

Timed Get Up and Go Implementation to Improve Falls Assessment

Megan Sneed

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Dedication

I dedicate this project to my family, my co-workers, and my classmates, who helped and supported me throughout the process. Special thanks belong to my mother, Robin Sneed, for her unwavering support during this process. She has been my sounding board, final proofreader, and pillar of support for all my life. Thank you for helping me get this far successfully; I could not do it without you.

Abstract

Falls are a large problem in the geriatric population, causing injury to patients and financial strain on the healthcare system. Using Meleis Transition theory and Lewin's Change theory as a framework, the author implemented a standardized process to evaluate fall risk in a small, suburban primary care practice. The site had a large patient base who were > 65 years of age, making them high risk for falls with no falls assessment in place, which is why it was chosen as the project site. The medical assistants were educated on the STEADI initiative and the project protocol during a live session that was accompanied by a PowerPoint presentation. The medical assistants used the STEADI Algorithm to determine if the patient needs further assessment. If the algorithm determined further assessment was needed, then the patient completed a Timed Get Up and Go, which was documented in the EHR. The adherence rate to TUG assessment was 33% post implementation, which was lower than the target adherence rate of 50%. However, awareness of the issue was raised with this project. The author found that implementing change in a small practice is difficult, but can positively affect patients and the healthcare system, meeting the goals of the Triple Aim and Healthy People 2020.

Keywords: STEADI, Falls, TUG, Geriatric

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1 Timed Get Up and Go Implementation to Improve Falls Assessment

2 Falls are a significant concern in the geriatric population. One in every three patients in
3 this population sustains a fall every year (Landis, & Galvin, 2014). The project manager will
4 discuss the incidence of falls, fall-related injuries, and fall-related deaths. Then, the project
5 manager will explore the economic burden of these outcomes at the state and federal levels. The
6 need for falls assessment in primary care will be evaluated. Finally, the project manager will
7 explore the questions guiding the research, the evaluation of the project, and the measures of
8 project success.

9 **Background Information**

10 By 2050, 84 million people will be among the older adult population, which suggests the
11 number of falls will increase (Haddad, Bergen, & Florence, 2019). Zimba Kalula, Ferreira,
12 Swingler, Badri, & Sayer (2015) found that 30% to 60% of people > 65 years reported at least
13 one fall during the previous year. For the population 80 years or old, this number averaged 50%.
14 In 2014, the CDC estimated that 28.7% of older adults reported falling in the past year, equating
15 to 29 million falls in 2013 (Bergen, Stevens, & Burns, 2016). According to Bergen et al. (2016),
16 based on the estimated population in 2030, falls will increase to 48.8 million per year unless
17 effective prevention plans exist to reduce falls. Castle (2019) reports that despite the
18 recommendations of the American and British geriatrics societies to implement strategies to
19 reduce falls, falls have increased 30% over the past decade.

20 Of an estimated 29 million falls that occurred in 2013, seven million resulted in injury
21 (Bergen et al., 2016). 65% of injuries among the elderly are fall-related (Maxwell, 2015). Falls
22 also account for at least 15% of emergency room visits yearly (Pohl et al., 2014). This
23 phenomenon occurs in NC as well. Each day in North Carolina, there are "...531 visits to

24 emergency departments [EDs], 69 individuals admitted to the hospital, and two fall-related
25 fatalities” (Landis, & Galvin, 2014). A busy practice in suburban North Carolina does not
26 routinely see patients for falls-related visits but feels their patients are contributing to the
27 geriatric fall epidemic.

28 Additionally, in 2016, North Carolina had 10.9 falls deaths /100,000 people, which is
29 higher than the national average of 9.1/100,000 (Healthy People 2020, 2019). In 2016,
30 nationally, there were 29,668 deaths from falls among patients aged 65 years + (Burns & Kakara,
31 2018). Burns and Kakara (2018) estimate that by 2030, 49,000 to 53,000 fall-related deaths will
32 happen annually---unless the rate of falls decreases.

33 Falls may lead to adverse outcomes for patients: nursing home admission, loss of self-
34 esteem, lower functioning, and inactivity (Hajek, & König, 2017). Hajek and König (2017)
35 found an inverse association between the number of falls in the previous 12 months and the
36 patients' perception of negative effects ($p < 0.001$). Furthermore, the largest risk factor for falling
37 is a previous fall (Jia et al., 2019). Additionally, patient falls affect caregivers. Shen, Hu, Liu, &
38 Tong (2015) found that both caregivers and patients were afraid of falls. Treating caregiver fear
39 was necessary for successful patient recovery (Shen et al., 2015).

40 Fall-related injuries are common (Pohl et al., 2014). Maxwell (2015), wrote that the most
41 common geriatric injuries are lower extremity and hip fractures, which represent 47% of
42 traumatic injuries. Neck, rib, and spinal injuries account for 18% of traumatic injuries (Maxwell,
43 2015). Aside from physical trauma, falls may cause psychological trauma. Hajek and König
44 (2017) found an inverse association between the severity of depression in the patient and their
45 number of falls ($p < .001$). Depression, chronic conditions, geriatric syndromes, cognitive

46 deficits, and physical impairments all increase the likelihood that an older adult will fall (Jia et
47 al., 2019).

48 Adverse outcomes require long term healthcare, which raises the financial burden to
49 patients and the health system (Haddad et al., 2019). Maxwell (2015) estimated that 70%-80% of
50 geriatric trauma patients require transfer to a long-term care facility after acute injury treatment.
51 Among lower extremity fractures, only 6% of patients are discharged home after acute treatment
52 (Maxwell, 2015).

53 In 2015, Medicare paid 31.3 million dollars to cover non-fatal falls in patients 65 and
54 older (Burns, Stevens, & Lee, 2016). Rajagopalan, Litvan, and Jung (2017) expect this amount to
55 reach \$43.8 billion by 2020. Trauma-related hospitalizations are, on average, over \$30,000
56 (Rajagopalan et al., 2017). Burns et al. (2016) estimated that fall-related office visits cost \$5,625.
57 \$616.5 million is spent annually for fall-related deaths by all payer sources. In 2011, North
58 Carolina spent \$806 million to care for patients who had experienced falls (Landis & Galvin,
59 2014).

60 **Significance of Clinical Problem**

61 Falls are a significant problem in US society, especially in the geriatric population.
62 Because this is a growing population, it is necessary to prevent falls (Burns & Kakara, 2018).
63 Despite CDC recommendations to assess patients annually for falls, many primary care providers
64 do not do so (Johnston et al., 2018). There are few reports of evidence-based falls assessment
65 completed in primary care (Landis, & Galvin, 2014).

66 According to Johnston et al. (2018), less than half of patients report a fall to their primary
67 care provider. The CDC recommends the Stay Independent self-screening tool as part of its
68 STEADI initiative to improve falls screening (Centers for Disease Control, n.d.a). Stay

69 Independent is the first step in the STEADI algorithm for providers (Centers for Disease Control,
70 n.d.c). After the screening, medical staff should complete a Timed Get Up and Go (TUG), or
71 other recommended formal falls assessment (Centers for Disease Control, n.d.c).

72 **Question Guiding Inquiry (PICO)**

73 A primary care practice in suburban North Carolina had no formal falls risk assessment
74 process. Before project implementation, their patients complete the Stay Independent brochure
75 before Medicare Physicals, but they do no other falls assessment. Most of the patients at this
76 practice are 65 years and older. Due to the large patient population who would be at risk for falls,
77 the practice wanted to implement a standardized assessment process: the CDC- recommended
78 Timed Get Up and Go (n.d.b).

79 **Population.** The project population of interest was the primary care providers, medical
80 assistants, and office staff of a primary care practice in suburban North Carolina. This project
81 required input from all members of the small office. There were two providers, a physician, and
82 a physician assistant, two medical assistants, and two front office staff.

83 **Intervention.** After patients complete the Stay Independent brochure, the medical
84 assistants used the STEADI Algorithm to determine if the patient needs further assessment. If the
85 algorithm determined further assessment was needed, then the patient completed a Timed Get Up
86 and Go. If the patient scored as a high fall risk, they were to be given the CDC's *What YOU can*
87 *do to prevent Falls* handout (n.d.d) (Appendix A). The medical assistants and providers
88 documented the falls screening, assessment, and intervention in the electronic health record.

89 **Comparison.** The practice was targeted to assess 50% of the patients seen for annual
90 exams, which are at an increased risk of falling based on the STEADI algorithm. The medical

91 assistants felt this was an achievable goal for them. For these patients, the Timed Get Up and Go
92 test and documentation will be completed in the electronic health record.

93 **Outcome(s).** The project's primary outcome was adherence to the Falls assessment
94 protocol. The project's secondary outcomes were fall and fall- injury rates.

95 **Summary**

96 Falls are a significant problem for the nation and North Carolina. This is especially true
97 in people who are 65 years and older. As this population increases in number, this problem will
98 become more significant.

99 Falls are of concern because they can lead to physical and psychiatric trauma to patients.
100 They also increase caregiver burden during the recovery period. Falls also increase healthcare
101 system burdens due to the costs incurred for ED/office visits and treatment.

102 Fall prevention is necessary to decrease the burden on patients, caregivers, and the
103 healthcare system. Many primary care practices do not have adequate screening processes in
104 place for falls prevention, despite the Centers for Disease Control recommendations.
105 Furthermore, there is little research about the effectiveness of implementing evidence-based falls
106 assessment in primary care settings.

107 One primary care practice in suburban North Carolina wanted to increase its body of
108 knowledge. Their providers, nurses, and office staff were trained to use a screening and
109 assessment protocol based on the STEADI initiative. They then implemented the protocol,
110 ultimately hoping to decrease falls and fall-related hospitalizations in this clinic's patient
111 population.

112

113 **Chapter Two: Review of the Literature**

114 This chapter will discuss the literature appraisal method, i.e., search strategies and
115 evaluation criteria. Findings and limitations of the literature review will be described.
116 Advantages and disadvantages of the findings, findings applied to practice, and summative
117 findings commentary will conclude this section.

118 **Literature Appraisal Methodology**

119 **Sampling strategies.** The literature review process began with a search using ECU 's
120 Laupus Library OneSearch. The search terms were “standardized assessment to reduce falls in
121 the home.” This resulted in 15,911 articles; Four articles remained after the evaluation criteria
122 were applied. The next search's terms were “Falls risk assessment tools.” This search returned
123 84,834 titles, from which the project manager selected seven articles. The third search terms
124 were “Falls risk assessment tools in the elderly,” which yielded 19,285 hits, from which the
125 author chose three articles. The final search terms were “Timed get up and go to prevent falls.”
126 This search found 1,048 titles from which five articles were obtained.

127 A search of the Centers for Disease Control STEADI initiative produced four patient
128 handouts and seven peer-reviewed articles. Subsequently, OneSearch was used to find articles on
129 the project's theoretical framework: Meleis Transitions Theory. The theory search resulted in 476
130 titles, three of which were appropriate. Finally, “Lewin’s Change Theory” was searched, which
131 returned 407 articles. Only three were pertinent to this DNP project. See Appendix B for the
132 literature search log.

133 **Evaluation criteria.** There were several inclusion criteria for this literature review. The
134 primary criteria were that articles were written and published within the last five years. The
135 articles must have been full-text, scholarly, and peer-reviewed. Thus, the author excluded articles

136 if they were > five years old, not from scholarly and peer-reviewed journals, and the full-text was
137 unavailable online.

138 PRISMA narrowed the results of each search. Articles were excluded if they were
139 unrelated to primary care practices or the intended intervention. Redundant articles were selected
140 only if they had the most recent and highest level of evidence. The levels of evidence ranged
141 from level three to level seven evidence, with the majority falling into levels four and six. See
142 Appendix C for the literature review matrix.

143 **Literature Review Findings**

144 Falls are a growing problem for patients, their families, and the healthcare system. Falls-
145 related injuries are part of the top twenty most expensive medical conditions to treat
146 (Rajagopalan et al., 2017). In response to these concerns, the Centers for Disease Control used
147 the American Geriatric Society's recommendations to create the STEADI Initiative (Johnston et
148 al., 2018). This initiative combines, in a "toolkit," screening, assessing, and intervening for
149 providers to help prevent falls among their patients (Johnston et al., 2018). This tool kit has
150 resources for providers to educate their patients about falls risk (Phelan, Mahoney, Voit, &
151 Stevens, 2015). However, Howland et al. (2018) found that only 14% of their providers were
152 aware of the STEADI initiative and the toolkit even though 96% of these providers felt that older
153 adults should be assessed for fall-risk.

154 Several national practices implemented the STEADI initiative. Various researchers
155 conducted studies on the effectiveness of the STEADI interventions and the transition to put
156 them in place (Johnston et al., 2018; Eckstrom et al., 2017; Casey, Parker, Winkler, Liu,
157 Lambert, & Eckstrom, 2017). Casey et al. (2017) wrote that the Kotter framework for
158 organizational change helped introduce STEADI to 870, or 45%, of eligible patients. Eckstrom et

159 al. (2017) found that 64% of patients who screened at-risk received additional assessments.
160 Providers based additional assessments on their study's algorithm. STEADI champions trained
161 and helped implement this algorithm (Eckstrom et al., 2017).

