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 Processing 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 27,000 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; Lukaszyk 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/steadi/.

**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 $\geq 65$, 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 compliance 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 in improve student’s levels of cognition through active learning (Dutra, 2013). According to Kim et al. (2006), case-based reaching 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, Lucarker, 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 FNPs 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 to 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 IPPS 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 test 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 scale 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.,
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

**Funding.** No outside funding was used for this project. Monetary sources to pay for out-of-pocket expenses came from personal funds.
References


Stevens, J.A. (2013). The STEADI tool kit: A fall prevention resource for health care providers. Indian Health Service Primary Care Provider, 39 (9): 162-166.


Appendix A

USPSTF Fall Prevention Clinical Practice Guidelines

![Final Recommendation Statement]

**Note:** Retrieved from the United States Preventive Task Force (2012). Final recommendation statement falls prevention in older adults: Counseling and medication. Retrieved 6/19/17 from

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
Prevention of Falls in Older Persons
Summary of Recommendations

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]
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]
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 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. Good evidence was found that the intervention improves health outcomes and the conclusion is that benefits substantially outweigh harm.

[B] A recommendation that clinicians provide this intervention to eligible patients. At least fair evidence was found that the intervention improves health outcomes and the conclusion is that benefits outweigh harm.

[C] No recommendation for or against the routine provision of the intervention is made. 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.

[D] Recommendation is made against routinely providing the intervention to asymptomatic patients. At least fair evidence was found that the intervention is ineffective or that harm outweighs benefits.

[I] Evidence is insufficient to recommend for or against routinely providing the intervention. Evidence that the intervention is lacking, or of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Appendix C

Evidence Table

Table C1

*PCP Barriers to Fall Prevention Screening and Management*

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<td>Limited Geriatric or Fall Education</td>
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*Note:* PCP = primary care practitioners
Table C2

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

<table>
<thead>
<tr>
<th>Fall Prevention Interventions</th>
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<th>Gillespie et al. 2012</th>
<th>Michael et al. 2010</th>
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<td>Multi-Factorial Risk Assessment and Management</td>
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<tr>
<td>Exercise</td>
<td>Risk</td>
<td>Risk and Rate</td>
<td>Risk</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td></td>
<td></td>
<td>Risk</td>
</tr>
<tr>
<td>Vitamin D supplementation</td>
<td>Risk</td>
<td>Risk</td>
<td></td>
</tr>
<tr>
<td>Home Modification</td>
<td></td>
<td>Risk and Rate</td>
<td></td>
</tr>
</tbody>
</table>

Table C3

Benefits of Simulation-Based Learning

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Skill</td>
<td>x</td>
<td></td>
<td>x</td>
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<td>x</td>
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</tr>
<tr>
<td>Confidence</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Critical Thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Note: Rate = decreased rate of falls; Risk = decreased risk of falls
## Evaluation Table

<table>
<thead>
<tr>
<th>Citation</th>
<th>Design/Method</th>
<th>Sample/Setting</th>
<th>Variables Studied &amp; Their Definitions</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings</th>
<th>Limitation</th>
<th>Appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCP Barriers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jones et al., 2011</td>
<td>CS</td>
<td>N=99 PCP random sample</td>
<td>PCP</td>
<td>Database survey/questionnaire</td>
<td>Multiple logistic regression</td>
<td>88% reported barriers</td>
<td>Only 8% follow CPG</td>
<td>Frequent barriers: lack of time; pressing issues, lack of educational materials</td>
</tr>
<tr>
<td>Chou et al., 2006</td>
<td>QL</td>
<td>N=18 PCP Primary care offices</td>
<td>PCP</td>
<td>Semi-Structured phone interviews</td>
<td>Descriptive analysis Data coding</td>
<td>3 Themes</td>
<td>PCP factors: fall awareness/attitude, competing risks &amp; priorities, lack of training</td>
<td>Logistical factors: transit, reimbursement, scheduling, lack of pt reporting, family involvement, time requirements</td>
</tr>
<tr>
<td>Dickinson et al., 2011</td>
<td>EXP/QL</td>
<td>N=164 Asian CDOA 4 geographical</td>
<td>Pt perceptions of facilitators/barriers to FP participation</td>
<td>Structured interviews Constant comparative approach; data coding</td>
<td></td>
<td>PCP’s response to falls plays major role in pt participation in FP</td>
<td>PCP failed to refer for FP</td>
<td>Language barrier</td>
</tr>
<tr>
<td>Study</td>
<td>Method</td>
<td>Sample Size</td>
<td>Setting</td>
<td>Intervention</td>
<td>Data Collection Method</td>
<td>Data Analysis</td>
<td>Main Findings</td>
<td>Study Limitations</td>
</tr>
<tr>
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</tr>
<tr>
<td>Loganathan et al., 2015</td>
<td>QL</td>
<td>N=20 PCP University medical center primary care clinic in Malaysia</td>
<td>PCP barriers to manage falls</td>
<td>Semi-structured interviews</td>
<td>WeftQDA software Descriptive analysis</td>
<td>Four themes: Perceived barriers: falls normal for aging process, stigma, reluctance to use assistive devices, denial PCP barriers: trivialization of fall, lack of skill &amp; 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</td>
<td>*Small sample size, recruitment of convenience, Self-reported data</td>
<td></td>
</tr>
<tr>
<td>Smith et al., 2015</td>
<td>QL *CDC funded study</td>
<td>N=38 PCP 11 HC practices in New York health system</td>
<td>PCP knowledge, beliefs, and practices for FP</td>
<td>35-item questionnaire</td>
<td>Descriptive analysis</td>
<td>Falls ranked lowest HC priority &lt;40% screened for falls &lt;25% referred to PT or exercise &lt;20% referred to community base FP program *results suggest STEADI could address knowledge gap</td>
<td>Small sample size, Pre-intervention data, Self-reported data</td>
<td></td>
</tr>
<tr>
<td>Gaboreau et al.</td>
<td>CS</td>
<td>N= 493 PCP</td>
<td>Factors affecting fall screening by Multiple logistic Dichotomous scale</td>
<td>65% considered annual FP screen useful</td>
<td>Sample selection</td>
<td>3B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Fall Prevention Measures

<table>
<thead>
<tr>
<th>Year</th>
<th>Study Design</th>
<th>Authors</th>
<th>Description</th>
<th>Methods</th>
<th>Results</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>SR/MA N= 40 RTC</td>
<td>Chang et al., 2004</td>
<td>“Interventions for the prevention of falls in older adults: SR and MA of RCT”</td>
<td>Blinded email survey</td>
<td>28.8% implemented FP CPG</td>
<td>1A</td>
</tr>
</tbody>
</table>

