how we walk.
Contemplation Stage My friend down the street fell and ended up in a nursing home.	Preventing falls can prevent broken hips & help you stay independent.
Preparation Stage I’m worried about falling. Do you think there’s anything I can do to keep from falling?	Let’s look at some factors that may make you likely to fall & talk about what you could do about one or two of them.
Action Stage I know a fall can be serious. What can I do to keep from falling and stay independent?	I’m going to fill out a referral form for a specialist who can help you improve your balance.

Preventing Falls in Older Patients Provider Pocket Guide


Key Facts about Falls:

- One in four older adults (age 65+) fall each year.
- Many patients who have fallen do not talk about it.


This is What You Can Do:

RITUAL:
Review self-assessment brochure
Identify risk factors
Test gait & balance
Undertake multifactorial assessment
Apply interventions
Later, follow-up

For more information, go to www.cdc.gov/steadi

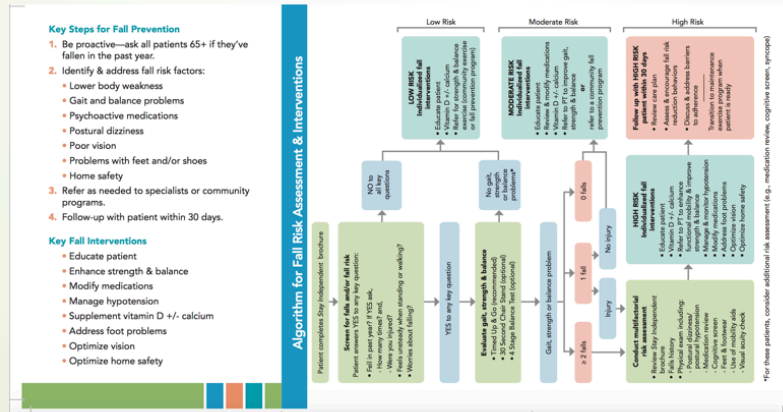


2016



STEADI Stopping Elderly Accidents, Deaths & Injuries

Pocket Guide Fall Prevention algorithm and prevention



Fall Prevention Patient Referral Form

Patient: _____ Date: _____ Time: _____ AM/PM

Address: _____ Address: _____

Phone: _____ Phone: _____

Specialist: _____

Diagnosis: _____

Type of Referral: _____

Reason for referral: _____

Medication review & consultation: _____

Balance difficulties: _____

Lower body weakness: _____

Postural hypotension: _____

Required medical equipment: _____

Other relevant information: _____

Referral signature: _____ Date: _____

Referral forms
For specialists & recommended fall prevention classes

Talking about Fall Prevention with Your Patients

Meaningful conversations with patients to change their behavior:

- Attending a fall prevention program
- Changing their home environment
- Wearing their fall-prevention device
- Following advice and patient education after they visit work

The Stages of Change model is used to assess an individual's readiness for an on-line, tailored behavior. Research on the change process depicts patients as moving through a series of five "stages" of change:

Behavior change is seen as a dynamic process involving both cognition and behavior. It focuses a patient from being unmotivated, resistant or unwilling to becoming motivated to make a change (preparation), to changing behavior (action) and finally to maintaining the new behavior for an extended period of time.

The Stages of Change model has been validated and applied to a variety of behavior-changing:

- Exercise behavior
- Contraceptive use
- Smoking cessation
- Chronic behavior

Stages of change: Pre-contemplation, Contemplation, Preparation, Action, Maintenance

Talking with patients
Guidance on talking about fall prevention with patients

Measuring Orthostatic Blood Pressure

Patient: _____ Date: _____ Time: _____ AM/PM

1. Have the patient lie down for 5 minutes.

2. Measure blood pressure and pulse rate.

3. Have the patient stand.

4. Repeat blood pressure and pulse rate measurements after standing 1 and 3 minutes.

5. Allow the patient to sit or recline for 1-2 minutes before repeating the measurements to determine if a sustained orthostatic hypotension is present.

Position	Type	BP	Heart Rate
Lying Down	1 Minute	BP: _____	HR: _____
	3 Minutes	BP: _____	HR: _____
Standing	1 Minute	BP: _____	HR: _____
	3 Minutes	BP: _____	HR: _____

For relevant articles, go to www.ahrq.gov/steadi

Orthostatic blood pressure
Instructions for measuring orthostatic blood pressure

SAFE Medication Review Framework
A Team-based Approach

Use this framework to conduct a medication review that helps prevent older adults' falls.

Advised from existing medication therapy management tools developed and used by pharmacists, this review process uses the SAFE process: **S**creen, **A**ssess, **F**ormulate, and **E**ducate.

Consider working with pharmacists, who are trained specifically in medication review and are a valuable resource available to your healthcare team.

S Screen for medications that may increase fall risk.

A Assess the patient to best manage health conditions.

F Formulate the patient's medication action plan.

E Educate the patient and caregiver about medication changes and fall prevention strategies.

Medication Review
A framework to review medications that may increase fall risk

The Timed Up and Go (TUG) Test

Patient: _____ Date: _____ Time: _____ AM/PM

Purpose: To assess mobility.

Equipment: A stopwatch.

Directions: Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard arm chair and identify their 1 foot and 1/2 that they step on the floor.

Instructions to the patient:

- When you "Go" I want you to:
- Stand up from the chair
- Walk to the line on the floor at your normal pace
- Turn
- Walk back to the chair at your normal pace
- Sit down again.

On the word "Go" begin timing.

Stop timing after patient has sat back down and record.

Time: _____ seconds.

An older adult who takes <12 seconds to complete the TUG is at high risk for falling.

Observe the patient's postural stability, gait, stride length, and sway.

Check all that apply. Slow turn/turn pace. Line of balance. Short stride. In chair on one wing. Handing self or walk. Shuffling. In chair turning. Not using assistive device properly.

For relevant articles, go to www.ahrq.gov/steadi

Assessments
Directions for conducting gait, strength and balance assessments.

Fall Risk Checklist

Patient: _____ Date: _____ Time: _____ AM/PM

Question	Yes	No
Is the patient frail?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 6 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 12 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 24 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 36 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 48 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 60 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 72 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 84 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 96 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 108 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 120 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 132 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 144 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 156 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 168 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 180 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 192 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 204 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 216 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 228 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 240 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 252 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 264 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 276 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 288 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 300 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 312 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 324 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 336 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 348 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 360 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 372 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 384 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 396 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 408 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 420 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 432 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 444 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 456 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 468 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 480 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 492 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 504 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 516 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 528 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 540 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 552 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 564 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 576 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 588 months?	<input type="checkbox"/>	<input type="checkbox"/>
Has the patient had a fall in the last 600 months?	<input type="checkbox"/>	<input type="checkbox"/>

Checklist
A summary checklist for fall risk factors

Falls are a Major Threat for Your Patients

- One-third of people 65 and older fall each year.
- Less than half of the Medicare beneficiaries who fall in the previous year submit to their healthcare provider about it.
- Every 29 minutes an older adult dies from a fall.
- 1 out of 3 falls causes a serious injury such as a head trauma or fracture.
- Over 2 million older adults are treated in emergency departments for medical fall injuries each year.
- Direct medical costs for fall injuries total over \$26 billion annually. Hospital costs account for two-thirds of the total.

The good news—as a healthcare provider, your efforts can prevent many of these injuries!

For more information, go to www.ahrq.gov/steadi

Fact Sheets
Information about falls, medications and fall risk factors

Integrating Fall Prevention into Practice

Area of the plan to be implemented: _____

Responsible person: _____

Start date: _____

End date: _____

Priority: _____

Resources: _____

Barriers: _____

Success factors: _____

Monitoring: _____

Evaluation: _____

Wall Chart
Integrating Fall Prevention into Practice

STEADI Training Resources

Case Studies

Case Study 1

Mrs. Booker, a low-risk patient who has come in for a wellness visit.

Download

[Case Study 1](#) (PDF - 356 KB)

Case Study 2

Mr. Ying, a medium-risk patient who has been limiting his activities.

Download

[Case Study 2](#) (PDF - 433 KB)

Case Study 3

Mrs. White, a high-risk patient who had a recent fall.

Download

[Case Study 3](#) (PDF - 390 KB)

New STEADI Older Adult Fall Prevention Online Training for Providers



- Continuing Education available for this free interactive course.
- Make fall prevention part of your clinical practice and learn to screen patients 65+ for falls, identify risk factors, and offer interventions.
- Log in or create an account on CDC TRAIN, then search for "STEADI".

[Learn More >](#)

**STEADI Webinar
for Health Providers**

April 17, 2013




View Low Resolution Video

Talking about Fall Prevention with Your Patients

Many fall prevention strategies call for patients to change their behaviors by:

- Assessing a fall prevention program
- Doing a prescribed exercise at home
- Changing their home environment

We know that behavior change is difficult. Traditional advice and patient education often does not work.

The Stages of Change model is used to assess an individual's readiness to act on a new, healthier behavior. Research on the change process depicts patients as always being in one of the five "stages" of change.