162 Johnston et al. (2018) used the RE-AIM Framework to evaluate the processes and
163 outcomes of their intervention. They found that a statistically significant ($p < .01$) downward
164 trend in Broome county falls hospitalizations during the STEADI study. Stevens, Smith, Parker,
165 Jiang, and Floyd (2017) observed varied success in implementing the STEADI initiative,
166 depending on the practice involved. These studies were completed by multi-site medical groups
167 versus the small practice at which this project will be completed (Casey et al., 2017; Eckstrom et
168 al., 2017; Johnston et al., 2018; Stevens et al., 2017). The implementation process and its success
169 will be different at a smaller practice.

170 One STEADI initiative-recommended assessment tool is the Timed Get Up and Go
171 (TUG) test. This test involves the patient standing, walking ten feet, turning, walking back, and
172 sitting down. If this takes more than twelve seconds, then the patient is at -risk for falls (Centers
173 for Disease Control, n.d.b.). The Centers for Disease Control's handout provides an area to mark
174 administrator observations.

175 Jehu, Paquet, and Lajoie (2017) reported that TUG displayed respectable test-retest
176 reliability in community-dwelling adults (Intraclass Correlation Coefficient/ICC= 0.97).
177 Similarly, Lee, Dufek, Hickman, and Schuerman (2016) detected a respectable test-retest
178 reliability of TUG when the timer was started after saying "go" (ICC=0.89). However, they
179 found improved test-retest reliability (ICC=0.99) when the administrator-initiated timing when
180 the patient began attempting to stand up. Conversely, poor test-retest reliability was reported in a
181 study that attributed this difference to procedural variability (Lee et al., 2016).

182 Moreover, Ponti, Bet, Oliveira, and Castro (2017) reported TUG has a sensitivity and
183 specificity of 0.70. However, researchers also discovered that TUG, when combined with a
184 cognitive and manual task, produced a higher sensitivity of 0.73 and specificity of 0.78.
185 Conversely, Barry, Galvin, Keogh, Horgan, and Fahey (2014) found a sensitivity of 0.31 (95%
186 CI 0.13-0.57) and a specificity of 0.74 (95% CI 0.52-.088) in their systemic review and meta-
187 analysis. They suggested that TUG is a better predictor of falls risk than a lack of falls risk.
188 Tomas-Carus et al. (2019) observed that dual-task TUG testing was better at predicting falls than
189 single task TUG. Alfonso Mora, Bejarano Marín, Sánchez Vera, García Muñoz, & Soto León,
190 (2017) determined that patients with lower educational levels are at a higher risk of falling (p
191 =.000). Additionally, Ibrahim, Singh, and Shahar (2017) found that both gender ($p < .001$) and
192 age ($p < .001$) could significantly predict TUG performance. Furthermore, cognitive status was a
193 significant facilitator on TUG performance when researchers controlled for age and gender
194 variables (B 0.24, 95% CI (0.02-0.47), β 0.03, t 2.10, p =.36) (Ibrahim et al., 2017).

195 Polypharmacy is associated with increased falls risk. Haddad, Bergen, and Lou (2018)
196 wrote that 53% of older adults are on one or more medications linked to increased falls events.
197 Additionally, women are at an increased risk for falls related to medication use, especially
198 opioids and benzodiazepines. Medication deprescribing is part of the STEADI initiative (Centers
199 for Disease Control, n.d.c.).

200 Additionally, Pohl, Nordin, Lundquist, Bergström, and Lundin-Olsson (2014) discovered
201 that patients who had one injurious fall in the past twelve months were at a significantly higher
202 risk for successive injury sustaining falls (hazard ratio 2.78, 95% CI, 1.40-5.50). This may be in
203 part related to fear of falling. Shen et al. (2015) wrote that 70.7% of their study participants
204 report fear of falling after a fall. Interestingly, Shen et al. (2015) observed that 75.4% of the

205 participants' caregivers reported fear of falling after their family members fall. Additionally, the
206 actual number of falls reported may be lower than the actual number of falls, as patients are
207 quick to hide their fall due to concerns of losing independent living status (Castle, 2019).
208 Shuman et al. (2019) found that many participants in their study self-rated their fall-risk as low
209 but then reported several falls that they felt were due to external factors such as medications or
210 environmental factors, not their underlying health.

211 **Limitations of the Literature Review Process**

212 There is no evidence about implementing the STEADI initiative at small primary care
213 practices. The Centers for Disease Control funded previous implementation research. All studies
214 were completed at large medical groups, with many locations, to improve the sample size for the
215 research. Providers have used this initiative for several years. Research may exist, though
216 unpublished at present. Further, there is no research about introducing the initiative in stages.
217 This practice performs the Stay Independent handout; they have partially implemented the
218 process.

219 **Discussion**

220 **Conclusion of findings.** Falls are a significant issue in the geriatric population. As one of
221 many geriatric syndromes, there are many reasons patients fall. However, one injurious fall is
222 likely to lead to another injurious fall, which is costly to the patient, their family, and the health
223 system. Prevention of falls is crucial as the aging population is growing. The STEADI initiative
224 was initiated to assist primary care providers with this problem.

225 Many large medical systems have effectively introduced this initiative in multi-practice
226 environments. Through its implementation, the system sees a reduction in falls, fall-related

227 hospitalizations, and falls-related costs. The practice completing this project has begun
228 implementing the STEADI initiative but stalled after the initial screening form.

229 The Timed Get Up and Go (TUG) assessment is a portion of the STEADI initiative. This
230 assessment has been proven effective at determining patients with an increased risk of falling.
231 TUG is simple to perform and has consistent test-retest reliability. Therefore, this was the chosen
232 intervention to implement as the next phase of the STEADI initiative.

233 **Advantages and disadvantages of findings.** This intervention was well-supported. The
234 TUG assessment was proven more effective at determining patients at risk for falls than
235 identifying patients, not at risk for falls. Initially, this was thought to be a disadvantage.
236 However, as this project was most concerned with determining patients at risk for falling, so the
237 tool was still effective. A disadvantage was that the TUG assessment might over-estimate the
238 number of patients at risk for falling

239 **Utilization of findings in practice change.** The practice implemented the Timed Get Up
240 and Go assessment as part of the annual Medicare physicals. This aligns with the American
241 Geriatrics Association's recommendations. Many practices successfully use this assessment as
242 part of the STEADI initiative throughout the country. These clinical practices considered the
243 protocol and assessment easy to use and effective at determining fall risks and preventing falls in
244 their patients (Casey et al., 2017; Eckstrom et al., 2017; Johnston et al., 2018; Stevens et al.,
245 2017).

246 **Summary**

247 The Timed Get Up and Go assessment improves the practice's adherence to the Healthy
248 People 2020 and the Triple Aim. Healthy People 2020 specifically looks at unintentional injuries
249 and falls-related deaths. Falls frequently result in traumatic injuries that lead to hospitalization

250 and death. Through assessment, prevention can begin. Implementing the next phase of the
251 STEADI initiative improves adherence to the Healthy People 2020 goal of decreasing
252 unintentional injuries. The implementation also assists in meeting the goal of preventing an
253 increase in falls-related deaths.

254 Project implementation helps the practice adhere to Triple Aim goals. The practice was
255 increasing the patient's experience of care by implementing fall assessments. The assessment
256 also meets the goal of decreasing per capita healthcare costs. Fall-risk identification will likely
257 result in fewer falls. Fewer falls equals less per capita falls-related costs to the healthcare system.
258 Finally, this assessment meets the goal of increasing the population health. If patients know they
259 are likely to fall, they will try to avoid falls. Less falls lead to better health.

260

261 **Chapter Three: Theory and Concept Model for Evidence-based Practice**

262 Research is grounded in theory. This section will discuss the project's concepts. The
263 section will also discuss the nursing theory that frames this project. Finally, the section will
264 explain the change theory used to implement the project.

265 **Concept Analysis**

266 Several concepts must be defined. Adherence is the main project concept because it is the
267 main project outcome. Adherence is a measure of how many people accept a practice change.
268 The measure requires researchers to determine their project's acceptable rate, reported as a
269 number or a percentage. This rate indicates how successful the initiated change was. For this
270 project, the project lead determined adherence by the percentage of high falls risk patients that
271 were assessed using the Timed Get Up and Go assessment (Casey et al., 2017; Eckstrom et al.,
272 2017; Johnston et al., 2018; Landis & Galvin, 2014; Stevens et al., 2017).

273 **Falls.** Falls are a geriatric syndrome caused by a combination of many common geriatric
274 concerns. Gait, polypharmacy, vestibular disorders, neurological disorders, and visual
275 disturbances combine with environmental factors, i.e., clutter, slippery or uneven surfaces, and
276 poor light, to increase falls-risk. Abrupt positional changes caused by a fall lead to injuries or
277 death. Such outcomes affect patients physically and psychologically (Barry et al., 2014; Haddad
278 et al., 2018; Hajek & Konig, 2017; Maxwell, 2015; Rajagopalan et al., 2017; Shen et al., 2015;
279 Tornvall et al., 2016).

280 **Assessment.** Assessment is the process of patient evaluation. Assessment may be
281 targeted, i.e., the Timed Get Up and Go assessment, or generalized, i.e., visual assessment of a
282 patient's appearance. Assessment is a critical step in patient care. Assessment aids providers to
283 create individualized interventions for them. Fall screening is ineffective in fall prevention

284 without subsequent assessment (Ibrahim et al., 2017; Lee et al., 2016; Maxwell, 2015; Phalen et
285 al., 2015; Tomas-Carus et al., 2019).

286 **Transitions.** Transition is a concept that affects individuals and systems simultaneously.
287 Through interactions with the environment, the individual undergoes a conscious change. Health
288 care systems may also undergo conscious transitions as their processes are changed. These
289 transitions may be an environment, health, functional capacity, or psyche change. The process
290 that the individual or system undergoes is the transition. This process is considered effective or
291 ineffective, based on the result of the transition (Meleis, 2010).

292 **Change.** A change is a process of moving from one thing to another. Change may happen
293 at the individual or systems level. Change occurs when a situation or person has discordant
294 expectations. For example, many primary care physicians fail to perform falls assessment despite
295 best practice guidelines and readily available resources. Change is a process, which challenges
296 many individuals and systems. This process is frequently tricky as the involved party does not
297 see a need for the change to occur: the first step in the process. However, by applying a
298 successful change framework, i.e., Lewin's Change Theory, the change can be made more
299 simply and effectively (Johnston et al., 2018; Lewin, 1951; Tetef, 2017).

300 **Timed Get Up and Go.** The Timed Get Up and Go is a formalized assessment tool,
301 recommended by the Centers for Disease Control to assess patients' falls risk effectively in
302 conjunction with their screening tools. For the assessment, the patient stands from a standard
303 chair, walks 10m, turns, walks back 10m, and sits back down in the same chair. The person
304 administering the assessment times the patient and documents this. If the patient takes longer
305 than twelve seconds, they are considered a falls risk. TUG is a simple assessment but gives

306 objective information for providers and patients about their falls risk (Centers for Disease
307 Control, n.d.b.; Lee et al., 2016; Phelan et al., 2015; Ponti et al., 2017; Tomas-Carus et al., 2019).

308 **Documentation.** Documentation is essential in health care. For research, documentation
309 monitors intervention adherence. For clinical practice, documentation completes a patient's
310 record and may be used later, i.e., legal trouble or patient concerns. Documentation comprises
311 the accurate patient history and physical examination information, and diagnosis codes entered
312 into the patient's electronic health record (Casey et al., 2017; Eckstrom et al., 2017; Johnston et
313 al., 2018; Stevens et al., 2017).

314 **Prevention.** Prevention is the act of preventing an action from coming to fruition.
315 Primary and secondary prevention comprise the complex process of prevention. Primary
316 prevention includes screening and assessing the patient before a fall. However, prevention of
317 future falls after one has occurred is also required, which is secondary prevention. The Stay
318 Independent handout and the STEADI Algorithm includes a previous fall, which counts as a
319 higher risk factor than some other factors. (Bergen et al., 2016; Burns & Kakara, 2018; Centers
320 for Disease Control, n.d.a.; Centers for Disease Control, n.d.c.).

321 **Education.** Education is necessary to complete any project. Simply put, education passes
322 knowledge from one person to another. For a successful change, people who implement the
323 change must support the new process. Frequently, change leaders accomplish this through
324 education regarding the reasons the change is needed. Furthermore, education on the new
325 protocol or tools is necessary for the change process (Casey et al., 2017; Eckstrom et al., 2017;
326 Johnston et al., 2018; Lewin, 1951; Stevens et al., 2017).

327 **Theoretical Framework**

328 **Naming the Theory.** The project lead used Meleis transitions theory as the framework
329 for this project. The concepts defined by this theory are the types and patterns of transitions,
330 properties of transition experiences, transition conditions, patterns of response, and nursing
331 therapeutics. Meleis transition theory makes several major assumptions and theoretical
332 assertions (Meleis, 2010).

333 The first concepts to define are the types and patterns of transitions. Transitions may
334 relate to development, health, illness, situation, or environment. Many transitions happen
335 simultaneously, including transitions from multiple categories. Concurrently, transitions
336 frequently overlap, causing the patient to be in a prolonged state of transition. Multiple and
337 overlapping transitions makes the process more challenging for the person affected (Meleis,
338 2010).