#### Process:
- Barriers: lengthly time to do FP assessment, pt selecting, forgetting to screen, unsuitable working conditions, lack of time or knowledge, lack of financial compensation
<table>
<thead>
<tr>
<th>Gillespie et al., 2012</th>
<th>SR/MA</th>
<th>N= 159 RCT, N=79,193 participants</th>
<th>Effectiveness of FP interventions in reducing the incidence of falls in CDOA: Fall rates FR</th>
<th>Cochrane handbook to prevent risk of bias</th>
<th>Sensitivity analysis Random effects model</th>
<th>» Group and home exercise ↓ both FR and rates especially strength and balance</th>
<th>» Tai chi ↓ fall risk</th>
<th>» MFRTF ↓ fall rates</th>
<th>Treatment plans based on the identified FR ↓ # falls</th>
<th>» Vit D only benefit people who already have ↓ Vit D levels</th>
<th>» Exercise had largest number of studies</th>
<th>Strength: Cochrane review</th>
<th>Scored high on PRISMA</th>
<th>IA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael et al., 2010</td>
<td>SR/MA</td>
<td>N= 54 RCT, N= 26,102 participants</td>
<td>Benefits and harms of fall prevention interventions used by PCP to prevent falls in CDOA.</td>
<td>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</td>
<td>Random effects meta-regression model</td>
<td>» Exercise or physical therapy interventions ↓ fall risk</td>
<td>» Vit D ↓ fall risk</td>
<td>» MFRA and management did not have significant benefits » No increased serious clinical harms compared to the control group while utilizing FP interventions.</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
| 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<0.001)  
» 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 | Descriptive statistics | Core attributes of case studies | 3B |
| “A conceptual framework for developing teaching cases: A review and synthesis of the literature across disciplines” | Goal: development of conceptual framework | » Attribute | » Process | » Relevant
» Realistic
» Engaging
» Challenging
» Instructional |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Popil, 2010</td>
<td>Use of case studies as a teaching method to promote &amp; facilitate critical thinking and promote learning</td>
<td>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</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Norman, 2012 | 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 |
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Design &amp; Setting</th>
<th>Sample Size</th>
<th>Quality Assessment</th>
<th>Description</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cant &amp; Cooper, 2009</td>
<td>SR</td>
<td>N= 12 QE</td>
<td>N= 36</td>
<td>Critical Appraisal</td>
<td>Descriptive</td>
<td>Positive statistical significance in use of medium to high fidelity SB and using manikins as an effective teaching and learning strategy.</td>
</tr>
<tr>
<td>Jeffries et al., 2011</td>
<td>QE</td>
<td>N= 4 university schools of nursing</td>
<td>N= 36</td>
<td>Descriptive</td>
<td>Content Analysis</td>
<td>Positive statistical improvements in cognitive knowledge and cardiovascular assessment skills. APN students able to perform accurate assessments.</td>
</tr>
<tr>
<td>Warren et al., 2016</td>
<td>SR</td>
<td>N= 10 Experiments</td>
<td>N= 10 NP programs</td>
<td>Qualitative</td>
<td>Content Analysis</td>
<td>High fidelity SB increased NP student satisfaction and attitudes in boosting their self-confidence learning. Knowledge was increased but no differences compared.</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Sample Size</td>
<td>Methods</td>
<td>Findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
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<td>---------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kowitlawakul et al, 2015</td>
<td>EXP</td>
<td>N=</td>
<td>Perceptions of APN students using standardized patients in their SB, Effects of standardized patients in future clinical encounters</td>
<td></td>
<td>3B</td>
<td></td>
</tr>
<tr>
<td>Fisher &amp; Walker, 2013</td>
<td>N= 74 3rd year medicine students at Newcastle University</td>
<td>Effect of SB on student learning: Geriatric Knowledge, Attitudes towards geriatric medicine</td>
<td>3 item Pre and Posttest given 3 times, 5-point feedback questionnaire</td>
<td>Positive statistical significant differences (p&lt;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</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Innovation
New practice of using STEADI toolkit & algorithm

Adoption
Falls screening and management of each CDOA by PCP is being used with STEADI materials

Time
Decision process and rate of adoption of STEADI tools by PCP

Communication Channel
Education and training of future and current PCP on STEADI

Social System
Health care system and PCP norms/goals to decrease injury, mortality, & morbidity; to increase quality of life by following CGP
Appendix F

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

<table>
<thead>
<tr>
<th>Elements of Roger’s Innovation of Diffusion Theory</th>
<th>Definition of Elements</th>
<th>DNP Educational Project Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Innovation</td>
<td>Perceived new idea, practice or object</td>
<td>Fall CPG using STEADI resources by NPs</td>
</tr>
<tr>
<td>Communication Channel</td>
<td>Means by which messages get shared about the new idea</td>
<td>Didactic and Simulation education of the Falls CPG and STEADI resources to future and current NPs</td>
</tr>
<tr>
<td>Time:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Innovation-Decision Process</td>
<td>5-step process leading to awareness and confirmation of new idea</td>
<td>Active learning of Falls CPG using STEADI via simulation and case study participation</td>
</tr>
<tr>
<td>• Innovativeness</td>
<td>5 classifications of how early each individual adopts new idea</td>
<td>Determined through analysis phase of project via post fall educational session questionnaire</td>
</tr>
<tr>
<td>• Rate of Adoption</td>
<td>Speed of how new idea is adopted within a given time period</td>
<td>Determined through analysis phase of project via post fall educational session questionnaire</td>
</tr>
</tbody>
</table>
| Social System                                     | The structure and norms of social system that influences diffusion of new idea | • 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 |

Appendix G

Information Processing Theory

## Appendix H

### Implementation of Information Processing Theory Table

<table>
<thead>
<tr>
<th>Elements of Information Processing Theory</th>
<th>Elements</th>
<th>DNP Educational Project Components</th>
</tr>
</thead>
</table>
| Sensory Memory:                          | • New knowledge, concepts, ideas  
   • Prior Knowledge                      | Fall CPG using STEADI resources by NPs |
| Working/Short Term Memory                | • Means by which new knowledge gets stored  
   • Organized  
   • Appropriate Level  
   • Varied Teaching Methods             | • PowerPoint Presentation  
                                           • Case Study Learning  
                                           • Simulation |
| Long-Term Memory                         | • Active Student Learning  
                                           • Student Centered | • Knowledge of Fall CPG/STEADI  
                                           • Knowledge of how to conduct fall assessment/managemen 
                                           • 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.

| DNP Department Approval 5/8/14 | 2 |
# EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

**Instructions:** Answer YES or NO to each of the following statements:

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

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: *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.*
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: __________________________ 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