Behavior change is seen as a dynamic process involving both cognition and volition that requires sustained focus on recognizing a change in readiness to identify a goal, assessing readiness, recognizing a need for intervention, identifying and preparing to make a change (preparation), to changing behavior in the short term (action) and to continuing the new behavior for at least a lengthy maintenance.


The Stages of Change model has been validated and applied to a variety of behaviors including:

- Exercise behavior
- Smoking cessation
- Contraceptive use
- Dietary behavior

Stage of change	Patient cognitions and behavior
Precontemplation	Does not think about change, is not open or flexible Does not believe in or describe personal responsibility
Contemplation	Weighs benefits vs. costs of proposed behavior change
Preparation	Experimentally tests small changes
Action	Takes definitive action to change
Maintenance	Maintains new behavior over time

From Prochaska, J.S. & Velicer, W.F. The transtheoretical model of health behavior change. *Am J Health Promot* 1997;11(2):18-48.

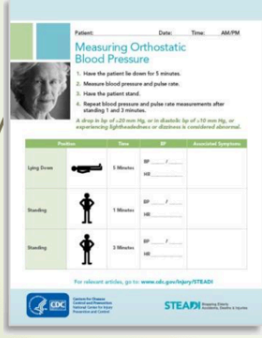






Referral forms
For specialists & recommended fall prevention classes



Talking with patients
Guidance on talking about fall prevention with patients



Orthostatic blood pressure
Instructions for measuring orthostatic blood pressure



Medication Review
A framework to review medications that may increase fall risk

Patient Education Materials











- **Stay Independent:** A validated self-risk assessment brochure
- **Postural Hypotension:** What it is and how to manage it
- **What YOU Can Do to Prevent Falls:** Proven strategies to prevent falls
- **Check for Safety:** A home safety brochure
- **Chair Rise Exercise:** One-page instructional handout

Document L3

CSA Fall Prevention Simulation Case Scenario Template

**California Simulation Alliance (CSA)
Simulation Scenario Template**

The California Simulation Alliance (CSA) is comprised of simulation users from all disciplines from throughout the state. Several regional collaboratives have formed totaling 7 as of March, 2011: The Rural North Area Simulation Collaborative (RNASC), the Capital Area Simulation Collaborative (CASC), the Bay Area Simulation Collaborative (BASC), the Central Valley Simulation Collaborative (CVSC), the Southern California Simulation Collaborative (SCSC), the Inland Empire Simulation Collaborative (IESC), and the San Diego Simulation Collaborative (SDSC). The CINHC, a non-profit organization focused on workforce development in healthcare provides leadership for the CSA.

The purpose of the California Simulation Alliance (CSA) is to become a cohesive voice for simulation in healthcare education in the state, to provide for inter-organizational research on simulation, to disseminate information to stakeholders, to create a common language for simulation, and to provide simulation educational courses. The goals of the alliance will include providing a home within the CINHC for best practice identification, information sharing, faculty development, equipment/vendor pricing agreements, scenario development, sharing and partnership models. More information can be found on the CSA website at www.californiasimulationalliance.org

All scenarios have been validated by subject matter experts, pilot tested and approved by the CSA before they were published online. All scenarios are the property of the CINHC/CSA. The writers have agreed to release authorship and waive any and all of their individual intellectual property (I.P.) rights surrounding all scenarios. I.P. release forms can be found at www.bayareanrc.org/rsc and click documents. (Please send signed I.P. release forms to KT at kt@cinhc.org)

SECTION I: SCENARIO OVERVIEW

Scenario Title:	Falls Assessment of Community Dwelling Seniors in a Primary Care Clinic	
Original Scenario Developer(s):	Janice A Mark, DNP (c), RN	
Date - original scenario	3/2017	
Validation:		
Pilot testing:		
Revisions:	4/2017	
Estimated Scenario Time: 20 minutes Debriefing time: 40 minutes		
Target group: N735/N736 (Advanced Assessment) FNP Students		
Core case: 82 yo woman seen in primary care clinic for routine exam with multiple fall risk factors		
Brief Summary of Case: Patient with multiple co-morbidities who comes in for routine office exam. Learners will conduct a full geriatric exam (history and physical exam) and incorporate falls risk screening and assessment using CDC’s STEADI algorithm and toolkit. Learners will care for patient during 3 unfolding scenarios over 3 different primary care visits. Each visit increases in complexity of falls risk factors and interventional approach (low-moderate-high risk)		
Scenario 1: Learners are expected to review chart and score <i>Stay Independent Brochure</i> , screen for falls using STEADI algorithm, conduct a gait, strength, and balance test and provide falls risk prevention measures for a patient with low fall risk		
Scenario 2: Learners are expected to review chart and score <i>Stay Independent Brochure</i> , screen for falls using STEADI algorithm, conduct a gait, strength, and balance test and provide falls risk prevention measures for a patient with moderate fall risk		
Scenario 3: Learners are expected to review chart and score <i>Stay Independent Brochure</i> , screen for falls using STEADI algorithm, conduct a gait, strength, and balance test and provide falls risk prevention measures for a patient with high fall risk		
QSEN Competencies		
<input checked="" type="checkbox"/> ✓ Patient Centered Care <input checked="" type="checkbox"/> ✓ Patient Safety <input checked="" type="checkbox"/> ✓ Quality Improvement <input type="checkbox"/> Teamwork and Collaboration <input checked="" type="checkbox"/> ✓ Informatics		
TeamSTEPPS Competencies		
CNL Competencies		



EVIDENCE BASE / REFERENCES (APA Format)
American Geriatric Society/British Geriatric Society (2010). Summary of the updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. <i>Journal of American Geriatrics Society</i> 49(5), 664-672.
Bickley, L.S. & Szilagyi, P.G. (2013). <i>Bates Guide to Physical Examination and History Taking</i> (11 th ed.). Philadelphia, PA: Wolter Kluwer Health/Lippincott Williams & Wilkins.
Centers for Disease Control (2013). STEADI: Stopping elderly accidents, deaths, & injuries. Retrieved from https://www.cdc.gov/steady/ .
Moyer, V.S. (2012). Prevention of falls in community-dwelling older adults: US Preventive Services Task Force recommendation statement. <i>Annals of Internal Medicine</i> , 157 (3), 197-204.

TABLE OF CONTENTS

ii

SECTION I SCENARIO OVERVIEW

- A. Title
- B. Summary
- C. Evidence Base

SECTION II CURRICULUM INTEGRATION

- A. Learning Objectives
 - 1. Primary
 - 2. Secondary
 - 3. Critical Elements
- B. Pre-scenario learner activities

SECTION III SCENARIO SCRIPT

- A. Case Summary
- B. Key Contextual Details
- C. Scenario Cast
- D. Patient/Client Profile
- E. Baseline patient/client simulator state
- F. Environment / equipment / essential props
- G. Case flow /triggers / scenario development

SECTION IV APPENDICES

- A. Health Care Provider Orders
- B. Digital Images of Manikin / Milieu
- C. Debriefing Guide

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SECTION II: CURRICULUM INTEGRATION**A. SCENARIO LEARNING OBJECTIVES**

Learning Outcomes
1. Apply clinical decision making skills in analyzing and interpreting complex data.
2. Integrate understanding of multiple dimensions of geriatric assessment.
3. Employ geriatric assessment techniques using subjective and objective data.
4. Utilize fall clinical practice guidelines to screen and manage falls in the community senior using STEADI algorithm and toolkit
5. Identify fall/mobility problems in community seniors.
6. Apply clinical decision making skills in determining treatment plan for fall prevention based on level of risk.
Specific Learning Objectives
1. Communicate effectively with geriatric patient.
2. Perform accurate and comprehensive geriatric assessment in the primary care setting.
3. Demonstrate ability to screen and conduct a multi-factorial risk assessment for falls.
4. Know when and how to conduct simple gait, strength, and balance tests to assess for fall risk.
5. Identify findings in patient assessment that indicate patient health and safety risks related to falls.
6. Accurately uses STEADI algorithm to determine appropriate level of fall risk and prevention measures.
7. Formulate individualized fall prevention strategies tailored to identified fall risk factors using STEADI algorithm and fall prevention resources
Critical Learner Actions
1. Identify self and role in providing patient care.
2. Perform hand hygiene.
3. Perform a comprehensive health history, including: chief complaint, HPI, ROS, medication history, medical & surgical history, family & social history, psychiatric history, and health care maintenance history.
4. Screen for fall risks according to AGS/BGS fall prevention guidelines.
5. Perform focused physical exam based on history findings and presentation.
6. Uses STEADI algorithm and tools to guide the fall assessment process.
7. Conduct a gait (TUG), strength (30-Second Chair Stand Test), and balance (4-Stage Balance Test) test to assess mobility and level of fall risk.
8. Formulates a problem list with differential diagnosis including falls risk and identified fall risk factors.
9. Recognizes appropriate level of falls risk according to STEADI algorithm and verbalizes appropriate falls prevention treatment plan based on identified falls risk level.
10. Provides a verbal summary statement that synthesizes the subjective and objective information gathered in the office visit.