339 Next, are the properties of the transition experiences. Meleis (2010) breaks the properties
340 of the transition into awareness, engagement, change and difference, time, and critical points and
341 events, which are all interconnected to create the complex transition process. Awareness refers to
342 the patient's perception of the transition and recognition that the change process has begun.
343 Patients may have started the change process but lack awareness. Meleis (2010) defines
344 engagement as the level of involvement the patient demonstrates in the transition. Changes are
345 essential to transition and bring direction to internal and external processes. Differences are the
346 areas of discord perceived by the patient in their lives. Time frame refers to the time in which a
347 transition takes place, which may be on-going, but has definite starting and ending points
348 eventually perceived by the patient. Critical points and events are indicators of the transition that
349 link to an intensified awareness of change or dissension (Meleis, 2010).

350 Meleis defines transition conditions as the personal, community, and social circumstances
351 that surround a transition. These conditions include “...meanings, expectations, level of
352 knowledge and skill, the environment, level of planning, and emotional and physical well-being”
353 (Meleis, 2010, p. 42). Patterns of response are the visible and non-visible reactions to the
354 transition that may positively or negatively impact the patient and the transition (Meleis, 2010).

355 There are many nursing therapeutics defined by this theory. The three main therapeutics
356 are transitional care, role developing, and debriefing. Transitional care includes aspects such as
357 assessing and planning to help the patient successfully make a transition. Role development
358 allows the nurse to explain the various roles a patient may experience during certain transitions,
359 such as a surgical operation and recovery. Debriefing involves the nurse discussing the transition
360 with the patient after the transition has occurred (Meleis, 2010).

361 The transitions theory makes several assumptions. First, it assumes that nurses are the
362 primary caregivers. The theory also assumes that transitions are the result of change, but also
363 result in change. Additionally, this theory assumes that transitions are a fundamental process that
364 is complex and multidimensional. Finally, it assumes that the lives and transitions of patients are
365 affected as much by their environment as they are by their internal motivators (Meleis, 2010).

366 Current research widely uses Meleis’ transitions theory as its framework. Beaudet et al.
367 (2015) successfully created an individualized educational system for couples with Parkinson’s
368 disease using this theoretical framework. Baixinho, Rodrigues, Dixe, and Henriques (2017) used
369 Meleis transition theory to categorizes indicators in their evaluation of the falls protocol in a
370 long-term care facility. Finally, Silva et al. (2017) found that this theory assisted patients with
371 new ostomies in understanding the transition that was occurring.

372 **Application to practice change.** There were multiple transitions involved in this project.
373 The main transition involved the change implemented in the practice. This practice is small, and
374 historically, they have struggled to implement change. The practice had already noticed
375 differences in what should be and what is, so the awareness of the need to transition has already
376 begun. History will affect the change process and transition conditions. Once the project lead
377 established engagement in the change, a successful transition could begin. The timeframe of this
378 project was set, which aided in the transition process. The patterns of response of the staff were
379 monitored to help ensure the transition was successful.

380 Another transition that was present was the aging process. Many of the patients are aging,
381 which is a long-term transition, and generally, have several role changes throughout this time.
382 After a fall, the patient undergoes further transition, as falls generally lead to a decreased level of
383 functioning and increased fear of falling. Through this project, several of the nursing
384 interventions were applied, including role development, transitional care, and debriefing. Role
385 development occurred by giving patients tangible evidence of their risk of falling. Transitional
386 care was applied by assessing each patient's fall risk and, if appropriate, giving them an
387 educational handout. The educational handout will accomplish debriefing. See Appendix D for
388 Figure 1: Concept map of Meleis Transitions Theory for TUG assessment implementation

389 **Evidence-Based Practice Change Theory**

390 **Naming the Change Model.** Lewin's change theory was used to begin the project. This
391 theory is a straightforward theory for effective change, especially at the organizational level.
392 Lewin's theory is effective because it involves the employees, which allows a better
393 understanding of the need and urgency of the change. The process involves unfreezing,
394 changing, and refreezing. Unfreezing is the first step in the process, which prepares the

395 organization for a change. Negative emotions are common during this time and must be
396 transparently handled for the change to be effective. Employees should be involved in this stage
397 to ensure the success of the change.

398 The next phase is the change itself. Change must be rapidly introduced to prevent
399 relapsing to previous habits. Expedited change creates a sense of urgency. The final step is
400 refreezing the change. This step solidifies the change, which should involve ongoing evaluations
401 to ensure adherence. This phase may require adjustments to the change because previously
402 unidentified concerns might occur.

403 Sparks, Kawi, Menzel, and Hartley (2016) used Lewin's Change Theory to introduce
404 their FibroGuide educational modules for recently diagnosed fibromyalgia patients. Tetef (2017)
405 successfully implemented a new bronchial thermoplasty program using Lewin's Change Theory
406 to drive the process. McFarlan, O'Brien, and Simmons (2019) used this theory to begin a daily
407 and hourly rounding protocol to improve patients' emergency room experience. Wojciechowski,
408 Pearsall, Murphy, and French (2016) used Lewin's theory with the Lean Systems Approach to
409 initiate bedside shift report at a rehabilitation facility.

410 **Application to practice change.** For this project, the unfreezing stage required staff and
411 provider education about falls risks, falls incidence in the practice, the CDC STEADI initiative,
412 and how the project manager would implement it. The change step was using the Timed Get and
413 Up Go assessment and intervention among eligible patients. Refreezing began after the project's
414 first month to review if the new process needs to be changed. Refreezing continued after the
415 second month. A debriefing of the change and a plan for long-term adherence to the changes
416 occurred before completion of the project. See Appendix E for Figure 2: Concept map of
417 application of Lewin's Change Theory to TUG assessment Implementation.

418 **Summary**

419 The author identified several key concepts in this project. These are adherence, falls,
420 assessment, transition, change, Timed Get Up and Go, documentation, prevention, and
421 education. These concepts create a conceptual framework for this project.

422 The project lead used Meleis transitions theory as the project framework. This theory
423 describes transitions as multi-faceted progression, with many processes and conditions. Meleis
424 described nursing therapeutics based on this theoretical model. Researchers effectively used this
425 model as a framework in several studies.

426 Lewin's Change Theory was used to implement practice change. This process involves
427 unfreezing, changing, and refreezing. These steps contain subcategories that lead to effective
428 change. Researchers have widely used this theory as a change framework in previous studies.

429

430 **Chapter Four: Pre-implementation Plan**

431 Chapter four will discuss project implementation. The author will discuss the project's
432 purpose and management. This chapter presents a cost-benefit analysis. The project
433 implementation plan will be explained. The project lead will discuss the IRB approval process.
434 Finally, project evaluation will be covered.

435 **Project Purpose**

436 The project's purpose was to implement the Timed Get Up and Go Assessment in
437 patients 65 + years during their Medicare Physicals. The STEADI initiative recommends
438 screening and assessment to determine the need for intervention to treat patients with an elevated
439 risk of falling. A small, suburban primary care practice screened this patient population but did
440 no assessment or intervention based on fall screenings.

441 **Project Management**

442 **Organizational readiness for change.** Practice providers were ready to change. They
443 observed that falls may occur in their patient population and were motivated to prevent this
444 common geriatric problem. The project lead was approached by the office's physician assistant to
445 complete a QI project on this topic. The practice's physician was excited about this QI study;
446 however, the medical assistants were less motivated to change. They expected the project would
447 create extra work for them. To overcome this barrier, the process was streamlined so that extra
448 work was unnecessary. The project lead also explained the project's need and its purpose to
449 influence medical assistants' cooperation.

450 **Interprofessional collaboration.** The secretaries provided patients with the STEADI
451 screening form, which the project lead thought was already part of the intake process. The
452 secretaries also ensured the medical assistants received this form to review. The medical

453 assistants examined the handout and determined, based on the score, if further assessment was
454 needed. If an additional assessment was required, the medical assistants performed a Timed Get
455 Up and Go Assessment and documented this in the EHR. If the assessment indicated no further
456 evaluation, the medical assistants documented the screening score in the EHR. The providers
457 reviewed the EHR for falls risk screening score and Timed Get Up and Go Assessment score
458 during the patient visit. If applicable, the providers spoke with the patient about their fall risk and
459 provided the CDC's *What YOU can do to prevent Falls* handout (n.d.d).

460 **Risk management assessment.** The project lead completed a SWOT analysis prior to
461 implementation. There were many strengths associated with this project. The providers at the
462 practice supported the project and were eager to implement change. Because the project applies a
463 CDC recommendation, its resources used were available without charge, which decreased
464 project costs. Patients benefited from project assessments and, thus, received better care than
465 previously.

466 The main weakness of this project was the increased workload for the office's medical
467 assistants. Although the medical assistants agreed that many of their patients fall, they were
468 resistant to the added work this project was likely to create. If the project lead created a complex
469 implementation process, then it would further weaken the implementation plan.

470 The project's primary opportunity was to raise patient awareness about their fall risk.
471 Implementing the complete STEADI initiative presented another opportunity. This initiative
472 included several steps to improve patient safety and well-being. Beginning the process will
473 ideally lead to the practice implementing more stages of the STEADI algorithm.

474 The main threat to this project was the buy-in from the medical assistants. Because the
475 project increased the medical assistants' workload, though it had been streamlined, they may not

476 have implemented the new protocol. Patient willingness to be assessed presented another
477 potential threat. Specifically, patients historically were resistant to procedure change or
478 additional testing.

479 **Organizational approval process.** The physician assistant and the project lead at the
480 practice noticed many of their patients were reporting falls or hospital visits related to falls. The
481 project lead discussed the practice's fall process and learned that the practice performed no
482 assessment or falls education. The project lead approached the practice Physician/owner with the
483 project idea, which he supported. He gave final approval for project implementation. See
484 Appendix F for the organizational approval letter.

485 **Information technology.** The clinic uses Hello Health[®] as its EHR. The EHR was used
486 to document the patient's screening score and, if indicated, the Timed Get Up and Go score. The
487 EHR contains any documentation of intervention related to falls risk assessment. The project
488 lead reviewed the EHR to obtain data on protocol adherence. Excel was used to collect and
489 analyze the data. Microsoft PowerPoint was used to create a poster of the project information.

490 **Cost Analysis of Materials Needed for Project**

491 There were several costs associated with this project. These costs included patient
492 handout printing costs, snacks for training sessions, and the project lead's travel expenses. The
493 minimally increased time the medical assistants needed to complete fall assessments was
494 difficult to calculate. Medical assistant's wages will likely be offset by cost savings downfalls
495 prevention. For example, Burns et al. (2016) estimated that fall-related office visits cost \$5,625
496 per patient; if the project prevents one fall-related visit a month, the project costs are minimal
497 compared to the practice's financial benefit. Preventing falls also increases patients' quality of
498 life, which was another benefit of this project. See Appendix G for the project budget.

499 Plans for Institutional Review Board Approval

500 This practice did not have an Institutional Review Board (IRB) process. Thus, the project
501 lead sought approval through the ECU IRB only. This process began with the project lead
502 submitting an online questionnaire for approval through ECU's IRB. If the IRB needed further
503 information, they would contact the project lead. As this was a quality improvement project, the
504 project lead did not need to submit further information or pursue full IRB review.

505 Plan for Project Evaluation

506 **Demographics.** The project lead measured adherence to the Timed Get Up and Go score
507 documentation with adherence presented as a frequency. Patients seen for evaluation of falls or
508 fall-related injuries/ month were reported as a rate. The project lead presented data as figures in
509 subsequent sections. See Appendix H for the project data collection tool.

510 **Outcome measurement.** The primary outcome was staff adherence to the new protocol.
511 This outcome was a process measure. The primary outcome indicated staff willingness and
512 ability to implement change. The project's secondary outcome was the number of falls and fall-
513 related injuries. This outcome was a patient outcome measure. Decreased falls lead to improved
514 patient care and well-being.

515 **Evaluation tool.** The CDC's Timed Get Up and Go (TUG) assessment was the project
516 team's evaluation tool (Centers for Disease Control, n.d.b.). This tool for providers is available
517 for download without restriction as part of the STEADI initiative. The TUG assessment is a
518 validated tool. Jehu et al. (2017) and Lee et al. (2016) reported test-retest reliability for the TUG
519 assessment (ICC =0.97, ICC = 0.89). Ponti et al. (2017) reported TUG sensitivity and specificity
520 of 0.70. See Appendix I for the TUG assessment form.

521 **Data analysis.** The project lead entered data gathered on staff adherence into Excel for
522 analysis. The percent of staff who adhered to completing TUG assessment was determined. This
523 data was reported as a frequency and displayed as a run chart. There was no benchmark with
524 which to compare this frequency.

525 The project lead entered the number of falls and fall-related injuries pre- and post-
526 intervention into the Excel for analysis. The project lead presented these data as a rate. There was
527 no benchmark related to fall-related injuries to compare this to, so the project lead compared pre-
528 and post-intervention rates.

529 **Data management.** Data was stored on a secure server through East Carolina University.
530 Patients were assigned a number as the identifier of their data. The only PHI included in the data
531 collection was the age of the patient. The data was kept for three months post-submission of the
532 project paper. Only digital information was collected. The project lead destroyed this information
533 through the deletion of the stored files from the East Carolina University secure server. Only the
534 project lead and the project advisor had access to the data.

535 **Summary**

536 Project implementation was a crucial phase of the project. Before execution, the project
537 lead had to establish a plan for implementation. The purpose of the project was clearly defined.
538 Project management was defined. Project management included the practice's readiness for
539 change and the interdisciplinary aspects of the project. Project management also included a
540 SWOT analysis. The final sections of project management discussed the process to obtain
541 organizational approval and the information technology used in the project.