<table>
<thead>
<tr>
<th>Desired State</th>
<th>Current State</th>
<th>Deficiencies</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>- 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.</td>
<td>- Geriatric patients are not getting annual fall risk screening.</td>
<td>- Develop and present a falls risk prevention and management educational power point presentation.</td>
</tr>
<tr>
<td></td>
<td>- FNP students have not been educated about the STEADI algorithm and toolkit for fall prevention in their FNP courses.</td>
<td>- At risk geriatric patients are not getting appropriate fall prevention interventions based on their risk factors.</td>
<td>- Introduce and train FNP students on how to use the STEADI algorithm and toolkit.</td>
</tr>
<tr>
<td></td>
<td>- There is no curriculum regarding falls education and screening embedded into the USF FNP program curriculum.</td>
<td>- The STEADI algorithm and toolkit resources are not being used for fall prevention measures.</td>
<td>- Develop a simulated falls risk case study scenario for moderate-high fidelity practice and learning of fall screening and management using a standardized patient.</td>
</tr>
<tr>
<td></td>
<td>- Review of literature demonstrate that PCPs are not annually screening geriatric patients for fall risk or conducting further fall risk assessments.</td>
<td>Geriatric patients are not getting annual fall risk screening.</td>
<td>- 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.</td>
</tr>
<tr>
<td>PCP attending an educational conference will be able to knowledgeable of fall prevention CPG and demonstrate ability to screen and</td>
<td></td>
<td>- At risk geriatric patients are not getting appropriate falls prevention.</td>
<td>- Develop and present a falls risk prevention and management educational power point presentation to educate PCP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Introduce and train PCP on how to use</td>
</tr>
</tbody>
</table>
| Manage CDOA for falls using STEADI and incorporate this as part of routine standard practice. | 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.  
- The STEADI algorithm and toolkit resources are not being used for fall prevention measures. | Interventions based on their risk factors.  
- Use case studies to help PCP practice and use STEADI resources and develop fall prevention critical thinking and assessment. |
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).
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

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) 422-5818
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*
DNP PROJECT: STEADI FALL PREVENTION

STEADI Toolkit Contents

www.CDC.gov/injury/STEADI
DNP PROJECT: STEADI FALL PREVENTION

Fall Interventions: All and Low Risk Patients
- Fall Prevention Education
- Stay Independent Brochure
- Balance with Strength Training Program
- Early Fall Warning: Start Early, Stay Strong, Maintain Balance
- Stay Independent Brochure
- Early Fall Warning: Start Early, Stay Strong, Maintain Balance
- Early Fall Warning: Start Early, Stay Strong, Maintain Balance

Fall Interventions: Moderate Risk
- Fall Interventions: All and Low Risk Patients
- Fall Interventions: Moderate Risk
- Case Study 1
  - Mr. Flores is a 68-ya Hispanic male who lives independently in his own home with no pets. He comes into your primary care clinic for a routine annual wellness exam.

Fall Interventions: High Risk
- Fall Interventions: Moderate Risk
- Case Study 1
  - Fall Interventions: High Risk
  - Case Study 1
    - Mr. Flores is a 68-ya Hispanic male who lives independently in his own home with no pets. He comes into your primary care clinic for a routine annual wellness exam.
DNP PROJECT: STEADI FALL PREVENTION

**History**

- **Medical Problem:**
  - Heart disease
  - Hypertension
  - Anemia
  - Stroke
- **Medication:**
  - Warfarin
  - Statin
  - ACE inhibitor

**History and Physical Exam**

- **Past Medical:**
  - History of falls
  - Syncope
  - Obstructive sleep apnea
- **Medication:**
  - Warfarin
  - Statin
  - ACE inhibitor
  - Dipyridamole
  - Hydrochlorothiazide
- **Social:**
  - Living alone
  - Limited mobility
  - History of falls
  - Syncope

**What are Identified Fall Risk Factors?**

- **Past Independent Brochure:**
  - Fall Awareness
  - Home Safety Checklist
- **Fall Prevention:**
  - Balance exercises
  - Gait training
  - Medication management
- **Mental:**
  - Depression
  - Cognitive impairment
  - Vision problems

**Fall Prevention Recommendations: LOW**

- **Fall Independent Brochure:**
  - Fall Awareness
  - Home Safety Checklist
- **Fall Prevention:**
  - Balance exercises
  - Gait training
  - Medication management
- **Mental:**
  - Depression
  - Cognitive impairment
  - Vision problems

**Fall History**

- **Fall Independent Brochure:**
  - Fall Awareness
  - Home Safety Checklist
- **Fall Prevention:**
  - Balance exercises
  - Gait training
  - Medication management
- **Mental:**
  - Depression
  - Cognitive impairment
  - Vision problems

**Case Study 1**

- **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**

- **Fall Prevention:**
  - Balance exercises
  - Gait training
  - Medication management
- **Mental:**
  - Depression
  - Cognitive impairment
  - Vision problems

**Gait, Strength & Balance Test**

- **Test:**
  - 10 meter walk test
  - Timed up and go test
  - Stander balance test
- **Scoring:**
  - Scores of 1-4 indicate high risk
  - Scores of 5-7 indicate moderate risk
  - Scores of 8-10 indicate low risk
  - Scores of 11-20 indicate high risk

**Fall Prevention Recommendations: LOW**

- **Fall Independent Brochure:**
  - Fall Awareness
  - Home Safety Checklist
- **Fall Prevention:**
  - Balance exercises
  - Gait training
  - Medication management
- **Mental:**
  - Depression
  - Cognitive impairment
  - Vision problems

**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.**
Implementation Tools: STEADI Toolkit
DNP PROJECT: STEADI FALL PREVENTION

Stay Independent

Falls can be very scary, why do other people have

Are you at risk?

Check Your Risk for Falling

1. Do you have balance problems?
2. Do you have vision problems?
3. Do you have a history of falls?
4. Do you use any medications that may cause you to feel lightheaded or dizzy?

Your doctor may suggest:
• Having other medical tests
• Changing your medications
• Consulting a specialist
• Seeing a physical therapist
• Attending a fall prevention program

Pocket Guide

Fall Prevention algorithm and prevention

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:
• Read the self-screening brochure
• Identify risk factors
• Test gait and balance
• Undergo multifaceted assessment
• Apply interventions
• Later, follow-up

Talking with your Patient about Falls

If you feel
• You can say

Prevention Stage
Falling is just a matter of bad luck.

Contemplation Stage
My blood pressure is bad, and I am afraid to walk.

Preparation Stage
I’m worried about falling. Do you think I need help from a specialist?

Action Stage
I know it’s too late to do something. What can I do to help from falling and stay independent?