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

B. PRE-SCENARIO LEARNER ACTIVITIES	
Prerequisite Competencies	
Knowledge	Skills/ Attitudes
<input type="checkbox"/> AGS/BGS Falls Clinical Practice Guidelines	<input type="checkbox"/> Geriatric assessment
<input type="checkbox"/> STEADI fall algorithm and resources	<input type="checkbox"/> Advanced assessment: history and physical exam
<input type="checkbox"/> <i>Stay Independent Brochure</i> (CDC)	<input type="checkbox"/> Communication skills
<input type="checkbox"/> SOAP clinical decision making process	<input type="checkbox"/> Case study presentation skills
<input type="checkbox"/> OLDCARTS	<input type="checkbox"/> Timed Up and Go Test (TUG)
<input type="checkbox"/> Advanced pathophysiology & pharmacology	<input type="checkbox"/> 30-Second Chair Stand Test
<input type="checkbox"/> Principles of aging	<input type="checkbox"/> 4-Stage Balance Test
<input type="checkbox"/> Mobile technology	

SECTION III: SCENARIO SCRIPT

A. Case summary
<p><u>Scenario 1</u> 82 yo woman who recently moved to the area to be closer to her daughter and grandchildren and is here to establish care at the primary care clinic. She lives independently on the second floor of an apartment building. Had a right total knee replacement about 8-months ago. Current medical problems include diabetes mellitus type 2, degenerative arthritis, depression, GERD, HTN, and hypothyroidism, and takes multiple medications at home.</p> <p><u>Scenario 2</u> Patient returns a year later for her annual wellness exam. Has not had any falls this past year, but sometimes feels a little unsteady due to dizziness that started about 2 weeks ago and mobility problems secondary to pain.</p> <p><u>Scenario 3</u> Patient returns with daughter for a f/u since being discharged from hospital about 3 weeks ago from a fall that occurred while going to the bathroom at night. Patient has a large bruise to her right arm, but x-rays were negative for any fractures. Pt denies hitting head but states she had a difficult time getting up from the fall. Pt's daughter states that mom is now relying on her more to help buy groceries and/or deliver meals since the fall because she is afraid to leave the house.</p>

B. Key contextual details
Patient room in primary care clinic

C. Scenario Cast		
Patient/ Client	<input type="checkbox"/> High fidelity simulator <input type="checkbox"/> Mid-level simulator <input type="checkbox"/> Task trainer <input type="checkbox"/> Hybrid (Blended simulator) <input checked="" type="checkbox"/> Standardized patient	
Role	Brief Descriptor (Optional)	Confederate/Actor (C/A) or Learner (L)

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ALL DATA IN THIS SCENARIO IS FICTICIOUS



NP Student (primary)		Learner
NP (preceptor)		Actor/Instructor

D. Patient/Client Profile			
Last name:	Martin	First name:	Frances
Gender: Female	Age: 82	Ht: 5'5	Wt: 152
Spiritual Practice: Catholic	Ethnicity: Caucasian	Code Status: Full code	
Primary Language spoken: English		English	
1. Past history			
<p><u>Medical:</u> Diabetes mellitus type 2, degenerative arthritis, depression, GERD, hypothyroidism, HTN, remote history of breast cancer, G4P3</p> <p><u>Surgical:</u> Right Total knee replacement, mastectomy</p> <p><u>Family Hx:</u> Mother: died of uterine & breast cancer, age 75; Father: died colon CA, age 70; Siblings: Sister (alive age 78- HTN, DM)</p> <p><u>Social Hx:</u></p> <p><u>Diet:</u> light meals and snacks</p> <p><u>Exercise:</u> has mild pain with walking d/t arthritis, but still able to move around and started dance class at the senior center</p> <p><u>Interests/Hobbies:</u> used to like reading, sewing and dancing, but having trouble with seeing</p> <p><u>Housing Situation:</u> housed in senior apartment that she recently moved into (6 months ago)</p> <p><u>Sexual Hx:</u> not sexually active</p> <p><u>Born in:</u> Seattle, WA</p> <p><u>Education:</u> some college</p> <p><u>Occupation:</u> homemaker; worked part-time in fabric store</p> <p><u>Family/Support:</u> husband died 20 years ago; has 2 children, 1 is local and visits weekly with grandchildren; others call and visits intermittently; no friends currently since recent move but joined senior community center a couple weeks ago.</p> <p><u>Tobacco:</u> never</p> <p><u>Drugs:</u> never</p> <p><u>Alcohol:</u> occasional, 1-2 drinks when socializing</p> <p><u>Healthcare Maintenance:</u> vaccinations and screenings UTD</p> <p><u>IADLs/ADLs:</u> independent with bathing and dressing but sometimes has a difficult time getting out of the tub. Independent with cooking and walking</p>			
Primary Medical Diagnosis	Diabetes mellitus type 2, degenerative arthritis, depression, GERD, hypothyroidism, HTN, remote history of breast cancer, G4P3		

2. Review of Systems	
CNS	c/o poor vision d/t needing new glasses, denies numbness to feet, denies headaches; AAOx3, speech clear, pleasant and cooperative, wears glasses; acuity 20/30R, 20/50L, normocephalic , no hearing deficits, CN 2-12 intact, no tremors, normal muscle tone, positive light touch sensation to bilateral feet, normal proprioception and DTR
Cardiovascular	denies dizziness, chest pain, or palpitations; regular rhythm/rate with no murmurs, no edema, peripheral pulses +2 bilaterally
Pulmonary	denies SOB, orthopnea, or cough; clear to auscultation bilaterally
Renal/Hepatic	denies incontinence but has bx of nocturia >2x/nc ; no hepatomegaly or tenderness
Gastrointestinal	denies N/V, appetite is normal; abdomen soft, non-tender with positive bowel sounds
Endocrine	denies temperature changes, chills; no neck masses, goiters
Heme/Coag	denies any bleeding or bruising; no bruises/ecchymosis/ pctechiae noted
Musculoskeletal	; c/o mild knee stiffness and has intermittent joint pain to bilat knees rated 2-4/10; strength: BUE 5/5; hip flexors and abductors 4+/5; knee flexors/extensors 4+/5; positive joint inflammation to bilat knees with limited ROM; foot exam positive for clawing of toes
Integument	foot exam positive for diffuse large calluses and cracked skin over toes; toenails are long and thickened
Developmental Hx	retired, widowed
Psychiatric Hx	depression and anxiety; PHQ2 2/6; recall is 2/3 on cognitive screen and able to draw clock properly.
Social Hx	(see above)
Alternative/ Complementary Medicine Hx	acupuncture

Medication allergies:	NKDA	Reaction:	N/A
Food/other allergies:	None	Reaction:	N/A

3. Current medications	Drug	Dose	Route	Frequency
	Pepcid	20mg	PO	daily
	Calcium	500mg	PO	TID
	Lexapro	10mg	PO	Daily
	Ativan	1mg	PO	Prn anxiety/sleep
	Levothyroxine	125mcg	PO	Daily
	Metformin	500mg	PO	BID
	Celebrex	200mg	PO	BID
	Norco 5/325mg	1tab	PO	Q6H prn pain
	Lisinopril	20mg	PO	daily

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4. Laboratory, Diagnostic Study Results					
Na:	K:	Cl:	HCO3:	BUN:	Cr:
Ca:	Mg:	Phos:	Glucose:	HgA1C:	
Hgb:	Hct:	Plt:	WBC:	ABO Blood Type:	
PT	PTT	INR	Troponin:	BNP:	
ABG-pH:	paO2:	paCO2:	HCO3/BE:	SaO2:	
VDRL:	GBS:	Herpes:	HIV:		
CXR:	ECG:				

E. Baseline Simulator/Standardized Patient State (This may vary from the baseline data provided to learners)	
1. Initial physical appearance	
Gender: Female	Attire: community clothes appropriate for elderly woman
Alterations in appearance (<u>moulage</u>): grey wig, glasses, appear in age 80's, **large bruise to right upper arm (scenario 3 only)	
Instructions to Standardized Patient for each scenario	
Scenario 1 (A)	
You are Frances Martin, an 82-year-old female who recently moved to the area (6-months ago) to be close to her daughter and grandchildren. You live on the second floor of a one-bedroom senior housing apartment. Despite having multiple medical problems, you are independent and are able to take care of all your needs. * (Please give the <i>Staying Independent Brochure</i> to the NP student).	
<u>Falls/Gait</u> : you had a fall about 3 months ago in your new apartment because you tripped over a moving box, but did not injure yourself and are not worried about falling again. You don't have any issues with feeling unsteady. You often have to rush to go to the bathroom at night and you blame it on old age. You sometimes have a difficult time sleeping and will take Ativan to help you sleep. Sometimes you have pain in your knees and will take Norco for pain that was prescribed to you for your knee replacement surgery 8 months ago. You get really good relief with it.	
<u>IADL/s/ADLs</u> : you are independent of all your ADL's and IADL's, but you sometimes have a difficult time getting out of the tub. You are able to do all of your cooking and sometimes will attend the senior center for lunch and socialization. You sometimes leak urine at night, trying to reach the bathroom, as you wake up about twice a night to urinate. You either take the apartment shuttle to go to the grocery store and do local errands or your daughter will take you.	
<u>Mobility Testing</u> : TUG test: give CARD A1 , you have a normal gait, but slow; 30-sec Chair Rise test: give CARD A2 , you are able to stand 10 times without use of hands; 4-Stance Balance test: give CARD A3 , you are able to stand for 10 secs in all 4 stances.	
Scenario 2 (B)	
You are Frances Martin, an 83-year-old female who is returning a year later for her annual Medicare Wellness exam. You are also complaining of dizziness when getting up from the couch that started about 2 weeks ago and are concerned about this. You still live independently in your senior apartment and are able to take care of all of your needs, but feel like you are starting to slow down in activity level because you have started losing some sensation in your feet and are starting to have more aches and pain from your arthritis in your hips and knees. * (Please present the <i>Staying Independent Brochure</i> to the NP student).	