542 A cost-benefit analysis, including a budget, was then presented. The project lead
543 discussed the institutional review board process. Finally, the project lead gave a plan for project

544 evaluation. This plan included the demographic data to be collected and the outcome measures of
545 the project. The project lead further defined outcome measures by discussing the evaluation tool
546 used in the project, the data analysis plan, and the data management strategy.

547

Chapter Five: Implementation Process

Chapter five will discuss the implementation process. This chapter will discuss the setting and participants for the project. Also, the implementation process, including any variations to the plan, will be addressed.

Setting

This project was completed at a small physician-owned primary care in suburban North Carolina. The practice was started many years ago by the main provider with an additional provider added as the practice expanded. The practice is not associated with any university. However, they are a member of the University of North Carolina (UNC) Health Alliance, which is a physician-driven, clinically integrated network of providers.

The primary customers of the practice are residents of this area. However, many patients drive a considerable distance to the office to be seen by the physician because he was their doctor for years. Most of the patients are over 65; however, the practice does see some younger patients, but rarely children. This practice is privately funded, i.e., the clinic uses the monies it generates to pay for itself. As a member of the primary care community, the practice wished to remain current with best practice recommendations. The providers believed this project would improve their fall assessments and decrease falls among susceptible patients.

Participants

Project participants were the practice's office manager, secretaries, nurses, and providers. All staff members were required to participate in this project. There were no exclusion criteria because the project was considered best practice, and therefore, all were required to participate.

Recruitment

570 The participants became engaged in the project after the providers agreed that the project
571 lead should implement a plan to help decrease falls among their patients. Participants were a
572 convenience sample because they are practice employees. While all employees participated in
573 the project, there are subgroups within them based on their clinic role and, therefore, the project
574 role. These subgroups were the providers, medical assistants, secretaries, and office manager.

575 The providers were eager to start the project. The medical assistants, however, were less
576 excited. They thought the project added to their workload and could not see its long-term benefit.
577 They thought most patients already knew they had a high fall-risk and should be cautious.
578 Unfortunately, patient experience refutes this view: there have been several falls within this
579 patient group (T.B., personal communication, June 2019).

580 The main barrier to project implementation was the medical assistants' attitudes towards
581 additional work. The primary project facilitator was providers' support. Another facilitator was
582 research about fall-risk patients. Educating the medical assistants about the number of patients
583 unaware of their actual falls risk promoted project support. Additionally, shortly after
584 implementation began, the project manager learned the staff had been told of the practice owner's
585 plans to retire in the next few years. It was perceived by the project manager that the staff did not
586 feel motivated to change any part of their process.

587 **Implementation Process**

588 The first step in the implementation process was office staff education. This step was
589 completed using an in-person educational session using a PowerPoint the project lead created
590 (Appendix J) and the TUG handout (Centers for Disease Control, n.d.b.). The project lead gave a
591 brief presentation on the need to identify high fall-risk patients. This presentation also included

592 the new assessment process to assess appropriate patients based on the screening form, aged 65+,
593 seen for their yearly Medicare physicals.

594 The next step of the implementation process was implementing the change. The secretaries
595 were required to instruct the patient to complete the screening form and hand it to the medical
596 assistants when they brought them to the back. The medical assistants would review the
597 screening form to determine if the patient had an elevated falling risk, indicated by a score of 4
598 or more. If the patient had an elevated score, then the medical assistant performed a TUG
599 Assessment and documented its results in the EHR. If not, the medical assistant documented that
600 the test did not apply to the patient. The provider then reviewed the EHR, and if the patient were
601 a high-fall risk based on their TUG score, the provider would counsel the patient about their fall-
602 risk status. Providers could also provide an educational handout such as the *What YOU can do to*
603 *prevent falls?* (Appendix A) provided as part of the STEADI toolkit (Centers for Disease
604 Control, n.d.d.) to the patient based on their judgment.

605 In the final step, the project lead completed chart reviews of patients seen for Medicare
606 physicals to assess for documentation of the TUG assessment score. The project lead also looked
607 for documentation that TUG assessment did not apply to the patient. The project lead
608 documented this in the data collection tool discussed previously. Adherence to the new protocol
609 was monitored as well.

610 Several times throughout implementation, the project lead reviewed the adherence rate. If
611 the project lead determined there was decreased protocol adherence in an implementation period,
612 the project lead examined the likely causes of this and modified the project plan. This evaluation
613 was completed using the plan, do, study, act (PDSA) cycle. The project lead discussed with the
614 medical assistants and providers to determine what they felt was an appropriate and manageable

615 adherence rate. The project was deemed successful if a 50% protocol adherence rate was noted
616 upon chart review. See Appendix K for Figure 3: PDSA cycle.

617 **Plan Variation**

618 There was a large degree of plan variation that occurred during implementation. First,
619 the physician at the practice was too busy to be the site champion, so the physician assistant
620 took over. This impacted the project as the physician was more hands-off, which decreased
621 buy-in to the proposed change by the medical assistants.

622 Then, during the education session, the project manager learned that she was mistaken
623 about the fall-risk screening tool the practice was using. Instead of the STEADI falls screening
624 form, they were using a different activity form to evaluate patients. The STEADI screening
625 tool identifies patients that may be at increased risk for falling, therefore indicate those patients
626 that may need further testing. The medical assistants were going to use the patient's score this
627 screening tool to determine which patients needed TUGs. Based on this change, the project
628 manager, the physician assistant, and the medical assistants decided that TUGs would be
629 completed on each patient 65 years and over presenting for a physical exam.

630 Throughout the project, the project lead noted decreased adherence. After discussing with
631 the medical assistants, the project manager found that there were several reasons for this. First,
632 the medical assistants forgot to complete TUG assessments. The project leader reeducated the
633 medical assistants and moved the project binder to a more visible place.

634 After no increase in adherence, the medical assistants expressed feedback that more
635 frequent contact could improve adherence. At that time, the project leader implemented weekly
636 contact either in person or via phone calls instead of the originally planned biweekly. After
637 finding still decreased adherence, they requested more frequent calls to remind them to complete

638 TUGs. The project leader began calling about twice a week and reminding the medical
639 assistants to complete TUGs. By the end of the project, the project lead called the site several
640 days throughout each week to remind the medical assistants to complete TUGs.

641 **Summary**

642 This chapter discussed project implementation. First, the setting of the project was
643 described. Then the project lead described the participants for the project and their recruitment.
644 Then the project lead discussed the plan for implementation. Finally, the project lead discussed
645 variations to the plan that occurred during implementation.

646

647 **Chapter Six: Evaluation of the Practice Change Initiative**

648 Chapter six discusses the evaluation of the practice change. First, the project lead
649 discusses the participant demographics. Then the project lead discusses the intended outcomes.
650 Finally, the project lead presents the findings of the project.

651 **Participant Demographics**

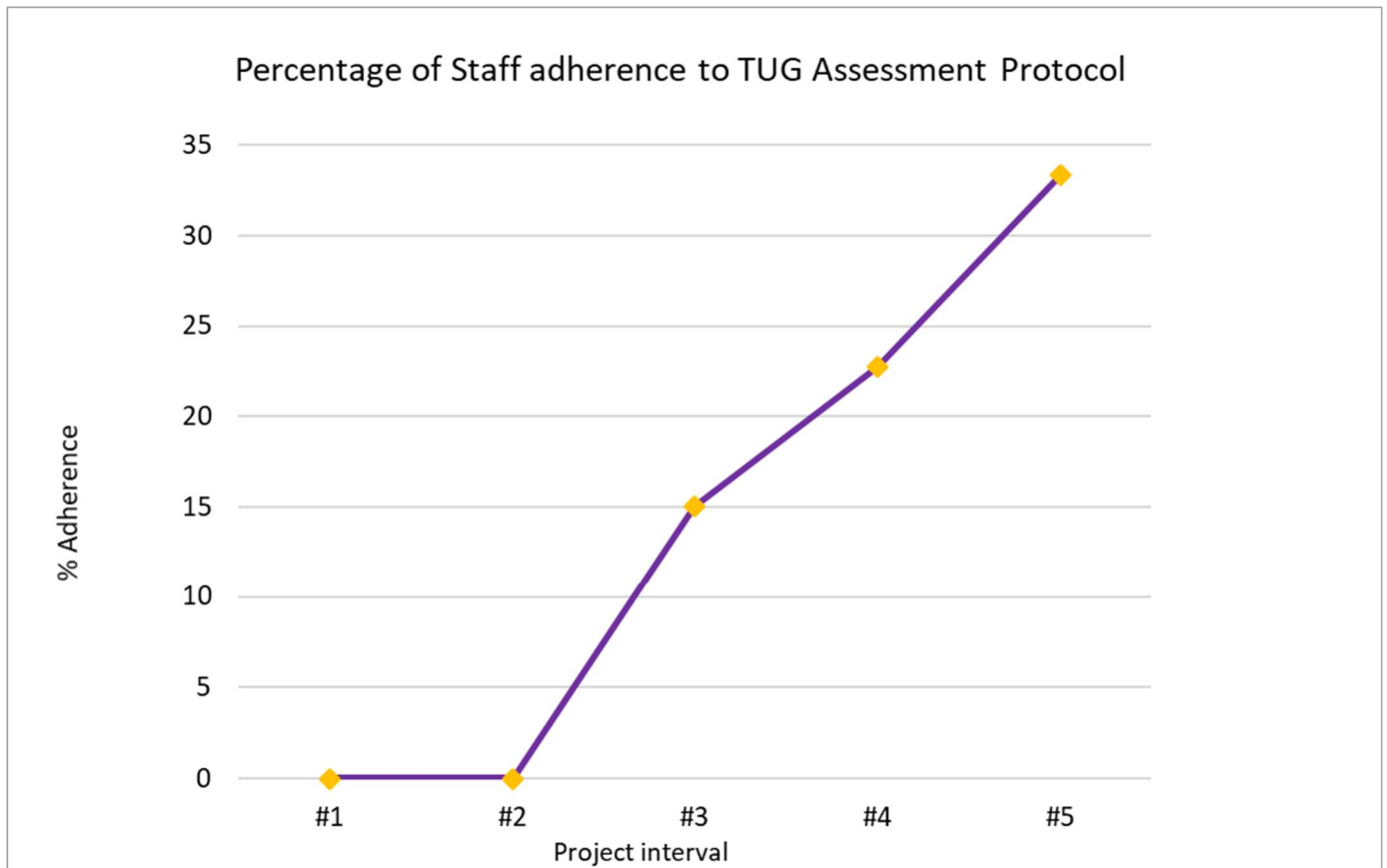
652 The project participants were the staff at the practice. There were two medical assistants.
653 These were the staff members who performed the TUGs and inputted the data into the patients'
654 charts. They were also the staff members who the project lead interacted with the most to
655 implement the new process change. One of the medical assistants has 15 years of experience as a
656 medical assistant. She trained upon her joining the practice. During the project implementation
657 period, 127 physicals were completed at the practice; 21 of these had TUGs completed. These
658 TUGs were spread throughout the project intervals, with completed TUGs increasing at each
659 interval. The final project interval had the most TUGs completed, providing the maximum
660 adherence rate.

661 **Intended Outcome(s)**

662 The short-term outcome of the project was increased adherence to the new protocol of
663 TUG assessments. Adherence reached 33% during the final interval. The practice completed no
664 TUGs before project implementation. An intermediate-term outcome this project accomplished
665 was raising the providers' awareness of their patients' risk for falling. Another intermediate-term
666 outcome this project achieved was opening the door to begin the conversation with the patients
667 about their risk for falling. A future long-term outcome realized by this project is decreasing falls
668 in this practice's patients.

669 **Findings.** At the end of the implementation period, the adherence rate had increased to
670 33% (see Figure 4). The project lead also found that despite the population of the practice being
671 almost exclusively 65+ years of age, the practice saw no patients for falls or falls-related injuries
672 from July to November. The adherence rate was the best during interval 5 when the project lead
673 was calling the site several times a week and reminding them to complete TUGs.

674 **Figure 4.** *Percentage of Staff Adherence to TUG Assessment Protocol.*



675

676 **Summary**

677 This chapter discussed the demographics of the project participants, which were the staff at the
678 practice. Additionally, the project lead examined the outcomes of the project. This included
679 short, intermediate, and long-term outcomes the project appreciated. Finally, the project lead

680 interpreted the findings of the project. These findings included a 33% maximum adherence rate
681 to the implemented protocol.

682 **Chapter Seven: Implications for Nursing Practice**

683 This chapter will discuss the project's implications for nursing practice. The DNP
684 Essentials guided these implications for practice. The project manager will relate each essential
685 to the project and discuss how this affects nursing as a whole.

686 **Practice Implications**

687 **Essential I: Scientific underpinnings for practice.** This essential deals with the
688 translation of research into practice. This essential was reflected by implementing the TUG
689 assessment for falls. The TUG assessment tool has been implemented successfully to assess for
690 falls both as part of the STEADI initiative and separately (Barry et al., 2014; Casey et al., 2016;
691 Eckstrom et al., 2017; Ibrahim et al., 2017; Lee et al., 2015; Stevens et al., 2017; Tomas-Carus et
692 al., 2019). Furthermore, Jehu et al. (2017) found that TUG had an Intraclass Correlation
693 Coefficient of 0.97, indicating good test-retest reliability in community-dwelling adults. Ponti et
694 al. (2017) discovered that TUG has a sensitivity and specificity of 0.70.