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

Preventing Falls in Older Patients

Provider Pocket Guide

2016

CDC

Steadi

Fall Prevention algorithm and prevention
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
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.bayareancr.org/rsc and click documents. (Please send signed I.P. release forms to KT at kt@cinhc.org)
# SECTION I: SCENARIO OVERVIEW

<table>
<thead>
<tr>
<th>Scenario Title:</th>
<th>Falls Assessment of Community Dwelling Seniors in a Primary Care Clinic</th>
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<tbody>
<tr>
<td>Original Scenario Developer(s):</td>
<td>Janice A. Mark, DNP (c), RN</td>
</tr>
<tr>
<td>Date - original scenario</td>
<td>3/2017</td>
</tr>
<tr>
<td>Validation:</td>
<td></td>
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<tr>
<td>Pilot testing:</td>
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<td>Revisions:</td>
<td>4/2017</td>
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<tr>
<th>Estimated Scenario Time:</th>
<th>20 minutes</th>
<th>Debriefing time:</th>
<th>40 minutes</th>
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</table>

**Target group:** N735/N736 (Advanced Assessment) FNP Students

**Core case:** An 82-year-old 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 *Stay Independent Brochure*, 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 *Stay Independent Brochure*, 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 *Stay Independent Brochure*, 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

**OSR Competencies**
- V Patient Centered Care
- V Patient Safety
- V Quality Improvement
- V Teamwork and Collaboration
- V Informatics

**Team STEPPS Competencies**

**CNL Competencies**
**EVIDENCE BASE / REFERENCES (APA Format)**

<table>
<thead>
<tr>
<th>Reference</th>
</tr>
</thead>
</table>
TABLE OF CONTENTS

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
### 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.

---

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

ALL DATA IN THIS SCENARIO IS FICTIONAL
B. PRE-SCENARIO LEARNER ACTIVITIES

<table>
<thead>
<tr>
<th>Prerequisite Competencies</th>
<th>Skills/Attitudes</th>
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</thead>
<tbody>
<tr>
<td>AGS/BGS Falls Clinical Practice Guidelines</td>
<td>Geriatric assessment</td>
</tr>
<tr>
<td>STEADI fall algorithm and resources</td>
<td>Advanced assessment: history and physical exam</td>
</tr>
<tr>
<td>Stay Independent Brochure (CDC)</td>
<td>Communication skills</td>
</tr>
<tr>
<td>SOAP clinical decision making process</td>
<td>Case study presentation skills</td>
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<tr>
<td>OLD CARTS</td>
<td>Timed Up and Go Test (TUG)</td>
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<tr>
<td>Advanced pathophysiology &amp; pharmacology</td>
<td>30-Second Chair Stand Test</td>
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<tr>
<td>Principles of aging</td>
<td>4-Stage Balance Test</td>
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<td>Mobile technology</td>
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</tr>
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SECTION III: SCENARIO SCRIPT

A. Case summary

Scenario 1
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.

Scenario 2
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.

Scenario 3
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.

B. Key contextual details

Patient room in primary care clinic

C. Scenario Cast

<table>
<thead>
<tr>
<th>Patient/Client</th>
<th>Role</th>
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<tbody>
<tr>
<td></td>
<td>Brief Descriptor (Optional)</td>
</tr>
<tr>
<td></td>
<td>High-fidelity simulator</td>
</tr>
<tr>
<td></td>
<td>Mid-level simulator</td>
</tr>
<tr>
<td></td>
<td>Task trainer</td>
</tr>
<tr>
<td></td>
<td>Hybrid (Blended simulator)</td>
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<tr>
<td></td>
<td>v Standardized patient</td>
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CSA REV template (12/15/08; 5/09; 12/09; 4/11)

ALL DATA IN THIS SCENARIO IS FICTIONAL
### D. Patient/Client Profile

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Primary Language spoken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin</td>
<td>Frances</td>
<td>82</td>
<td>Female</td>
<td>Caucasian</td>
<td>English</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Code Status</th>
<th>Full code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1. Past History

**Medical:** Diabetes mellitus type 2, degenerative arthritis, depression, GERD, hypothyroidism, HTN, remote history of breast cancer, G4P3

**Surgical:** Right Total knee replacement, mastectomy

**Family History:** Mother: died of uterine & breast cancer, age 75; Father: died colon CA, age 70; Siblings: Sister (alive age 78 - HTN, DM)

**Social History:**
- **Diet:** light meals and snacks
- **Exercise:** has mild pain with walking d/t arthritis, but still able to move around and started dance class at the senior center

**Housing Situation:** housed in senior apartment that she recently moved into (6 months ago)

**Sexual History:** not sexually active

**Born In:** Seattle, WA

**Education:** some college

**Occupation:** homemaker; worked part-time in fabric store

**Family/Support:** 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.

**Tobacco:** never

**Drugs:** never

**Alcohol:** occasional, 1-2 drinks when socializing

**Healthcare Maintenance:** vaccinations and screenings UTD

**IADLs/ADLs:** Independent with bathing and dressing but sometimes has a difficult time getting out of the tub. Independent with cooking and walking

**Primary Medical Diagnosis:** Diabetes mellitus type 2, degenerative arthritis, depression, GERD, hypothyroidism, HTN, remote history of breast cancer, G4P3
# 2. Review of Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Description</th>
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<tbody>
<tr>
<td>CNS</td>
<td>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, normal extraocular movements, no hearing deficits, CN 2-12 intact, no tremors, normal muscle tone, positive light touch sensation to bilateral feet, normal proprioception and DTR</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Denies dizziness, chest pain, or palpitations; regular rhythm/rate with no murmurs, no edema, peripheral pulses +2 bilaterally</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Denies SOB, orthopnea, or cough; clear to auscultation bilaterally</td>
</tr>
<tr>
<td>Renal/Hepatic</td>
<td>Denies incontinence but has hx of nocturia &gt;2x/occ, no hepatomegaly or tenderness</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Denies N/V, appetite is normal; abdomen soft, non-tender with positive bowel sounds</td>
</tr>
<tr>
<td>Endocrine</td>
<td>Denies temperature changes, chills; no neck masses, goiters</td>
</tr>
<tr>
<td>Home/Coord</td>
<td>Denies any bleeding or bruising; no bruises/ecchymosis/paresthesia noted</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>C/o mild knee stiffness and has intermittent joint pain to bilateral knees rated 2-4/10; strength: BUE 5/5; hip flexors and abductors 4+/5; knee flexors/extensors 4+/5; positive joint inflammation to bilateral knees with limited ROM; foot exam positive for clawing of toes</td>
</tr>
<tr>
<td>Integument</td>
<td>Foot exam positive for diffuse large calluses and cracked skin over toes; toenails are long and thickened</td>
</tr>
<tr>
<td>Developmental Hx</td>
<td>Retired, widowed</td>
</tr>
<tr>
<td>Psychiatric Hx</td>
<td>Depression and anxiety; PHQ2 2/6; recall is 2/3 on cognitive screen and able to draw clock properly</td>
</tr>
<tr>
<td>Social Hx</td>
<td>(see above)</td>
</tr>
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</table>