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Falls/Gait: no falls in the last year, but you are starting to feel a little unsteady on your feet due to some numbness in your feet. You don't have any issues with feeling unsteady. You still have a problem rushing to go to the bathroom at night. You still have a difficult time sleeping and will take Ativan to help you sleep. You still have pain in your hips and knees and will take Tylenol now and the Celebrex with some relief.

***Give CARD B4 if they check orthostatic blood pressures on you**

IADL/s/ADLs: you are independent of all your ADL's and IADL's, but you are having a harder time getting out of the tub. You are still able to do all of your cooking and but is not attending the senior center as much. You still leak urine at night, trying to reach the bathroom, as you wake up about twice a night to use the bathroom. You either take the apartment shuttle to go to the grocery store and do local errands or your daughter will take you.

Mobility Testing: TUG test: give CARD B1, you have a slow unsteady gait; **30-sec Chair Rise test: give CARD B2,** you are able to stand 9 times without use of hands; **4-Stance Balance test: give CARD B3,** you are able to stand for 10 secs in first 2 stances, but only 8 secs in the tandem stance.

Scenario 3 (C)

You are Frances Martin, an 83-year-old female who is returning to the clinic with your daughter. You are here for a follow up visit after visiting the ED 3 weeks ago from a fall you sustained while trying to rush to the bathroom one night. You fortunately did not break any bones, but you have a large bruise on your right arm that is very tender to touch. You are pretty shaken up by the fall because you were not able to get up afterwards. As a result, don't like to go out anymore for fear of falling. You are starting to feel more depressed since the fall and is not socializing anymore.

*** (Please present the *Staying Independent Brochure* to the NP student).**

Falls/Gait: you had a fall 3 weeks ago and is starting to feel really unsteady on your feet where you have to hold onto the furniture to avoid falling. You don't have any issues with feeling unsteady. You still have a problem rushing to go to the bathroom at night and still have a difficult time sleeping because of it. You still have pain in your hips and knees which is starting to get worse.

IADL/s/ADLs: you now require some assistance with bathing since the fall and you are not cooking anymore.

Your daughter is concerned because you keep calling her now to do all of your errands and to bring you groceries and food. You haven't attended the senior center since your fall. You still leak urine at night, trying to reach the bathroom, as you wake up about twice a night to use the bathroom.

Mobility Testing: TUG test: give CARD B1, you have a very slow unsteady gait; **30-sec Chair Rise test: give CARD B2,** you are only able to stand 7 times without use of hands; **4-Stance Balance test: give CARD B3,** you are only able to stand for 10 secs in first stance, and only 85 secs in the semi-tandem stance.

	ID band present, accurate	ID band present, inaccurate	X	ID band absent or not applicable
	Allergy band present, accurate	Allergy band inaccurate	X	Allergy band absent or N/A



2. Initial Vital Signs Monitor display in simulation action room:				
X	No monitor display	Monitor on, but no data displayed	Monitor on, data displayed	
BP:	HR:	RR:	T:	SpO ₂ :
CVP:	PAS:	PAD:	PCWP:	CO:
AIRWAY:	ETCO ₂ :	FHR:		
Lungs: Sounds/mechanics	Left:	Right:		
Heart:	Sounds:			
	ECG rhythm:			
	Other:			
Bowel sounds:				Other:

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3. Initial Intravenous line set up					
Saline lock #1	Site:			IV patent (Y/N)	
IV #1	Site:		Fluid type:	Initial rate:	IV patent (Y/N)
Main	RA				
Piggyback					
IV #2	Site:		Fluid type:	Initial rate:	IV patent (Y/N)
Main	RA				
Piggyback					
4. Initial Non-invasive monitors set up					
NIBP		ECG First lead:		ECG Second lead:	
Pulse oximeter		Temp monitor/type		Other:	
5. Initial Hemodynamic monitors set up					
A-line Site:		Catheter/tubing Patency (Y/N)	CVP Site:	PAC Site:	
6. Other monitors/devices					
Foley catheter	Amount:	Appearance of urine:			
Epidural catheter		Infusion pump:	Pump settings:		
			.		
Environment, Equipment, Essential props					
1. Scenario setting: (example: patient room, home, ED, lobby)					
Primary care clinic patient room with primary care table and armchair, eye chart, reflex hammer, cotton applicator, clock ophthalmoscope/otoscope, STEADI algorithm attached to chart, Standardized Patient Instruction sheet (given to patient ahead of time to review)					
Scenario 1(A)					
Chart 1					
<i>Stay Independent Brochure A:</i> score 4: positive for having a non-injury fall (tripped over rug), rushing to use the bathroom, taking medications to help mood					
A1 Index card for <i>Gait test</i> (TUG) results: 11 seconds (abnormal ≥ 12) with normal gait, unassisted with little arm swing					
A2 Index card for <i>Strength test</i> (30-sec Chair Stand Test): 10 complete stands in 30 seconds (normal >9); able to push up from chair without using arms to push up from chair					
A3 Index card for <i>Balance Test</i> (4-Stage Balance Test): able to stand for 10 seconds in tandem positions but not in single leg stance (normal is at least 10 seconds in tandem stance)					
A4 Index card <i>visual acuity</i> results: right 20/30; left 20/50					
Scenario 2(B)					

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

Chart 2

Stay Independent Brochure Falls Risk Factors Assessment B: score 5: positive for sometimes feeling unsteady when walking, often have to rush to toilet, lost some feeling in feet, taking medication that sometimes makes me feel light-headed, and taking medications to help mood,

B1 Index card for **Gait Test** (TUG): 14 seconds (abnormal ≥ 12) with short strides, slow tentative pace, unassisted with little arm swing)

B2 Index card for **Strength test** (30-sec Chair Stand Test): 9 complete stands in 30 seconds (normal >9); able to push up from chair without using arms to push up from chair)

B3 Index card for **Balance Test** (4-Stage Balance Test): able to stand for 10 seconds with feet side by side, but only for 8 seconds in tandem stance (normal is at least 10 seconds in tandem stance).

B4 Index card for **orthostatic hypotension** test results: lying 120/74 70; sitting 118/72 72; standing 116/70 75

B5 Index card for **visual acuity** results: no change since last year; right 20/30; left 20/50

Scenario 3 (C)**Chart 3**

Stay Independent Brochure C: score 10: positive for having a fall (x1, feeling unsteady and holding onto furniture, worried about falling, needs to use hands to push up from chair, often have to rush to toilet, lost some feeling in feet, taking medications to help mood, often feel sad or depressed (d/t immobility)

C1 Index card for **Gait Test** (TUG): 19 seconds (abnormal ≥ 12) with short strides, slow tentative pace with some sway

C2 Index card for **Strength test** (30-sec Chair Stand Test): 7 complete stands in 30 seconds (normal >9) without the use of arms

C3 Index card for **Balance Test** (4-Stage Balance Test): able to stand for 10 seconds with feet side by side, but only for 5 seconds in semi-tandem stance (normal is at least 10 seconds in tandem stance)

C4 Index card for **orthostatic hypotension** test results: lying 130/84 70; sitting 128/86 72; 120/76 85

C5 Index card for **visual acuity** results: no change right 2/30; left 20/50

2. Equipment, supplies, monitors

(In simulation action room or available in adjacent core storage rooms)

Bedpan/ Urinal	Foley catheter kit	Straight cath. kit	x	Incentive spirometer
IV Infusion pump	Feeding pump	Pressure bag		Wall suction
Nasogastric tube	ETT suction catheters	Oral suction catheters		Chest tube kit
Defibrillator	Code Cart	12-lead ECG		Chest tube equip
PCA infusion pump	Epidural infusion pump	Central line Insertion Kit		Dressing Δ equipment
IV fluid Type:	IV fluid additives:	IV Piggy back		Blood product ABO Type: # of units:

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

3. Respiratory therapy equipment/devices							
	Nasal cannula		Face tent		Simple Face Mask		Non re-breather mask
	BVM/Ambu bag		Nebulizer tx kit		Flowmeters (extra supply)		

4. Documentation and Order Forms							
	Health Care Provider orders		Med Admin Record	X	H & P	X	Lab Results
X	Progress Notes	X	Graphic record		Anesthesia/PACU record		ED Record
X	Medication reconciliation		Transfer orders		Standing (protocol) orders		ICU flow sheet
	Nurses' Notes		Dx test reports	X	Code Record		Prenatal record
X	Actual medical record binder, constructed per institutional guidelines				Other Describe: <i>Stay Independent Brochure; STEADI algorithm</i>		