695 The providers at the practice were concerned about falls in their patient population. The
696 patients in this practice are primarily 65 years and older. While the practice does not see many
697 patients for falls or fall-related injuries, the providers are concerned about the well-being of their
698 patients as many are not as mobile as they used to be. The patients are also resistant to
699 acknowledging that they are not as mobile, so the providers felt an objective assessment might
700 assist patients with this transition. However, Bergen et al. (2016) state that 29 million falls and 7
701 million falls-related deaths occur yearly, with this number likely to grow as the aging population
702 increases.

703 Lewin's Change Theory and Meleis Transitions theory were used as the foundation for
704 project implementation. The project manager found that transitions without motivation are

705 challenging. The staff at the practice had little motivation to change things; therefore,
706 implementing a seemingly minor change into their busy day proved quite challenging.
707 Motivation must come from internal sources, like a manager, for change to be successful. The
708 project manager started by educating the staff who would administer the TUG assessment. The
709 education included information about the number of falls and fall-related deaths yearly. The
710 project manager also discussed with the staff whether they felt their patients were at risk for
711 falling and how the staff felt the patients would feel being told this information. This was the
712 unfreezing step of Lewin's change theory. The project manager used the staff's desire to improve
713 as a motivator throughout the change step of this process. The physician assistant at the practice
714 was also a motivator for change and encouraged the medical assistants to complete TUGs on all
715 her appropriate yearly physicals.

716 **Essential II: Organization and systems leadership for quality improvement and**
717 **systems thinking.** Implementing TUG in a primary care office aimed to improve the quality of
718 care and patient safety of this practice's population. The CDC created the STEADI initiative as a
719 cost-effective and straightforward plan to decrease falls, fall-related morbidity and mortality, and
720 fall-related costs to the healthcare system. The project manager created useful educational
721 materials for the staff and revised the implementation plan through critical thinking and
722 reflection throughout the project.

723 The project manager designed the project specifically for the site. After spending a
724 semester working alongside the medical assistants, the project manager knew that the easier the
725 change was, the more likely they were to implement it. The project manager gathered input from
726 the medical assistants throughout the change to keep them involved and motivated them to take
727 ownership of the change process.

728 The project manager also attempted to account for the patient population. Many patients
729 in their patient population are former executives from a large information technology firm. The
730 patients have always overseen their lives and others' lives; this creates a challenge as they age
731 and become less mobile. Historically these patients have been resistant to information or
732 assessments that may prove they are less functional than they believe they are. The project
733 manager chose the TUG assessment because it is simple, but accurate at predicting patients with
734 an increased risk for falling. Additionally, TUG is part of the CDC STEADI initiative, which is
735 backed by extensive research, which these patients can appreciate.

736 Additionally, a cost-benefit analysis was completed using evidence-based literature on
737 the costs of falls. The project manager included several types of costs in the analysis beyond the
738 standard financial costs. This practice has seen many of the same patients for over 30 years,
739 meaning the well-being of the patients is as important, if not more important, than the financial
740 costs or benefit to the practice.

741 **Essential III: Clinical scholarship and analytical methods for EBP.** The project
742 manager used a thorough literature review to determine which falls assessment to use, how to
743 implement the change, and how to quantify the change. The literature was judged based on
744 standardized literature grading. The project manager collected process and outcomes data to
745 evaluate process and outcome measures. The project manager collaborated with many members
746 of the practice as well as many faculty members from the university to plan the quality
747 improvement project and disseminate the findings.

748 The safety of patients was addressed in the project through the TUG itself. By assessing
749 patients for their fall-risk, the practice will be increasing their patients' safety. Assessing patients
750 for fall-risk also increases the quality of care the patients are receiving. The model of care

751 delivery in the United States is moving towards prevention where possible. Preventing falls in
752 patients by creating awareness of their fall-risk and intervening in the fall cycle can help prevent
753 further decline in the elderly population.

754 **Essential IV: Information systems/technology and patient care technology for the**
755 **improvement and transformation of healthcare.** The project manager conducted a thorough
756 literature review using online-based resources to determine the need for the intervention and the
757 most appropriate assessment. The project manager also used the electronic health record to track
758 adherence to the protocol. Additionally, the data collected was logged, stored, and evaluated
759 using computer-based software.

760 **Essential V: Healthcare policy for advocacy in healthcare.** The project manager
761 chose to use a protocol that is believed to become a Medicare standard of care for primary care
762 practices shortly (Horton, Dwyer, & Seiler, 2018). While not public policy yet, falls assessment
763 reform is expected to come soon as the general population is aging. The STEADI initiative aligns
764 with the Healthy People 2020 goal of reducing unintentional injuries and unintentional injury-
765 related deaths. Additionally, falls assessment meets the goal of preventing an increase in falls-
766 related deaths (Healthy People 2020, 2019). With the addition of a fall-risk assessment to the
767 standard of care for this practice, the project manager was aiding in creating a more equitable
768 and ethical health care environment through keeping the practice up to date with the best
769 evidence. Through this, the project manager was meeting the goals of the Triple Aim, which are
770 population health, improving the experience of care, and decreasing per capita costs (Institute for
771 Healthcare Improvement, 2019).

772 **Essential VI: Interprofessional collaboration for improving patient and population**
773 **health outcomes.** The project manager led several members of an interprofessional team during

774 this project to implement evidence-based practice. The project manager worked directly with the
775 medical assistants, secretaries, and the Physician Assistant at the project site. The project
776 manager also interacted with the Physician and the office manager.

777 The project manager found that creating change with the Physician Assistant was
778 simpler than with the medical assistants. The Physician Assistant was more eager to create the
779 change as she could see the benefit for her patients, but it did not disrupt her workflow. The
780 medical assistants had a more difficult time implementing the change as it directly affected their
781 workflow and created additional work for them. Furthermore, the medical assistants struggled to
782 remember that they were to change their process. After a discussion with the medical assistants,
783 the project lead implemented frequent contact with the site via phone calls to remind them to
784 complete TUGs.

785 The project manager did not have as much interaction with the primary physician as
786 originally planned due to his schedule. He felt the change would be good for his patients but was
787 not an active member of the change initiative. The project manager attributes the limited success
788 of the change largely to this. The leaders in the organization must drive effective change. With
789 the announcement of the physician's impending retirement, the medical assistants were even less
790 driven to change, which created a challenging change environment for the project lead.

791 **Essential VII: Clinical prevention and population health for improving the nation's**
792 **health.** The project manager used data and epidemiology to determine the need for individual
793 and population health change. Through a thorough literature search and review, the project lead
794 found that falls in the elderly population are a great concern, with as many as 29 million falls
795 yearly (Bergen et al., 2016). With the aging population growing, this is expected to climb to 48.4
796 million by 2030 if there is not a change in fall prevention (Bergen et al., 2016).

797 The project manager synthesized information and used health promotion strategies and
798 tools to address a gap in care at the project site. The project manager also evaluated and
799 ultimately attempted to change the model of care related to falls prevention at the practice. The
800 project manager found that even the use of data and recommended prevention strategies are not
801 always enough to create urgency around changing.

802 **Essential VIII: Advanced nursing practice.** The project manager designed,
803 implemented, and evaluated a nursing intervention during this project. The project manager also
804 provided support for individuals and a system during a change. The project manager used
805 systemic thoughts and advanced clinical judgment to determine the need for improved fall
806 prevention strategies in an attempt to improve patient outcomes. For example, the project
807 manager used advanced clinical judgment to determine an area of concern in the practice. During
808 her time as a student at the practice, the project manager had several conversations with patients
809 stating they had fallen and not sought medical help or fallen and presented to an emergency room
810 (personal communication, Spring 2019). After discussing this with the physician, the project
811 manager proposed a new fall assessment process.

812 While the practice does not see many patients for falls, their patient population is the
813 target demographic of falls and fall-related injury. The project manager then assessed the system,
814 i.e., the practice, and found that no falls prevention measures were in place. This knowledge led
815 the project manager to determine that a fall risk assessment would benefit the patients and the
816 practice. Finally, the project manager used systems analysis to evaluate care delivery and quality
817 outcomes at the project site.

818 **Summary**

819 The DNP Essentials should guide nurse practitioners in their daily practice. However, this
820 is not always the case. These essentials help to create a safe environment for patients, advance
821 nursing practice, and increase the body of nursing knowledge, but they are complex. Through
822 thorough evaluation, the project manager determined how each of the eight essentials related to
823 the project.
824

825 **Chapter Eight: Final Conclusions**

826 In this chapter, the project lead will discuss the significance of the findings. Then, the
827 project's strengths and weaknesses will be discussed. Next, the limitations and benefits of the
828 project will be described. Finally, the project manager will discuss the recommendations for
829 practice discovered during the project.

830 **Significance of Findings**

831 The project lead saw a 33% maximum adherence rate during project implementation.
832 This rate was accomplished by the project lead calling the site most days during the week to
833 remind them to complete TUG assessments. Many of the patients assessed at this practice felt
834 that having objective data about fall risk was helpful to their overall well-being. Many patients in
835 this practice are retired engineers and software designers, so objective data weigh heavily in their
836 decisions. The site champion, the Physician Assistant, found that more patients asked about ways
837 to prevent falls after they had TUG assessment (T.B., Personal Communication, November
838 2019).

839 The primary lesson the project lead learned is that change is very hard. Change is also
840 greatly affected by motivators to the staff. There were no consequences for staff not completing
841 TUGs or practice provided incentives to complete TUGs. Lack of consequences or incentives
842 worked against the project lead's goal of 50% adherence. If the project were to be repeated in
843 another practice, the project lead would ensure that there was more involvement from upper
844 management and the providers during the implementation process.

845 Involvement from providers would also help patients become more engaged in the
846 process. The project lead found that even when the medical assistants remembered TUG
847 assessments, patients were refusing them. The medical assistants felt that some of the patients at

848 this practice did not want to know if they were at higher risk of falling. Unfortunately, refused
849 TUGs were not documented, therefore there was no tracking of this data; however, this would be
850 something to track if the project was repeated.

851 Additionally, the project lead found that having a project lead on-site daily would benefit
852 the project. While this was not possible during this implementation, the project lead called the
853 site almost daily towards the end of the implementation period, which increased adherence
854 significantly.

855 **Project Strengths and Weaknesses**

856 The main strength of the project was the medical assistants' willingness to implement the
857 change. They were eager to help their patients and the project lead. This was a low cost,
858 evidence-based project which the practice saw as a major strength. All the information, including
859 patient handouts, screening tools, and assessment tools are available to providers for free through
860 the CDC's STEADI initiative website (Centers for Disease Control, n.d.c.). Due to this fact, the
861 practice had no upfront cost to implement this project. Additionally, each office visit for a fall
862 cost \$5,625 (Burns et al., 2016). A trauma-related hospitalization is, on average, over \$30,000
863 (Rajagopalan et al., 2017), and in 2011, North Carolina spent \$806 million to care for patients
864 who had experienced falls (Landis & Galvin, 2014). By assessing and mitigating patients' risk
865 for falling, a decrease in healthcare costs can be seen, all while using a free toolkit.

866 Furthermore, the TUG assessment is brief, easy to complete, and uncomplicated, which is
867 another strength of the project. Due to this, the assessment is easy to teach staff to complete. An
868 assessment that is easy to learn is more likely to be accurately completed. The handout provided
869 to staff (see Appendix I) has the directions printed on it, which adds to the ability to complete
870 TUGs properly. TUG assessments are also brief in length, unlike many assessment tools. This

871 means that the assessment is quickly completed, so it does not interfere significantly with patient
872 throughput at the practice.

873 The main weakness of the project was the staffs' inability to remember the new protocol.
874 Due to lack of space, the project lead was unable to post signs or reminders to staff or patients
875 about TUG. A binder was made that contained the education PowerPoint, TUG handouts, and
876 patient information handouts. It was placed in the medical assistants' work area; however, it did
877 not seem to be an effective reminder to complete TUG assessments.

878 Additionally, the project lead was not able to integrate TUG into the charting system at
879 the practice as a reminder. The EHR used at this practice is a simple one to use; however, there is
880 no flowsheet or documentation to insert before the appointment. The medical assistants do have
881 a template in word that they use for physicals, but due to time constraints and the pace of the
882 practice, TUG assessment was not able to be added to this template.

883 The final weakness noted was the lack of provider involvement. The owner and primary
884 provider was happy to have a project completed at his office that could benefit his patients;
885 however, due to his schedule, he was not involved in implementation. This was the project leads
886 third project and third site in a semester, so the project manager and project advisor were happy
887 to complete the project here. However, it was found that lack of provider and management buy-
888 in can greatly impact the success of a quality improvement project. Casey et al. (2016) found that
889 by having actively engaged STEADI site champions in each practice, they were able to
890 implement the entire STEADI bundle at once successfully. This shows the importance of an
891 actively engaged onsite member of the team. Provider and management buy-in and engagement
892 can drive a project forward as the people who work for them are more likely to feel the urgency
893 to be involved.

894 Project Limitations

895 The main limitation of this project was that the project lead was not onsite daily. Lack of
896 an on-site project lead hindered staff adherence as they did not remember to complete TUG
897 assessments. An active onsite champion is crucial to the success of quality improvement projects
898 as these are generally implementing or changing an area of current practice. This can be
899 challenging for staff to remember but having an onsite project champion to remind and
900 encourage the staff can be vital.