**Alternative/ Complementary Medicine Hx**: acupuncture

### Medication allergies:
- NKDA

### Food/other allergies:
- None

### 3. Current medications

<table>
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<tr>
<th>Drug</th>
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<td>PO</td>
<td>daily</td>
</tr>
<tr>
<td>Calcium</td>
<td>500mg</td>
<td>PO</td>
<td>TID</td>
</tr>
<tr>
<td>Lexapro</td>
<td>10mg</td>
<td>PO</td>
<td>Daily</td>
</tr>
<tr>
<td>Ativan</td>
<td>1mg</td>
<td>PO</td>
<td>Prn anxiety/sleep</td>
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<tr>
<td>Levothyroxine</td>
<td>125mcg</td>
<td>PO</td>
<td>Daily</td>
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<tr>
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<td>PO</td>
<td>BID</td>
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<tr>
<td>Celebrex</td>
<td>200mg</td>
<td>PO</td>
<td>BID</td>
</tr>
<tr>
<td>Norco 5/325mg</td>
<td>1tab</td>
<td>PO</td>
<td>Q6H prn pain</td>
</tr>
<tr>
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CSA REV template (12/15/08; 5/09; 12/09; 4/11)

ALL DATA IN THIS SCENARIO IS FICTICIOUS
4. Laboratory, Diagnostic Study Results

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<td>Hct:</td>
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<td>WBC:</td>
<td>ABO Blood Type:</td>
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<td>INR</td>
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<td>HIV:</td>
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<td>CXR:</td>
<td>ECG:</td>
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</table>

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 (moulage): 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 Staying Independent Brochure 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.

**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. 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 to the NP student).*

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

ALL DATA IN THIS SCENARIO IS FICTICIOUS
DNP PROJECT: STEADI FALL PREVENTION

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 stance, 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.

<table>
<thead>
<tr>
<th>ID band present, accurate</th>
<th>ID band present, inaccurate</th>
<th>X</th>
<th>ID band absent or not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy band present, accurate</td>
<td>Allergy band inaccurate</td>
<td>X</td>
<td>Allergy band absent or N/A</td>
</tr>
</tbody>
</table>

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

ALL DATA IN THIS SCENARIO IS FICTIONIC
## 2. Initial Vital Signs Monitor display in simulation action room:

<table>
<thead>
<tr>
<th></th>
<th>No monitor display</th>
<th>Monitor on, but no data displayed</th>
<th>Monitor on, data displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{SpO}_2$:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVP:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAS:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAD:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCWP:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIRWAY:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETCO$_2$:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FHR:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lungs: Sounds/mechanics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart: Sounds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECG rhythm:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowel sounds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 3. Initial Intravenous line set up

<table>
<thead>
<tr>
<th>Saline lock #1</th>
<th>Site:</th>
<th>IV patent (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IV #1</strong></td>
<td>Main</td>
<td>Fluid type:</td>
</tr>
<tr>
<td></td>
<td>RA</td>
<td></td>
</tr>
<tr>
<td><strong>Piggyback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IV #2</strong></td>
<td>Main</td>
<td>Fluid type:</td>
</tr>
<tr>
<td></td>
<td>RA</td>
<td></td>
</tr>
<tr>
<td><strong>Piggyback</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. Initial Non-invasive monitors set up

<table>
<thead>
<tr>
<th>NIBP</th>
<th>ECG First lead:</th>
<th>ECG Second lead:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse oximeter</td>
<td>Temp monitor/type</td>
<td>Other:</td>
</tr>
</tbody>
</table>

### 5. Initial Hemodynamic monitors set up

<table>
<thead>
<tr>
<th>A-line Site:</th>
<th>Catheter/tubing Patency (Y/N)</th>
<th>CVP Site:</th>
<th>PAC Site:</th>
</tr>
</thead>
</table>

### 6. Other monitors/devices

<table>
<thead>
<tr>
<th>Foley catheter</th>
<th>Amount:</th>
<th>Appearance of urine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidural catheter</td>
<td>Infusion pump:</td>
<td>Pump settings:</td>
</tr>
</tbody>
</table>

---

### 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**

*Stay Independent Brochure A:* 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 *Gait test* (TUG): results: 11 seconds (abnormal ≥12) with normal gait, unassisted with little arm swing  

**A2** Index card for *Strength test* (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 *Balance Test* (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 visual acuity results: right 20/30; left 20/50

#### Scenario 2(B)

---

ALL DATA IN THIS SCENARIO IS FICTICIOUS

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

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

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal cannula</td>
<td>Face tent</td>
</tr>
<tr>
<td>BVM/Annu bag</td>
<td>Nebulizer [x] kit</td>
</tr>
<tr>
<td></td>
<td>Flowmeters (extra supply)</td>
</tr>
</tbody>
</table>

4. Documentation and Order Forms

<table>
<thead>
<tr>
<th>Health Care Provider orders</th>
<th>Med Admin Record</th>
<th>X</th>
<th>H &amp; P</th>
<th>X</th>
<th>Lab Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>X Progress Notes</td>
<td>X Graphic record</td>
<td></td>
<td></td>
<td></td>
<td>Anesthesia/PACU record</td>
</tr>
<tr>
<td>X Medication reconciliation</td>
<td>X Transfer orders</td>
<td></td>
<td></td>
<td></td>
<td>Standing (protocol) orders</td>
</tr>
<tr>
<td>Nurses’ Notes</td>
<td>X Dx test reports</td>
<td></td>
<td></td>
<td></td>
<td>ICU flow sheet</td>
</tr>
<tr>
<td>X Actual medical record binder, constructed per institutional guidelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other Describe: Stay Independent Brochure; STEADI algorithm</td>
</tr>
</tbody>
</table>

5. Medications (to be available in sim action room)

<table>
<thead>
<tr>
<th>#</th>
<th>Medication</th>
<th>Dosage</th>
<th>Route</th>
<th>#</th>
<th>Medication</th>
<th>Dosage</th>
<th>Route</th>
</tr>
</thead>
</table>

Appendixes:

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

Misc:

4. 30-Second Chair Stand test: [https://www.cdc.gov/steadi/pdf/30_Second_Chair_Stand_Test-a.pdf](https://www.cdc.gov/steadi/pdf/30_Second_Chair_Stand_Test-a.pdf)
5. 4-Stage Balance Test: [https://www.cdc.gov/steadi/pdf/4-Stage_Balance_Test-a.pdf](https://www.cdc.gov/steadi/pdf/4-Stage_Balance_Test-a.pdf)

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

ALL DATA IN THIS SCENARIO IS FICTIONOUS
### Case Flow / Triggers/ Scenario Development States

**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 Staying Active Brochure that she filled out in the waiting room and her score was a 4.