5. Medications (to be available in sim action room)								
#	Medication	Dosage	Route		#	Medication	Dosage	Route

Appendixes:

- Appendix A: Instructions to Standardized Patient
- Appendix B: Debriefing Points for Falls

Misc:

1. Stay Independent Brochure: https://www.cdc.gov/steady/pdf/Stay_Independent_brochure-a.pdf
2. STEADI algorithm: https://www.cdc.gov/steady/pdf/Algorithm_2015-04-a.pdf
3. TUG Test instructions: https://www.cdc.gov/steady/pdf/TUG_Test-a.pdf
4. 30-Second Chair Stand test: https://www.cdc.gov/steady/pdf/30_Second_Chair_Stand_Test-a.pdf
5. 4-Stage Balance Test: https://www.cdc.gov/steady/pdf/4-Stage_Balance_Test-a.pdf

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ALL DATA IN THIS SCENARIO IS FICTICIOUS



CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES			
<p>Initiation of Scenario 1 (A): Mrs. Frances Martin is an 82-year-old female who recently moved to the area to be close to her daughter and grandchildren. She comes to your primary care clinic to establish a primary care home. She presents to you the <i>Staying Active Brochure</i> that she filled out in the waiting room and her score was a 4.</p>			
STATE / PATIENT STATUS	DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>1. Baseline</p> <p>Patient sitting on chair, calm and pleasant</p>	<p>Operator</p> <p>N/A</p> <p>Triggers:</p>	<p>Learner Actions</p> <ul style="list-style-type: none"> -Reviews pt chart -Hand hygiene -Introduce self and role -Obtains chief complaint -Reviews the <i>Staying Active Brochure</i> with patient and interviews patient to collect subjective data -Screens for falls and conducts multifactorial fall risk assessment -Performs focused physical exam based off of history and includes visual acuity test 	<p>Debriefing Points:</p> <ul style="list-style-type: none"> National Patient Safety Goals STEADI algorithm and resources Scoring of the <i>Staying Active Brochure</i> Geriatric Assessment needs AGS/BGS clinical practice guidelines for falls risk screening, assessment and management ADLs/IADLs: functional status Falls risk assessment techniques Review of patient's fall risk factors, level of fall risk, and fall prevention interventions based on level of risk

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

		<ul style="list-style-type: none"> -Consults STEADI algorithm and resources to guide fall risk assessment and management and follow Low Risk algorithm to guide assessment and interventions -Conducts TUG, 30-Second Chair Stand test, and 4-point Balance test -Formulates problem list with differential diagnosis from gathered subjective and objective data; include falls risk as one of the stated problems -Provides a verbal summary statement of patient findings and action plan. 	
<p>STATE / PATIENT STATUS Patient sitting on chair, calm and pleasant</p>	<p>Initiation of Scenario 2 (B): Mrs. Frances Martin is an 82-year-old female who is returning to your primary care clinic for her annual Medicare Wellness Exam. It has been 1 year since her last visit. She reports that sometimes feels some dizziness when getting up from the couch that started about 2 weeks ago and it is a little concerning to her. She presents to you the <i>Staying Independent Brochure</i> that she filled out in the waiting room with a score of 5.</p> <p>Learners have 5 minutes to review chart, plan care and initiate scenario</p>		

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

		<p>algorithm to guide assessment and interventions</p> <p>-Conducts TUG, 30-Second Chair Stand test, and 4-point Balance test</p> <p>-Formulates problem list with differential diagnosis from gathered subjective and objective data; include falls risk as one of the stated problems</p> <p>-Provides a verbal summary statement of patient findings and action plan.</p>	
<p>STATE / PATIENT STATUS</p> <p>Patient is distressed and depressed about recent falls, afraid</p>	<p>Initiation of Scenario 3 (C): Mrs. Frances Martin is an 82-year-old female who is here with her daughter for a follow up visit after being seen in the emergency department because she fell in the bathroom 3 weeks ago. She presents to you the <i>Staying Active Brochure</i> which has a score of 10.</p> <p>Learners have 5 minutes to review chart, plan care and initiate scenario</p>		
3.	Operator:	Learner Actions:	Debriefing Points:

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ALL DATA IN THIS SCENARIO IS FICTICIOUS

	<p>Triggers:</p>	<p>Reviews pt chart</p> <ul style="list-style-type: none"> -Hand hygiene -Introduce self and role -Obtains chief complaint -Reviews the <i>Staying Active Brochure</i> with patient and interviews patient to collect subjective data -Screens for falls and conducts multifactorial fall risk assessment -Performs focused physical exam based off of history (includes orthostatic hypotension check) -Consults STEADI algorithm and resources to guide fall risk assessment and management and follow High Risk algorithm to guide assessment and interventions 	<p>National Patient Safety Goals</p> <p>STEADI algorithm and resources</p> <p>Scoring of the <i>Staying Active Brochure</i></p> <p>Geriatric Assessment needs</p> <p>AGS/BGS clinical practice guidelines for falls risk screening, assessment and management</p> <p>ADLs/IADLs: functional status</p> <p>Falls risk assessment techniques</p> <p>Review of patient's fall risk factors, level of fall risk, and fall prevention interventions based on level of risk</p>
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CSA REV template (12/15/08; 5/09; 12/09; 4/11)

ALL DATA IN THIS SCENARIO IS FICTICIOUS

		<p>-Conducts TUG, 30-Second Chair Stand test, and 4-point Balance test</p> <p>-Formulates problem list with differential diagnosis from gathered subjective and objective data; include falls risk as one of the stated problems</p> <p>-Provides a verbal summary statement of patient findings and action plan.</p>	
STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
4.	<p>Operator:</p> <p>Triggers:</p>	Learner Actions:	Debriefing Points

CSA REV template (12/15/08; 5/09; 12/09; 4/11)

ALL DATA IN THIS SCENARIO IS FICTICIOUS

APPENDIX C: DEBRIEFING GUIDE

General Debriefing Plan			
<input type="checkbox"/> Individual	<input checked="" type="checkbox"/> Group	<input type="checkbox"/> With Video	<input type="checkbox"/> Without Video
Debriefing Materials			
<input type="checkbox"/> Debriefing Guide	<input type="checkbox"/> Objectives	<input checked="" type="checkbox"/> Debriefing Points	<input type="checkbox"/> QSEN
QSEN Competencies to consider for debriefing scenarios			
<input checked="" type="checkbox"/> Patient Centered Care	<input type="checkbox"/> Teamwork/Collaboration	<input checked="" type="checkbox"/> Evidence-based Practice	
<input checked="" type="checkbox"/> Safety	<input checked="" type="checkbox"/> Quality Improvement	<input checked="" type="checkbox"/> Informatics	
Sample Questions for Debriefing			
<ol style="list-style-type: none"> 1. How did the experience of caring for this patient feel for you and the team? 2. Did you have the knowledge and skills to meet the learning objectives of the scenario? 3. What GAPS did you identify in your own knowledge base and/or preparation for the simulation experience? 4. What RELEVANT information was missing from the scenario that impacted your performance? How did you attempt to fill in the GAP? 5. How would you handle the scenario differently if you could? 6. In what ways did you check feel the need to check ACCURACY of the data you were given? 7. In what ways did you perform well? 8. What communication strategies did you use to validate ACCURACY of your information or decisions with your team members? 9. What three factors were most SIGNIFICANT that you will transfer to the clinical setting? 10. At what points in the scenario were your nursing actions specifically directed toward PREVENTION of a negative outcome? 11. Discuss actual experiences with diverse patient populations. 12. Discuss roles and responsibilities during a crisis. 13. Discuss how current nursing practice continues to evolve in light of new evidence. 14. Consider potential safety risks and how to avoid them. 15. Discuss the nurses' role in design, implementation, and evaluation of information technologies to support patient care. 			
Notes for future sessions:			

CSA REV template (12/15/08; 5/09; 12/09; 4/11)

Appendix A
Instructions to Standardized Patient

Goal of Case Scenario: Screen and identify fall risk factors in an elderly patient.