901 Another limitation was space; the medical assistants found that it was difficult to
902 complete TUGs and maintain patient privacy due to the size and layout of the practice. Due to
903 the layout of this practice, the TUG assessments were completed in the hallway. One hallway is
904 secluded, but the other hallway borders the check-in/check-out desk. The majority of TUG
905 assessments were completed in the latter, which does not allow for patient privacy.

906 An additional limitation of the project was the EHR and the practice's policies related to
907 it. The practice uses an EHR that is not changeable, and they do not start notes prior to the
908 appointment, meaning that the project lead could not add a reminder to complete TUG
909 assessments. The project lead attempted to have the medical assistants add this to their physical
910 assessment template, but this did not occur during the implementation period. Due to the pace of
911 the practice, the template they used was never able to be updated.

912 Project Benefits

913 The main benefit appreciated by this project was the awareness of falls risk. The medical
914 assistants reported many of the patients voiced that they appreciated having objective data about
915 their falls risk, or lack thereof. The Physician Assistant also told the project lead that she had
916 more patients ask her about ways to decrease falls risk (T.B., Personal Communication,

917 November 2019). Quality improvement projects, in general, are beneficial to healthcare
918 facilities. By pointing out and fixing areas that need improvement, these projects can open the
919 door for future projects to improve other areas of practice.

920 **Practice Recommendations**

921 The main recommendation for future practice change is to have an onsite project lead.
922 Another recommendation is to ensure buy-in and active involvement from the key contributors
923 such as management and providers. Additionally, the project lead recommends implementing the
924 STEADI initiative as a bundle to be most effective, which includes screening, assessing, and
925 intervening. This would decrease the burden on the medical assistants and increase the strength
926 of the project. The project lead had to change the original plan for assessment as the practice was
927 no longer using the same screening tool, which led to more work for the medical assistants than
928 originally planned.

929 A larger physical site would also be beneficial to project implementation. With more
930 space per patient, medical assistants would be more able to complete TUGs and maintain patient
931 privacy. In the current building, all TUG assessments could be completed down the private hall;
932 however, this would involve placing a chair in this hallway, which could be hazardous. There are
933 other assessment tools in the STEADI toolkit, so an area for further research could include
934 testing a different fall assessment tool at this site.

935 A larger physical site would also allow for more information about the STEADI initiative
936 to be displayed to remind staff and educate patients. While handouts were available to staff, they
937 were not openly available for patients. If the project lead were to do additional QI research at the
938 site, handouts would be placed in the lobby for patients to look at as they waited for their
939 appointments in hopes of sparking a conversation with providers about falls.

940 Additionally, to encourage adherence, an onsite project lead and actively engaged site
941 champion would be beneficial. As previously discussed, this is crucial to success. While the site
942 champion for this project was supportive and engaged, she was not the owner/physician at this
943 practice; therefore, support was not as beneficial.

944 **Final Summary**

945 The project lead discussed the significance of the project and its outcomes. The project
946 lead then identified the project's strengths and weaknesses. Then, the project's limitations and
947 benefits were discussed. Finally, the project lead explained the recommendations for future
948 implementation. While the project appreciated a 33% adherence rate, there were many
949 limitations to implementation. The project lead found that change is hard, which is not a new
950 concept to those involved in quality improvement. The project lead also found areas of
951 improvement for future implementation, such as implementing the entire STEADI bundle at
952 once instead of in a piecemeal fashion.

953

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Appendix A

Many falls can be prevented.

By making some changes, you can lower your chances of falling.

Four things YOU can do to prevent falls:

-  Have your healthcare provider review your medicines.
-  Exercise to improve your balance and strength.
-  Have your eyes and feet checked.
-  Make your home safer.

What YOU Can Do to Prevent Falls



For more information, contact Centers for Disease Control and Prevention 1-(800)-CDC-INFO (232-4636) or visit www.cdc.gov/steady

For information about fall prevention, visit go.usa.gov/xN9XA

For more information about hypotension, visit www.mayoclinic.com or www.ebmd.com



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

STEADI
Stopping Elderly Accidents, Deaths & Injuries

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Four things YOU can do to prevent falls:

- ① Talk openly with your healthcare provider about fall risks & prevention.**

Tell a provider right away if you fall, worry about falling, or feel unsteady. Have your doctor or pharmacist review all the medicines you take, even over-the-counter medicines. As you get older, the way medicines work in your body can change. Some medicines, or combinations of medicines, can make you sleepy or dizzy and can cause you to fall. Ask your provider about taking vitamin D supplements to improve bone, muscle, and nerve health.
- ② Exercise to improve your balance and strength.**

Exercises that improve balance and make your legs stronger, lower your chances of falling. It also helps you feel better and more confident. An example of this kind of exercise is Tai Chi.

Lack of exercise leads to weakness and increases your chances of falling.

Ask your doctor or healthcare provider about the best type of exercise program for you.

- ③ Have your eyes and feet checked.**

Once a year, check with your eye doctor, and update your eyeglasses, if needed. You may have a condition like glaucoma or cataracts that limits your vision. Poor vision can increase your chances of falling. Also, have your healthcare provider check your feet once a year. Discuss proper footwear, and ask whether seeing a foot specialist is advised.
- ④ Make your home safer.**

 - Remove things you can trip over (like papers, books, clothes, and shoes) from stairs and places where you walk.
 - Remove small throw rugs or use double-sided tape to keep the rugs from slipping.
 - Keep items you use often in cabinets you can reach easily without using a step stool.
 - Have grab bars put in next to and inside the tub, and next to the toilet.
 - Use non-slip mats in the bathtub and on shower floors.
 - Improve the lighting in your home. As you get older, you need brighter lights to see well. Hang light-weight curtains or shades to reduce glare.
 - Have handrails and lights installed on all staircases.
 - Wear well-fitting shoes with good support inside and outside the house.



Talk to your doctor about fall prevention.

Appendix B

NURS 8269: DNP Project I Literature Search Log						
Student: Megan E Sneed				Date of Submission:	4/22/2019	
Project Title: Nursing Education to Prevent Hospital Readmissions						
Date of Search	Database	Key Word Searches	Limits	# of Citations Found	# of Citations Kept	Rationale for Inclusion / Exclusion (include rationale for excluding articles as well as for inclusion)
3/2/2019	ECU One Search	standardized assessment to reduce falls in the home	5-year period, English language, Scholarly, and peer-reviewed	15,911	4	Several irrelevant or not nursing focused
3/6/2019	ECU One Search	Falls risk assessment tools	5-year period, English language Scholarly and peer-reviewed	84,834	7	Several irrelevant or not nursing focused
3/6/2019	ECU One Search	Falls risk assessment tools in the elderly	5-year period, English language, Scholarly, and peer-reviewed	19,285	3	Several redundant, irrelevant, or not nursing focused
3/24/2019	ECU One Search	Timed get up and go to prevent falls	5-year period, English language,	1048	5	Several redundant, irrelevant, or not

			Scholarly, and peer- reviewed			nursing focused
3/24/2019	CDC Website	Review of Available articles	5-year period, English language, Scholarly, and peer- reviewed	50	7	Several redundant, irrelevant, or not nursing focused
3/25/2019	CDC Website	Review of STEADI Materials	Directly related to Timed Get up and Go and falls intervention	10	4	Several not relevant to the topic.
3/28/2019	ECU One Search	Meleis transitions theory	5-year period, English language, Scholarly, and peer- reviewed	476	3	Several not applicable to the topic.
3/28/2019	ECU One Search	Lewin's change theory	5-year period, English language, Scholarly and peer- reviewed, Nursing focused	407	3	Picked most relevant to project application.

Appendix C

NURS 8269: DNP Project I Literature Review Matrix				
Student: Megan E Sneed			Date of Submission: 4/22/2019	
Faculty: Dr. Michelle Skipper				
.Project Title: Timed Get Up and Go implantation to improve Falls Assessments				
Article	Level of Evidence	Data/Evidence Findings	Conclusion or Summary	Use of Evidence in EBP Project Plan
Alfonso Mora, M. L., Bejarano Marín, X., Sánchez Vera, M. A., García Muñoz, L. P., & Soto León, I. A. (2017). Association between the fall risk, age and educational level in active adult and older women. <i>Revista Salud Uninorte</i> , 33(3), 306-314. Retrieved from http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-55522017000300306&lng=en&lng=en	III	An increased falls risk in women with lower education and older was observed ($p < 0.05$).	Active women with low education levels have a higher risk of falling, according to TGUGM.	This is a high-quality study with good statistical analysis. Falls assessment should be included in women over the age of 65.

<p>Baixinho, Cristina Rosa Soares Lavareda, Dixe, Maria Dos Anjos Coelho Rodrigues, & Henriques, M. A. P. (2017). Falls in long-term care institutions for elderly people: Protocol validation. <i>Revista Brasileira De Enfermagem</i>, 70(4), 740-746. doi:10.1590/0034-7167-2017-0109</p>	VI	<p>Meleis Transitions theory was used as the framework for successfully creating a protocol for falls risk management in long-term care institutions.</p>	<p>This theory is effective in helping providers transition and helps their patients transition.</p>	<p>Meleis' transitions theory will be used as the framework for this project.</p>
<p>Barry, E., Galvin, R., Keogh, C., Horgan, F., & Fahey, T. (2014). Is the timed up and go test a useful predictor of risk of falls in community dwelling older adults: A systematic review and meta-analysis. <i>BMC Geriatrics</i>, 14(1), 14. doi:10.1186/1471-2318-14-14</p>	V	<p>TUG is more useful at ruling in a fall risk than ruling out a fall risk. TUG score is not a significant indicator of falls.</p>	<p>TUG may not be the best assessment tool.</p>	<p>Evidence against the use of TUG. However, this is still useable as the study also shows it can predict falls when used in combination with other screening or assessment tools.</p>

<p>Beaudet, L., Ducharme, F., L'Écuyer, N., Chouinard, S., Jodoin, N., & Panisset, M. (2015). Development and evaluation of a dyadic intervention for elderly couples living with moderate-stage Parkinson disease. <i>Applied Nursing Research</i>, 28(4), e27. doi:10.1016/j.apnr.2015.02.004</p>	IV	<p>Meleis Transitions theory was used as the framework for successfully implementing an educational plan for families with Parkinson's Disease.</p>	<p>This theory is effective in helping providers transition and helps their patients transition.</p>	<p>Meleis' transitions theory will be used as the framework for this project.</p>
<p>Bergen, G., Stevens, M. R., & Burns, E. R. (2016). Falls and fall injuries among adults aged ≥ 65 years — united states, 2014. <i>MMWR. Morbidity and Mortality Weekly Report</i>, 65(37), 993-998. doi:10.15585/mmwr.mm6537a2</p>	VII	<p>In 2014, 28.7% of people surveyed reported falling in the past 12 months, which is approximately 29 million falls. 868,000 falls were reported in North Carolina.</p>	<p>Falls are a problem nationally and in North Carolina.</p>	<p>Evidence of the need for falls prevention in the primary care setting.</p>
<p>Burns, E. R., Stevens, J. A., & Lee, R. (2016). The direct costs of fatal and non-fatal falls among older adults — united states. <i>Journal of</i></p>	IV	<p>In 2012 direct medical costs for fatal falls were \$616.5 million and were \$30.3 million for non-fatal falls. In 2015 direct for fatal falls was</p>	<p>Falls are a significant financial burden.</p>	<p>Evidence of the financial burden of falls.</p>

<p><i>Safety Research, 58, 99-103. doi:10.1016/j.jsr.2016.05.001</i></p>		<p>\$637.5 million and was \$31.3 million for non-fatal falls.</p>		
<p>Burns, E., & Kakara, R. (2018). Deaths from falls among persons aged ≥65 years — united states, 2007–2016. <i>MMWR. Morbidity and Mortality Weekly Report, 67</i>(18), 509-514. doi:10.15585/mmwr.mm6718a1</p>	<p>VII</p>	<p>In 2016, 29,668 US residents over 65 years of age died from falls. Approximately 70 per 100,000 people died of falls in North Carolina in 2017.</p>	<p>Falls related deaths are a problem in patients over 65 years of age.</p>	<p>Evidence of the need for falls prevention in the primary care setting.</p>
<p>Casey, C. M., Parker, E. M., Winkler, G., Liu, X., Lambert, G. H., & Eckstrom, E. (2017). Lessons learned from implementing CDC’s STEADI falls prevention algorithm in primary care. <i>The Gerontologist, gnw074. doi:10.1093/geront/gnw074</i></p>	<p>IV</p>	<p>The keys to successful implementation were an EHR tool and workflow and proactive leadership champions.</p>	<p>STEADI successfully implemented in primary, and certain factors helped this.</p>	<p>Valid evidence of successful implementation of STEADI in primary care with determined factors that influenced the change. Though this was done at a large, multi-site facility.</p>