<table>
<thead>
<tr>
<th>State / Patient Status</th>
<th>Desired Learner Actions &amp; Triggers to Move to Next State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Baseline</td>
<td>Operator</td>
</tr>
<tr>
<td></td>
<td>Patient sitting on chair, calm and pleasant</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Triggers:</td>
</tr>
<tr>
<td></td>
<td>- Reviews pt chart</td>
</tr>
<tr>
<td></td>
<td>- Hand hygiene</td>
</tr>
<tr>
<td></td>
<td>- Introduce self and role</td>
</tr>
<tr>
<td></td>
<td>- Obtains chief complaint</td>
</tr>
<tr>
<td></td>
<td>- Reviews the Staying Active Brochure with patient and interrogates patient to collect subjective data</td>
</tr>
<tr>
<td></td>
<td>- Screens for falls and conducts multifactorial fall risk assessment</td>
</tr>
<tr>
<td></td>
<td>- Performs focused physical exam based off of history and includes visual acuity test</td>
</tr>
</tbody>
</table>

**Debriefing Points:**
- National Patient Safety Goals
- STEADI algorithm and resources
- Scoring of the Staying Active Brochure
- 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

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

*ALL DATA IN THIS SCENARIO IS FICTIONAL*
| **STATE / PATIENT STATUS** | **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 *Staying Independent Brochure* that she filled out in the waiting room with a score of 5.

Learners have 5 minutes to review chart, plan care and initiate scenario. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient sitting on chair, calm and pleasant</td>
<td></td>
</tr>
</tbody>
</table>

- 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.
### Triggers:

- Reviews pt chart
- Hand hygiene
- Introduce self and role
- Obtains chief complaint
- Reviews the *Staying Active Brochure* 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 **Moderate Risk**

### Operator:

- Learner Actions:
  - National Patient Safety Goals
  - STEADI algorithm and resources
  - Scoring of the *Staying Active Brochure*
  - 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

---

ALL DATA IN THIS SCENARIO IS FICTICIOUS
<table>
<thead>
<tr>
<th>Algorithm to guide assessment and interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducts TUG, 30-Second Chair Stand test, and 4-point Balance test</td>
</tr>
<tr>
<td>Formulates problem list with differential diagnosis from gathered subjective and objective data; include falls risk as one of the stated problems</td>
</tr>
<tr>
<td>Provides a verbal summary statement of patient findings and action plan</td>
</tr>
</tbody>
</table>

| STATE / PATIENT STATUS | 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 Staying Active Brochure which has a score of 10. |
|-----------------------------------------------|
| Patient is distressed and depressed about recent falls, afraid |
| Learners have 5 minutes to review chart, plan care and initiate scenario |

<table>
<thead>
<tr>
<th>Operator:</th>
<th>Learner Actions:</th>
<th>Debriefing Points:</th>
</tr>
</thead>
</table>
| Triggers: | Reviews 
- Hand hygiene 
- Introduce self and role 
- Obtains chief complaint 
- Reviews the *Staying Active Brochure* 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 |
| --- | --- |
| National Patient Safety Goals 
- STEADI algorithm and resources 
- Scoring of the *Staying Active Brochure* 
- 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 |

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

ALL DATA IN THIS SCENARIO IS FICTIONOUS
- 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.

<table>
<thead>
<tr>
<th>STATE / PATIENT STATUS</th>
<th>DESIRED ACTIONS &amp; TRIGGERS TO MOVE TO NEXT STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Operator:</td>
<td>Learner Actions:</td>
</tr>
<tr>
<td>Triggers:</td>
<td>Debriefing Points</td>
</tr>
</tbody>
</table>

CSA REV template (12/15/08; 1/09; 12/09; 4/11)

ALL DATA IN THIS SCENARIO IS FICTITIOUS
## APPENDIX C: DEBRIEFING GUIDE

### General Debriefing Plan

- Individual
- Group
- With Video
- Without Video

### Debriefing Materials

- Debriefing Guide
- Objectives
- Debriefing Points
- QSEN

### QSEN Competencies to consider for debriefing scenarios

- Patient Centered Care
- Teamwork/Collaboration
- Evidence-based Practice
- Safety
- Quality Improvement
- Informatics

### Sample Questions for Debriefing

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; 12/99; 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:**

<table>
<thead>
<tr>
<th>PMH: DM, HTN, DJD, depression, GERD, hypothyroid, breast CA</th>
<th>Allergies: NKDA</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Sister: alive, age 78, HTN, DM</td>
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**Social History**

**Diet:** light meals and snacks
**Exercise:** has some mild pain with walking d/t arthritis, still active and started dance class at senior center
**Interests/Hobbies:** reading, sewing and dancing, but having trouble with seeing (needs new glasses)
**Sexual Health:** not sexually active
**Born in:** Seattle, WA
**Education:** some college
**Occupation:** homemaker, retired 5 years ago but worked part-time in fabric store x 20 yrs

**Family /Support**
- Husband died 15 yrs ago
- Children: 2 daughters, 1 local and visits weekly with grandchildren; other daughter calls frequently and visits when she can (lives in another state)
- No friends currently since recently moved but joined senior community center a couple weeks ago

**Tobacco:** never
**Drugs:** never
**Alcohol:** occasional, 1-2 drinks when socializing

**Health Care Maintenance**

**Vaccinations:** UTD
**Screenings:** UTD
**Annual Wellness Exam:** last exam 1 year ago

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

IADLs/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
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? (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

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<tr>
<td>Acceptance to be CANP speaker</td>
<td>October 2016</td>
<td>October 2016</td>
<td>1 day</td>
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</tr>
<tr>
<td>Attend PowerPoint &amp; presentation skills training</td>
<td>December 2016</td>
<td>December 2016</td>
<td>1 day</td>
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<tr>
<td>Develop falls/STEADI PowerPoint presentation</td>
<td>January 2017</td>
<td>February 2017</td>
<td>2 months</td>
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<tr>
<td>Develop case studies</td>
<td>January 2017</td>
<td>February 2017</td>
<td>2 months</td>
<td></td>
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<tr>
<td>Develop project evaluation metrics</td>
<td>January 2017</td>
<td>February 2017</td>
<td>2 months</td>
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<tr>
<td>Develop and submit CSA case study scenario</td>
<td>January 2017</td>
<td>May 2017</td>
<td>5 months</td>
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<tr>
<td><strong>Implement</strong></td>
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<tr>
<td>Advanced Assessment class falls education presentation and simulation</td>
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<td>September 2017</td>
<td>*did not occur 1 day</td>
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<tr>
<td>Lunch and Learn falls education presentation</td>
<td>February 2017</td>
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<tr>
<td><strong>Data Analysis</strong></td>
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</tr>
<tr>
<td>Data analysis of project outcomes</td>
<td>February 2017</td>
<td>June 2017</td>
<td>5 months</td>
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<tr>
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<td>May 2017</td>
<td>July 2017</td>
<td>3 months</td>
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<tr>
<td>DNP project presentation</td>
<td>August 2017</td>
<td>August 2017</td>
<td>2 weeks</td>
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</tr>
</tbody>
</table>
Appendix N