Patient: Frances Martin, age 82

Chief complaint: establish care at primary care clinic

Summary of Patient's chart:

<p>PMH: DM, HTN, DJD, depression, GERD, hypothyroid, breast CA</p> <p>Surgery: right total knee replacement (8 mos ago); left mastectomy (10 yrs ago)</p> <p>OB: G4P3</p>	<p>Allergies: NKDA</p> <p>Medication: Pepcid 20mg QD Calcium 500mg TID Lexapro 10mg QD Ativan 1mg prn anxiety/sleep Levothyroxine 125mct QD Metformin 500mg BID Celebrex 200mg BID Norco 5/325mg Q6H prn Lisinopril 20mg QD</p>	<p>Family History Mother: died uterine & breast CA, age 75</p> <p>Father: died colon CA, age 70</p> <p>Sister: alive, age 78, HTN, DM</p>
<p>Social History</p> <p>Diet: light meals and snacks</p> <p>Exercise: has some mild pain with walking d/t arthritis, still active and started dance class at senior center</p> <p>Interests/Hobbies: reading, sewing and dancing, but having trouble with seeing (needs new glasses)</p> <p>Sexual Health: not sexually active</p> <p>Born in: Seattle, WA</p> <p>Education: some college</p> <p>Occupation: homemaker, retired 5 years ago but worked part-time in fabric store x 20 yrs.</p>	<p>Family /Support -Husband died 15 yrs ago</p> <p>-Children: 2 daughters, 1 local and visits weekly with grandchildren; other daughter calls frequently and visits when she can (lives in another state)</p> <p>-No friends currently since recently moved but joined senior community center a couple weeks ago</p> <p>Tobacco: never</p> <p>Drugs: never</p> <p>Alcohol: : occasional, 1-2 drinks when socializing</p>	<p>Health Care Maintenance</p> <p>Vaccinations: UTD</p> <p>Screenings: UTD</p> <p>Annual Wellness Exam: last exam 1 year ago</p>

CSA REV template (12/15/08; 5/09; 12/09; 4/11)



Instructions to Standardized Patient**Scenario 1 (A cards)**

You are Frances Martin, an 82-year-old female who recently moved to the area (6-months ago) to be close to her youngest daughter and grandchildren. You live on the second floor of a one-bedroom senior housing apartment. Despite having multiple medical problems, you are independent and are able to take care of all your needs.

*** (Please give the *Staying Independent Brochure "A"* to the NP student).**

Falls/Gait: you had a fall about 3 months ago in your new apartment because you tripped over a moving box, but did not injure yourself and are not worried about falling again. You don't have any issues with feeling unsteady. You often have to rush to go to the bathroom at night and you blame it on old age. You sometimes have a difficult time sleeping and will take Ativan to help you sleep. Sometimes you have pain in your knees and will take Norco for pain that was prescribed to you for your knee replacement surgery 8 months ago. You get really good relief with it. ***Give Card A4 Visual Acuity if student tests your vision**

IADL/s/ADLs: you are independent of all your ADL's and IADL's, but you sometimes have a difficult time getting out of the tub. You are able to do all of your cooking and sometimes will attend the senior center for lunch and socialization. You sometimes leak urine at night, trying to reach the bathroom, as you wake up about twice a night to urinate. You either take the apartment shuttle to go to the grocery store and do local errands or your daughter will take you.

Mobility Testing: **TUG test: give CARD A1**, you have a normal gait, but slow; **30-sec Chair Rise test: give CARD A2**, you are able to stand 10 times without use of hands; **4-Stance Balance test: give CARD A3**, you are able to stand for 10 secs in all 4 stances.

Scenario 2 (B)

You are Frances Martin, an 83-year-old female who is returning a year later for her annual Medicare Wellness exam. You are also complaining of dizziness when getting up from the couch that started about 2 weeks ago and are concerned about this. The symptoms last for only a few seconds. You still live independently in your senior apartment and are able to take care of all of your needs, but feel like you are starting to slow down in activity level because you have started losing some sensation in your feet and are starting to have more aches and pain from your arthritis in your hips and knees.

*** (Please present the *Staying Independent Brochure "B"* to the NP student).**

Falls/Gait: no falls in the last year, but you are starting to feel a little unsteady on your feet due to some numbness in your feet. You still have a problem rushing to go to the bathroom at night. You still have a difficult time sleeping and will take Ativan to help you sleep. You still have pain in your hips and knees and will take Tylenol and the Celebrex with some relief.

***Give CARD B4 if they check orthostatic blood pressures on you**

***Give Card B4 Visual Acuity if student tests your vision**

CSA REV template (12/15/08; 5/09; 12/09; 4/11)

IADL/s/ADLs: you are independent of all your ADL's and IADL's, but you are having a harder time getting out of the tub. You are still able to do all of your cooking but is not attending the senior center as much due to your decreasing mobility issues. You still leak urine at night, trying to reach the bathroom, as you wake up about twice a night to use the bathroom. You still will use the apartment shuttle to go to the grocery store and do local errands or your daughter will take you.

Mobility Testing: **TUG test: give CARD B1**, you have a slow unsteady gait; **30-sec Chair Rise test: give CARD B2**, you are able to stand 9 times without use of hands; **4-Stance Balance test: give CARD B3**, you are able to stand for 10 secs in first 2 stances, but only 8 secs in the tandem stance.

Scenario 3 (C)

You are Frances Martin, an 83-year-old female who is returning to the clinic with your daughter. You are here for a follow up visit after visiting the ED 3 weeks ago from a fall you sustained while trying to rush to the bathroom one night. You fortunately did not break any bones, but you have a large bruise on your right arm that is very tender to touch. You are pretty shaken up by the fall because you were not able to get up afterwards. As a result, you do not like to go out anymore for fear of falling. You are starting to feel more depressed since the fall and is not socializing anymore.

*** (Please present the *Staying Independent Brochure "C"* to the NP student).**

Falls/Gait: you had a fall 3 weeks ago and is starting to feel really unsteady on your feet where you have to hold onto the furniture to avoid falling. You still have a problem rushing to go to the bathroom at night and still have a difficult time sleeping because of it. You still have pain and stiffness in your hips and knees which is starting to get worse which you contribute to your fall.

***Give CARD C4 if they check orthostatic blood pressures on you**

IADL/s/ADLs: you now require some assistance with bathing since the fall and you are not cooking anymore. Your daughter is concerned because you keep calling her now to do all of your errands and to bring you groceries and food. You haven't attended the senior center since your fall. You still leak urine at night, trying to reach the bathroom, as you wake up about twice a night to use the bathroom.

Mobility Testing: **TUG test: give CARD C1**, you have a very slow unsteady gait; **30-sec Chair Rise test: give CARD C2**, you are only able to stand 7 times without use of hands; **4-Stance Balance test: give CARD C3**, you are only able to stand for 10 secs in first stance, and only 85 secs in the semi-tandem stance.

Appendix B
Debriefing Points for Falls Simulation

1. What were your patient's identified risk factors for falls?
2. What are some of the key risk factors should we look at for falls? ie medications, environment, physical mobility, sensory deficits, health conditions, s/s
3. What falls assessment techniques did you use and why?
4. What fall risk level was the patient?
5. What interventions should we use?
6. How easy do you think this to use?