<p>Castle, S. C., MD. (2019). Despite active public health campaigns, death from falls increased 30% in the past decade. Clinics in Geriatric Medicine, 35(2), 147-159. doi:10.1016/j.cger.2019.01.002</p>	<p>III</p>	<p>Ageism may be manifested as poor self-awareness of fall risk. This may also lead to decreased reporting of falls because patients don't want to lose independence</p>	<p>Reports falls may be lower than the actual number of falls.</p>	<p>Falls may be under-reported, meaning prevention is even more important.</p>
<p>Eckstrom, E., Parker, E. M., Lambert, G. H., Winkler, G., Dowler, D., Casey, C. M., & Sands, L. P. (2017). Implementing STEADI in academic primary care to address older adult fall risk. <i>Innovation in Aging, 1</i>(2), igx028. doi:10.1093/geroni/igx028</p>	<p>IV</p>	<p>In 6 months, 64% of patients were screened with 22% being high risk. Of the high-risk patients, 64% received STEADI interventions.</p>	<p>STEADI successfully implemented in primary care.</p>	<p>Valid evidence of successful implementation of STEADI in primary care. Though this was done at a large, multi-site facility.</p>
<p>Haddad, Y. K., Bergen, G., & Florence, C. S. (2019). Estimating the economic burden related to older adult falls by state. <i>Journal of Public Health Management and Practice: JPHMP, 25</i>(2),</p>	<p>VI</p>	<p>The partial attributable fraction found higher estimates of the lifetime cost of falls than the count applied to cost method did. These were \$1229 million and \$925 million,</p>	<p>Falls cause a large economic burden to states.</p>	<p>Evidence of the economic burden of falls.</p>

<p>E24. doi:10.1097/PH H.000000000000 00816</p>		<p>respectively, for North Carolina.</p>		
<p>Haddad, Y., Bergen, G., & Luo, F. (2018). Reducing fall risk in older adults. <i>AJN, American Journal of Nursing, 118</i>(7), 21-22. doi:10.1097/01. NAJ.000054142 9.36218.2d</p>	<p>VII</p>	<p>Women are at an increased risk for medication- related falls (57% vs. 49%), mostly related to benzodiazepines (19% vs. 11%) and opioids (37% vs. 33%).</p>	<p>Falls assessment should include evaluating high- risk medications, especially in women.</p>	<p>Evidence of medication- related falls occurrence.</p>
<p>Hajek, A., & König, H. (2017). Falls and subjective well- being. Results of the population- based German ageing survey. <i>Archives of Gerontology and Geriatrics, 72</i>, 181-186. doi:10.1016/j.arc hger.2017.06.01 0</p>	<p>VI</p>	<p>Falling in the past 12 months is associated with higher negative affect, lower positive affect, and lower life satisfaction</p>	<p>There is a psychological component to falls in this population.</p>	<p>Evidence of the psychological burden of falling on patients.</p>

<p>Howland, J., Hackman, H., Taylor, A., O'Hara, K., Liu, J., & Bruschi, J. (2018). Older adult fall prevention practices among primary care providers at accountable care organizations: A pilot study. <i>PloS One, 13</i>(10), e0205279. doi:10.1371/journal.pone.0205279</p>	VI	<p>96% of providers felt that all older adults should be assessed for fall risk. 85% believed that this assessment would identify modifiable risk factors. Only 14% of these providers had heard of the STEADI initiative.</p>	<p>Providers feel they should be assessing patients for fall-risk, but do not know how to do it.</p>	<p>Evidence that more providers should be educated on fall-risk assessment and the STEADI initiative.</p>
<p>Ibrahim, A., Singh, D. K. A., & Shahar, S. (2017). 'Timed up and go' test: Age, gender, and cognitive impairment stratified normative values of older adults. <i>PLoS One, 12</i>(10), e0185641. doi:10.1371/journal.pone.0185641</p>	IV	<p>Cognitive status as a mediator, predicted TUG performance even when gender and age were controlled for. (p=.36)</p>	<p>MCI should be taken into account when using TUG to determine falls risk.</p>	<p>The study shows that MCI can affect how patients perform on TUG assessment. However, MCI can increase falls risk, so results will be taken at value for intervention purposes.</p>

<p>Jehu, D. A., Paquet, N., & Lajoie, Y. (2017). Balance and mobility training with or without concurrent cognitive training improves the timed up and go (TUG), TUG cognitive, and TUG manual in healthy older adults: An exploratory study. <i>Aging Clinical and Experimental Research</i>, 29(4), 711-720. doi:10.1007/s40520-016-0618-2</p>	<p>III</p>	<p>TUG displayed respectable test-retest reliability in community-dwelling adults (Intraclass Correlation Coefficient/ICC = 0.97).</p>	<p>TUG is an excellent assessment tool.</p>	<p>Evidence that TUG is a valid and reliable tool for fall assessment</p>
<p>Jia, H., Lubetkin, E. I., DeMichele, K., Stark, D. S., Zack, M. M., & Thompson, W. W. (2019). Prevalence, risk factors, and burden of disease for falls and balance or walking problems among older adults in the U.S. <i>Preventive Medicine</i>, 126, 105737. doi:10.1016/j.yp</p>	<p>IV</p>	<p>Falls are more likely in older persons with physical function impairments, cognitive deficits, depression, geriatric syndromes, and other chronic conditions. Also, a fall is a strong risk factor for another fall</p>	<p>Fall-risk is multi-faceted; therefore, prevention should be as well.</p>	<p>Fall-risk needs to be addressed from many angles, as the STEADI initiative does.</p>

<p>med.2019.05.025</p>				
<p>Johnston, Y. A., Bergen, G., Bauer, M., Parker, E. M., Wentworth, L., McFadden, M., . . . Garnett, M. (2018). Implementation of the stopping elderly accidents, deaths, and injuries initiative in primary care: An outcome evaluation. <i>The Gerontologist</i>, doi:10.1093/geront/gny101</p>	<p>IV</p>	<p>Older adults at risk for falls with a fall plan of care in place were 0.6 times less likely to have a fall-related hospitalization than those without one.</p>	<p>STEADI successfully implemented in primary and reduced falls in the patients.</p>	<p>Valid evidence of successful implementation of STEADI in primary care and reduction in falls-related hospitalizations. Though this was done at a large, multi-site facility.</p>
<p>Landis, S. E., & Galvin, S. L. (2014). Implementation and assessment of a fall screening program in primary care practices. <i>Journal of the American Geriatrics Society</i>, 62(12), 2408-2414.</p>	<p>III</p>	<p>The sites screened 68.8% of older adults for falls and assessed 87% of those who reported falls. Only 23% of these patients had documentation of the appropriate plan of care.</p>	<p>Screening and assessment are important, but a focus should be put on documentation in the plan of care.</p>	<p>Evidence of effective screening and assessment. Also, evidence of the importance of putting documentation in place.</p>

<p>doi:10.1111/jgs.13137</p>				
<p>Lee, S., Dufek, J., Hickman, R., & Schuerman, S. (2016). Influence of procedural factors on the reliability and performance of the timed up-and-go test in older adults. <i>International Journal of Gerontology</i>, 10(1), 37-42. doi:10.1016/j.ijg.2015.10.003</p>	<p>III</p>	<p>The timing method and walking distance may affect TUG test reliability.</p>	<p>Proper technique should be ensured.</p>	<p>Evidence that the method of administering the TUG is important to the effectiveness of the exam.</p>
<p>Lewin, K. (1951). <i>Field theory in social sciences: Selected theoretical papers</i>. D. Cartwright (Ed). New York, NY: Harper & Brothers Publishers.</p>	<p>VIII</p>	<p>Lewin's change theory is described in detail and in various situations as an effective method for change.</p>	<p>Lewin's change theory is effective for implementing change.</p>	<p>Lewin's Change theory will be used as the change theory for this project.</p>

<p>Maxwell, C. A. (2015). Trauma in the geriatric population. <i>Critical Care Nursing Clinics of North America</i>, 27(2), 183-197. doi:10.1016/j.cnc.2015.02.006</p>	VII	<p>The most common traumas in the geriatric population are lower extremity fractures and rib and spine fractures, which both are frequently caused by falls.</p>	<p>Fall prevention can prevent the most common types of geriatric trauma.</p>	<p>Evidence of the need to prevent falls in the elderly.</p>
<p>McFarlan, S., O'Brien, D., & Simmons, E. (2019). Nurse-leader collaborative improvement project: Improving patient experience in the emergency department. <i>Journal of Emergency Nursing</i>, 45(2), 137-143. doi:10.1016/j.jen.2018.11.007</p>	VI	<p>Successful implementation of a rounding protocol using Lewin's Change Theory occurred.</p>	<p>Lewin's change theory is effective for implementing change.</p>	<p>Lewin's Change theory will be used as the change theory for this project.</p>
<p>Meleis, A. I. (Ed) (2010). <i>Transitions theory: Middle range and situation specific theory in nursing research and practice</i>. New York, NY: Springer Publishing Company, LLC.</p>	VIII	<p>Transitions theory and its application are discussed in detail.</p>	<p>This theory is effective in helping providers transition and helps their patients transition.</p>	<p>Meleis' transitions theory will be used as the framework for this project.</p>

<p>Phelan, E., Mahoney, J., Voit, J., & Stevens, J. (2015). Assessment and management of fall risk in primary care settings. <i>Medical Clinics of North America</i>, 99(2), 281-293. doi:10.1016/j.mcna.2014.11.004</p>	VII	<p>Falls care common, but preventable in the older population. Multifactorial falls prevention interventions can decrease falls by about 25%.</p>	<p>Multifactorial fall prevention should be implemented in the older population.</p>	<p>Evidence of primary prevention of falls in primary care.</p>
<p>Pohl, P., Nordin, E., Lundquist, A., Bergström, U., & Lundin-Olsson, L. (2014). Community-dwelling older people with an injurious fall are likely to sustain new injurious falls within 5 years - a prospective long-term follow-up study. <i>BMC Geriatrics</i>, 14(1), 120. doi:10.1186/1471-2318-14-120</p>	IV	<p>During long-term follow-up from hospitalization for falls, 30% of participants had suffered at least one fall. Higher rates of injurious falls were seen if one injurious fall had already occurred (hazard ratio 2.78; 95% CI, 1.40-5.50).</p>	<p>Multifactorial falls prevention in community-dwelling elderly is critical to prevent falls, as one fall is likely to lead to more falls.</p>	<p>Evidence that primary prevention of falls is the best option, but secondary prevention is also very important.</p>
<p>Ponti, M., Bet, P., Oliveira, C. L., & Castro, P. C. (2017). Better than counting seconds: Identifying fallers among healthy elderly</p>	III	<p>TUG has high sensitivity and specificity (Sensitivity = Specificity + 0.83, 95% CI, 0.62-0.91).</p>	<p>TUG is an excellent assessment tool.</p>	<p>Evidence of the validity of TUG as an assessment tool.</p>

<p>using fusion of accelerometer features and dual-task timed up and go. <i>PLoS One</i>, 12(4), e0175559. doi:10.1371/journal.pone.0175559</p>				
<p>Rajagopalan, R., Litvan, I., & Jung, T. (2017). Fall prediction and prevention systems: Recent trends, challenges, and future research directions. <i>Sensors (Basel, Switzerland)</i>, 17(11), 2509. doi:10.3390/s17112509</p>	<p>VII</p>	<p>Current fall prediction and prevention technology have only been tested in laboratories, which does not account for the actual patient experience include physiological, environmental, and behavioral risk factors.</p>	<p>Falls are multifactorial and involve the interaction of many systems.</p>	<p>Evidence of the need for multifactorial falls risk assessment.</p>
<p>Shen, J., Hu, F., Liu, F., & Tong, P. (2015). Functional restriction for the fear of falling in family caregivers. <i>Medicine</i>, 94(27), e1090. doi:10.1097/MD.0000000000001090</p>	<p>VI</p>	<p>After hip fractures, the mean FES-I score of the family was lower than the patient (85.39 vs. 99.02, $p < 0.0001$).</p>	<p>Families had a higher fear of falling than the patient.</p>	<p>Evidence that families are also psychologically burdened by falls.</p>

<p>Shuman, C. J., Montie, M., Hoffman, G. J., Powers, K. E., Doettl, S., Anderson, C. A., & Titler, M. G. (2019). Older adults' perceptions of their fall risk and prevention strategies after transitioning from hospital to home. <i>Journal of Gerontological Nursing</i>, 45(1), 23-30. doi:10.3928/00989134-20190102-04</p>	VI	<p>The participants felt they were low fall-risk, even though that had experienced falls. They related these falls to environmental or medication effects instead of their intrinsic health.</p>	<p>Falls are under-reported. Many patients have altered perceptions of their actual fall-risk.</p>	<p>Evidence that objective data is important to help the patients realize their true fall-risk.</p>
<p>Silva, C., Sousa, F., Lima, J., Pinto, M., Brito, M., & Cruz, I. (2017). Living with an ileostomy: A case study on the transition process. <i>Revista De Enfermagem Referência, IV Série(Nº14)</i>, 111-120. doi:10.12707/RI V17015</p>	VI	<p>Meleis Transitions theory was used to explain the transition patients with new ostomies undergo.</p>	<p>This theory is effective in helping providers transition and helps their patients transition.</p>	<p>Meleis' transitions theory will be used as the framework for this project.</p>
<p>Sparks, T., Kawi, J., Menzel, N. N., & Hartley, K. (2016). Implementation of health information</p>	VI	<p>FibroGuide, an educational application for fibromyalgia education, was implemented using Lewin's change theory.</p>	<p>Lewin's change theory is effective for implementing change.</p>	<p>Lewin's Change theory will be used as the change theory for this project.</p>