Work Breakdown Structure
Appendix O

SWOT Analysis

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CCNE certified institution (USF)</td>
<td>• Familiarity of FNP students, PCP and other stakeholders</td>
</tr>
<tr>
<td>• Identified population with problem</td>
<td>• Limited experience with developing CSA compliant simulation scenarios</td>
</tr>
<tr>
<td>• National Directive to fix problem</td>
<td>• Unfamiliarity with conference technology and being a conference speaker</td>
</tr>
<tr>
<td>• SON and University support and resources (classrooms, media)</td>
<td>• Time and resource estimates</td>
</tr>
<tr>
<td>• Support of key stakeholders (FNP faculty, SIM director, FNP students)</td>
<td></td>
</tr>
<tr>
<td>• Easy access to evidence-based falls resources through STEADI website</td>
<td></td>
</tr>
<tr>
<td>• Personal expertise in geriatrics and falls knowledge</td>
<td></td>
</tr>
<tr>
<td>• Personal knowledge of organizational structure and institutional processes (USF)</td>
<td></td>
</tr>
<tr>
<td>• Access to staff and simulation lab</td>
<td></td>
</tr>
<tr>
<td>• Personal experience with teaching and simulation</td>
<td></td>
</tr>
<tr>
<td>• Acceptance of CANP conference abstract</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Government trends and initiatives to increase health safety and patient education</td>
<td>• Time delays due cancellation of N735/N736 course</td>
</tr>
<tr>
<td>• Developed clinical guidelines for fall risk factor reduction and management</td>
<td>• Availability of participant (students/PCP) participation and cooperation</td>
</tr>
<tr>
<td>• Decrease CDOA falls and injuries leading to decrease costs and social burdens</td>
<td>• Unfamiliarity and reliance on technology during CANP conference caused PowerPoint presentation difficulties</td>
</tr>
<tr>
<td>• Rise in aging population and patient demographics with high risk factor for falls</td>
<td></td>
</tr>
<tr>
<td>• Standardization of patient screening and management in the primary care setting</td>
<td></td>
</tr>
<tr>
<td>• Disbursement of STEADI materials to other faculty and students</td>
<td></td>
</tr>
<tr>
<td>• Lunch and Learn seminar</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix P

### Responsibility/Communication Matrix

<table>
<thead>
<tr>
<th>Project Planning</th>
<th>DNP Student</th>
<th>DNP Chair</th>
<th>DNP Committee</th>
<th>N736 AA Faculty</th>
<th>SIM Manager</th>
<th>CANP Coordinator</th>
<th>Presentation Assistants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature Review</td>
<td>RA</td>
<td>C</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Project Plan Proposal</td>
<td>RA</td>
<td>C</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>X</td>
</tr>
<tr>
<td>Form DNP committee</td>
<td>RA</td>
<td>A1</td>
<td>A</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Statement of Determination Form</td>
<td>RA</td>
<td>C</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Development**

| Manuscript | RA | C | I | X | X | X | X |
| CANP Abstract | RA | AI | I | X | X | A | X |
| Pilot Simulation | RA | C | I | Al | 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 | Al | RAI | X | RI |
| Lunch and Learn | RA | C | I | X | X | X | R |
| CANP Education Conference | RA | C | I | X | X | Al | 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

<table>
<thead>
<tr>
<th>Direct Expenses</th>
<th>Projected</th>
<th>Actual</th>
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</thead>
<tbody>
<tr>
<td>CANP Registration Fees</td>
<td>$275</td>
<td>$275</td>
</tr>
<tr>
<td>Travel Fee: Hotel and Transportation</td>
<td>$0</td>
<td>$525</td>
</tr>
<tr>
<td>Simulation Tech Fees ($18/hour x 2 hours)</td>
<td>$36</td>
<td>$36</td>
</tr>
<tr>
<td>Simulation Manager Fees ($40/hour x 2 hours)</td>
<td>$80</td>
<td>$80</td>
</tr>
<tr>
<td>N735/N736 Faculty Fees ($50/hour x 2 hours)</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Printing and Copying Post Tests/ Evaluation Tools</td>
<td>$25</td>
<td>$30</td>
</tr>
<tr>
<td>Visual Aids</td>
<td>$0</td>
<td>$20</td>
</tr>
<tr>
<td><strong>Subtotal Direct Expenses</strong></td>
<td><strong>$516</strong></td>
<td><strong>$1066</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect Expenses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DNP Student’s Time to plan, develop and implement project</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>CANP Speaker Fees</td>
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<td>$0</td>
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<tr>
<td><strong>Subtotal Indirect Expenses</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
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<tr>
<td><strong>Total Project Expense</strong></td>
<td><strong>$516</strong></td>
<td><strong>$1066</strong></td>
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</tbody>
</table>

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

Cost Avoidance/Benefit Analysis

<table>
<thead>
<tr>
<th>Costs</th>
<th>DNP Project</th>
<th>Clinic</th>
<th>National (CDC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Costs</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>• Out-of-Pocket expenses</td>
<td>₤850</td>
<td></td>
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</tr>
<tr>
<td>• Total hourly wages* (faculty, simulation manager/assistant)</td>
<td>₤216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Total Expenses</td>
<td>₤1066</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Estimated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potential Cost Revenue/Cost</strong></td>
<td>Per visit</td>
<td>500 visits</td>
<td>6 million screened</td>
</tr>
<tr>
<td><strong>Potential Revenue Sources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Estimated Medicare Initial Preventive Physical Exam*</td>
<td>₤156</td>
<td>₤78,000</td>
<td>₤936 Million</td>
</tr>
<tr>
<td>• Estimated Medicare Annual Wellness Visit*</td>
<td>₤112</td>
<td>₤56,000</td>
<td>₤672 Million</td>
</tr>
<tr>
<td>• Total Potential Medicare Revenue</td>
<td>₤268</td>
<td>+₤134,000</td>
<td>-₤1.61 Billion</td>
</tr>
<tr>
<td><strong>Potential Cost Avoidance</strong></td>
<td>500 visits</td>
<td></td>
<td>1 million prevention falls</td>
</tr>
<tr>
<td><strong>Potential Cost Avoidance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hospitalization x1 patient*</td>
<td>₤30,000</td>
<td>₤15 Million</td>
<td>₤3 Billion</td>
</tr>
<tr>
<td>• Emergency Visit 1 patient**</td>
<td>₤1233</td>
<td>₤616,500</td>
<td>₤1.23 Million</td>
</tr>
<tr>
<td>• Total Potential Cost Avoidance</td>
<td>+₤31,233</td>
<td>+15.6 Mil</td>
<td>+₤3.1 Billion</td>
</tr>
<tr>
<td><strong>Estimated Breakeven Analysis/Net Cost Avoidance</strong></td>
<td>Breakeven</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potential Breakeven Analysis</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Breakeven point for Medicare Screening Visits ($31,233/$268)</td>
<td>117 visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Cost Avoidance</td>
<td>₤30,167</td>
<td>₤1.49 Billion</td>
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## Appendix S