Appendix M

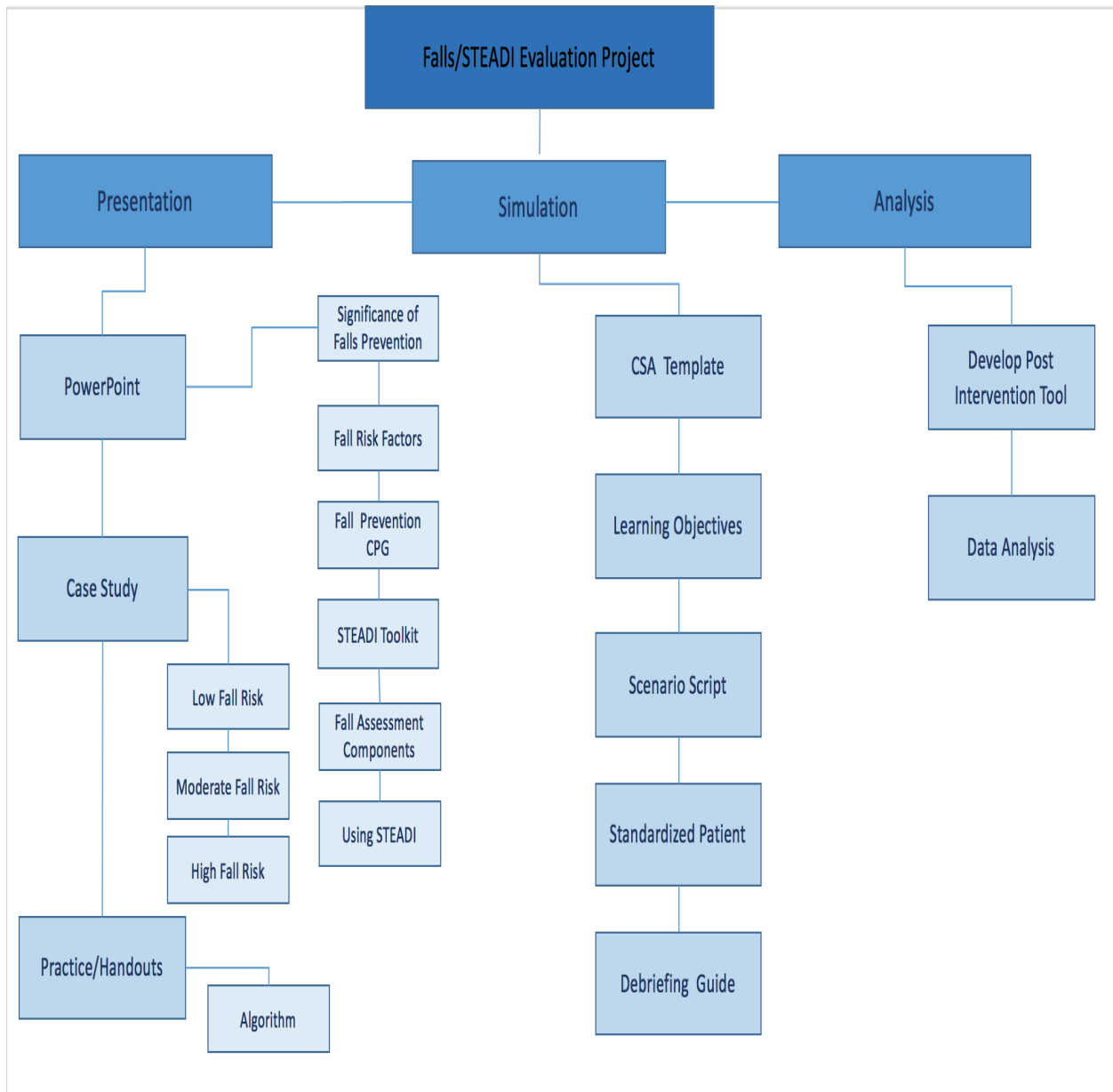
Gantt Chart & Project Time Line

	Jan 2016	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2017	Feb	Mar	April	May	Jun	Jul	Aug	
Complete initial literature review	█	█	█	█																	
Draft project plan proposal			█	█	█																
Form DNP project committee			█	█	█																
Submit DNP Statement of Determination				█	█																
Write and submit DNP manuscript					█	█	█														
Complete IRB modules								█	█												
Write and submit CANP abstract							█	█													
Write and submit DNP project prospectus								█	█	█	█	█									
Pilot Test falls/STEADI simulation									█												
CANP speaker acceptance										█											
Attend PowerPoint training												█									
Develop PowerPoint presentation													█	█							
Develop case studies													█	█							
Develop evaluation metrics													█	█							
Develop & submit CSA simulation scenario													█	█	█	█	█				
Fall presentation & simulation to FNP students														█	█						
Fall presentation Lunch & Learn														█	█						
Fall presentation CANP															█	█	█	█			
Project data analysis																█	█	█	█		
Write and submit project write-up																	█	█	█		
DNP project presentation																					█

Task Name	Start Date	End Date	Duration
Planning			
Complete initial literature review	January 2016	April 2016	4 months
Draft project plan proposal	March 2016	May 2016	3 months
Formulate DNP project committee	April 2016	May 2016	2 months
Submit DNP project Statement of Determination Form	May 2016	May 2016	2 weeks
Development			
Write and submit DNP manuscript	May 2016	July 2016	3 months
Complete IRB modules	August 2016	August 2016	1 week
Write and submit CANP abstract	July 2016	August 2016	2 months
Pilot falls STEADI education and simulation to FNP students	September 2016	September 2016	3 days
Write and submit DNP project prospectus	August 2016	December 2016	5 months
Acceptance to be CANP speaker	October 2016	October 2016	1 day
Attend PowerPoint & presentation skills training	December 2016	December 2016	1 day
Develop falls/STEADI PowerPoint presentation	January 2017	February 2017	2 months
Develop case studies	January 2017	February 2017	2 months
Develop project evaluation metrics	January 2017	February 2017	2 months
Develop and submit CSA case study scenario	January 2017	May 2017	5 months
Implement			
Advanced Assessment class falls education presentation and simulation	January 2017 September 2017	January 2017 September 2017	*did not occur 1 day
Lunch and Learn falls education presentation	February 2017	February 2017	1 week
CANP fall education presentation	March 2017	March 2017	2 weeks
Data Analysis			
Data analysis of project outcomes	February 2017	June 2017	5 months
Write and submit DNP project write-up	May 2017	July 2017	3 months
DNP project presentation	August 2017	August 2017	2 weeks

Appendix N

Work Breakdown Structure



Appendix O

SWOT Analysis

<p style="text-align: center;">STRENGTHS</p> <ul style="list-style-type: none"> • CCNE certified institution (USF) • Identified population with problem • National Directive to fix problem • SON and University support and resources (classrooms, media) • Support of key stakeholders (FNP faculty, SIM director, FNP students) • Easy access to evidence-based falls resources through STEADI website • Personal expertise in geriatrics and falls knowledge • Personal knowledge of organizational structure and institutional processes (USF) • Access to staff and simulation lab • Personal experience with teaching and simulation • Acceptance of CANP conference abstract 	<p style="text-align: center;">WEAKNESSES</p> <ul style="list-style-type: none"> • Familiarity of FNP students, PCP and other stakeholders • Limited experience with developing CSA compliant simulation scenarios • Unfamiliarity with conference technology and being a conference speaker • Time and resource estimates
<p style="text-align: center;">OPPORTUNITIES</p> <ul style="list-style-type: none"> • Government trends and initiatives to increase health safety and patient education • Developed clinical guidelines for fall risk factor reduction and management • Decrease CDOA falls and injuries leading to decrease costs and social burdens • Rise in aging population and patient demographics with high risk factor for falls • Standardization of patient screening and management in the primary care setting • Disbursement of STEADI materials to other faculty and students • Lunch and Learn seminar 	<p style="text-align: center;">THREATS</p> <ul style="list-style-type: none"> • Time delays due cancellation of N735/N736 course • Availability of participant (students/PCP) participation and cooperation • Unfamiliarity and reliance on technology during CANP conference caused PowerPoint presentation difficulties

Appendix P

Responsibility/Communication Matrix

	DNP Student	DNP Chair	DNP Committee	N736 AA Faculty	SIM Manager	CANP Coordinator	Presentation Assistants
Project Planning							
Literature Review	RA	C	I	X	X	X	X
Project Plan Proposal	RA	C	I	I	I	I	X
Form DNP committee	RA	AI	A	X	X	X	X
Statement of Determination Form	RA	C	I	X	X	X	X
Development							
Manuscript	RA	C	I	X	X	X	X
CANP Abstract	RA	AI	I	X	X	A	X
Pilot Simulation	RA	C	I	AI	RAI	X	R
Project Prospectus	RA	C	I	I	I	I	X
PowerPoint Presentation	RA	C	I	I	X	CAI	X
Case Studies	RA	C	I	X	X	I	X
CSA Simulation Case Scenario	RA	C	CI	I	CI	X	X
Implementation							
N735 Advanced Assessment Simulation	RA	CI	I	AI	RAI	X	RI
Lunch and Learn	RA	C	I	X	X	X	R
CANP Education Conference	RA	C	I	X	X	AI	CR
Data Analysis							
Analyze Project Outcomes	RA	C	I	X	X	X	X
DNP Project Write-Up	RA	C	I	X	X	X	X
DNP Presentation	RA	CAI	CAI	X	X	X	X

Note: R= Responsible Person; A=Accountable Person; C=Consulted; I=Informed; X=No assigned task.

Appendix Q
Budget/Expenses

Direct Expenses	Projected	Actual
CANP Registration Fees	\$275	\$275
Travel Fee: Hotel and Transportation	\$0	\$525
Simulation Tech Fees (\$18/hour x 2 hours)	\$36	\$36
Simulation Manager Fees (\$40/hour x 2 hours)	\$80	\$80
N735/N736 Faculty Fees (\$50/hour x 2 hours)	\$100	\$100
Printing and Copying Post Tests/Evaluation Tools	\$25	\$30
Visual Aids	\$0	\$20
Subtotal Direct Expenses	\$516	\$1066
Indirect Expenses		
DNP Student's Time to plan, develop and implement project	\$0	\$0
CANP Speaker Fees	\$0	\$0
Subtotal Indirect Expenses	\$0	\$0
Total Project Expense	\$516	\$1066

Note: Hourly wages for the faculty, simulation manager and the simulation technician were approximated.