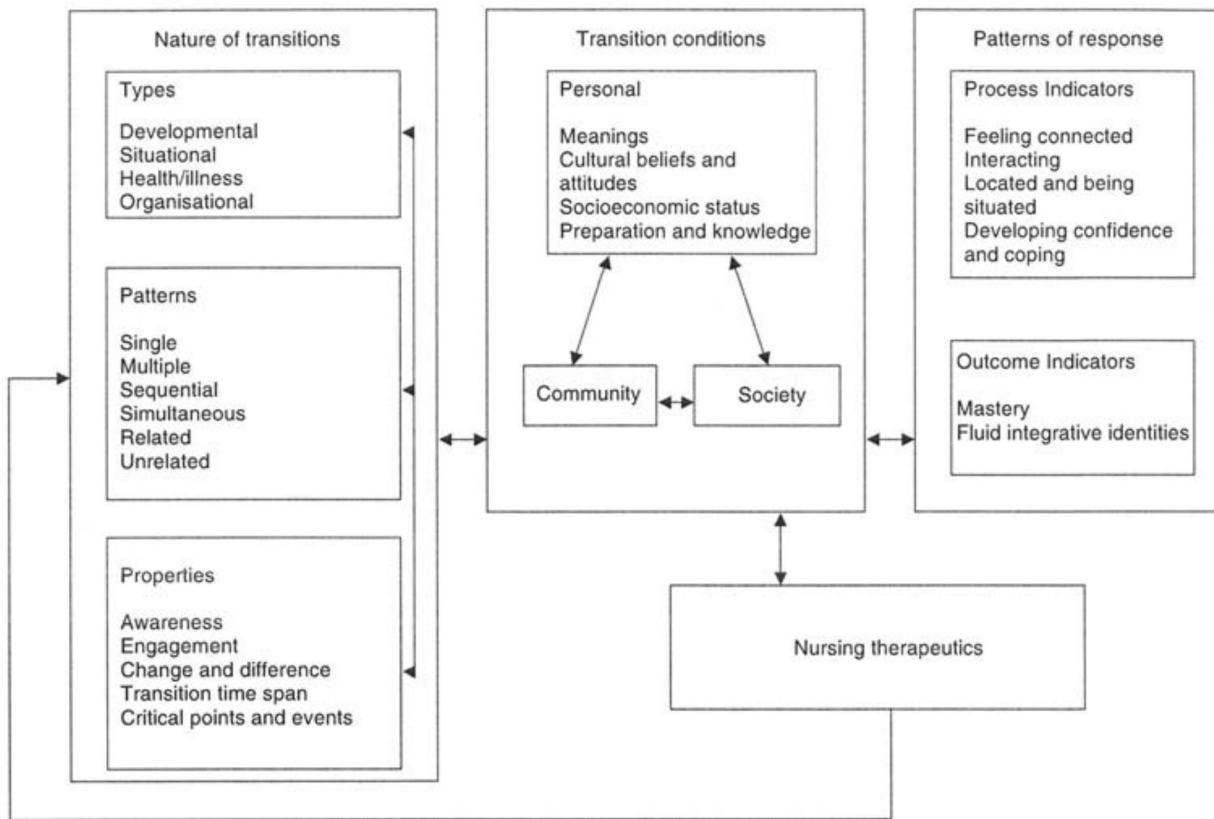
<p>technology in routine care for fibromyalgia: Pilot study. <i>Pain Management Nursing</i>, 17(1), 54-62. doi:10.1016/j.pmn.2015.10.001</p>				
<p>Stevens, J. A., Smith, M. L., Parker, E. M., Jiang, L., & Floyd, F. D. (2017). Implementing a clinically-based fall prevention program. <i>American Journal of Lifestyle Medicine</i>, 1559 82761771608. doi:10.1177/1559827617716085</p>	<p>VI</p>	<p>In the first year of research, 79% of eligible patients were screened for falls, with 18.1% being screened positive. Of the positive patients, 52% were assessed with TUG.</p>	<p>The STEADI initiative can be implemented successfully in primary care.</p>	<p>Valid evidence of successful implementation of STEADI with TUG in primary care. Though this was done at a large, multi-site facility.</p>
<p>Tetef, S. (2017). Successful implementation of new technology using an interdepartmental collaborative approach. <i>Journal of Peri Anesthesia Nursing</i>, 32(3), 225-230. doi:10.1016/j.jopan.2015.05.118</p>	<p>VI</p>	<p>A new Bronchial thermoplasty program was implemented using Lewin's change.</p>	<p>Lewin's change theory is effective for implementing change.</p>	<p>Lewin's Change theory will be used as the change theory for this project.</p>

<p>Tomas-Carus, P., Biehl-Printes, C., Pereira, C., Vieiga, G., Costa, A., & Collado-Mateo, D. (2019). Dual task performance and history of falls in community-dwelling older adults. <i>Experimental Gerontology, 120</i>, 35-39. doi:10.1016/j.exger.2019.02.015</p>	<p>III</p>	<p>Single task TUG did not determine patients as fallers or non-fallers, but dual-task TUG did classify patients as fallers or non-fallers.</p>	<p>Dual-task TUG is more accurate at determining patients at risk for falling.</p>	<p>Evidence of TUG in practice. The STEADI initiative does not use the dual TUG, so this something to consider.</p>
<p>Tornvall, E., Marcusson, J., & Wressel, E. (2016). Health-related quality of life in relation to mobility and fall risk in 85-year-old people: A population study in Sweden. <i>Ageing and Society, 36</i>(9), 1982-1997. doi:10.1017/S0144686X15000896</p>	<p>VI</p>	<p>Lower health-related quality of life is associated with increased time to complete TUG.</p>	<p>Preventing falls and increasing mobility can affect patients' quality of life.</p>	<p>Evidence of the psychological burden of falling on patients and the effects of decreased mobility.</p>
<p>Wojciechowski, E., Pearsall, T., Murphy, P., & French, E. (2016). A case review: Integrating Lewin's theory with lean's system approach</p>	<p>VI</p>	<p>Lewin's change theory was successfully used to implement a new bedside report and compared to the Lean Systems approach.</p>	<p>Lewin's change theory is effective for implementing change.</p>	<p>Lewin's Change theory will be used as the change theory for this project.</p>

<p>for change. <i>Online Journal of Issues in Nursing</i>, 21(2), 1A. doi:10.3912/OJIN.Vol21No02Man04</p>				
<p>Zimba Kalula, S., Ferreira, M., Swingler, G., Badri, M., & Aihie Sayer, A. (2015). Prevalence of falls in an urban community-dwelling older population of cape town, South Africa. <i>The Journal of Nutrition, Health & Aging</i>, 19(10), 1024-1031. doi:10.1007/s12603-015-0664-z</p>	IV	<p>30% to 60% of people > 65 years reported at least one fall during the previous year. For the population 80 years or old, this number averaged 50%.</p>	<p>Falls are a significant problem in the geriatric population</p>	<p>Background of the problem.</p>

Appendix D

Figure 1: Concept map of Meleis Transitions Theory for TUG assessment implementation

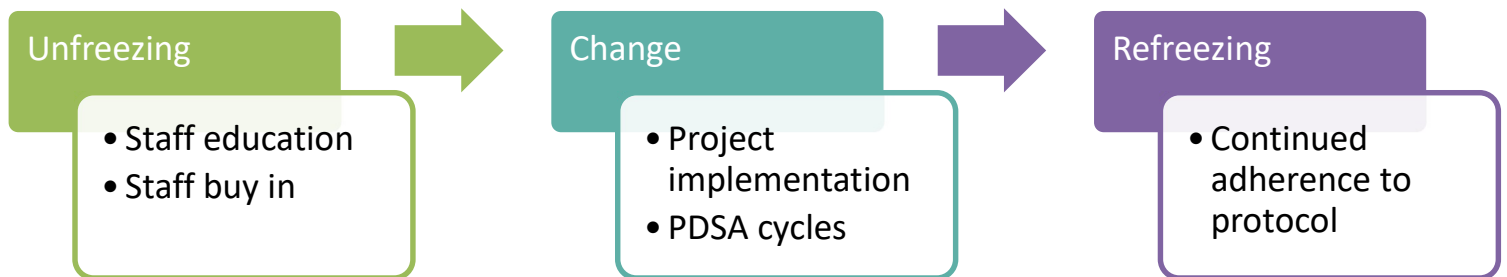


(Meleis, 2010).

Appendix E


Figure 2: Concept map of application of Lewin's Change Theory to TUG assessment

Implementation



Appendix F

Organizational Approval Letter




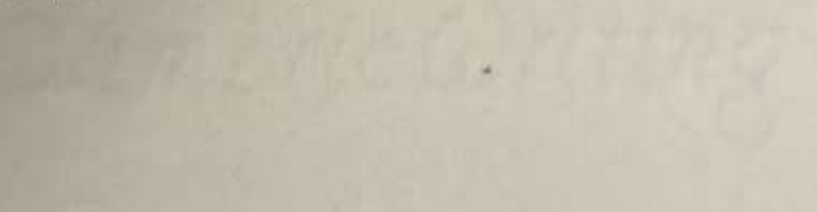
Date: 3/27/2019

To East Carolina University College of Nursing:

We at [REDACTED] have reviewed Megan Sneed's DNP Project Proposal "Timed Get Up and Go implantation to improve Falls Assessments". Ms. Sneed has organizational support and approval to conduct their project within our institution. We understand that the timeframe for this project is from the date of this letter through April 30, 2020. Implementation at the project site will occur August/September through November 30, 2019, unless otherwise negotiated. We understand that for Ms. Sneed to achieve completion of the DNP program, dissemination of the project will be required by the University which will include a public presentation related to the project and a manuscript submission will be encouraged.

Our organization has deemed this project as a quality improvement initiative project. Our organization is aware that this project will be processed first through our organizational IRB and then through the University and Medical Center Internal Review Board of East Carolina University (UMCIRB). Our organization does not have an Internal Review Board (IRB). (In the absence of an organizational IRB, the project will be only submitted to UMCIRB).

Thank you



Appendix G

Budget

Line Item	Unit cost	Quantity	Item Total
TUG assessment handout	\$0.50	50	\$25.00
Falls prevention handout	\$1.00	50	\$50.00
Water for training	\$25.00	1	\$25.00
Cookies for training	\$29.99	1	\$29.99
Travel for training per mile	\$0.55	44.4	\$24.42
Travel for project management and data (8 wks)	\$0.55	355.2	\$195.36
Total			\$349.77

Appendix I

ASSESSMENT

Timed Up & Go (TUG)

Purpose: To assess mobility

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid, if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters, or 10 feet away, on the floor.

① Instruct the patient:

When I say "Go," I want you to:

1. Stand up from the chair.
2. Walk to the line on the floor at your normal pace.
3. Turn.
4. Walk back to the chair at your normal pace.
5. Sit down again.

NOTE:
Always stay by the patient for safety.

② On the word "Go," begin timing.

③ Stop timing after patient sits back down.

④ Record time.

Time in Seconds: _____

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

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steady

Patient _____

Date _____

Time _____ AM PM

OBSERVATIONS

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

Check all that apply:

- Slow tentative pace
- Loss of balance
- Short strides
- Little or no arm swing
- Steadying self on walls
- Shuffling
- En bloc turning
- Not using assistive device properly

These changes may signify neurological problems that require further evaluation.



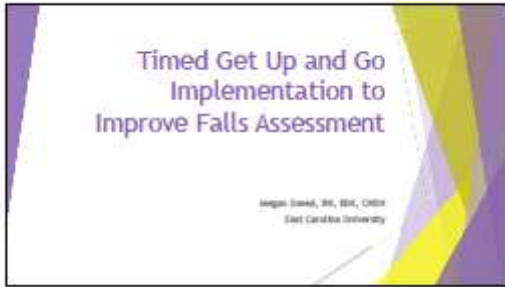
Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

2017

STEADI Stopping Elderly Accidents, Deaths & Injuries

Appendix J

7/16/2019



1



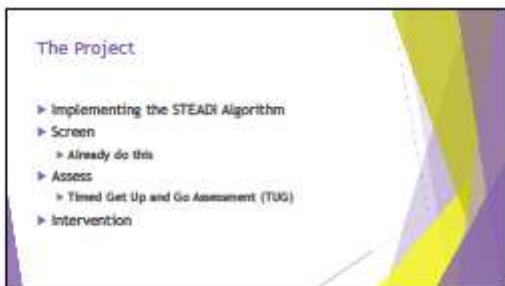
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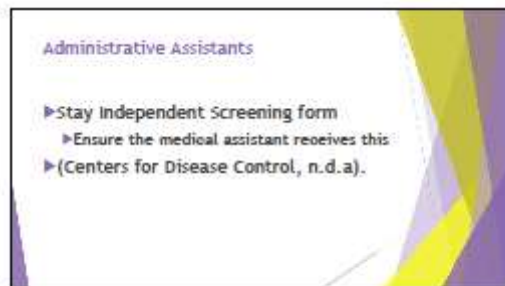
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4



5



6

7/16/2019

Medical Assistants

- ▶ Review Screening form
- ▶ If indicated, perform TUG assessment
- ▶ Document TUG Score in EHR

7

Timed Get Up and Go

- ▶ Patient Stands, Walks 10 ft, Turns, Walks 10 ft, sits back down
- ▶ Timer starts when you say "go"
- ▶ Timer stops when patient sits
- ▶ Score = time to complete task
- ▶ ≥ 12 secs to complete means increased risk for falling
- ▶ (Centers for Disease Control, n.d.b).

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Providers

- ▶ Review the TUG score in EHR
- ▶ If at elevated risk, speak the patient about their fall-risk

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Questions

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References

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Appendix K

Figure 3: First project PDSA cycle.