### Return on Investment Plan

<table>
<thead>
<tr>
<th></th>
<th>ROI</th>
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</thead>
<tbody>
<tr>
<td><strong>Community/Nation</strong></td>
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<tr>
<td></td>
<td>• Decreased social burdens</td>
</tr>
<tr>
<td></td>
<td>• For every 5000 PCP who adopt STEADI, 6 million patients can be screened and 1 million falls could be prevented</td>
</tr>
<tr>
<td></td>
<td>• 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)</td>
</tr>
<tr>
<td><strong>CANP/USF</strong></td>
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<tr>
<td></td>
<td>• Falls prevention curriculum</td>
</tr>
<tr>
<td></td>
<td>• Available speaker to provide the education</td>
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<tr>
<td></td>
<td>• Promotes and supports professional growth</td>
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<tr>
<td><strong>PCP (Future/Current)</strong></td>
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<tr>
<td></td>
<td>• Increased knowledge of falls risk CPG and use of STEADI tools to aid in screening and improvements in managing falls risk factors</td>
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<tr>
<td></td>
<td>• Increased comfort level of falls risk assessment, leading to increased falls risk screening and prevention of falls of CDOA</td>
</tr>
<tr>
<td></td>
<td>• Eligibility to receive annual Medicare reimbursement for fall risk screening from IPPE and AWV visits ($141/visit)</td>
</tr>
<tr>
<td></td>
<td>• Compliance with fall CPG for seniors</td>
</tr>
<tr>
<td><strong>CDOA</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased quality of life</td>
</tr>
<tr>
<td></td>
<td>• Improvement in health status and function</td>
</tr>
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<td></td>
<td>• Decreased personal expenses (potential)</td>
</tr>
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<td></td>
<td>• Avoidance of early death (potential)</td>
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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.

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<tr>
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<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

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<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

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<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

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<tr>
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<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

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<tr>
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<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

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<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Undecided</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely</td>
<td>Most Likely</td>
<td>Likely</td>
<td>Undecided</td>
<td>Somewhat Likely</td>
<td>Not Likely</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely</td>
<td>Most Likely</td>
<td>Likely</td>
<td>Undecided</td>
<td>Somewhat Likely</td>
<td>Not Likely</td>
</tr>
</tbody>
</table>

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

a. Time Constraints

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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<tbody>
<tr>
<td>Likely</td>
<td>Most Likely</td>
<td>Likely</td>
<td>Undecided</td>
<td>Somewhat Likely</td>
<td>Not Likely</td>
</tr>
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</table>

b. Competing Health Care Demands/Problems

<table>
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<th>2</th>
<th>1</th>
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<tbody>
<tr>
<td>Likely</td>
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<td>Likely</td>
<td>Undecided</td>
<td>Somewhat Likely</td>
<td>Not Likely</td>
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</table>

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

<table>
<thead>
<tr>
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<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
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<td>Most Likely</td>
<td>Likely</td>
<td>Undecided</td>
<td>Somewhat Likely</td>
<td>Not Likely</td>
</tr>
</tbody>
</table>

Comments/Suggestions:

Thank you!
Appendix U

CQI Method (Evaluation Plan)

<table>
<thead>
<tr>
<th>Measures</th>
<th>Definition</th>
<th>Data Source</th>
<th>Outcome Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Measures</strong></td>
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<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>N=Sum number of mean Likert scores</td>
<td>SFKE</td>
<td>Mean Likert Score $\geq 3$</td>
</tr>
<tr>
<td></td>
<td>D=Sum number of participants in each interventional setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #1 &amp; #4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #2 &amp; #5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #2 &amp; #5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>N=Sum number of mean Likert scores</td>
<td>SFKE</td>
<td>Mean Likert Score $\geq 3$</td>
</tr>
<tr>
<td></td>
<td>D=Sum number of participants in each interventional setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to Change</td>
<td>N=Sum number of mean Likert scores</td>
<td>SFKE</td>
<td>Mean Likert Score $\geq 3$</td>
</tr>
<tr>
<td></td>
<td>D=Sum number of participants in each interventional setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #3 &amp; #7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question #3 &amp; #8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCP Experience</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCP Barriers</strong></td>
<td>N=Sum number of mean Likert scores</td>
<td>SFKE</td>
<td>Identify 1 barrier to changing practice</td>
</tr>
<tr>
<td></td>
<td>D=Sum number of participants in each interventional setting</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Question #9a-b-c-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Process Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Intervention Mean Likert Scale Score</th>
<th>Post-Intervention Mean Likert Scale Score</th>
<th>Effect/Goal Met Goal Mean score &gt;3</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Question #</td>
<td>Score</td>
<td>Question #</td>
</tr>
<tr>
<td>Lunch and Learn N=10</td>
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<td></td>
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</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Awareness of AGS/BGS</td>
<td>#1</td>
<td>2.1</td>
<td>#4</td>
</tr>
<tr>
<td>fall CPG</td>
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</tr>
<tr>
<td>Awareness of STEADI</td>
<td>#2</td>
<td>2.3</td>
<td>#5</td>
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<tr>
<td>Confidence</td>
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<td></td>
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</tr>
<tr>
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<td>#6</td>
</tr>
<tr>
<td>Intent Change Practice</td>
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</tr>
<tr>
<td>Routine Fall Screening</td>
<td>#3</td>
<td>3.3</td>
<td>#7</td>
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<tr>
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<td>Knowledge</td>
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<td></td>
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<tr>
<td>Awareness of AGS/BGS</td>
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<td>#4</td>
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<td>fall CPG</td>
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<td>#5</td>
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<td>#6</td>
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<td>2.4</td>
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<td>Combined Groups N=43</td>
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<tr>
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<td>#5</td>
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<tr>
<td>Confident using STEADI</td>
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<tr>
<td>Routine Fall Screening</td>
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<td>#7</td>
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Table W2

**PCP Barriers**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Lunch and Learn Mean Likert Score</th>
<th>CANP Mean Likert Score</th>
<th>Combined Mean Likert Score</th>
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<tbody>
<tr>
<td>Item #9a Time Constraints</td>
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<td>Item #9b Competing Health Care Demands</td>
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<td>Item #9c Knowledge of How to Screen</td>
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Table W3

**Qualitative Analysis**

**Comments/Suggestions from SFKE tool**

<table>
<thead>
<tr>
<th>Lunch and Learn</th>
<th>CANP</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I think the tool and the educational materials are great!”</td>
<td>“I’m currently not working in a role that would be doing this. Thank you.”</td>
</tr>
<tr>
<td>“Great job! Perhaps print out the algorithm for audience, or go back to it with each case study.”</td>
<td>“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’”</td>
</tr>
<tr>
<td></td>
<td>“You did great despite technical difficulties!!”</td>
</tr>
<tr>
<td></td>
<td>“Great Job!”</td>
</tr>
<tr>
<td></td>
<td>“Great presentation – well organized and to the point. Thank you”</td>
</tr>
<tr>
<td></td>
<td>“Because of HEDIS scores, Medicare prevention exam EMR prompts to screen for falls.”</td>
</tr>
</tbody>
</table>