Appendix R

Cost Avoidance/Benefit Analysis

	DNP Project	Clinic	National (CDC)
Costs			
Project Costs			
• Out-of-Pocket expenses	\$850		
• Total hourly wages* (faculty, simulation manager/assistant)	\$216		
• Total Expenses	\$1066		
*Estimated			
Potential Cost Revenue/Cost	Per visit	500 visits	6 million screened
Potential Revenue Sources			Costs
• Estimated Medicare Initial Preventive Physical Exam*	\$156	\$78,000	\$936 Million
• Estimated Medicare Annual Wellness Visit*	\$112	56,000	\$672 Million
• Total Potential Medicare Revenue	\$268	+\$134,000	-\$1.61 Billion
*Retrieved from Centers for Medicare and Medicaid Service, (2012)			
Potential Cost Avoidance		500 visits	1 million prevention falls
Potential Cost Avoidance			
• Hospitalization x1 patient*	\$30,000	\$15 Million	\$3 Billion
• Emergency Visit 1 patient**	\$1233	\$616,500	\$1.23 Million
• Total Potential Cost Avoidance	+\$31,233	+15.6 Mil	+\$3.1 Billion
*Retrieved from CDC (2016)			
**Retrieved from Fastmed (2017)			
Estimated Breakeven Analysis/Net Cost Avoidance	Breakeven		
Potential Breakeven Analysis			
Breakeven point for Medicare Screening Visits (\$31,233/\$268)	117 visits		
Net Cost Avoidance	\$30,167		\$1.49 Billion

Appendix S

Return on Investment Plan

	ROI
Community/Nation	<ul style="list-style-type: none"> • Decreased social burdens • For every 5000 PCP who adopt STEADI, 6 million patients can be screened and 1 million falls could be prevented • Decreased medical and hospitalization costs with a potential of \$3.5 billion in direct medical care cost savings related to fall prevention due to annual screening by PCP (CDC, 2015)
CANP/USF	<ul style="list-style-type: none"> • Falls prevention curriculum • Available speaker to provide the education • Promotes and supports professional growth
PCP (Future/Current)	<ul style="list-style-type: none"> • Increased knowledge of falls risk CPG and use of STEADI tools to aid in screening and improvements in managing falls risk factors • Increased comfort level of falls risk assessment, leading to increased falls risk screening and prevention of falls of CDOA • Eligibility to receive annual Medicare reimbursement for fall risk screening from IPPE and AWV visits (\$141/visit) • Compliance with fall CPG for seniors
CDOA	<ul style="list-style-type: none"> • Increased quality of life • Improvement in health status and function • Decreased personal expenses (potential) • Avoidance of early death (potential)

Appendix T

Evaluation Tool

STEADI/Fall Knowledge Evaluation

Please answer and rate the following questions accordingly

1. **Before** today's presentation, I was **aware** of the *American Geriatric Society/British Geriatric Society's* 2010 clinical practice guidelines to screen all seniors 65+ for falls each year.

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

2. **Before** today's presentation, I had **knowledge** of *STEADI* and its resources.

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

3. **Before** today's presentation, I **routinely screened** seniors 65+ for falls and made fall prevention recommendations.

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

4. **After** today's presentation, I am **knowledgeable** of the clinical practice guidelines for fall screening and prevention.

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

5. **After** today's presentation, I know how to **access** and **use** *STEADI'* Fall algorithm and resources

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

6. I feel **confident** in using the *STEADI* algorithm and related tools

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

Continue to Next page →

7. How **likely** are you to annually **screen** each senior 65+ for falls and make fall prevention recommendations?

5	4	3	2	1
Most Likely	Likely	Undecided	Somewhat Likely	Not Likely

8. How **likely** are you to use *STEADI*'s algorithm and resources?

5	4	3	2	1
Most Likely	Likely	Undecided	Somewhat Likely	Not Likely

9. The following **barriers** may **prevent** me from following fall clinical practice guidelines:

a. Time Constraints

5	4	3	2	1
Most Likely	Likely	Undecided	Somewhat Likely	Not Likely

b. Competing Health Care Demands/Problems

5	4	3	2	1
Most Likely	Likely	Undecided	Somewhat Likely	Not Likely

c. Knowledge of How to Assess/Screen for Falls and/or Risk Factors

5	4	3	2	1
Most Likely	Likely	Undecided	Somewhat Likely	Not Likely

Comments/Suggestions:

Thank you!

Appendix U

CQI Method (Evaluation Plan)

Measures	Definition	Data Source	Outcome Goal
Outcome Measures			
Knowledge	N=Sum number of mean Likert scores D=Sum number of participants in each interventional setting	SFKE Question #1 & #4 Question #2 & #5 Question # 2 & #5	Mean Likert Score >3
Confidence	N=Sum number of mean Likert scores D=Sum number of participants in each interventional setting	SFKE Question #6	Mean Likert Score >3
Intention to Change	N=Sum number of mean Likert scores D=Sum number of participants in each interventional setting	SFKE Question # 3 & #7 Question #3 & #8	Mean Likert Score >3
PCP Experience			
PCP Barriers	N=Sum number of mean Likert scores D=Sum number of participants in each interventional setting	SFKE Question #9a-b-c-	Identify 1 barrier to changing practice
Process Measures			
Number of Educational Interventions Conducted	Sum number of educational interventional sessions completed	Project Timeline	1 Simulation 1 Didactic/PowerPoint
Number of Tests Returned	Sum number of post-interventional questionnaires returned in each session	Post-Evaluation Tests	Lunch and Learn = 10 CANP = 30 N736 = 10

Note: N = numerator; D = denominator; SFKE = STEADI/Fall Knowledge Evaluation tool;

CANP = California Nurse Practitioner conference; N736 = Advanced Assessment course

Appendix V

Simulation Participant Objectives Criteria

Fall Prevention Simulation Curriculum Integration**A. SCENARIO LEARNING OBJECTIVES****Learning Outcomes:**

1. Apply clinical decision making skills in analyzing and interpreting complex data.
2. Integrate understanding of multiple dimensions of geriatric assessment.
3. Employ geriatric assessment techniques using subjective and objective data.
4. Utilize fall clinical practice guidelines to screen and manage falls in the community dwelling older adult.
5. Identify fall/gait problems in a community dwelling senior patient.
6. Apply clinical decision making skills in determining treatment plan

Specific Learning Objectives:

1. Communicate effectively with geriatric patient.
2. Perform accurate and comprehensive geriatric assessment in the primary care setting.
3. Demonstrate ability to screen and conduct a multi-factorial risk assessment for falls.
4. Know when and how to conduct simple gait, strength, and balance tests to assess for fall risk.
5. Identify findings in patient assessment that indicate patient health and safety risks related to falls.
6. Formulate individualized fall prevention strategies tailored to identified fall risk factors using STEADI algorithm and fall prevention resources.

Critical Learner Actions:

1. Identify self and role in providing patient care.
2. Perform hand hygiene.
3. Perform a comprehensive health history, including: chief complaint, HPI, ROS, medication history, medical and surgical history, family and social history, psychiatric history, and health care maintenance.
4. Screen for fall risks according to AGS/BGS fall prevention guidelines.
5. Perform focused physical exam based on history findings and presentation.
6. Use STEADI algorithm and tools to guide the fall assessment process
7. Conduct gait, strength, and balance test (TUG, 30-second Chair Stand, 4-Stage Balance Test)
8. Formulates a problem list with differential diagnosis including falls risks and identified fall risk factors.
9. Recognizes appropriate level of falls risk and verbalizes appropriate falls prevention treatment plan based on identified falls risk level.
10. Provides a summary statement that synthesizes the subjective and objective information gathered in the office visit.

Appendix W

Results

Table W1

Quantitative Data Analysis

Variable	Pre-Intervention Mean Likert Scale Score		Post-Intervention Mean Likert Scale Score		Effect/Goal Met Goal Mean score >3
<i>Lunch and Learn N=10</i>	Question #	Score	Question #	Score	
Knowledge Awareness of AGS/BGS fall CPG	#1	2.1	#4	4.7	Positive Change
Awareness of STEADI	#2	2.3	#5	4.8	Positive Change
Confidence Confident using STEADI	#2	2.3	#6	4.7	Positive Change
Intent Change Practice Routine Fall Screening	#3	3.3	#7	4.5	Positive Change
Likely will use STEADI	#2	2.3	#8	4.4	Positive Change
<i>CANP N=33</i>					
Knowledge Awareness of AGS/BGS fall CPG	#1	2.8	#4	4.6	Positive Change
Awareness of STEADI	#2	2.4	#5	4.6	Positive Change
Confidence Confident using STEADI	#2	2.4	#6	4.5	Positive Change
Intent to Change Practice	#3	3.6	#7	4.3	Positive Change
	#2	2.4	#8	4.2	Positive Change
Combined Groups N=43					
Knowledge Awareness of AGS/BGS fall CPG	#1	2.5	#4	4.7	Positive Change
Awareness of STEADI	#2	2.4	#5	4.8	Positive Change
Confidence Confident using STEADI	#2	2.4	#6	4.6	Positive Change
Intent Change Practice Routine Fall Screening	#3	3.5	#7	4.4	Positive Change
Likely will use STEADI	#2	2.4	#8	4.3	Positive Change

Table W2

PCP Barriers

Barriers	Lunch and Learn Mean Likert Score	CANP Mean Likert Score	Combined Mean Likert Score
Item #9a Time Constraints	3.9	3.5	3.9
Item #9b Competing Health Care Demands	3.8	3.5	3.6
Item #9c Knowledge of How to Screen	1.7	2.7	2.2

Table W3

Qualitative Analysis

Comments/Suggestions from SFKE tool	
Lunch and Learn	CANP
<p><i>"I think the tool and the educational materials are great!"</i></p> <p><i>"Great job! Perhaps print out the algorithm for audience, or go back to it with each case study."</i></p>	<p><i>"I'm currently not working in a role that would be doing this. Thank you."</i></p> <p><i>"I am retired but will use the knowledge with friends/relatives. It would have been nice to have a copy of the 'Stay Independent Brochure'"</i></p> <p><i>"You did great despite technical difficulties!!"</i></p> <p><i>"Great job!"</i></p> <p><i>"Great presentation – well organized and to the point. Thank you"</i></p> <p><i>"Because of HEDIS scores, Medicare prevention exam EMR prompts to screen for falls."</i></p>